

Draft Environmental Impact Statement

Second Sydney Airport Proposal

Volume 2
Appendices



COMMONWEALTH DEPARTMENT OF
TRANSPORT AND REGIONAL
DEVELOPMENT

PPK
Environment & Infrastructure

Erratum

In Appendix D the data sheets for Community Assessment Areas 84 and 85 have been incorrectly labelled. Data in the sheets for Community Assessment Area 84 is actually for Community Assessment Area 85 (Warrimoo, Mt Riverview, Blaxland, Glenbrook, Lapstone, etc). Data in the sheets for Community Assessment Area 85 is actually for Community Assessment Area 84 (Springwood, Winmalee, Hawkesbury Heights, etc).

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**Volume 2
Appendices**



Prepared for:

COMMONWEALTH DEPARTMENT OF
**TRANSPORT AND
REGIONAL DEVELOPMENT**

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Prospect
Reservoir

Wetherill
Park

Eastern Creek

Horsley Park

Mount Vernon

St Clair

Erskine Park

Luddenham Road

Elizabeth Drive

Badgers

Adams Road




The Northern Ro

Luddenham



Approximate



Approximate Boundaries
Option A 
Option B 
Option C 

Photograph 1
Sites of Badgerys Creek Airport Options
(from south-west looking north-east)

Acknowledgments

Data used to develop the figures contained in this document have been obtained and reproduced by permission of the Australian Bureau of Statistics, NSW Department of Land and Water Conservation, NSW National Parks and Wildlife Service (issued 14 January 1997), NSW Department of Urban Affairs and Planning and Sydney Water. The document is predominantly based on 1996 and 1997 data.

To ensure clarity on some of the figures, names of some suburbs have been deleted from inner western, eastern, south-eastern and north-eastern areas of Sydney. On other figures, only 'Primary' and 'Secondary' centres identified by the Department of Urban Affairs and Planning's Metropolitan Strategy, in addition to Camden, Fairfield and Sutherland, have been shown.

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Explanatory and Limitations Statements

This Draft Environmental Impact Statement (Draft EIS) has been prepared in accordance with the scope of work set out in the contract between Rust PPK Pty Ltd and the Commonwealth Department of Transport and Regional Development (DoTRD) and completed by PPK Environment and Infrastructure Pty Ltd (PPK). In preparing this Draft EIS, PPK has relied upon data, surveys, analyses, designs, plans and other information provided by DoTRD and other individuals and organisations, most of which are referenced in this EIS. Except as otherwise stated in this Draft EIS, PPK has not verified the accuracy or completeness of such data, surveys, analyses, designs, plans and other information.

This Draft EIS has been prepared for the exclusive use of DoTRD. PPK will not be liable to any party other than DoTRD and assumes no responsibility for any loss or damage suffered by any other party arising from matters dealt with in this Draft EIS, including, without limitation, matters arising from any negligent act or omission of PPK or for any loss or damage suffered by any other party in reliance upon the matters dealt with and opinions and conclusions expressed in this Draft EIS.

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(Department of the Environment, Sport and Territories, 1997)

Appendix A

Guidelines for an Environmental Impact Statement on the Proposal to Consider the Construction and Operation of a Second Major Airport for Sydney at Badgerys Creek

1. Introduction

1.1 Background

The Commonwealth Department of Transport and Regional Development proposes to consider the construction and operation of a second major international/domestic airport for Sydney at Badgerys Creek on a site large enough for future expansion of the airport if required. The Department is seeking environmental clearance for the construction and operation of an airport with a Master Plan development capable of handling up to about 360 000 aircraft movements and 30 million passenger movements per year. Although environmental clearance is not being sought for the ultimate capacity of the airport, conceptual plans for the airport's ultimate development will be addressed in the environmental assessment process.

About the EIS guidelines

These guidelines are based on the requirements of paragraph 4.1 of the Administrative Procedures under the Commonwealth Environment Protection (Impact of Proposals) Act 1974 (the Act). The Act is administered by the Commonwealth Department of the Environment.

The object of the Act is to ensure that matters affecting the environment to a significant extent are fully examined and taken into account in decisions by the Commonwealth Government. In preparing an EIS to help achieve this objective, the proponent should bear in mind the following aims of the EIS 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 environment which it would affect, the impacts that may occur and the measures to be taken to minimise these impacts;
- to provide a forum for public consultation and informed comment on the proposal; and
- to provide a framework in which decision-makers may consider the environmental aspects of the proposal in parallel with economic, technical and other factors.

In accordance with the principles contained in the Inter-governmental Agreement on the Environment, the Department of the Environment will consult closely with the New South Wales Government to ensure that the views of the State government are fully taken into account in the environmental assessment process.

Development of the EIS Guidelines

A two stage process of public consultation was undertaken to elicit community views on the EIS guidelines. Draft guidelines were initially released in January 1996 for the then proposal to develop Sydney's second major airport at Badgerys Creek. Additional public input to the development of the guidelines was sought in July 1996 following the Government's decision to include in the EIS a full examination of the implications of locating the proposed airport at Holsworthy. All submissions received during the public consultation process were taken into account in preparing revised guidelines which were released in November 1996.

On 3 September 1997 the Government announced that the Holsworthy military area had been eliminated as a potential site for Sydney's second major airport. A new EIS was subsequently directed by the Minister for the Environment on the proposal to develop a major airport at Badgerys Creek. In view of the Government's changes to the proposal, the Department of the Environment has issued these EIS guidelines. The new guidelines are generally consistent with the November 1996 guidelines, although they are specific to an airport development at Badgerys Creek.

An 'issues based' format has been adopted so that the reader can readily identify the full range of matters to be considered in the EIS for each important assessment issue. For each key issue, the guidelines outline the matters to be addressed in the EIS, including a description of existing conditions, an assessment of the construction and operational impacts of the proposed airport, and proposals for mitigating adverse impacts on the community and the environment.

The EIS Process

Key stages in the environmental assessment process for this proposal are outlined below:

- Direction by the Minister for the Environment that an EIS be prepared;
- EIS guidelines are prepared having regard to public comment;
- The Department of Transport and Regional Development prepares the draft EIS;
- Public exhibition of the draft EIS. Written submissions are invited and submitted to the Department of the Environment;
- The Department of Transport and Regional Development responds to public submission comments, and any additional matters as necessary, by the preparation and public release of a Supplement document, or final EIS;
- An environmental assessment report is prepared for the Minister for the Environment by the Department of the Environment taking into account the EIS documentation and public submissions; and
- The Minister for the Environment may make comments, suggestions or recommendations to the Minister for Transport and Regional Development (the Action Minister) on the environmental aspects of the proposal. The Action Minister is required to take into account any such comments, suggestions or recommendations in making a decision on the proposal.

Assessment of Off-Site Airport Related Developments

The EIS will not be the primary process by which environmental impacts arising from off-site infrastructure developments associated with, or supporting, the airport

proposal are environmentally assessed. Rather, specific infrastructure development proposals will be the subject of separate environmental assessment processes under New South Wales legislation.

Nevertheless, the EIS will need to provide sufficient conceptual information so that impacts of the second Sydney airport proposal can be properly understood and their implications assessed. Accordingly, the need for and location of all major on and off-site infrastructure developments, including any new road and rail links, railway stations, road and rail upgrading works, relocation of transmission lines, gas/fuel pipelines, water supply lines and storage, sewerage systems etc, should be identified to the extent possible and a preliminary environmental assessment undertaken. The nature and amount of commercial and industrial development likely to be attracted to the airport sub-region will also need to be considered.

1.2 General Content, Format and Style

The Administrative Procedures under the Environment Protection (Impact of Proposals) Act 1974 provide guidance on the public review and assessment process. Paragraph 4.1 lists the fundamental contents of any EIS (copy at Appendix A). The following guidelines describe in more detail those matters it is considered should be addressed in this EIS.

It is envisaged that the EIS will be based on the results of available research, studies and data as appropriate, with further studies being conducted where necessary and practicable. The extent to which the limitations, if any, of available information may influence the conclusions of the environmental assessment should be discussed.

In these guidelines the terms 'description' and 'discussion' should be taken to include both quantitative and qualitative materials as practicable and meaningful. Similarly, adverse and beneficial effects should be presented in quantitative and/or qualitative terms as appropriate.

The main text of the EIS should be written in a clear, concise style that is easily understood by the general reader. Technical jargon should be avoided wherever possible; however, if technical terms or abbreviations are required to be used they should be clearly defined in a Glossary. Detailed technical information necessary to support the main text should be included as appendices so that the EIS is complete and self-contained. Consideration should be given to the need for a fully cross-referenced Index to assist public understanding and interpretation of the issues covered by the EIS document. The documentation should include references and a list of individuals and organisations consulted. Relevant maps and illustrations should also be included, but the cost of the Draft EIS to the public should be minimised.

While every attempt has been made to ensure that these guidelines address all of the major issues associated with this proposal, they are not necessarily exhaustive and should not be interpreted as excluding from consideration matters deemed to be significant but not incorporated in them or matters (currently unforeseen) that emerge as important or significant from environmental studies or otherwise during the course of preparation of the EIS.

2. Contents of the EIS

2.1 Summary

The EIS must include a concise summary of the matters discussed in the main body of the document, to allow the reader to obtain quickly a clear understanding of the

proposal and its environmental implications. It should be written in non-technical language and include maps and/or aerial photographs/photomontages as appropriate to show the project in the context of its surrounding environment. Consideration should be given to making copies of the summary available separately for public information. The summary should include:

- the title of the proposal;
- name and address of the proponent;
- a brief discussion of the background to, objectives of, and need for the proposal;
- a brief discussion of the alternatives, and reasons for selecting the preferred option;
- a brief description of the proposal;
- a brief description of the existing environment;
- a description of the principal environmental impacts (both adverse and beneficial) on the community and the environment; and
- a statement of the key environmental protection measures, safeguards and monitoring and audit procedures proposed.

2.2 Introduction

The main body of the EIS should be introduced with a clear definition of the objectives of the proposal and place the proposal in context with respect to government strategies and decisions. The EIS should identify the proponent for the purposes of the EIS and discuss the future role of the proponent in implementing and/or regulating the proposal. Specific reference should be made to the Commonwealth Airports Act 1996 and the proposed leasing arrangements for Sydney (Kingsford Smith) Airport (KSA) and the proposed second major Sydney airport.

An explanation of the scope and legislative basis for the EIS should be provided, including the role of the EIS in the government's decision-making process.

The introduction should briefly describe the studies/surveys/consultations that have been conducted in developing the proposal and preparing the EIS, including the development of the EIS guidelines. The level of public involvement in the project planning and environmental assessment process leading to the compilation of the EIS should be described. Identify the concerns and the nature of objections raised in public response. Results of studies and detailed comments resulting from the consultation should be included as appendices.

The structure of the document should be briefly explained.

2.3 Background

The Draft EIS should discuss the background to the proposal, covering, for example, the following points:

- the history of the site selection process, including the 1985 site selection EIS;
- land acquisition at Badgerys Creek (including property outside the airport site) and planning and works undertaken to date both on-site and off-site;

- Government decisions which may influence or dictate aspects of the operation of the airport or place time constraints on the proposed action, with reference to the Government's airport leasing program and its implications for the operation or possible functions of Sydney's second major airport;
- the relationship between the proposed airport and the other components of the Commonwealth Government's strategy to meet Sydney's airport needs; and
- planning considerations affecting the Badgerys Creek site, with reference to the work of Commonwealth and State agencies involved in the planning and development of the proposed airport and its surrounding areas.

2.4 Project Justification and Need

The EIS should address the specific objectives and justification for the proposal. The rationale for developing a second major airport for Sydney should be referenced to the principles of ecologically sustainable development. Issues to be addressed include:

- the specific objectives the proposal is intended to meet;
- the growth in demand for air services in the Sydney region, including forecasts of future passenger and aircraft movements, including the basis for the projections and having regard to different air service categories (eg international, domestic, commuter and general aviation);
- capacity of KSA to meet future passenger and aircraft demands, including discussion of aircraft delay implications at KSA should further capacity not be provided in the Sydney region, KSA peak hour congestion, introduction of new generation large capacity aircraft, implementation of demand management schemes and the cap on hourly aircraft movements at KSA;
- discussion of the basis of demand forecasts for the proposed airport, including factors which could significantly affect their reliability (eg possible traffic management measures to be adopted by the lessee of Kingsford-Smith Airport and the proposed airport, including airline and airport charging schemes at the two airports, the willingness of airlines to use the new facility with reference to current and future airline leasing arrangements at KSA and the new airport, new airline entrants etc);
- discussion of the consequences for Sydney, New South Wales and Australia as a whole of not meeting forecast demand through the provision of a second major Sydney airport at Badgerys Creek, including the role of other capital city and regional airports; and
- role of the airport in increasing demand for and viability of rail links to new urban areas.

2.5 Options and Alternatives

It is intended that the EIS will address fully the environmental implications of constructing and operating a major airport at Badgerys Creek. Alternative site locations for Sydney's second major airport will not be addressed in detail by this environmental assessment process, having been the subject of a separate 'site selection' EIS in 1985 and subsequent Government decisions. The exception is the Holsworthy site for which information should be provided on the Government's reasons for abandoning this alternative.

The alternative of not proceeding with the development of a second major airport for Sydney should be discussed in the EIS. Alternatives should be discussed in sufficient detail to make clear the reasons for preferring certain options and rejecting others. The choice of the preferred option(s) should be explained having regard to social, environmental and economic factors, including a comparison of the adverse and beneficial effects (direct and indirect) used as the basis for selection.

The matters listed below should be addressed in the most appropriate/relevant section of the EIS having regard to the particular issue under consideration.

The alternatives to be examined and discussed should include:

- not proceeding with the proposed development (ie the do-nothing option):
 - with no change to the current arrangements for managing Sydney's airport capacity needs;
 - with improved traffic management and other measures to enhance runway capacity at KSA, including demand management alternatives for meeting Sydney's air traffic growth demands (eg pricing schemes, active traffic management, slot control mechanisms etc);
 - with expanded use of other existing airports in the Sydney region;
 - with demand catered for by other possible transport modes, for example a fast rail development linked with greater use of Melbourne and/or Canberra airports;
- airport systems alternatives, with reference to the operational experience of other multi-airport systems, including:
 - development of an airport to cater for light aircraft or general aviation operations (with possible diversion of these types of aircraft from KSA to the new airport);
 - development of a secondary airport to cater for overflow from KSA including domestic and international passenger and freight services;
 - as above but catering for all freight services;
 - development of an airport to cater for all international services to and from Sydney and some domestic traffic;
 - development of an airport to cater for all Sydney's international, domestic and regional traffic, with the long term possibility of closing KSA;
- the scale and staging of on-site development, taking account of the potential air traffic growth in the Sydney basin and the future role of KSA;
- airport layout options, including the arrangement of on-site infrastructure and the optimisation of runway locations, spacing and alignment so as to minimise environmental impact, in particular the numbers of residences affected by aircraft noise;
- alternative flight path arrangements, including operating altitudes and direction, and airspace arrangements (address scope to spread flight paths given other airspace requirements);
- alternative operating modes (eg preferred departure and arrival modes and alternatives for both day and night operations);

- operation of the airport with or without a night curfew;
- land use and infrastructure planning options for areas surrounding the airport which may support ancillary service industries or be noise affected, including residential development options impacted by an airport proposal; and
- alternative construction methods.

2.6 Description of the Proposal

The EIS should identify the intended role of the airport and how aircraft operations will be coordinated with existing airports in the Sydney region.

All components of the proposal (eg location of the runway(s) and all related facilities, details of how the airport will operate) should be described from initial operation to the probable ultimate development. Relevant factors determining the layout of the airport, including the location and alignment of runways, should also be detailed. Functional and administrative roles and responsibilities of the various organisations involved in implementing the proposal should be defined. Underlying assumptions and forecast reliability should be discussed.

For the Master Plan development (ie a runway configuration capable of handling 360 000 aircraft movements and 30 million passenger movements), the matters which need to be addressed are detailed below.

- Airport infrastructure

Description of the infrastructure requirements for the proposal including:

- the provision of maps/aerial photographs showing the airport site in its regional context, identify land acquired, or proposed to be acquired/reserved, for airport purposes, any building demolition/relocation;
- location, form and physical dimensions of airport infrastructure including runways, taxiways, aprons and areas of hard standing, passenger terminals and freight handling facilities, other buildings, air navigation aids (including off-site structures), air traffic control facilities and other communications services, engine testing and aircraft maintenance facilities, "footprints" for potential railway stations and rail alignments, surface runoff containment and treatment facilities, fencing, security facilities, roads and car parking, water and power supply, sewage and other waste treatment and disposal facilities, fire fighting services, fuel storage facilities and fuel spill containment etc;
- off-site infrastructure requirements and community developments required to support the operation of the airport including improvements to surface access (road and rail), other utilities/services, industrial and commercial development linked to the airport.

- Airport construction

Description of the construction works required, including:

- timing and phasing of construction works;
- identify the nature of site works, size of the construction workforce and hours of construction work;

- description of earthworks, types, total quantities and availability of major construction materials;
 - the process of extraction and transport of construction materials from off-site sources (specify sources of supply, quantities and types of materials, proposed haulage routes, times of day haulage will occur), temporary traffic arrangements, concrete batching and gravel processing facilities, visual screens;
 - extent of earthmoving, building demolition/relocation, vegetation clearance and other site preparatory works, treatment of contaminated sites;
 - construction standards, techniques and site management arrangements, including for on-site storage and handling of construction and other (eg fuel, oil) materials and rehandling basins, and describe any measures to conserve energy through efficient construction techniques and the use of recycled materials;
 - water requirements for construction, consideration of alternative sources, water and waste water reuse;
 - possible arrangements for disposal of construction wastes during and following construction;
 - description of landscaping and site rehabilitation, including any concept plans and artistic impressions, landscape treatment types (eg landscape plantings for visual screening or enhancement, or for sedimentation and erosion control).
- Airport operations

Description of the proposed operation of the airport (where accurate traffic forecasts are not considered possible, various feasible traffic scenarios, including ultimate airport capacity, should be discussed along with their likely environmental effects) including:

- proposed date for the commencement of operations;
- arrangements for administration and control of facilities and operations;
- intended utilisation of the airport:
 - identify preferred operating modes for the airport (for both day and night);
 - flight frequency on each runway, including expected number and percentage of aircraft movements by type, typical annual and daily movements
 - diurnal 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;
 - possible legislative/regulatory enforcement of operating procedures (eg for noise abatement purposes);
 - description of the potential effects and likely timing of implementation of new technology and changes to operational standards and procedures for runway 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, describe holding patterns;
 - aircraft operating heights for approaches and departures, discuss variability of aircraft heights for given locations;
 - the coordination of air space requirements for aircraft approaching and departing from the airport, with reference to other aerodromes in the region and implications for, or conflicts with, their operations eg Richmond Airforce base, Hoxton Park, Bankstown, Camden, Sydney (Kingsford Smith) Airport, etc
- discuss how a second major airport may affect utilisation of KSA (eg any possible reduction in flexibility of aircraft management at KSA through restrictions on certain flight path options) and possible air traffic diversions to a second airport from KSA under adverse weather conditions.

- Ultimate airport development

Conceptual plans and options for the potential longer term development, including possible ultimate development, of the airport should be provided including, as far as is practicable:

- additional site acquisition and earthwork requirements beyond those envisaged for the proposed Master Plan development;
- possible runway alignments; and
- scenarios for operation of the airport.

2.7 Environmental Issues and Impacts

The study area, that is, the area potentially affected either directly or indirectly by the proposal, should be clearly defined for each environmental assessment issue. A description of the existing and anticipated future environments within the study area is required to serve as a baseline against which the impact of the proposal and alternatives can be assessed. The extent of the discussion and description should be guided by the general principles set out in Section A.2 above.

It is intended that the EIS address fully the environmental impacts associated with the construction and operation of a major airport at Badgerys Creek. The impacts of the operation of the airport should be described, as far as is practicable, from initial operation to ultimate development. The EIS should assess the predicted incremental effects of the proposal and to the extent appropriate, alternatives. The discussion should cover effects on the natural and socio-economic environment in the study area, at a local, regional, State and national level as appropriate.

Direct and indirect, short-term and long-term, temporary and irreversible, adverse and beneficial effects should be described and, where possible, quantified. The reliability and validity of forecasts and predictions, confidence limits and margins of error should be indicated as appropriate. Underlying data and assumptions should be accessible and identified. Wherever possible, the most up-to-date demographic data available should be utilised for assessment purposes.

The EIS should assess the proposal having regard to the principles contained in relevant Government strategies including the National Strategy for Ecologically

Sustainable Development, the National Greenhouse Response Strategy and the National Water Quality Management Strategy.

Interactions between impacts on biophysical and socio-economic environments, individually and collectively should be covered. As far as practicable, the groups (communities or organisations) affected by these impacts or those expressing particular concerns should be identified and the adverse and beneficial effects on each group described. The following sections illustrate the types of impacts that need to be considered.

- **Airport noise**

The EIS should assess noise and vibration impacts arising from airport construction and operations. Aircraft noise predictions should be provided for a number of likely scenarios including seasonal predictions and predictions based on the predominant operating modes under prevailing meteorological conditions. Different levels of airport usage, alternative runway alignments and flight paths should be considered. Equity aspects should be addressed and the assessment should take into consideration that populations newly exposed to aircraft noise may react differently to those previously exposed.

In addition to expressing noise impact in terms of average measures, the EIS should include information about peak noise levels, frequency of overflights, and the times of 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.

An effective plan to convey information on noise impacts to the community should be formulated and implemented as a priority.

Issues relating to existing ambient noise levels and characteristics should be discussed and noise sensitive facilities identified:

- 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 exposure and any recent changes to levels of exposure;
- existing, developing and potential or proposed areas of residential development which may be exposed to aircraft noise; and
- community facilities which may be noise sensitive (eg health, aged, disabled and child care centres, places of worship, educational and recreation facilities):
 - indicate the location of the facilities using maps and other suitable means;
 - where possible, indicate the number of people potentially exposed at each facility.

For the construction stage of the project, describe noise and vibration levels from machinery, equipment and blasting. Describe possible mitigation measures to control noise and vibration impacts on surrounding communities.

For the operational phase of the proposal:

- quantify and describe the level and distribution of aircraft noise in the study area using recognised techniques including the Australian Noise

Exposure Forecast (ANEF) system and other noise indices. In line with the recommendations of the Senate Select Committee on Aircraft Noise in Sydney, the EIS should describe noise impacts in areas potentially affected by aircraft operations outside the 20 ANEC, or Australian Noise Exposure Concept, zone. The ANEC data, which describe noise exposure for hypothetical operational scenarios, should be supplemented with other information on aircraft noise to enable local communities to better understand the impact of airport operations.

Issues to be addressed include:

- the validity, reliability and usefulness of the ANEF system and any other indices used in the EIS with reference to their application to a new airport development in western Sydney, taking into account current day awareness of aircraft noise and sensitivity to it, and the existence of populations which will be newly affected by aircraft noise;
- additional noise indices should include, but not necessarily be limited to, the following:
 - maximum dB(A) - provide noise exposure forecasts for representative aircraft types using the airport and assess the impact of variations in flight paths on maximum dB(A), and discuss the effects of varying aircraft operating procedures (eg use of flaps or full engine thrust for landings) on the noise exposure levels;
 - Leq (equivalent continuous noise levels) for both the day and night;
 - L10 - the sound level exceeded for 10% of a survey period (an indicator which reflects the number and duration of noisier events);
 - NA (X) - number of noise events per unit time above X dB(A) for representative values of X;
 - TA (X) - dwell time in minutes above X dB(A), per hour or day for representative values of X;
- provide contour maps for predicted noise levels having regard to variations due to seasonal and meteorological factors;
- estimate the number of people, houses, schools, hospitals, community facilities and other land use types in each contour;
- describe the likelihood of noise induced vibrations;
- discuss modifying effects on ground noise exposure levels, including topography, weather (eg temperature inversions), masking, deviation from standard instrument departure routes;
 - discussion of any expected trends in the noise environment due to fleet replacement, compliance with government requirements to phase out the use of noisier jet aircraft, and/or technological changes to aircraft;
 - assessment of impacts on existing, developing and potential or proposed areas of residential development;

- assessment of aircraft noise impact on educational and health facilities, including effects on student communication, concentration and learning abilities;
 - discuss 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
 - discuss 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;
 - discuss aircraft noise impacts on existing or proposed recreational, conservation, heritage or wilderness areas, including impacts on amenity;
 - assess noise associated with ground running of aircraft, and other noise associated with aircraft operations and maintenance testing not included in ANEC calculations;
 - assess noise impacts from surface traffic (road and rail) in maximum dB(A) for both the day and night;
 - discuss and assess the effectiveness of proposed airport noise abatement procedures and other ameliorative measures for both air traffic and surface traffic including source control, land use controls and building controls;
 - describe 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;
 - estimate the costs, effectiveness and feasibility of insulating houses and other buildings affected by aircraft noise and discuss current government policy regarding the acquisition and insulation of buildings affected by aircraft noise, costs should be included in overall economic evaluation;
 - discuss the impact on residential and other property values due to aircraft operations; and
 - describe the proposed noise monitoring program.
- Air quality

Analyse and describe the contribution and impacts of the proposed airport development on air quality, at the local, regional and Sydney basin scale, having regard to the results of the Sydney Metropolitan Air Quality Study (MAQS). Existing air quality characteristics of the airport sub-region should be identified including:

- a description of the site's relationship to Sydney's air drainage basin and of diurnal and seasonal variations in air pollution levels and the

influence of short term weather phenomena. Reference should 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.

For the construction stage of the proposal identify the potential for dust fall-out, examine dust impacts and any mitigation measures to control dust generation.

Specific air quality issues to be considered and assessed for the operational stage 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;
- 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, including airport-induced vehicle traffic and airport related commercial/industrial development;
- 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;
- effect of the increase in ozone-producing compounds on areas downwind of the development and on the Sydney airshed in general;
- 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 fuel dumping;
- potential impact on the fabric of buildings;
- changes to odour arising from aviation fuel emissions and possible sewage treatment, including procedures for recording nuisance caused by ambient odours;
- estimate "greenhouse" gas emissions, including design and procedural measures to reduce such emissions;
- discuss possible management measures for all significant emission sources, including those for aircraft operations, aircraft fuelling systems and fuel storage, ground transport, power generating units and auxiliary power units; and
- provide details on the proposed air quality monitoring program.

- Airport hazards and risk

A quantitative risk assessment should be undertaken to assess the impacts on individual and societal risk levels, including:

- probability analysis of aircraft accidents with reference to aircraft incidents within Australia and, to the extent relevant, world-wide;
- consequences of aircraft accidents (including crashes on the airport, crashes in residential areas, crashes in industrial areas, crashes with other aircraft, crashes into water storage reservoirs, aircraft fuel spills);
- the effect of flight paths and frequency of aircraft movements on the risk of accidents involving residential and industrial areas, including the management of aircraft utilising the proposed airport, KSA and other regional airports;
- risk to aircraft operations from natural hazards such as bird and bat strikes (identify quarry or rubbish dump sites in the vicinity of the proposed airport which may attract birds) and severe weather phenomena.

Additional issues to be discussed include:

- the effect of changes in the perception of risk on the health of people (eg fear of low flying aircraft);
- risks associated with the supply of fuel to the airport via pipeline(s) or road transport and of fuel storage on the airport site (detail possible storage locations and capacities);
- security issues including fires and explosions resulting from terrorist action;
- describe any contaminated sites and their history, including the type and extent of contamination, identify migration pathways and discuss proposals for the management/treatment/removal of contaminated soils;
- identification of types of dangerous goods to be used both during the construction and during operational stages, procedures to minimise adverse environmental impacts;
- assess fire risks, including bushfire risk, and discuss fire control and management proposals;
- development and implementation of emergency plans and the identification and provision of emergency services and resources both on-site and off-site; and
- measures to reduce the risk of hazardous incidents affecting the public and environment.

- Health impacts

This section should discuss human health impacts arising from the proposal, with reference to the findings of key EIS assessments including those relating to noise, air quality, hazards and risk, cumulative impacts, water quality, waste management and social/community issues. Consideration should be given to the demographic characteristics of the airport sub-region and the prevalence of existing medical conditions. Specific guidelines addressing impacts on human health are contained under the relevant issue headings.

- Land transport

In assessing land transport impacts, account should be taken of relevant studies into road and rail alignment options by the Commonwealth and/or State Government. Consideration should also be given to the compatibility of surface access options with State Government transport and planning principles for the western Sydney sub-region.

The EIS should describe existing local and arterial road networks, including:

- existing traffic volumes and congestion, traffic growth rates, traffic flow and capacity, including access to Parramatta, Liverpool, Penrith, the CBD and Sydney (Kingsford Smith) Airport and other appropriate commercial/services centres or transport nodes; and
- public transport (rail and road) availability and levels of usage in the region.

For the construction stage of the proposal describe the transport of materials including an estimation of the number of truck movements to and from the site and identify possible truck routes.

For the operational stage, the effects of changes in demand for surface access (road and rail) should be discussed, including an assessment of:

- changes in traffic volumes on local and arterial road networks and identify strategies for managing increased demand and peak generating periods, including the need for the upgrading and/or realignment of local and arterial roads and intersections to meet capacity requirements;
- access to Sydney's CBD, Parramatta, Penrith, Liverpool and Sydney (Kingsford Smith) Airport and other important origins/destinations for airport traffic with and without road improvements;
- characteristics of traffic generated by airport activities, including passenger traffic, employee traffic, service vehicle traffic etc, profiles of origins/destinations for each category;
- traffic generated by airport related activities, eg industrial and commercial activities, including freight handling centres etc;
- identify local service roads required to be constructed to accommodate access to and from the airport to the existing road network;
- rail access requirements, including the need to upgrade rail links or build new spur lines/railway stations;
- changes in the demand for public transport services in the region and strategies to address any changes; and
- access provisions for emergency service vehicles.

- Land use and planning

Discuss any relevant State Government statutory planning information including compatibility of the airport development with strategic planning documents such as Cities for the 21st Century, and regional and local environmental planning instruments.

Additional background information on land use and planning issues should include:

- existing and proposed land uses including government land, residential, commercial, industrial, tourist/recreational, open space, parks and reserves, environment protection, agricultural, water resources, infrastructure corridors, rural, mining, and town planning or zoning considerations;
- other physical infrastructure that could be affected by airport construction or operations, identify any easements, pipelines, electricity transmission lines, cables, etc that may be affected by the proposal (eg implications of relocation of major electricity transmission lines); and
- discuss the studies, findings and recommendations of the Commonwealth/State 'Task Force on Planning for the Sub-Region Surrounding Sydney West Airport' and the land use controls applying to the declared Sydney West Airport Growth Centre.

Assess the effects on surrounding land uses and zonings in the short and long term, including :

- impacts on land use and development during the construction and operational stages, including impacts on residential areas (eg limitations which aircraft noise may impose on settlement patterns, with reference to Airservices Australia land use compatibility advice and Australian Standard 2021), areas set aside for conservation, tourism and recreation, and impacts on commercial, industrial, mining, and extractive industries or agricultural land uses;
 - restrictions on land use due to obstacle limitations surface requirements;
 - describe the types of activities and services which may be expected to locate close to the airport and assess the effects of these airport related activities
 - assess the likely demand for, and likely extent of, land required for airport related activities and ancillary services (eg commercial, light industrial, retail, office and tourist) and discuss the availability and compatibility of land in terms of the nature of those activities and services and other existing or proposed land uses;
 - possible development of non-airport commercial activities within the site boundary and legislative/regulatory controls over such activities;
 - provision of infrastructure to support airport development and operations, identify any requirements for additional easements, pipelines, etc and outline opportunities for shared use of utilities; and
 - proposed measures to mitigate impacts.
- Social/community issues

Community impact issues arising from the proposal should be addressed, including:

- a description of the key demographic characteristics of the Badgerys Creek region, including demographic trends;
- impacts of airport construction on local communities including noise, traffic, air quality, amenity, demands on local services;

- impacts of airport operations on local communities including impacts on demographic characteristics due to redevelopment or changes in land values;
 - property acquisition requirements and processes, including Commonwealth acquisition and compensation policies;
 - indicate length of residence in the area around the airport site, mobility, satisfaction with the neighbourhood as a place to live;
 - identify impacts which may cause substantial change or disruption to the community in terms of loss of amenity, changes to lifestyle and everyday activities, community severance, access to community facilities, loss of community identity;
 - impacts on potential Native Title claimants; and
 - impacts on radio and television reception.
- Ground and surface water

Examine the existing drainage systems and assess the impact of airport construction and operations on these systems, water flows and water quality, including:

Water quality

- describe the existing quality of natural waterbodies and wetlands;
- identify potential sources of water pollution;
- assess the changes to water quality and aquatic systems, including effects of accidental oil or fuel spills, and waste water and stormwater discharges
- discuss compliance with water quality objectives with reference to relevant standards and guidelines;
- assess the potential for long-term soil erosion and increased water turbidity, and assess possible impacts of increased siltation on downstream fishing industries;
- effects of sewage effluent disposal, provide details of any proposed effluent disposal plant, options for reuse (eg on-site spray irrigation);
- effects of aircraft emissions on Sydney's water supply reservoirs and their associated catchment areas;
- potential human health effects of changes to the quality of water in roof runoff tanks and water catchments;
- outline measures to mitigate impacts on water quality; and
- discuss water quality monitoring and reporting proposals;

Hydrology

- existing flood status with reference to relevant planning considerations;
- assess the potential for increased runoff from hard standing and roads and the potential for increased flooding (both upstream and downstream) in channels draining the airport site;

- permanent changes to natural drainage patterns, flow volumes, in-stream flow velocities, creek stability; and;
- discuss strategies for managing stormwater runoff, including the means and effectiveness of flood mitigation measures (eg through the construction of stormwater detention basins) and proposals to maximise the potential reuse of stormwater and waste water on-site; and
- outline monitoring proposals;

Groundwater

- describe existing groundwater systems, including direction of flow, water quality and depth to watertable;
- effects of potential changes to groundwater levels, quality and quantity;
- dewatering proposals, disposal of water and effects on surface stability;
- possible measures to prevent groundwater contamination and changes in watertable levels and recharge volumes; and
- proposals for monitoring groundwater levels and water quality.

• Flora and fauna

The EIS should identify and describe aspects of the existing biological environment potentially affected by the airport proposal and assess the likely consequences for biodiversity and ecological integrity. Matters to be considered include:

- identify the major habitats, communities and animal/plant species within them, including aquatic ecosystems, the presence of introduced species and noxious weeds;
- assess ecological relationships and significance, including the conservation status of species or associations which may be disturbed by the proposal within local, regional and national contexts;
- identify other sensitive environments or areas of special significance adjacent to or potentially affected by the proposal, including relationships with nearby areas of bushland (including potential wildlife corridors);
- identify any species listed under the Commonwealth Endangered Species Protection Act 1992 or the NSW Threatened Species Conservation Act 1995, and international agreements, treaties or conventions;
- determine the extent of native vegetation disturbance both on the airport site and outside the development site (to achieve obstacle limitation surface requirements), identify the relative proportion of various species to be removed and effects on native fauna, especially rare or endangered species or significant habitats;
- spread or introduction of weeds, including strategies to control such impacts;
- long term effects of disturbance, fragmentation or isolation of species/ecological communities/habitats/wildlife corridors on the viability of species and ecosystems;

- effects of the proposal on any threatened species listed under relevant Commonwealth or NSW legislation;
 - describe the sensitivity of species or communities to be disturbed by the proposal;
 - potential effects of fire (wildfires and control burns) both on-site and in adjoining areas;
 - consider issues identified in relevant State environmental planning policies including SEPP 46 (Protection and Management of Native Vegetation) and SEPP 19 (Urban Bushland);
 - identify mitigation measures to protect endemic species (eg provision of buffer zones, compensatory habitats, fences, etc, the management of seed stock in top soil) and discuss their likely effectiveness; and
 - monitoring proposals covering the construction and operational stages of the airport development.
- Archaeology and heritage

A comprehensive archaeological survey should be undertaken of the Badgerys Creek site. Survey methodologies should be discussed, and heritage and archaeological sites or relics potentially affected by the proposal (Aboriginal and non-Aboriginal) identified and assessed for their significance.

Reference material, registers or databases used to gather information on heritage sites should be acknowledged and any consultations with Aboriginal groups or individuals, historical societies, local councils, the National Trust and Commonwealth and State agencies described. Any current or potential land claims under Commonwealth or State legislation should be identified.

Impact issues to be assessed include:

- impacts of construction and operations on sites or relics of Aboriginal or European archaeological or cultural significance;
- effects of the proposal on heritage and National Estate values;
- discuss any approvals required prior to the disturbance or removal of heritage sites or items;
- proposed measures to mitigate impacts or to conserve the heritage significance of identified sites or items.

- Geology and soils

Issues to be addressed in the EIS include:

- existing geology, geomorphology, seismic stability, and description of soil types and characteristics, including erosion potential and chemical properties;
- known commercial rock or mineral deposits;
- important landform and topographic features;
- discuss proposals to introduce fill material during construction, identifying types and volumes (including any recycled materials) and management measures to exclude the importation of contaminated fill; and
- outline soil erosion control measures and monitoring programs.

- Landscape and visual issues

The EIS should describe the existing landscape/visual environment and discuss changes to scenic amenity and landscape values. Issues to be addressed include:

- visual quality of the area including unique visual aspects, scenic amenity of natural or rural areas, extent of existing visual degradation;
- visual sensitivity of the area;
- visual and aesthetic impacts of the airport development, including
- the impact of lighting of runways, terminals and other buildings on residential areas;
- the viewing catchment, including visibility from adjoining properties, residential areas, recreational areas and other vantage points; and
- proposals for mitigating the visual impact of the airport proposal including landscaping and revegetation measures.

- Waste minimisation and management

Project design, construction and implementation should incorporate waste minimisation and management principles. These principles should be articulated in the EIS together with strategies for their application. Issues relevant to this section include:

- disposal of surplus fill and demolition material, including types and volumes involved, disposal sites, reuse opportunities;
- recycling opportunities for cleared vegetation and other materials used in, or by-products of, construction;
- management of solid and liquid wastes generated by airport operations, including wastes from airline operations and maintenance, quarantine wastes, wastes from passenger terminals, on-site commercial or industrial service industries; and
- sewage management options including an assessment of possible impacts arising from on-site treatment.

- Cumulative impacts

As outlined in the Introduction section of these guidelines, the EIS will need to provide sufficient conceptual information including a preliminary environmental assessment so that the cumulative impacts of the second Sydney airport proposal can be identified. Issues to be considered include:

- cumulative impacts of the airport development and major support infrastructure including new road and rail links and major utility services;
- likely influence of the proposal to attract other developments/airport-related industries, including any impacts (adverse or beneficial) associated with additional developments which otherwise would not have occurred;
- cumulative impacts on the Sydney metropolitan area (including the community around Sydney (Kingsford Smith) Airport) in terms of net changes to noise, risk and air quality. Identify how Sydney's two major airports could operate together to minimise the impact of aircraft noise on the Sydney community;

- cumulative impacts on the biodiversity of the site and region, with reference to Hawkesbury Nepean River catchment;
- consistency with Local and Regional Environment Plans and other planning instruments;
- whether the proposal would prevent, inhibit or improve the development of other forms of transport now or in the future or affect the viability of other transport modes.

- Economic analysis

An economic analysis should be undertaken to establish the net economic effect of carrying out the proposal to the broad community relative to alternatives (including the do nothing option). Economic effects should be considered at the local, regional and state levels and should cover construction and operation impacts. All relevant costs and benefits should be included in the analysis together with the basis for their estimation. Where possible for infrastructure developments (including airport construction), indicate whether, and to what extent, Government or private sector funding will apply. Issues to be included in the analysis are:

- existing socio-economic characteristics including employment levels and characteristics of the labour force;
- existing primary, secondary and service industries in the study area;
- future expected social and economic characteristics without the airport development;
- impacts of airport construction and operations on local communities including effects on employment structures and trends, and the local and regional economy (through on-site and ancillary services activity), displacement of existing economic activity;
- project development costs for each site should be detailed, including airport construction works, site remediation, property acquisitions, earthworks, utilities, design and engineering, landscaping and costs of mitigating environmental impacts;
- provision of road and rail access to the airport site;
- relocation of existing infrastructure and of infrastructure development or augmentation to serve the airport including economic development benefits for the airport subregion and economies of scale for infrastructure provision;
- multiplier effects of airport activity both on and off site;
- effect of the proposal on property and changes to the rates base;
- acquisition or insulation of houses and other buildings affected by aircraft noise, means of funding any such scheme (eg user/polluter pays);
- full or partial closure of other regional aerodromes;
- impact on agricultural productivity;
- potential sterilisation of mineral resources.

2.8 Environmental Safeguards Monitoring Proposals and Environmental Management Plans

This section should describe measures proposed to mitigate the adverse impacts associated with the proposed airport development and, where appropriate, alternatives, and should draw together all relevant information mentioned in the text together with a clear statement of specific mitigation proposals which the proponent will develop. Any actions required by others to enable the proponent to implement these proposed measures should be identified. A list of proposed measures should be contained in a separate chapter of the EIS or, alternatively, individual measures should be comprehensively indexed for easy reference or presented as a matrix of environmental management proposals. Opportunities to improve existing environmental qualities within the impacted environment should be explored and described.

The overall management philosophy to be applied to the airport should be enunciated and a clear analysis provided of the likely effectiveness and secondary effects of all safeguards and monitoring programs to be implemented. Where practicable, and relevant to the comparison of alternatives, the costs of mitigation measures and monitoring programs should be estimated.

An accepted practice for the future management of predicted environmental impacts is to implement an environmental management plan (EMP) which can be regularly reviewed in the light of operational experience. It is considered that for a project of this scale, EMPs will need to be prepared for both the construction and operational stages of the proposal. EMPs are necessarily detailed and technical in nature and the level of information and specification for all environmental safeguards is usually beyond the scope of the EIS. They are generally better suited to consideration during the detailed design stage of the proposal and may be conditional upon approval recommendations flowing from the EIS process. Nevertheless, an outline of the EMPs for the construction and operational phases should be presented in the draft EIS. Monitoring programs designed to ensure safeguards are being effectively applied and to identify and measure any differences between predicted and actual impacts should be described.

Reference should be made to relevant legislation, standards and procedures and any relevant international codes of practice. The bodies responsible for implementing each of the various safeguards and monitoring programs should be identified, and their roles explained. Details of proposed arrangements for making public the environmental management plans and monitoring results should be provided.

Discuss relevant provisions and reporting requirements under the Commonwealth's Airports Act 1996 and how these will apply to the airport proposal.

Environmental Safeguards

Safeguards to mitigate effects on the environment should be discussed, including measures:

- to control erosion;
- to minimise vegetation, fauna and habitat disturbance;
- to control the spread of weed and feral animal species;
- to control/mitigate changes to groundwater and flooding;
- to control air pollution;

- to control water pollution, including impacts on water supply catchments;
- to control pollution from solid and liquid waste;
- to mitigate noise and noise impacts;
- to mitigate any deleterious effects on economic, recreational, and community activities and resources;
- to minimise the risk to and from aircraft operations (including to mitigate impacts of bird strike). Emergency procedures should be described to deal with fire, explosion, etc associated with an aircraft crash in urban areas, and fuel dumping during an emergency;
- to minimise disruption to surface traffic during construction and disturbance and loss of amenity due to increases in surface traffic to and from the airport;
- to minimise "greenhouse" gas emissions and maximise energy efficiency;
- to minimise and manage waste;
- measures to control or minimise impacts on sites of environmental or heritage significance;
- to incorporate environmental protection into the design, siting, layout and landscaping of facilities and associated works (eg to minimise visual impact); and
- to educate employees and construction managers in relation to their environmental protection obligations (eg through the incorporation of appropriate clauses in construction contracts).

Monitoring Programs and Procedures

Monitoring programs to ensure the above measures are applied effectively should be outlined. Mechanisms for handling pollution incidents (eg excessive noise) related to the airport (and public complaints regarding such incidents), including necessary management arrangements, should be discussed.

Examples of the matters that should be addressed in the proposed monitoring program are as follows:

- comprehensive monitoring of ground noise levels, identify possible monitoring sites and outline details of the monitoring program (eg frequency of monitoring, parameters to be monitored etc);
- monitoring of flight paths in relation to noise abatement procedures;
- monitoring of air quality;
- monitoring the effectiveness of pollution control measures (water, air and solid waste) during construction and operational phases;
- monitoring of development near the airport to ensure incompatible land uses are not allowed, particularly in identified critical noise exposure zones;
- monitoring of the incidence of bird and bat strike and frequency of other incidents involving aircraft in potentially hazardous situations;
- monitoring of impacts on the biological environment;
- 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 residents, researchers, educational institutions etc; and
- outline audit programs to ensure the desired objectives from environmental protection measures and monitoring programs are achieved and maintained.

2.9 Consultation and studies

Describe research and investigation undertaken in the course of evaluating the need, feasibility and design of the proposal including baseline studies undertaken. Cite any sources of information used in preparing the Draft EIS.

Describe any consultations undertaken with Commonwealth/State agencies, Local Government, aviation and other business interests and the community over the proposal and the way in which concerns raised by these groups will be, or have been, addressed. Describe any further studies, investigations and consultations, either proceeding or intended to be made in regard to the design and potential impacts of the proposal.

2.10 Glossary

2.11 Appendices

Appendix A

Matters to be Dealt with by Environmental Impact Statements and Public Environment Report*

Contents of environmental impact statements

4.1. To the extent appropriate in the circumstances of the case, an environmental impact statement shall -

- state the objectives of the proposed action;
- analyse the need for the proposed action;
- indicate the consequences of not taking the proposed action;
- contain a description of the proposed action;
- include information and technical data adequate to permit a careful assessment of the impact on the environment of the proposed action;
- examine any feasible and prudent alternative to the proposed action;
- describe the environment that is likely to be affected by the proposed action and by any feasible and prudent alternative to the proposed action;
- assess the potential impact on the environment of the proposed action and of any feasible and prudent alternative to the proposed action, including, in particular, the primary, secondary, short term, long-term, adverse and beneficial effects on the environment of the proposed action and of any feasible and prudent alternative to the proposed action;
- outline the reasons for the choice of the proposed action;

- (j) describe, and assess the effectiveness of, any safeguards or standards for the protection of the environment intended to be adopted or applied in respect of the proposed action, including the means of implementing, and the monitoring arrangements to be adopted in respect of, such safeguards or standards; and
- (k) cite any sources of information relied upon in, and outline any consultations during, the preparation of the environmental impact statement.

* Extract from the Administrative Procedures under the Environment Protection (Impact of Proposals) Act 1974.

Appendix B

Study Team

Appendix B

Study Team

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Appendix C

Relevant Legislation, Agreements and Conventions

Appendix C

Relevant Legislation, Agreements and Conventions

Title	Legislation (Act, Regulation, Order)	Non Legislative Strategy/ Guideline	Common- wealth Activity	State Activity
General				
Convention on Biological Diversity, 1992		✓	✓	
Environment Protection (Impact of Proposals) Act, 1974 Regulations Administrative Procedures Guidelines	✓		✓	
Intergovernmental Agreement on the Environment, 1992		✓	✓	
Lands Acquisition Act, 1989	✓		✓	
Rio Declaration on Environment, 1992		✓	✓	
Environmental Assessment				
ANZECC Guidelines for Contaminated Sites		✓	✓	
China Australian Migratory Birds Agreement		✓	✓	
Japan Australian Migratory Birds Agreement		✓	✓	
Endangered Species Protection Act, 1992			✓	
Framework on Climate Change, 1992	✓	✓	✓	
National Water Quality Management Strategy, 1992		✓	✓	
National Environment Protection Measures		✓	✓	
National Parks and Wildlife Conservation Act, 1975		✓	✓	
National Guidelines on Ambient Air Quality			✓	
National Greenhouse Response Strategy	✓	✓	✓	
National Code of Practice for Hazardous Facilities		✓	✓	
Ozone Protection Act, 1989		✓	✓	
Plant Protection Agreement for SE Asia and Pacific Region			✓	
Convention on Wetlands of International Importance, Especially as Water Fowl Habitat, 1971 (RAMSAR)	✓	✓	✓	
State Legislation¹				
Clean Air Act, 1961	✓			✓
Clean Water Act, 1970	✓			✓
Environmental Planning and Assessment Act, 1979 and Regulations	✓			✓
Heritage Act, 1977	✓			✓
Sydney Water Catchment Management Regulations, 1995	✓			✓
Sydney Water Catchment Act, 1989	✓			✓
Threatened Species Conservation Act, 1995	✓			✓
Waste Minimisation Management Act, 1995	✓			✓

Title	Legislation (Act, Regulation, Order)	Non Legislative Strategy/ Guideline	Common- wealth Activity	State Activity
Social Environment				
Aboriginal and Torres Strait Islander Act, 1984	✓		✓	
Australian Heritage Commission Act, 1975	✓		✓	
National Trust Act, 1990	✓			✓
National Parks and Wildlife Act, 1974	✓			✓
Native Title Act, 1993	✓		✓	
NSW Land Rights Act, 1983	✓			✓
World Heritage Properties Conservation Act, 1983	✓		✓	
Airport Operations and Management				
Air Navigation Act, 1920	✓			
Air Services Australia Act, 1995	✓		✓	
Air Services Australian Regulations	✓		✓	
Air Navigation (Engine Emissions) Regulations	✓		✓	
Air Navigation (Aircraft Noise) Regulations	✓		✓	
Air Navigation (Aerodrome Curfew) Regulations	✓		✓	
Aircraft Noise Levy Act, 1995	✓		✓	
Aircraft Noise Levy Collection Act, 1995	✓		✓	
Airports Act, 1996	✓		✓	
Airports (Environmental Protection) Regulations, 1996	✓		✓	
Civil Aviation Act, 1988	✓		✓	
Federal Airports Corporation Act	✓		✓	
Sydney Airport Curfew Act, 1995			✓	
Transport Legislation Amendment Act, 1993	✓		✓	

Note: 1 It is important to note that the new airport would be governed by Commonwealth legislation with the majority of State based legislation being inapplicable. Where provision is made for State and Federal laws to operate concurrently, the Commonwealth legislation overrides the State legislation to the extent of any inconsistency or provided under S109 of the Constitution.

Appendix D

Noise Impacts within Community Assessment Areas

Appendix D

Noise Impacts within Community Assessment Areas

1. Introduction

1.1 Introduction

This appendix contains noise and predictions from aircraft overflights for each of the three airport options considered.

Detailed noise level calculations were undertaken for 85 Community Assessment Areas as generally shown in *Figure D1* and shown in more detail in *Figures D2 to D6*. These same areas have also been used for definition of demographic population characteristics and assessment of existing noise exposure.

The concept of Community Assessment Areas was introduced to allow noise impacts on individual communities to be described and to relate the noise impacts to estimates of 1996 population, forecasts of 2006 and 2016 populations and to the number of noise sensitive land uses, such as educational facilities. Where these Community Assessment Areas are close to the proposed airport sites, they have been subdivided into smaller areas to give more accuracy to the noise assessment.

For further details on methods used to develop these Areas and forecasts, and for a detailed assessment of potential impacts, reference should be made to *Chapters 11 and 12* of the Draft EIS and/or *Technical Paper No. 3 Noise - Main Volume*.

1.2 Users Guide to Community Assessment Area Sheets

This appendix shows potential noise impacts on land uses within Community Assessment Areas. *Figures D2 to D6* indicate the Community Assessment Area that contains the property you are interested in.

To provide a more accurate description of potential noise impacts, some of these Community Assessment Areas have been subdivided into smaller areas. Reference should be made to *Figures D7 to D12* to determine whether the property you are interested in is located within a sub-community assessment area.

Social characteristics, existing noise levels and potential noise impacts for each Community Assessment Area set out on the sheets in Part 2 of this appendix. They are provided in numeric order.

For each Community Assessment Area:

- Sheet 1 gives an estimate of the 1996 population and forecasts of 2006 and 2016 populations and shows the number of educational facilities and other noise sensitive land uses within the Area. Sheet 1 also presents the results of the background noise measures within that Community Assessment Area. These measurements are provided as L_{Aeq} which converts varying noise to an equivalent continuous noise level for a specified period of time, and L_{A90} which is the level of noise which is exceeded 90 percent of the time; and

- Sheet 2 shows the noise levels anticipated from each airport option for each of the two key years assessed, that is, 2006 and 2016. The Table in the bottom half of Sheet 2 shows that range of noise levels resulting from the range of assumptions about aircraft movements and airport operations that were made as part of the noise assessment studies. The source information is shown again in graphic form on the top half of Sheet 3 as this provides a quicker means of comparing the impacts of each airport option on a particular Community Assessment Area.

If the Table in the bottom half of Sheet 2 say Refer over page, this means that the Community Assessment Area has been subdivided into smaller areas ('sub-community assessment areas') to provide a more accurate description of potential noise impacts for particular airport option.

ANEC levels are shown; information on how to interpret these levels is provided in *Figures 11.2, and 11.3* of the Draft EIS.

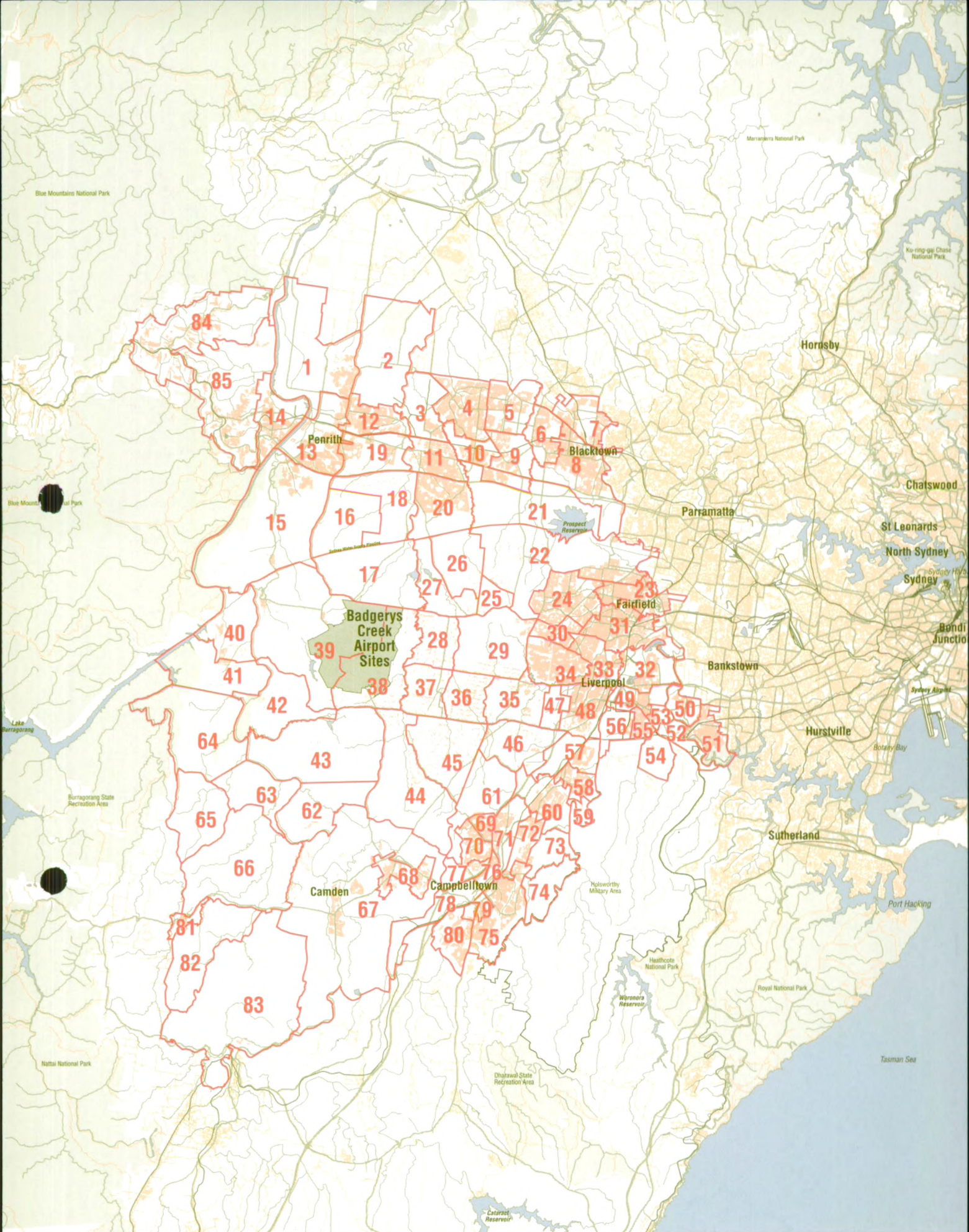
Additional noise indicators used include the number of noise events expected on an average day that would be over 60 dBA, 70 dBA, 80 dBA and 90 dBA. Noise events over 70 dBA are loud enough to disturb normal conversation and other quieter activities, such as television viewing at home.

The Table also shows the number of noise events in the night-time (10.00 pm to 6.00 am) and gives a Sleep Disturbance Index. This Index tells how many times a night between 10.00 pm and 6.00 am) the average sleeper is likely to be awakened by aircraft noise. In most cases, it is less than once a night. Some examples of how to interpret these figures:

- a Sleep Disturbance Index of 0.1 means, on average, one awakening every 10 nights;
- a Sleep Disturbance Index of 0.2 means, on average, one awakening every five nights;
- a Sleep Disturbance Index of 0.5 means, on average, one awakening every two nights;
- a Sleep Disturbance Index of one means, on average, one awakening every night; and
- a Sleep Disturbance Index of 1.5 means, on average, three awakenings every two nights.

The impacts of aircraft overflight noise on sleeping patterns, however, need to be considered in the context of current understanding of sleeping patterns which indicate that, on average, people have about 1.5 awakenings each night for reasons unrelated to noise (Bullen, Hede and Williams, 1996).

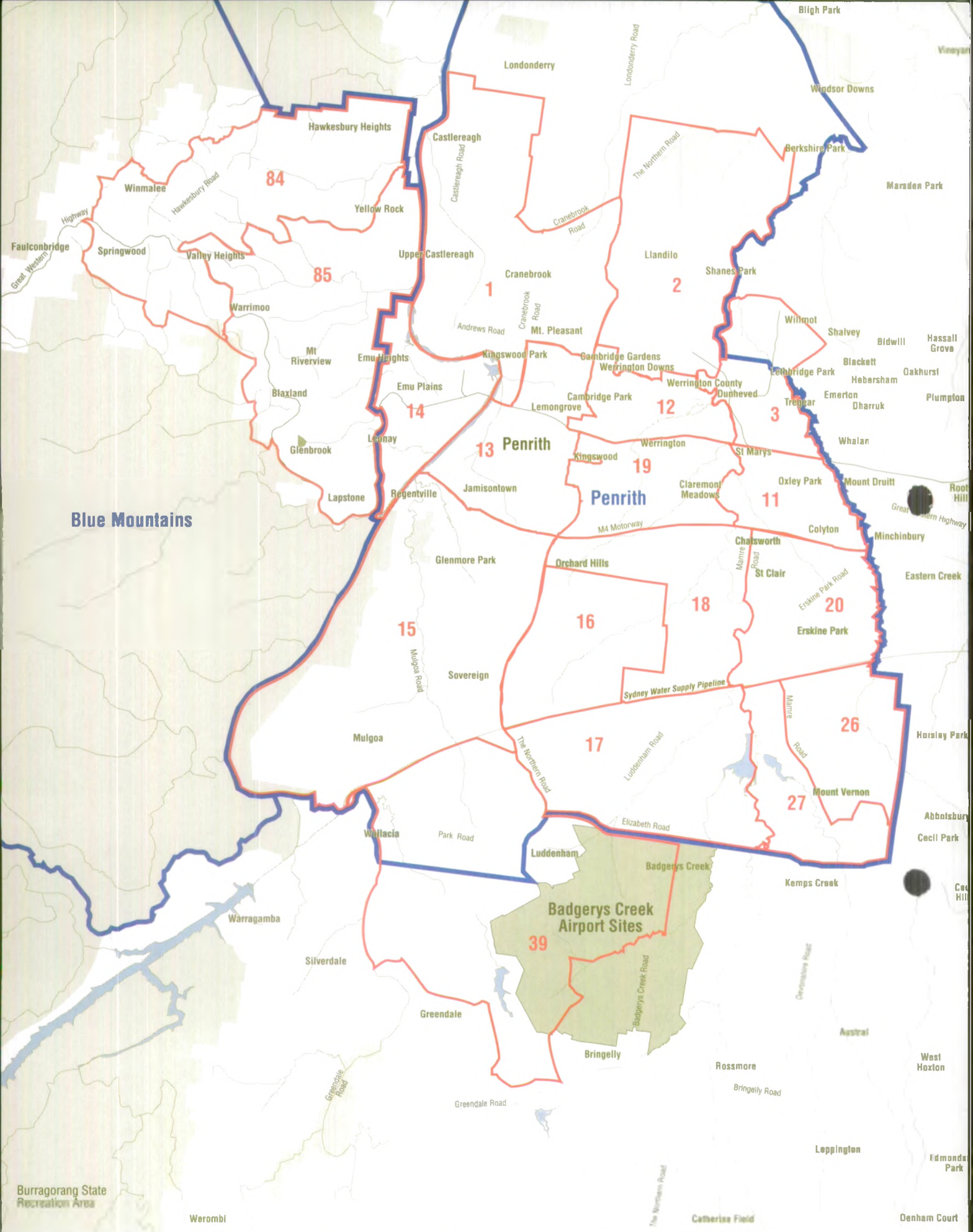
The number of noise events over 65 dBA that would occur, on average, between 9.00 am and 3.00 pm each day has been shown. This level of noise would be likely to disturb teaching activities.



Urban Areas (indicated by local roads) 
 Indicates Density of Dwellings in 1996 

Figure D1
Community Assessment Areas

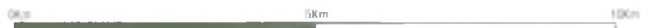
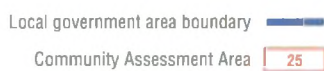


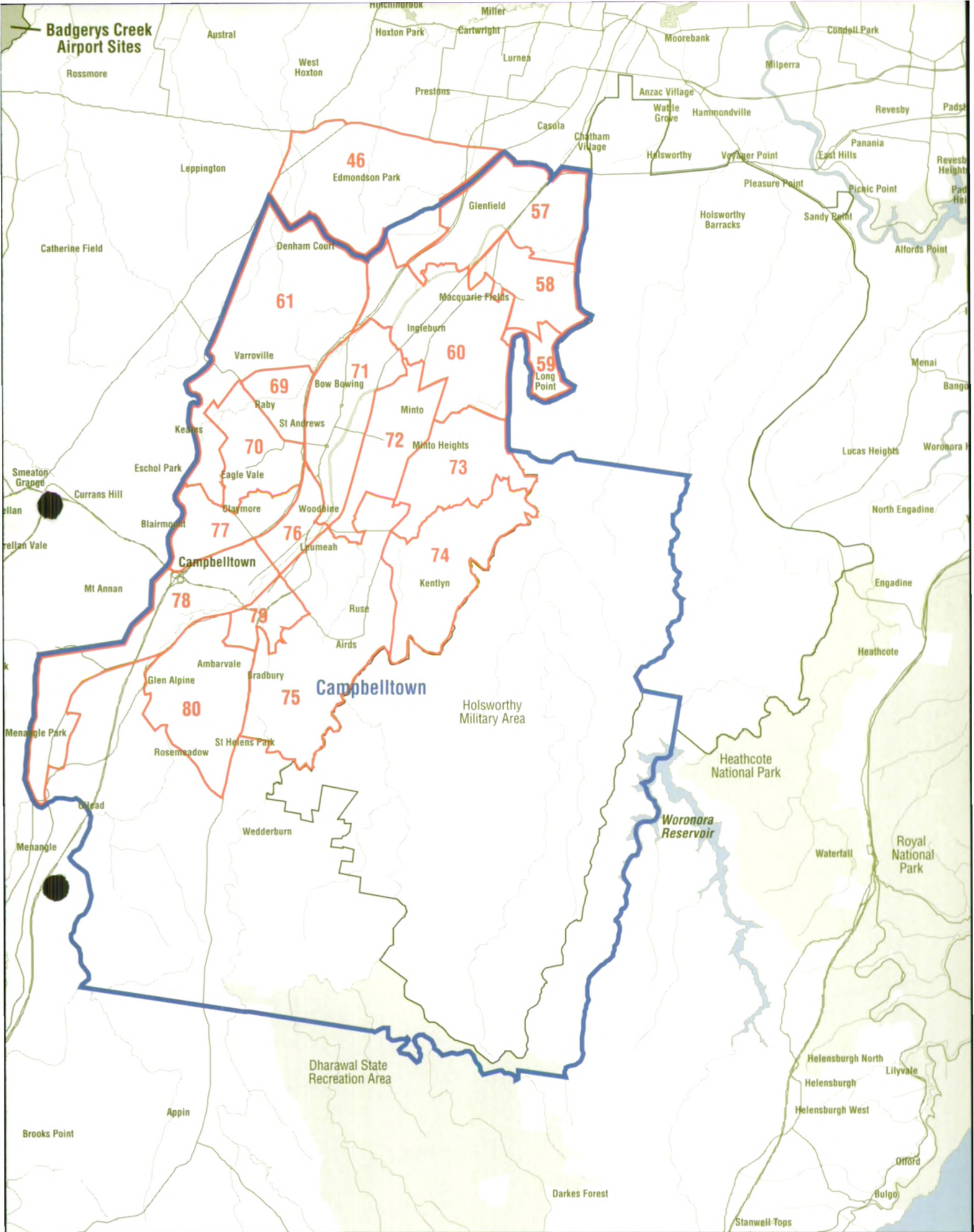


Local government area boundary ———
 Community Assessment Area 15

Figure D2
**Community Assessment Areas in
 Blue Mountains and Penrith Local Government Areas**





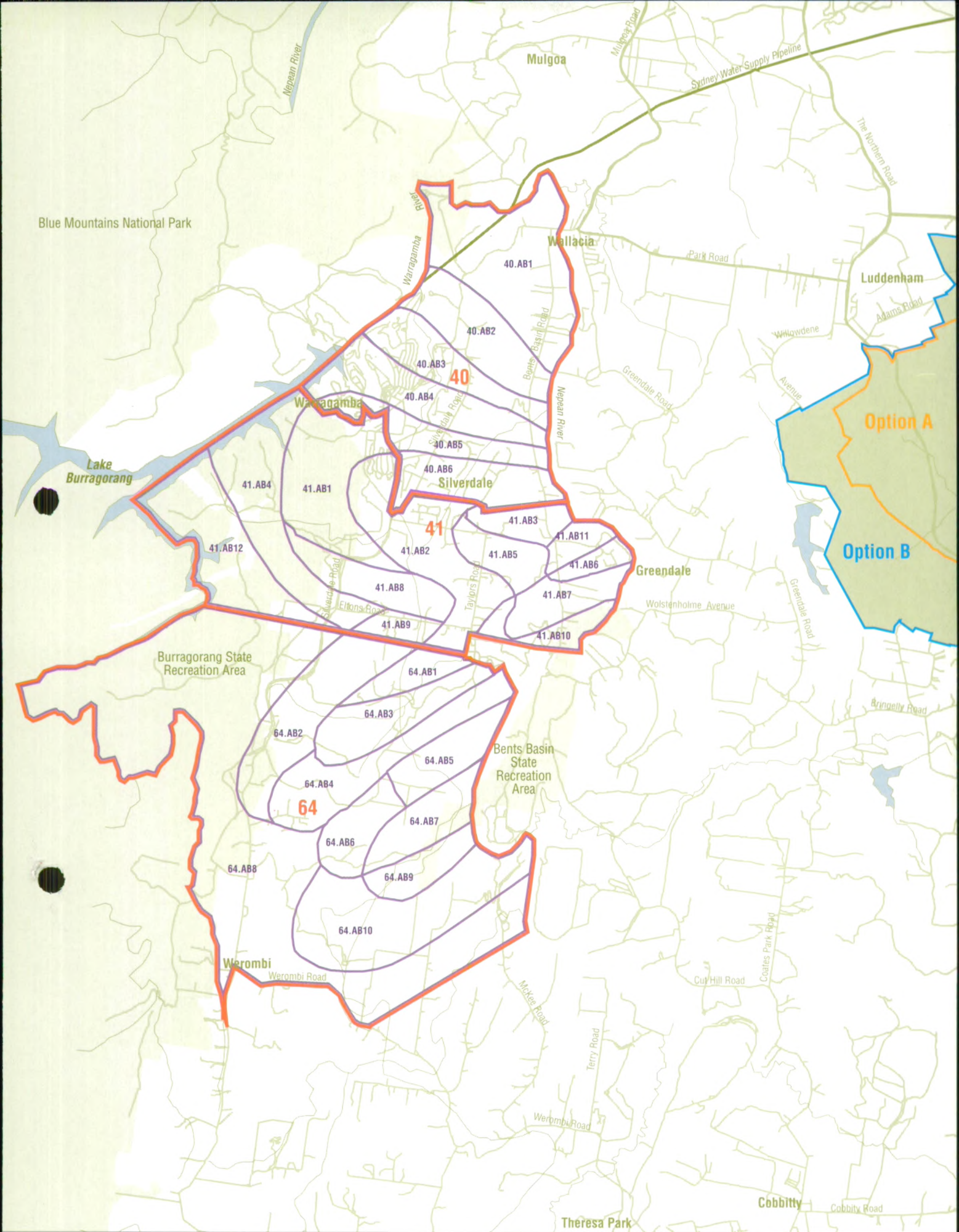


Local government area boundary ———

Community Assessment Area 76

Figure D5
**Community Assessment Areas in
 Campbelltown Local Government Area**

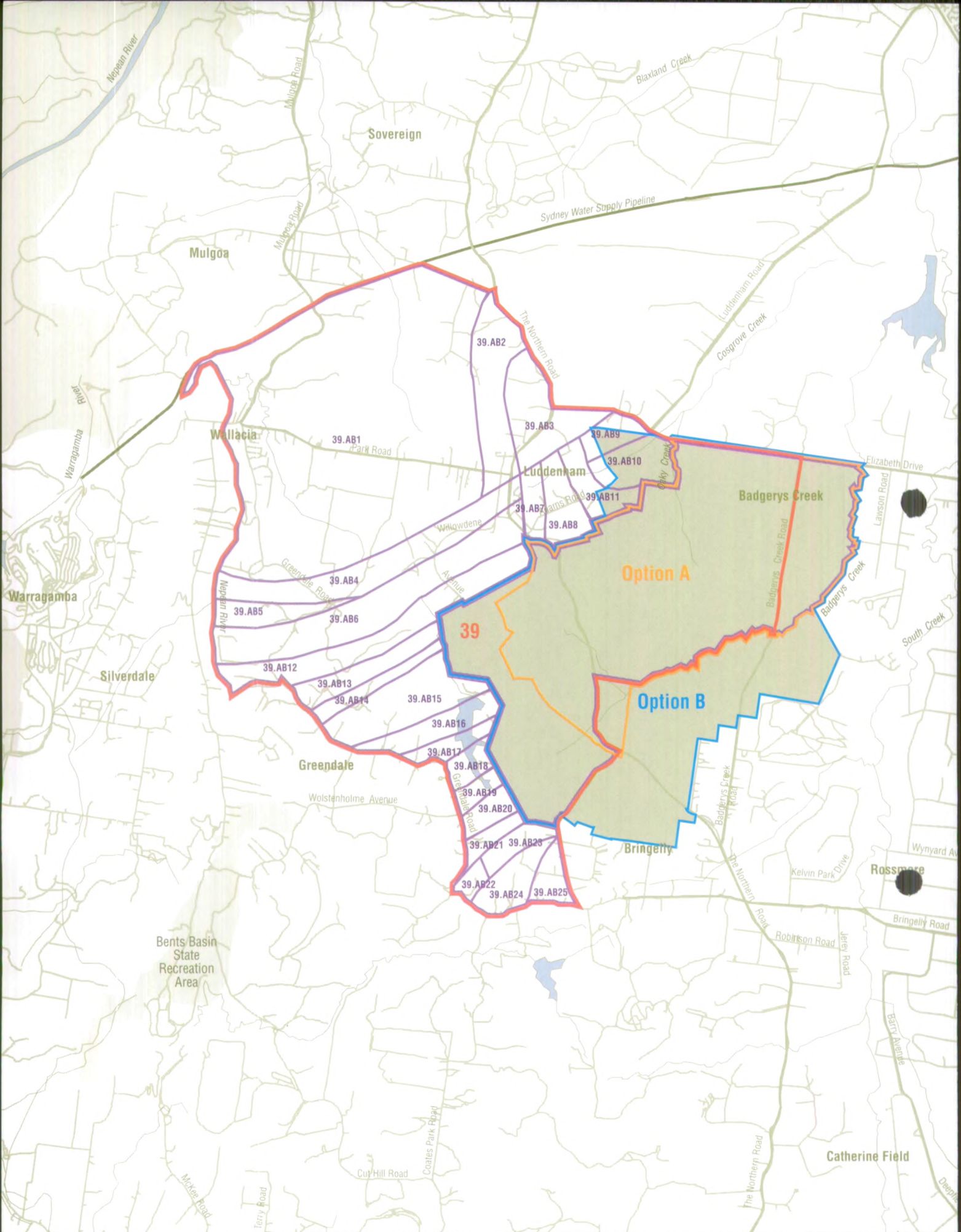




Community Assessment Area 64
 Sub-community Assessment Area 39.AB6

Figure D7
**Community Assessment Areas and
 Sub Areas for Options A and B**

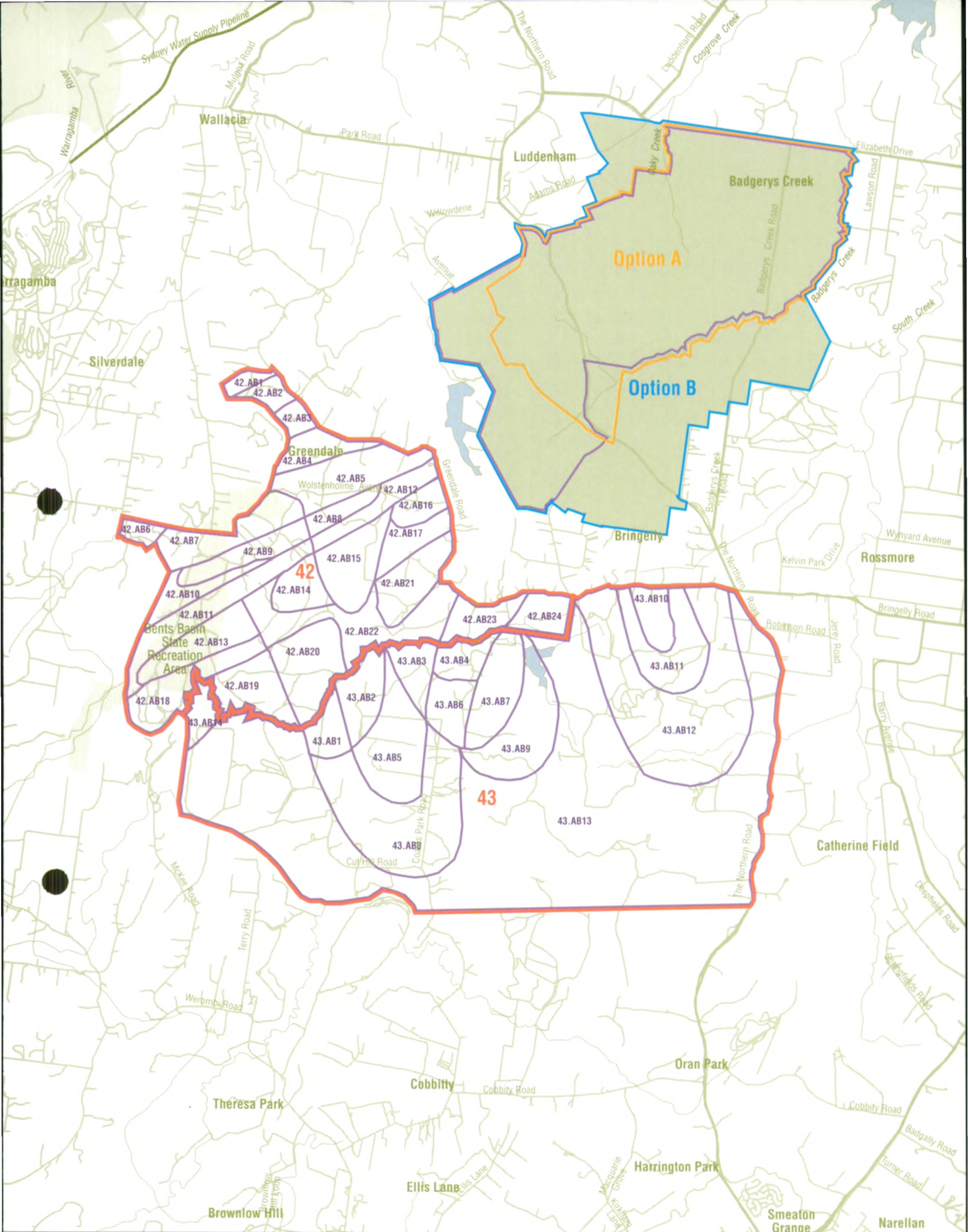




Community Assessment Area **64**
 Sub-community Assessment Area **39.AB6**

Figure D8
**Community Assessment Areas and
 Sub Areas for Options A and B**

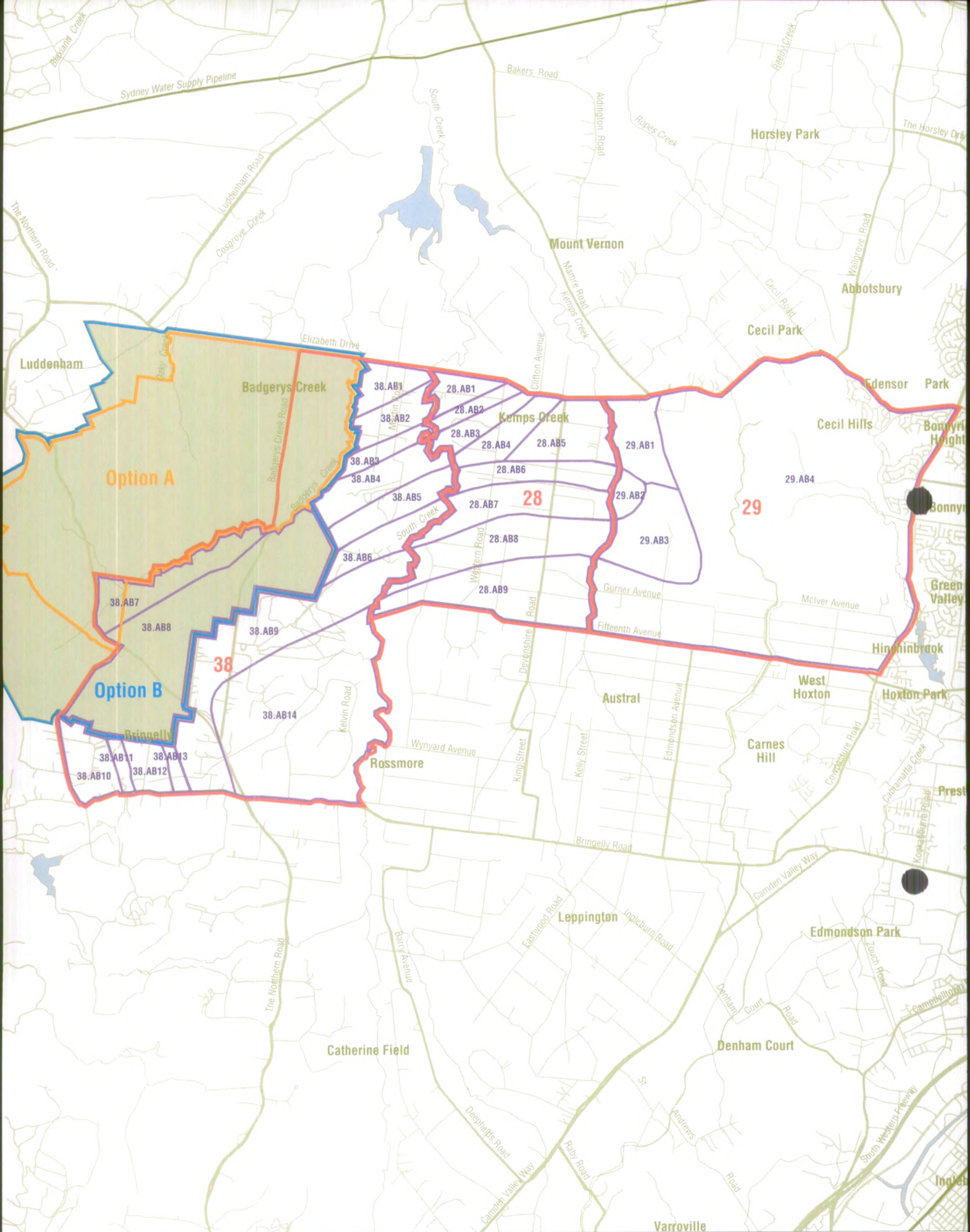




Community Assessment Area 64
 Sub-community Assessment Area 39.AB6

Figure D9
**Community Assessment Areas and
 Sub Areas for Options A and B**



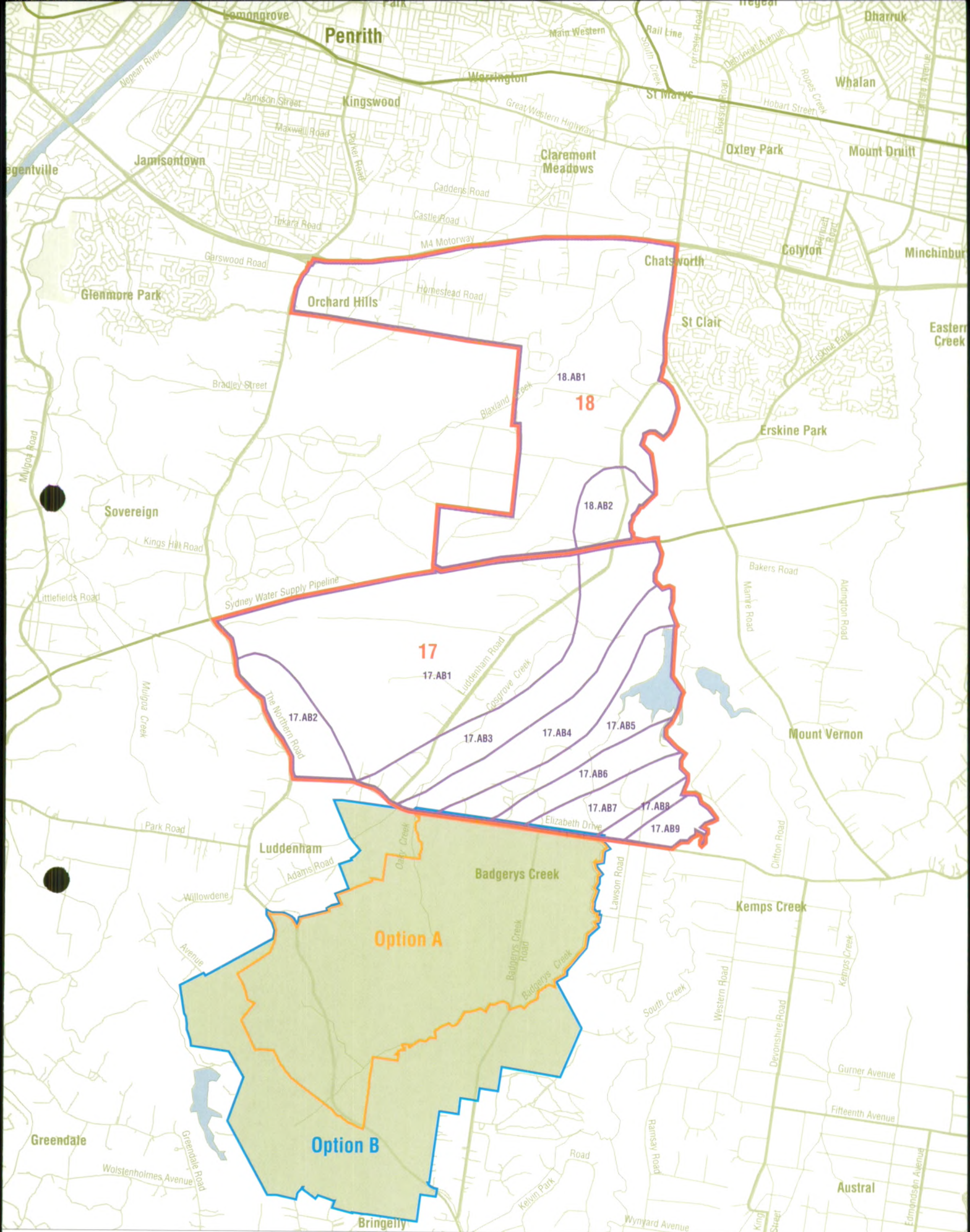


Community Assessment Area 15
 Sub-community Assessment Area 39.AB6

Figure D10
**Community Assessment Areas and
 Sub Areas for Options A and B**



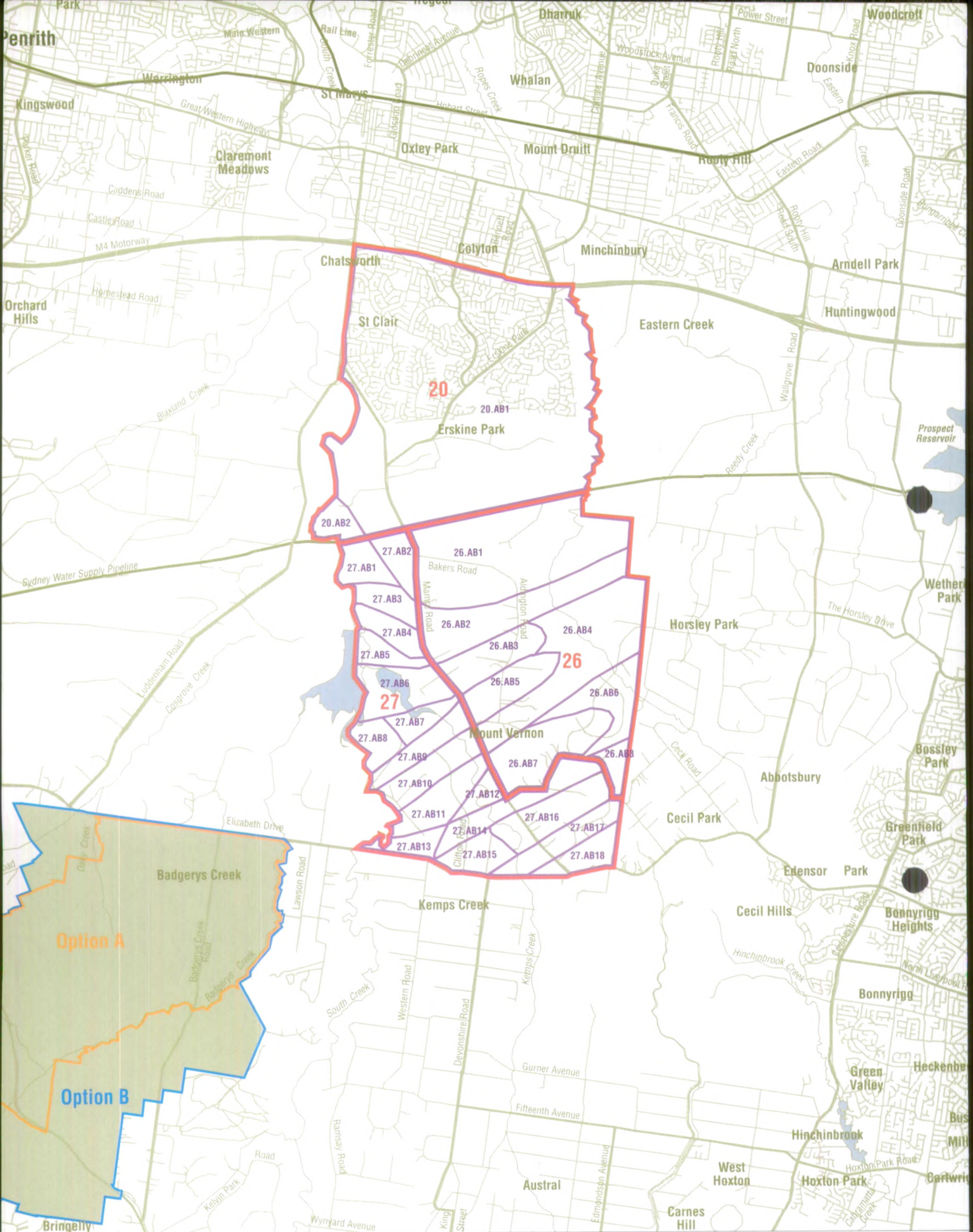
0km 5km



Community Assessment Area 17
 Sub-community Assessment Area 17.AB1

Figure D11
**Community Assessment Areas and
 Sub Areas for Options A and B**





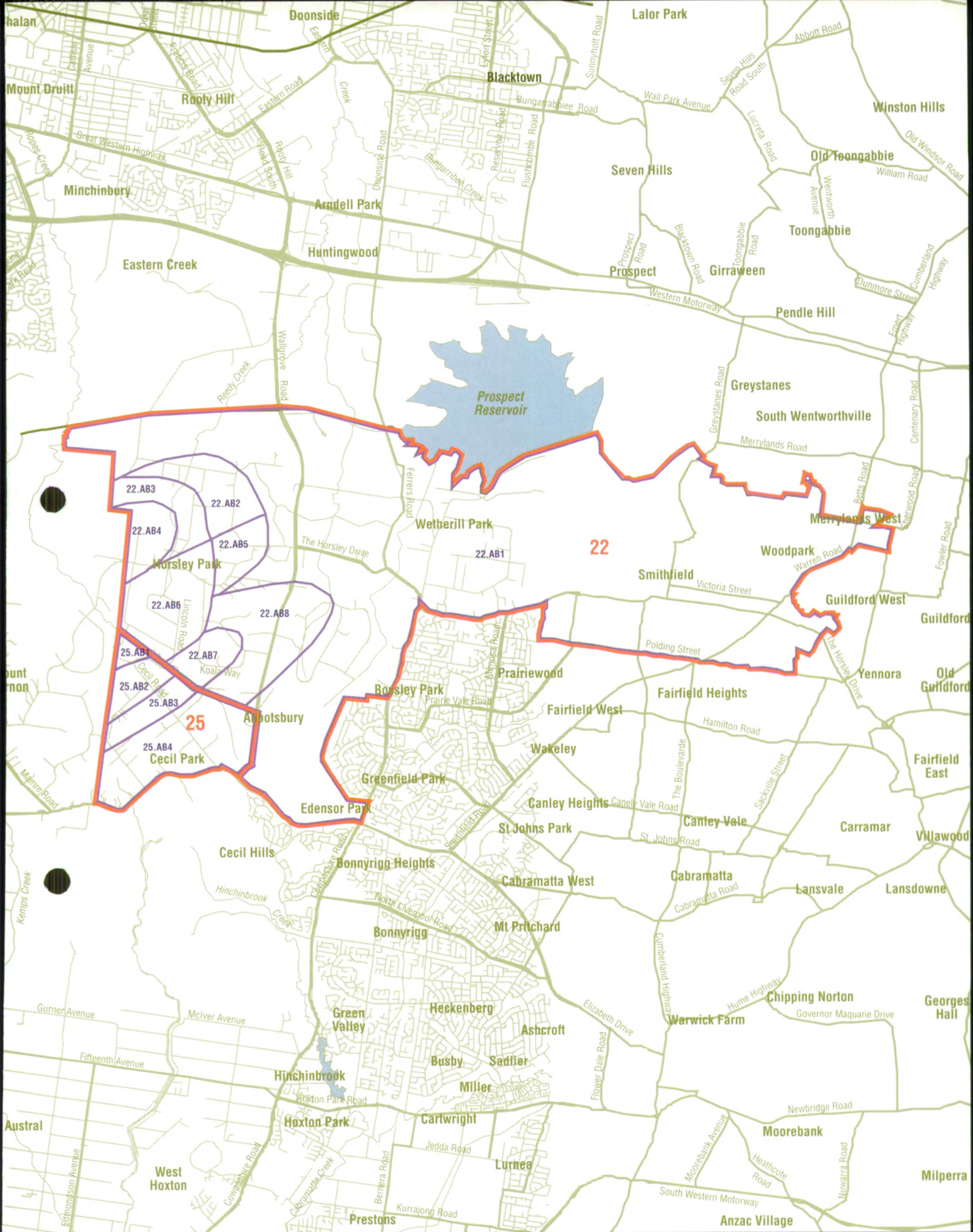
Community Assessment Area 17
 Sub-community Assessment Area 17.AB1

Figure D12
**Community Assessment Areas and
 Sub Areas for Options A and B**



0.5km

500m

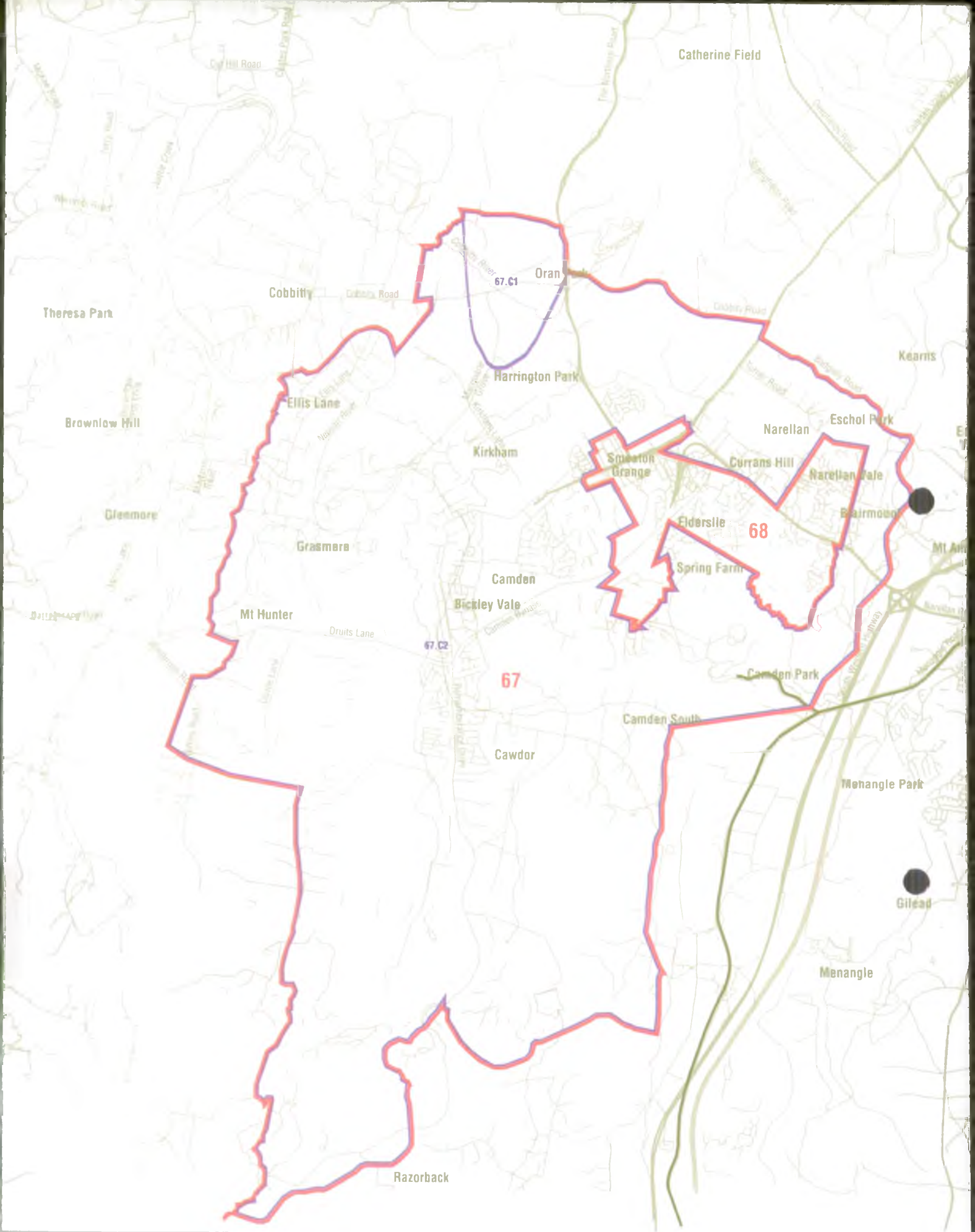


Community Assessment Area 15
 Sub-community Assessment Area 22.AB7

Figure D13
**Community Assessment Areas and
 Sub Areas for Options A and B**



0Km 5Km



Community Assessment Area **15**
 Sub-community Assessment Area **43.C8**

Figure D14
**Community Assessment Areas and
 Sub Areas for Option C**



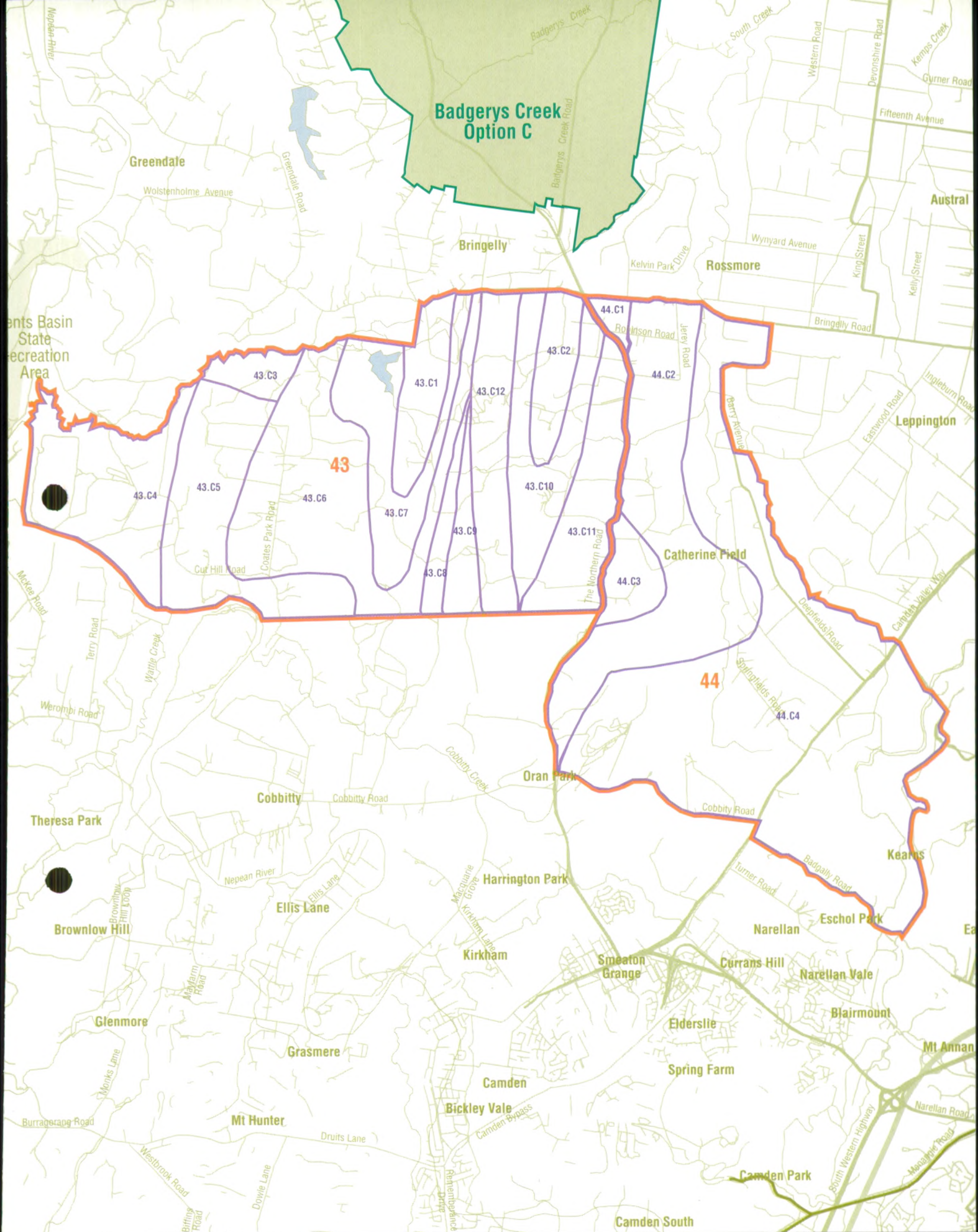
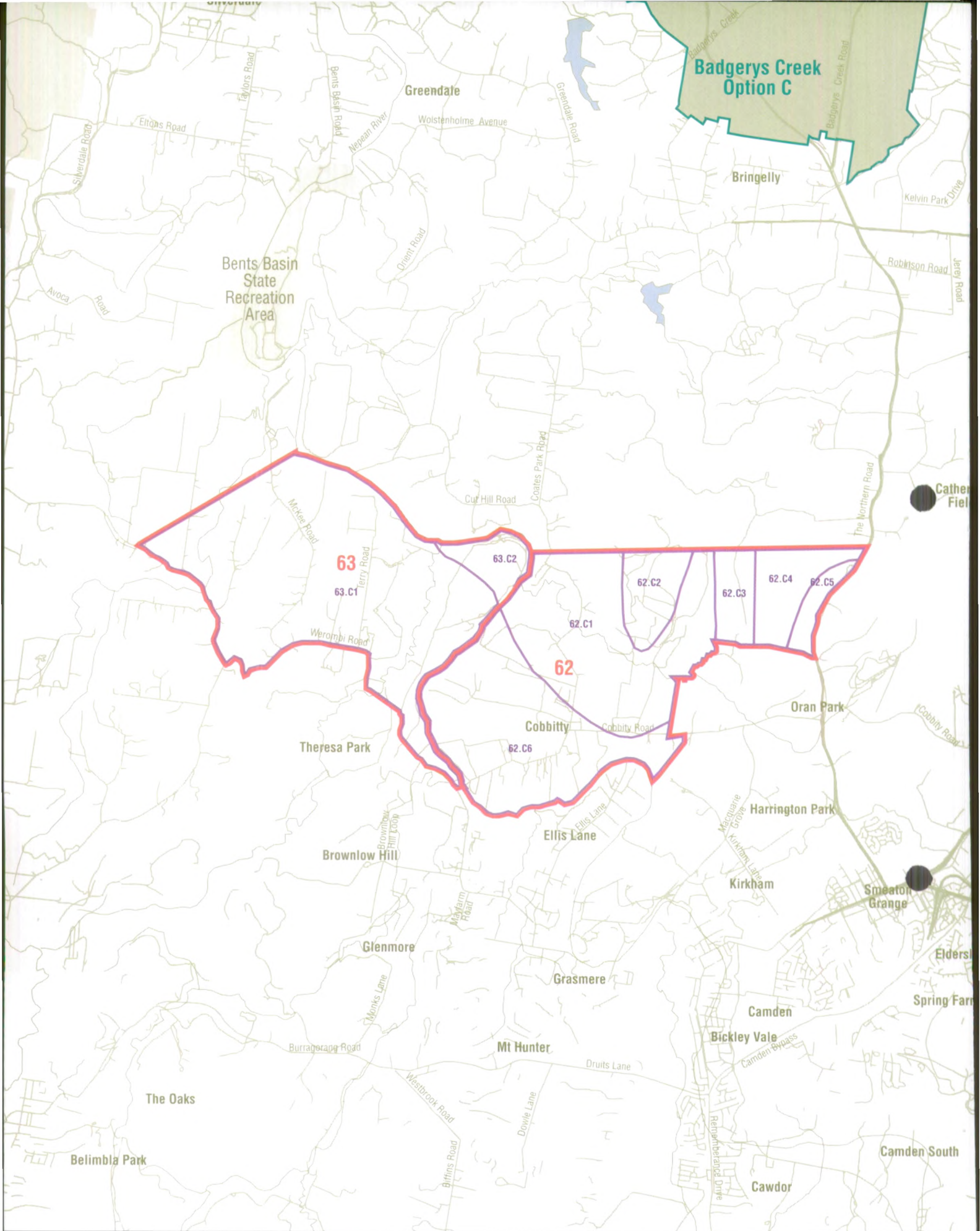


Figure D15

Community Assessment Areas and Sub Areas for Option C



Community Assessment Area **15**
 Sub-community Assessment Area **43.C8**

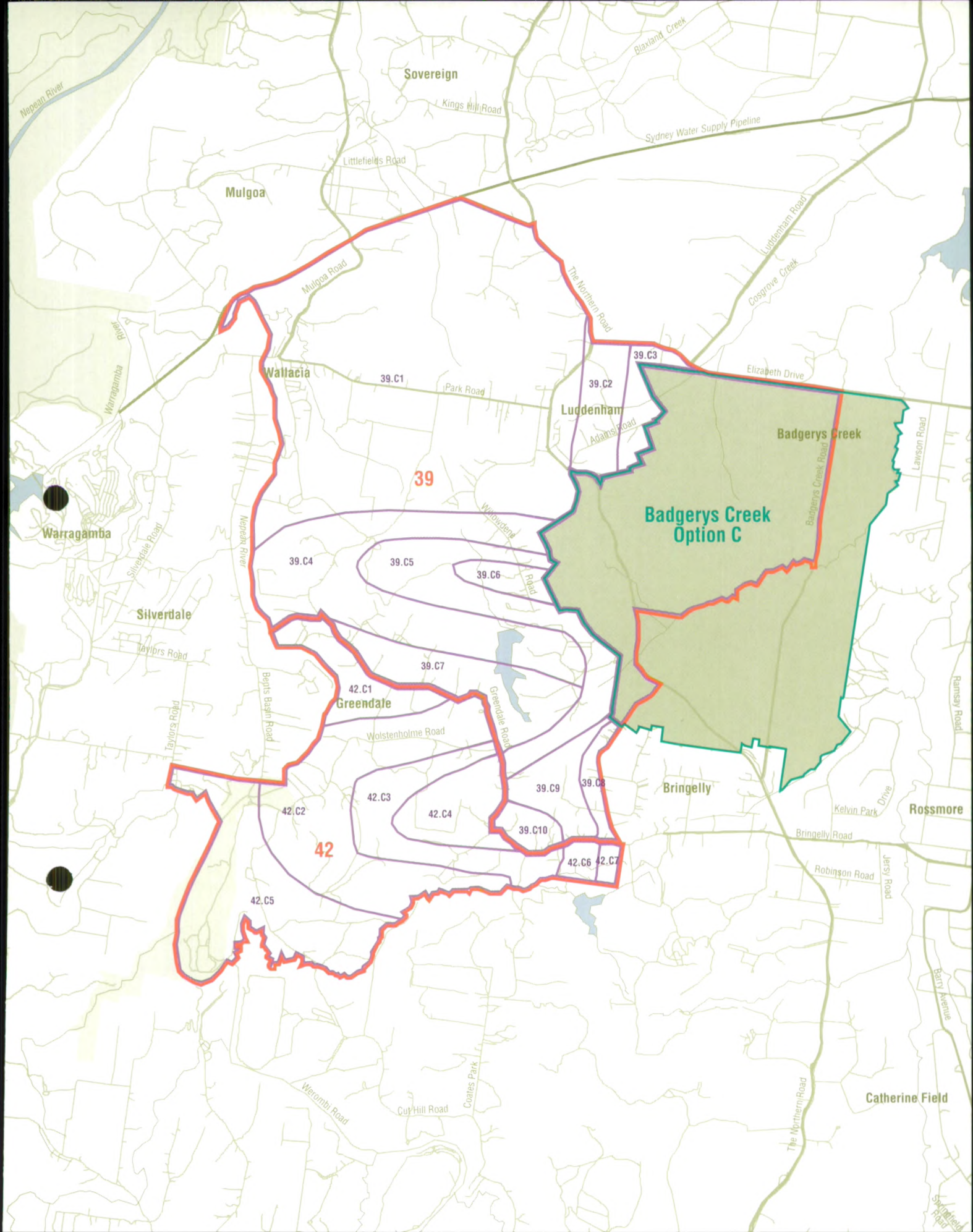


Community Assessment Area 15
 Sub-community Assessment Area 43.C8

Figure D16
**Community Assessment Areas and
 Sub Areas for Option C**



0Km 5Km

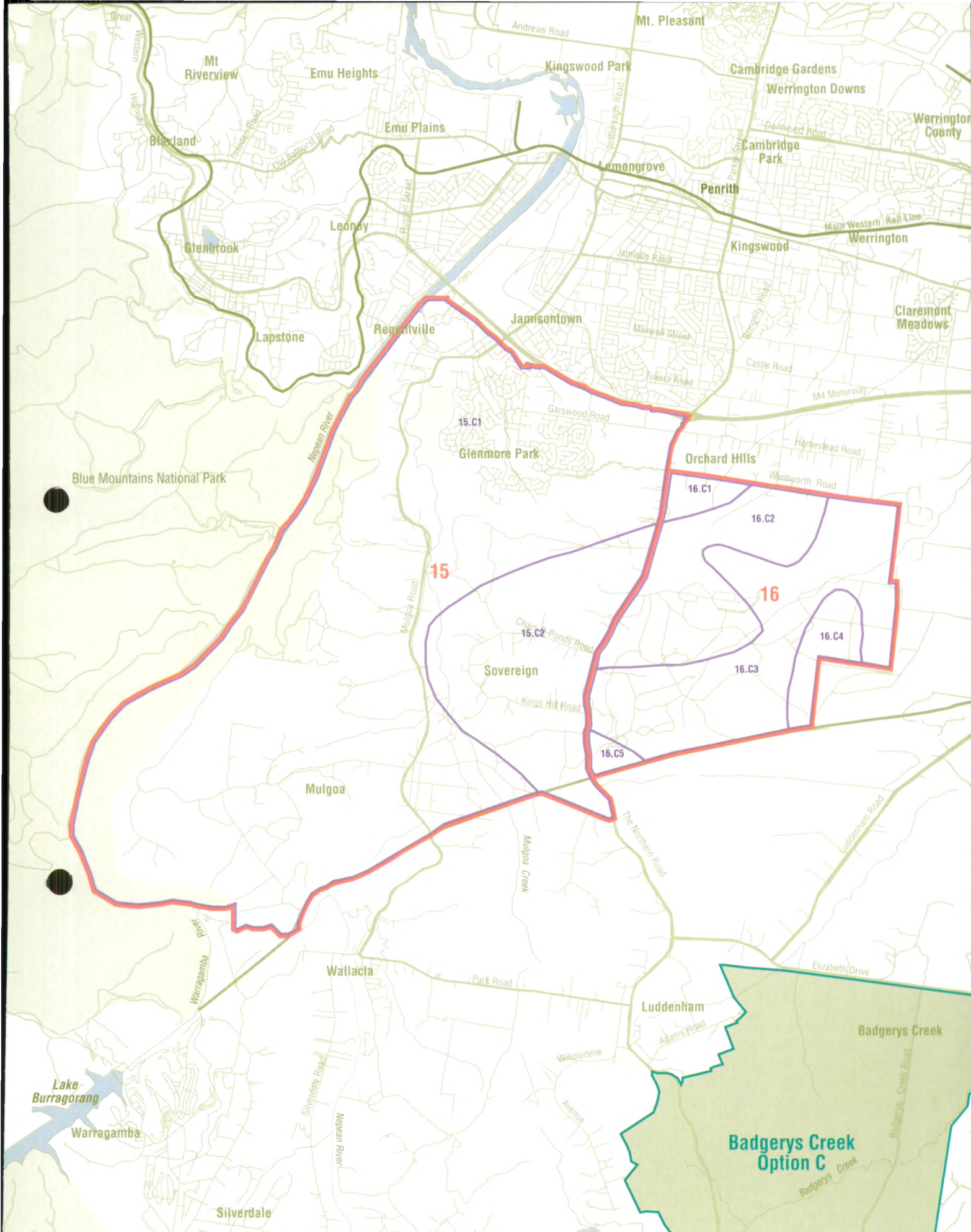


Community Assessment Area 15
 Sub-community Assessment Area 42.C3

Figure D17
Community Assessment Areas and Sub Areas for Option C



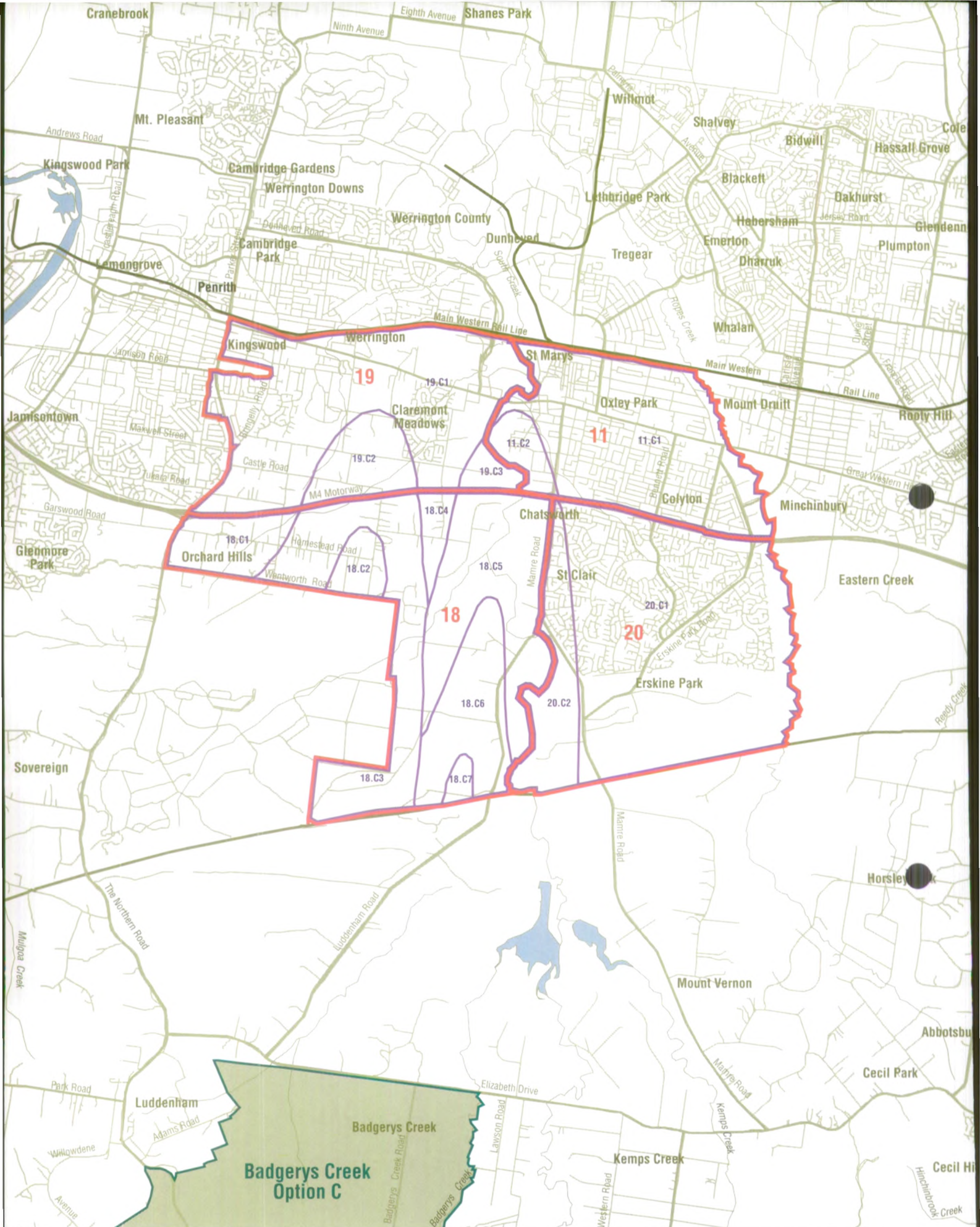




Community Assessment Area 15
 Sub-community Assessment Area 17.C8

Figure D19
**Community Assessment Areas and
 Sub Areas for Option C**

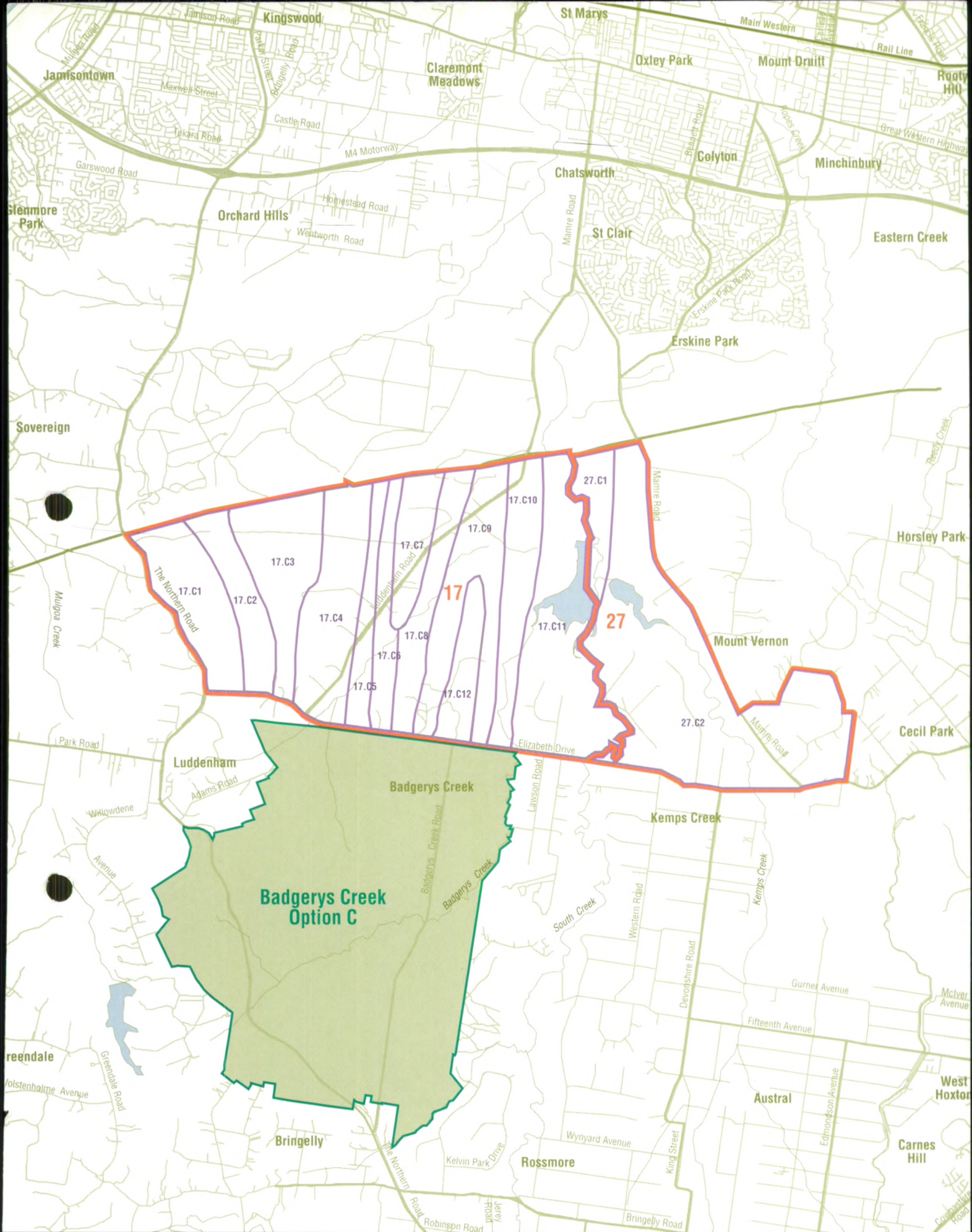




Community Assessment Area **15**
 Sub-community Assessment Area **17.C8**

Figure D20
**Community Assessment Areas and
 Sub Areas for Option C**





Community Assessment Area 15
 Sub-community Assessment Area 17.C8

Figure D21
**Community Assessment Areas and
 Sub Areas for Option C**



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 1

SHEET 1 / 2

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	11,055	15,130 ¹	15,990	15,990	16,140	16,140
Educational Facilities ²		7	7	7	7	7
Other Noise Sensitive ³ Land Uses		14	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	50	L _{A90}	7am to 7pm	32
	7pm to 10pm	50		7pm to 10pm	30
	10pm to 7am	43		10pm to 7am	26

Monitored at: 21 Arafura Ave, Mount Pleasant

Noise Indicators:

	Option A	Option B	Option C	Option A	Option B	Option C
L_{Aeq} 24 Hour ¹	22 to 30	21 to 30	29 to 41	27 to 32	26 to 32	34 to 42
L_{Aeq} 10pm-6am ¹	11 to 19	10 to 19	14 to 29	14 to 19	13 to 19	19 to 28
ANEC ²	-12 to -7	-11 to -6	-7 to 5	-6 to -4	-6 to -4	-2 to 7
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	1 to 13	0 to 2	0 to 2	2 to 17
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 3	0 to 0	0 to 0	1 to 5
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 4	0 to 0	0 to 0	1 to 6
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

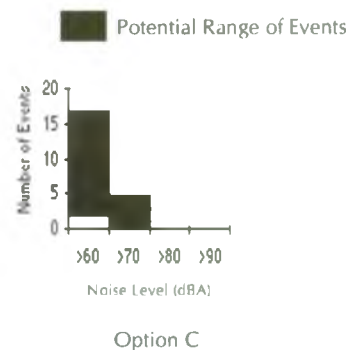
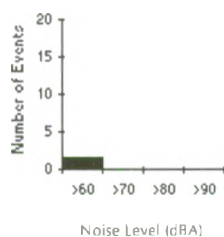
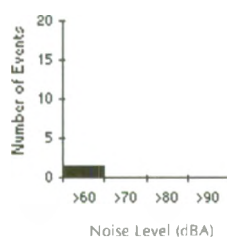
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

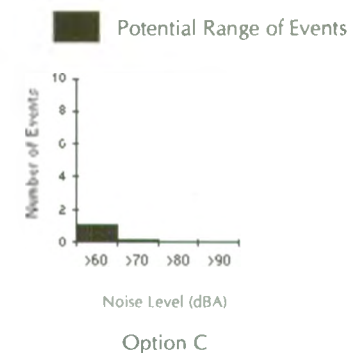
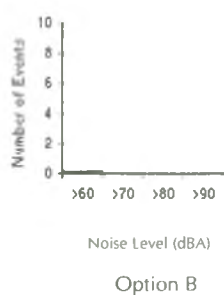
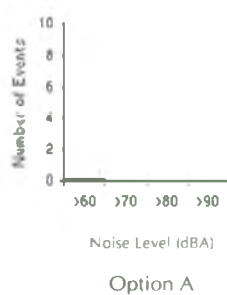
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	3,102	3,020 ¹	5,070	5,070	10,390	10,390
Educational Facilities ²		1	1	1	2	2
Other Noise Sensitive Land Uses ³		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	49	L _{A90}	7am to 7pm	37
	7pm to 10pm	46		7pm to 10pm	36
	10pm to 7am	46		10pm to 7am	30

Monitored at: 231 Seventh Ave, Llandillo

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	22 to 29	20 to 27	38 to 46	26 to 31	25 to 29	41 to 45
L_{Aeq} 10pm-6am ¹	12 to 16	10 to 14	29 to 35	14 to 19	12 to 17	31 to 34
ANEC ²	-14 to -8	-12 to -7	3 to 10	-6 to -5	-8 to -5	5 to 9
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	8 to 49	0 to 2	0 to 1	15 to 44
Over 70 dBA per 24 Hours	0 to 0	0 to 0	1 to 8	0 to 0	0 to 0	2 to 6
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	1 to 4	0 to 0	0 to 0	1 to 3
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	2 to 14	0 to 0	0 to 0	3 to 11
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0.1	0 to 0	0 to 0	0 to 0.1

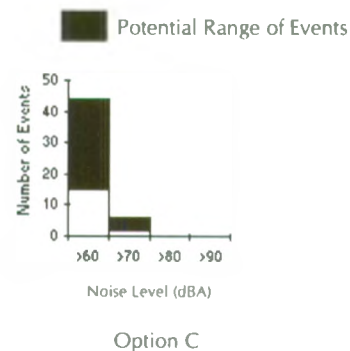
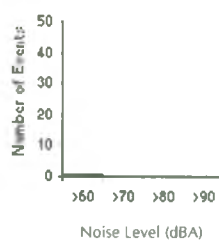
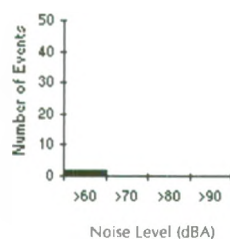
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

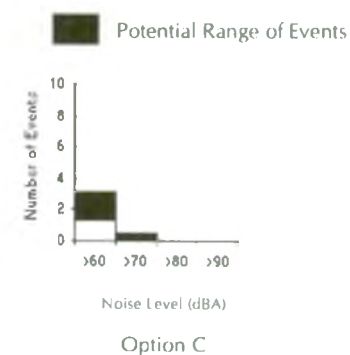
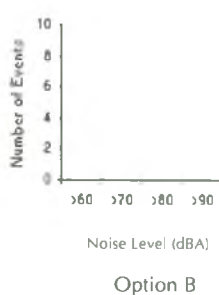
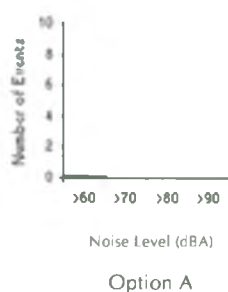
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No.3SHEET 1 / 2

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	4,327	4,350 ¹	4,470	4,470	4,590	4,590
Educational Facilities ²		2	2	2	2	2
Other Noise Sensitive ³ Land Uses		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	49	L _{A90}	7am to 7pm	35
	7pm to 10pm	42		7pm to 10pm	36
	10pm to 7am	42		10pm to 7am	29

Monitored at: 14 Willow Road, St Marys North

Noise Indicators:

	Option A	Option B	Option C	Option A	Option B	Option C
L_{Aeq} 24 Hour ¹	28 to 36	27 to 35	28 to 37	33 to 39	32 to 38	43 to 46
L_{Aeq} 10pm-6am ¹	15 to 24	14 to 23	18 to 25	19 to 27	17 to 25	32 to 35
ANEC ²	-8 to -3	-7 to -1	-7 to 3	-2 to 3	-3 to 1	6 to 13
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 3	1 to 5	0 to 5	3 to 13	2 to 9	22 to 43
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	3 to 8
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	2 to 3
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 1	0 to 1	0 to 2	0 to 2	5 to 12
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0.1

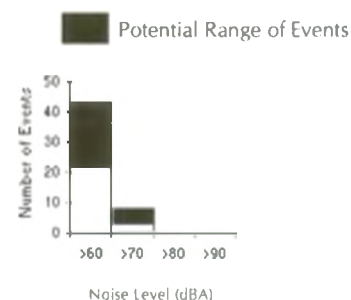
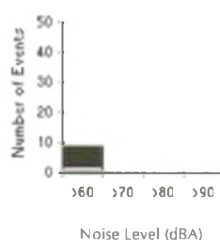
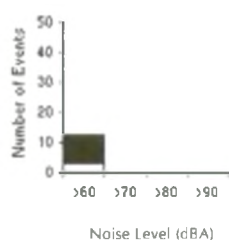
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

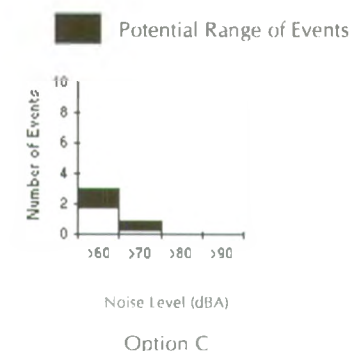
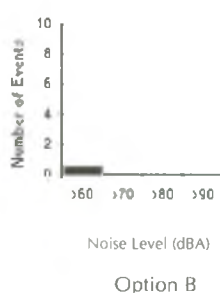
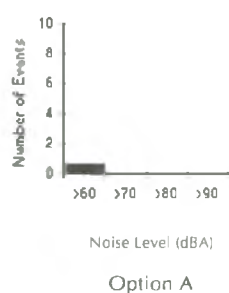
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 4

SHEET 1 / 2

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	45,912	50,730 ¹	52,220	52,220	55,370	55,370
Educational Facilities ²		18	18	18	19	19
Other Noise Sensitive ³ Land Uses		35	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	51	L _{A90}	7am to 7pm	35
	7pm to 10pm	50		7pm to 10pm	38
	10pm to 7am	40		10pm to 7am	32

Monitored at: 60 Tarawa Road, Lethbridge Park

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	26 to 34	26 to 34	22 to 29	31 to 37	31 to 36	32 to 38
L_{Aeq} 10pm-6am ¹	13 to 22	13 to 21	12 to 17	18 to 24	17 to 25	20 to 27
ANEC ²	-8 to -2	-8 to -2	-9 to 0	-3 to 1	-3 to 1	-2 to 5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 4	0 to 3	0 to 0	2 to 7	1 to 6	1 to 8
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 1	0 to 0	0 to 1	0 to 1	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

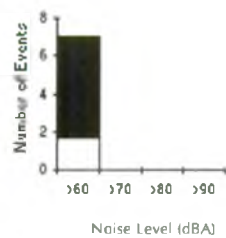
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

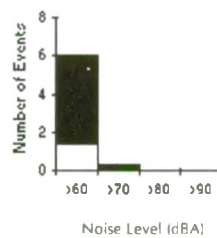
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

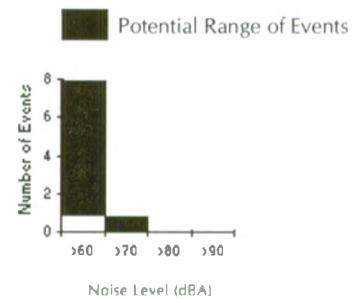
2016 - Number of Noise Events per 24 Hours (on average):



Option A

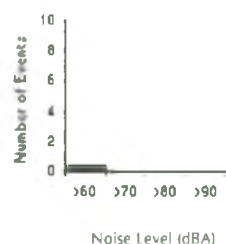


Option B

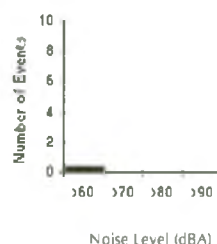


Option C

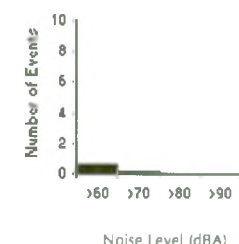
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 5

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	13,626	22,620 ¹	24,660	24,660	24,830	24,830
Educational Facilities ²		10	10	10	10	10
Other Noise Sensitive Land Uses ³		12	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	52	L _{A90}	7am to 7pm	34
	7pm to 10pm	49		7pm to 10pm	38
	10pm to 7am	43		10pm to 7am	33

Monitored at: 24 Adrienne Road, Glendenning

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	21 to 28	20 to 28	15 to 22	27 to 31	26 to 31	23 to 30
L_{Aeq} 10pm-6am ¹	11 to 19	10 to 17	6 to 10	17 to 19	15 to 20	13 to 19
ANEC ²	-11 to -7	-12 to -7	-15 to -8	-7 to -4	-7 to -3	-9 to -4
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 0	0 to 0	0 to 1	0 to 1	0 to 1
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

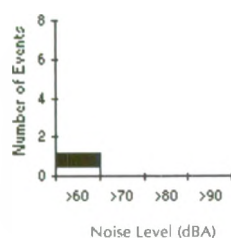
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

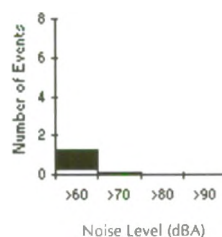
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

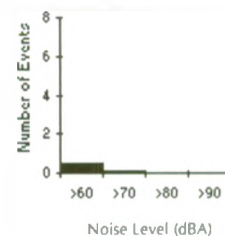
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

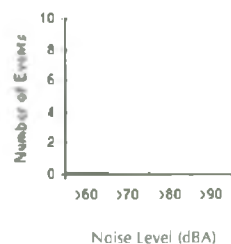


Option B

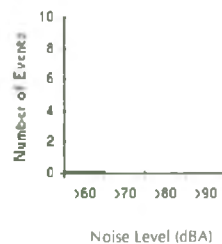


Option C

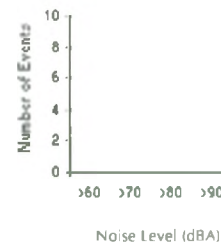
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 6

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	13,541	16,370 ¹	17,660	17,660	17,660	17,660
Educational Facilities ²		8	8	8	8	8
Other Noise Sensitive Land Uses ³		18	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	52	L _{A90}	7am to 7pm	43
	7pm to 10pm	51		7pm to 10pm	41
	10pm to 7am	47		10pm to 7am	37

Monitored at: 39 Birdwood Ave, Doonside

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	23 to 31	22 to 29	11 to 18	29 to 33	27 to 31	20 to 26
L_{Aeq} 10pm-6am ¹	13 to 21	12 to 19	2 to 7	19 to 21	17 to 20	10 to 16
ANEC ²	-14 to -7	-13 to -7	-16 to -8	-6 to -3	-7 to -4	-11 to -5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	0 to 0	1 to 2	0 to 1	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

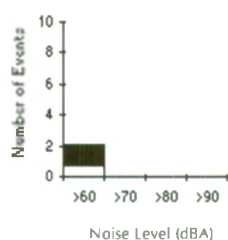
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

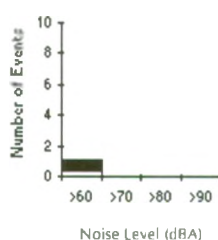
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

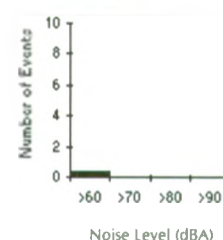
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

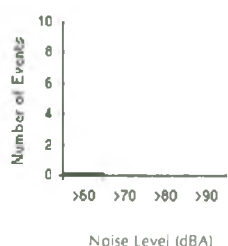


Option B

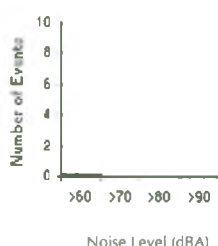


Option C

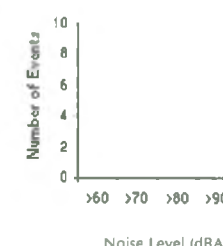
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 7

SHEET 1 / 2

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	18,696	19,530 ¹	20,370	20,370	20,660	20,660
Educational Facilities ²		10	10	10	10	10
Other Noise Sensitive Land Uses ³		20	Not estimated for these years			

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	48	L _{A90}	7am to 7pm	38
	7pm to 10pm	47		7pm to 10pm	37
	10pm to 7am	41		10pm to 7am	36

Monitored at: 11 Finn Place, Maryong

Noise Indicators:

	Option A	Option B	Option C	Option A	Option B	Option C
L_{Aeq} 24 Hour ¹	24 to 33	23 to 31	4 to 13	30 to 35	28 to 33	14 to 24
L_{Aeq} 10pm-6am ¹	13 to 22	13 to 21	-3 to 3	19 to 24	17 to 22	5 to 14
ANEC ²	-14 to -8	-11 to -5	-16 to -8	-5 to -1	-6 to -3	-12 to -6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	1 to 4	0 to 2	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

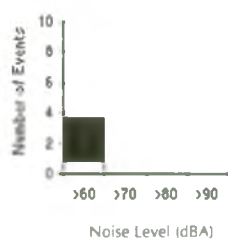
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

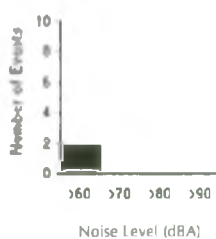
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

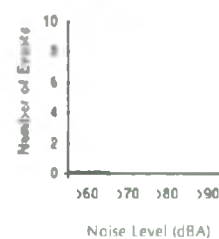
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

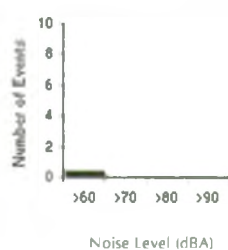


Option B

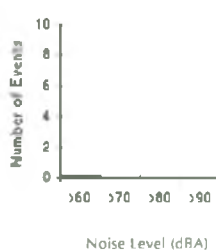


Option C

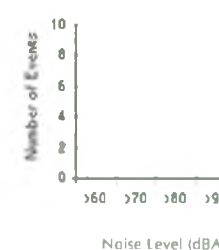
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 8

SHEET 1 / 2

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	31,834	35,190 ¹	36,850	36,850	36,980	36,980
Educational Facilities ²		16	16	16	16	16
Other Noise Sensitive ³ Land Uses		34	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	50	L _{A90}	7am to 7pm	36
	7pm to 10pm	48		7pm to 10pm	37
	10pm to 7am	44		10pm to 7am	35

Monitored at: 66 Joseph Street, Blacktown

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	34 to 41	33 to 40	7 to 14	40 to 43	37 to 41	16 to 24
L_{Aeq} 10pm-6am ¹	25 to 31	23 to 30	-2 to 6	30 to 32	26 to 30	6 to 13
ANEC ²	-8 to 1	-3 to 5	-16 to -8	4 to 9	1 to 7	-11 to -5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 4	1 to 12	0 to 0	11 to 24	5 to 16	0 to 0
Over 70 dBA per 24 Hours	0 to 1	0 to 2	0 to 0	0 to 3	0 to 3	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 1	0 to 0	1 to 2	0 to 1	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 2	0 to 0	2 to 5	0 to 3	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

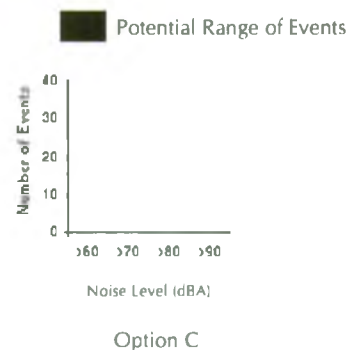
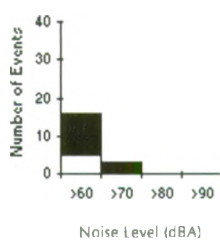
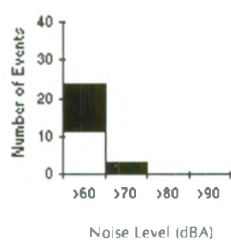
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

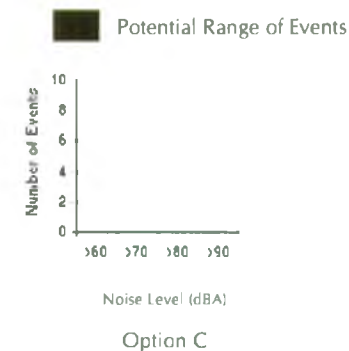
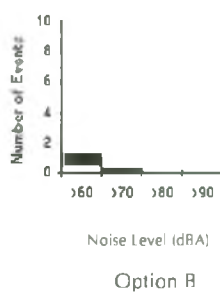
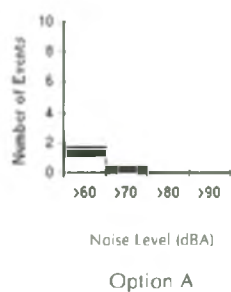
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 9

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	8,799	10,350 ¹	11,870	11,870	12,460	12,460
Educational Facilities ²		5	5	5	5	5
Other Noise Sensitive ³ Land Uses		11	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	46	L _{A90}	7am to 7pm	36
	7pm to 10pm	43		7pm to 10pm	37
	10pm to 7am	40		10pm to 7am	30

Monitored at: 6 Catherine Crescent, Rooty Hill

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	25 to 32	24 to 31	16 to 22	31 to 34	30 to 33	24 to 30
L_{Aeq} 10pm-6am ¹	15 to 23	14 to 22	6 to 11	21 to 23	20 to 22	14 to 18
ANEC ²	-10 to -5	-10 to -5	-14 to -7	-4 to -2	-5 to -2	-9 to -4
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	0 to 0	1 to 3	0 to 1	0 to 1
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

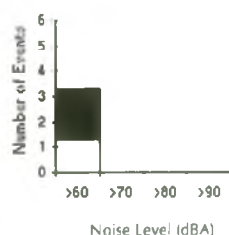
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

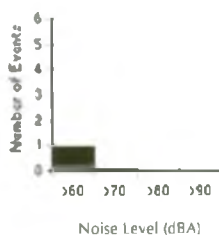
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

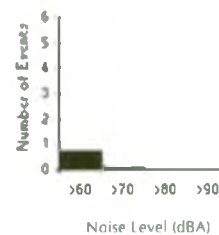
2016 - Number of Noise Events per 24 Hours (on average):



Option A



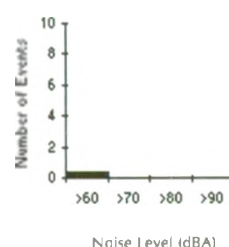
Option B



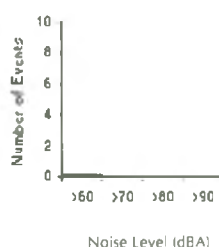
Option C

Potential Range of Events

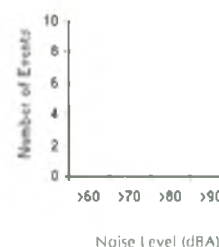
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 10

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	11,789	13,390 ¹	13,740	13,740	13,880	13,880
Educational Facilities ²		7	7	7	7	7
Other Noise Sensitive ³ Land Uses		22	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	56, 48	L _{A90}	7am to 7pm	39, 37
	7pm to 10pm	59, 45		7pm to 10pm	39, 39
	10pm to 7am	56, 42		10pm to 7am	33, 30

Monitored at: 58 Fuller Street, Mount Druitt, 192 McFarlane Drive, Minchinbury

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	26 to 34	26 to 34	20 to 25	32 to 36	32 to 36	27 to 33
L_{Aeq} 10pm-6am ¹	16 to 23	15 to 22	10 to 14	22 to 24	21 to 24	16 to 21
ANEC ²	-7 to -1	-8 to -3	-13 to -6	-2 to 0	-3 to 0	-6 to -2
Number of Noise Events ³						
Over 60 dBA per 24 Hours	1 to 5	0 to 2	0 to 0	2 to 4	2 to 4	0 to 1
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

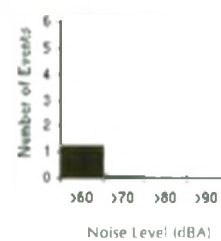
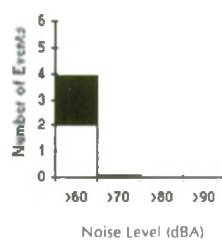
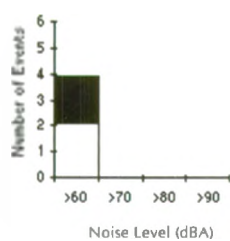
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

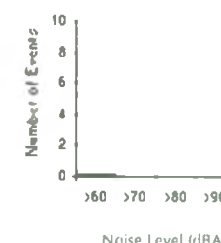
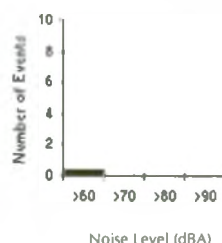
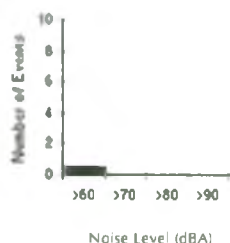
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



Potential Range of Events

2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 11

SHEET 1 / 3

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	19,867	21,470 ¹	22,160	22,160	22,730	22,730
Educational Facilities ²		9	9	9	9	9
Other Noise Sensitive ³ Land Uses		20	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	47	L _{A90}	7am to 7pm	34
	7pm to 10pm	41		7pm to 10pm	34
	10pm to 7am	41		10pm to 7am	27

Monitored at: 1 Arnold Avenue, St Marys

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	31 to 39	30 to 38		36 to 42	35 to 41	
L_{Aeq} 10pm-6am ¹	18 to 27	17 to 26		23 to 30	22 to 29	
ANEC ²	-6 to 1	-5 to 3		1 to 6	0 to 5	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	1 to 7	2 to 10		7 to 23	5 to 19	
Over 70 dBA per 24 Hours	0 to 0	0 to 1		0 to 1	0 to 1	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 0	0 to 1		0 to 1	0 to 1	
Over 70 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm)	0 to 1	0 to 2		1 to 4	1 to 3	
Sleep Disturbance Index ⁴	0 to 0	0 to 0		0 to 0	0 to 0	

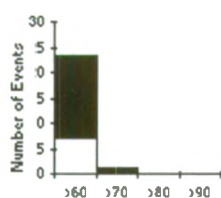
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

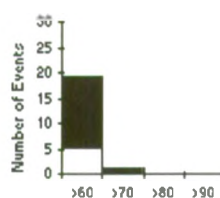
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Noise Level (dBA)

Option A



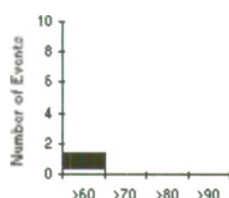
Noise Level (dBA)

Option B

Refer Following
Pages

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events


Noise Level (dBA)

Option B

Refer Following
Pages

Option C

Social Characteristics for Option C:

	Sub Area: 11.C1			Sub Area: 11.C2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	21010	21690	22240	460	470	490
Educational Facilities ²	9	9	9	0	0	0
Other Noise Sensitive ³ Land Uses	20			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 11.C1		Sub Area: 11.C2	
	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	25 to 33	37 to 44	33 to 41	49 to 53
L_{Aeq} 10pm-6am ¹	15 to 21	26 to 33	23 to 30	39 to 42
ANEC ²	-5 to -2	2 to 9	2 to 6	14 to 17
Number of Noise Events ³				
Over 60 dBA per 24 Hours	0 to 0	4 to 25	0 to 1	52 to 84
Over 70 dBA per 24 Hours	0 to 0	0 to 4	0 to 0	14 to 37
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 2
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 2	0 to 0	4 to 6
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	1 to 3
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	0 to 4	0 to 0	14 to 31
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0.1 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 12

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	20,759	21,790 ¹	22,120	22,120	23,100	23,100
Educational Facilities ²		7	7	7	7	7
Other Noise Sensitive ³ Land Uses		13	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	54	L _{A90}	7am to 7pm	35
	7pm to 10pm	48		7pm to 10pm	33
	10pm to 7am	36		10pm to 7am	25

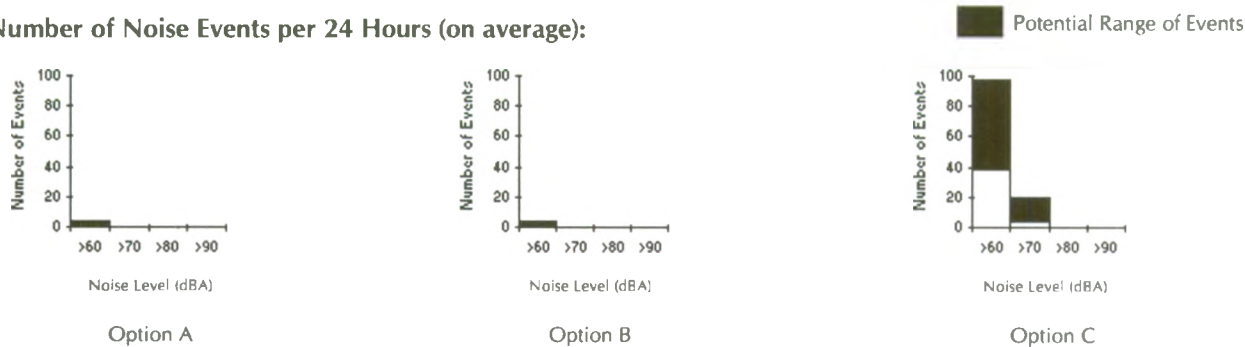
Monitored at: 3 Loxwood Avenue, Camebridge Park

Noise Indicators:

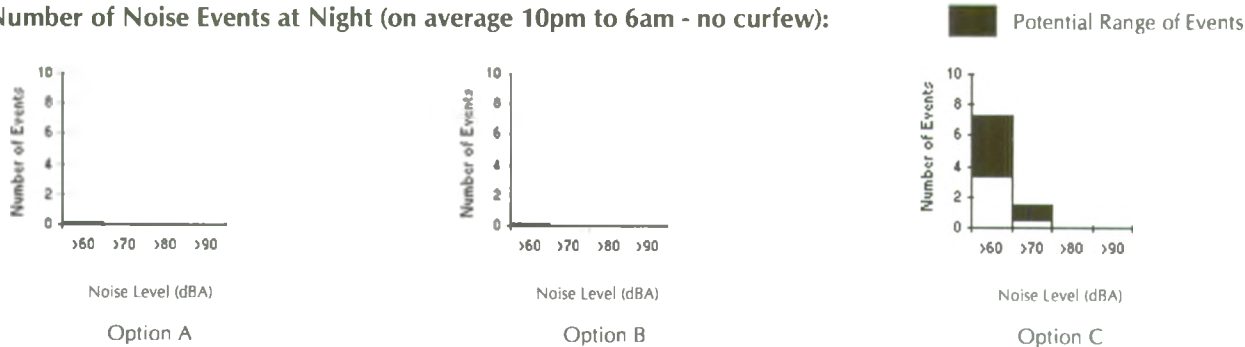
	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	26 to 34	25 to 33	42 to 51	31 to 36	30 to 36	45 to 50
L_{Aeq} 10pm-6am ¹	15 to 21	14 to 21	33 to 40	19 to 24	18 to 23	35 to 39
ANEC ²	-8 to -3	-8 to -4	8 to 15	-3 to 0	-3 to -1	9 to 15
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 3	0 to 2	20 to 92	1 to 3	1 to 3	38 to 97
Over 70 dBA per 24 Hours	0 to 0	0 to 0	3 to 26	0 to 0	0 to 0	4 to 19
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	2 to 6	0 to 0	0 to 0	3 to 7
Over 70 dBA per Night	0 to 0	0 to 0	0 to 3	0 to 0	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	4 to 30	0 to 0	0 to 0	8 to 27
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0.1 to 0.2	0 to 0	0 to 0	0.1 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 13

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	29,243	30,910 ¹	30,910	30,910	30,910	30,910
Educational Facilities ²		11	11	11	11	11
Other Noise Sensitive Land Uses ³		26	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	49	L_{A90}	7am to 7pm	34
	7pm to 10pm	46		7pm to 10pm	35
	10pm to 7am	42		10pm to 7am	28

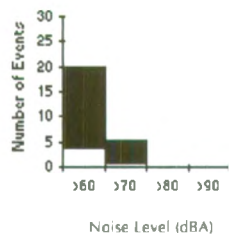
Monitored at: 20 Treetops Ave, Penrith

Noise Indicators:

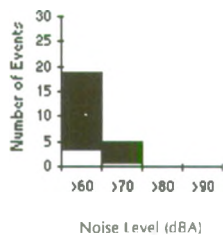
	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	32 to 41	31 to 41	35 to 45	37 to 43	36 to 43	40 to 46
L_{Aeq} 10pm-6am ¹	18 to 29	16 to 28	23 to 33	22 to 29	21 to 29	28 to 32
ANEC ²	-5 to 5	-4 to 6	-1 to 9	2 to 9	1 to 8	4 to 10
Number of Noise Events ³						
Over 60 dBA per 24 Hours	1 to 12	1 to 13	2 to 19	4 to 20	3 to 19	9 to 27
Over 70 dBA per 24 Hours	0 to 3	0 to 3	0 to 6	1 to 5	1 to 5	2 to 10
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	1 to 2
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 4	0 to 4	1 to 7	1 to 7	1 to 6	3 to 10
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

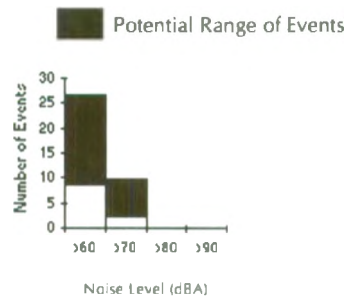
2016 - Number of Noise Events per 24 Hours (on average):



Option A

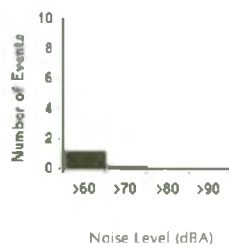


Option B

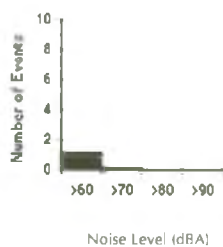


Option C

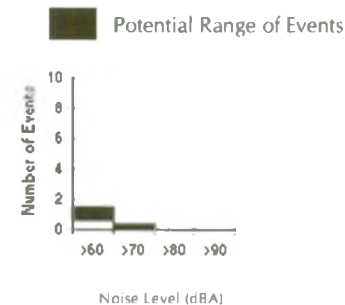
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 14

SHEET 1 / 2

Social Characteristics:

Year	1991	1996	2006		2016		
	Census		Options A and B	Option C	Options A and B	Option C	
Estimated Population	14,509	15,550 ¹	16,820	16,820	17,810	17,810	
Educational Facilities ²		7	7	7	7	7	
Other Noise Sensitive ³ Land Uses		15	Not estimated for these years				

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	56	L _{A90}	7am to 7pm	36
	7pm to 10pm	46		7pm to 10pm	31
	10pm to 7am	58		10pm to 7am	28

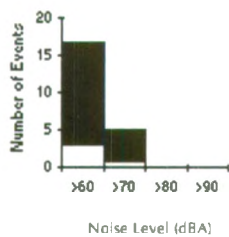
Monitored at: 18 McAuley Cres., Emu Plains

Noise Indicators:

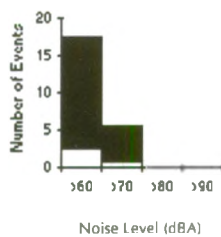
	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	30 to 40	29 to 40	31 to 41	35 to 42	35 to 42	37 to 43
L_{Aeq} 10pm-6am ¹	15 to 28	14 to 27	20 to 30	20 to 28	19 to 29	26 to 31
ANEC ²	-6 to 4	-5 to 5	-5 to 5	0 to 8	0 to 7	1 to 6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	1 to 10	1 to 11	1 to 9	3 to 17	3 to 17	5 to 14
Over 70 dBA per 24 Hours	0 to 2	0 to 3	0 to 4	1 to 5	1 to 5	2 to 7
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 4	0 to 4	0 to 4	1 to 6	1 to 5	1 to 5
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

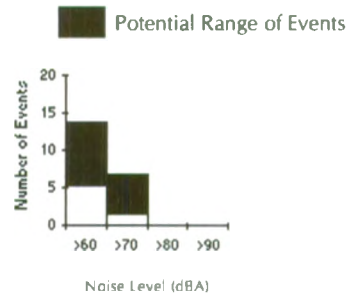
2016 - Number of Noise Events per 24 Hours (on average):



Option A

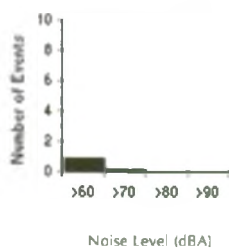


Option B

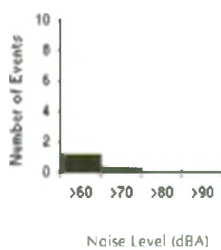


Option C

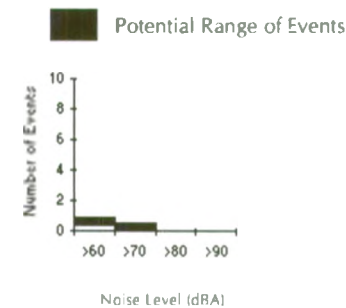
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 15

SHEET 1 / 3

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	2,720	10,500 ¹	19,420	19,420	20,440	20,440
Educational Facilities ²		8	9	9	10	10
Other Noise Sensitive Land Uses ³		9	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	53, 51	L _{A90}	7am to 7pm	36, 33
	7pm to 10pm	44, 42		7pm to 10pm	34, 32
	10pm to 7am	45, 41		10pm to 7am	26, 27

Monitored at: 1209 Mulgoa Road, Mulgoa, 5 Bulu Drive, Glenmore Park

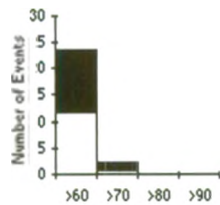
Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L _{Aeq} 24 Hour ¹	34 to 40	33 to 39		39 to 42	38 to 43	
L _{Aeq} 10pm-6am ¹	25 to 30	24 to 29		28 to 32	27 to 31	
ANEC ²	-5 to 2	-3 to 5		4 to 8	3 to 8	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	1 to 8	2 to 10		12 to 23	10 to 20	
Over 70 dBA per 24 Hours	0 to 1	0 to 1		1 to 2	1 to 3	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 0	0 to 1		1 to 1	1 to 1	
Over 70 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm) ⁴	0 to 1	0 to 2		2 to 5	1 to 4	
Sleep Disturbance Index	0 to 0	0 to 0		0 to 0	0 to 0	

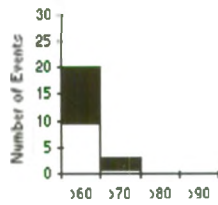
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

Potential Range of Events



Option A



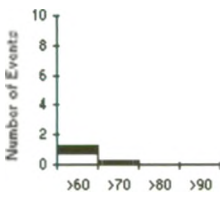
Option B

Refer Following
Pages

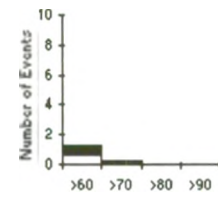
Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Potential Range of Events



Option A



Option B

Refer Following
Pages

Option C

Social Characteristics for Option C:

	Sub Area: 15.C1			Sub Area: 15.C2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10170	18800	19800	330	600	650
Educational Facilities ²	8	9	10	0	0	0
Other Noise Sensitive ³ Land Uses	9			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 15.C1		Sub Area: 15.C2	
	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	34 to 41	39 to 43	37 to 49	43 to 52
L_{Aeq} 10pm-6am ¹	24 to 32	29 to 33	25 to 41	30 to 41
ANEC ²	-2 to 6	4 to 9	3 to 17	8 to 19
Number of Noise Events ³				
Over 60 dBA per 24 Hours	2 to 14	9 to 25	4 to 43	13 to 86
Over 70 dBA per 24 Hours	0 to 2	1 to 3	1 to 18	3 to 29
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 2	0 to 4
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	1 to 2	0 to 4	0 to 7
Over 70 dBA per Night	0 to 0	0 to 0	0 to 2	0 to 3
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 4	1 to 7	1 to 14	3 to 26
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0.1	0 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 16

SHEET 1 / 3

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	207	260	270	270	280	270
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	46	L _{A90}	7am to 7pm	37
	7pm to 10pm	43		7pm to 10pm	35
	10pm to 7am	41		10pm to 7am	27

Monitored at: 18 Claremont Road, RAAF Base

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	31 to 39	31 to 39		37 to 41	37 to 41	
L_{Aeq} 10pm-6am ¹	21 to 28	21 to 28		27 to 29	27 to 29	
ANEC ²	-2 to 5	-3 to 4		4 to 7	3 to 6	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	1 to 10	1 to 10		6 to 15	5 to 14	
Over 70 dBA per 24 Hours	0 to 2	0 to 1		1 to 2	1 to 2	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 1	0 to 1		0 to 1	0 to 1	
Over 70 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm)	0 to 2	0 to 2		1 to 3	1 to 3	
Sleep Disturbance Index	0 to 0	0 to 0		0 to 0	0 to 0	

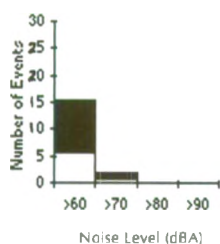
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

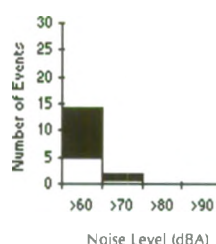
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

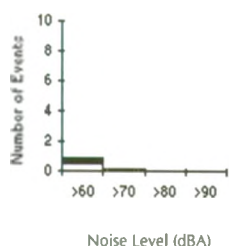


Option B

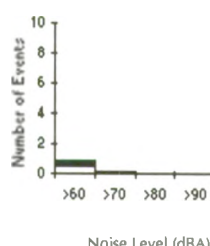
Refer Following
Pages

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events


Option A



Option B

Refer Following
Pages

Option C

Social Characteristics for Option C:

	Sub Area: 16.C1			Sub Area: 16.C2			Sub Area: 16.C3			Sub Area: 16.C4			Sub Area: 16.C5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	80	80	80	180	190	190	0	0	0	0	0	0	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 16.C1		Sub Area: 16.C2		Sub Area: 16.C3		Sub Area: 16.C4		Sub Area: 16.C5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	40 to 49	46 to 50	43 to 49	48 to 51	42 to 53	47 to 54	52 to 61	55 to 61	38 to 50	43 to 52
L_{Aeq} 10pm-6am ¹	31 to 37	36 to 37	33 to 39	38 to 40	31 to 42	34 to 41	43 to 51	45 to 50	25 to 41	30 to 41
ANEC ²	6 to 15	11 to 17	9 to 15	15 to 17	8 to 19	12 to 21	17 to 26	22 to 29	3 to 17	9 to 19
Number of Noise Events ³										
Over 60 dBA per 24 Hours	9 to 32	29 to 59	14 to 42	47 to 73	9 to 61	35 to 114	22 to 104	85 to 202	4 to 50	14 to 94
Over 70 dBA per 24 Hours	2 to 13	7 to 18	3 to 15	13 to 26	1 to 22	4 to 34	13 to 85	47 to 167	1 to 15	3 to 25
Over 80 dBA per 24 Hours	0 to 2	0 to 4	0 to 2	1 to 3	0 to 6	1 to 9	2 to 33	10 to 53	0 to 2	0 to 3
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 3	2 to 4	2 to 4	4 to 5	1 to 5	3 to 8	3 to 9	8 to 17	0 to 4	0 to 7
Over 70 dBA per Night	0 to 1	1 to 1	0 to 1	1 to 2	0 to 2	0 to 2	2 to 6	4 to 13	0 to 2	0 to 2
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 4	1 to 4	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	3 to 10	9 to 16	3 to 13	13 to 22	1 to 19	5 to 31	9 to 47	30 to 87	1 to 16	4 to 29
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.1	0 to 0.1	0.1 to 0.2	0 to 0.2	0.1 to 0.2	0.1 to 0.5	0.3 to 0.9	0 to 0.1	0 to 0.2

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 17

SHEET 1 / 9

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	177	190 ¹	200	190	200	190
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive Land Uses ³		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	50, 49	L _{A90}	7am to 7pm	29, 38
	7pm to 10pm	41, 46		7pm to 10pm	31, 36
	10pm to 7am	42, 47		10pm to 7am	26, 31

Monitored at: 130 Gates Road, Luddenham, Roseland Lodge, Badgerys Creek

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	Refer Following Pages			Refer Following Pages		
L_{Aeq} 10pm-6am ¹						
ANEC ²						
Number of Noise Events ³						
Over 60 dBA per 24 Hours						
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index ⁴						

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

Potential Range of Events

Refer Following Pages	Refer Following Pages	Refer Following Pages
Option A	Option B	Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Potential Range of Events

Refer Following Pages	Refer Following Pages	Refer Following Pages
Option A	Option B	Option C

Social Characteristics for Option A:

	Sub Area: 17.AB1			Sub Area: 17.AB2			Sub Area: 17.AB3			Sub Area: 17.AB4			Sub Area: 17.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	110	120	120	20	20	20	40	40	40	10	10	10	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 17.AB1		Sub Area: 17.AB2		Sub Area: 17.AB3		Sub Area: 17.AB4		Sub Area: 17.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	31 to 38	47 to 52	29 to 37	44 to 47	34 to 42	47 to 52	35 to 44	50 to 56	36 to 46	52 to 59
L_{Aeq} 10pm-6am ¹	22 to 28	36 to 41	20 to 28	33 to 36	23 to 31	36 to 39	25 to 33	38 to 43	24 to 35	38 to 46
ANEC ²	-4 to 3	6 to 9	-7 to 2	2 to 5	-1 to 6	10 to 17	1 to 8	14 to 22	1 to 11	18 to 26
Number of Noise Events ³										
Over 60 dBA per 24 Hours	0 to 3	13 to 35	0 to 2	11 to 23	1 to 12	26 to 93	2 to 24	53 to 139	2 to 32	76 to 155
Over 70 dBA per 24 Hours	0 to 1	3 to 18	0 to 0	1 to 5	0 to 0	3 to 18	0 to 1	17 to 53	0 to 5	16 to 70
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	1 to 6	0 to 0	3 to 19
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	1 to 2	0 to 0	1 to 1	0 to 1	1 to 5	0 to 2	4 to 9	0 to 3	5 to 11
Over 70 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	1 to 3	0 to 0	1 to 4
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 1	4 to 10	0 to 1	5 to 11	0 to 1	9 to 27	0 to 3	12 to 41	1 to 7	19 to 53
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0	0 to 0	0 to 0	0 to 0.1	0 to 0	0.1 to 0.2	0 to 0.1	0.1 to 0.3

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 17.AB6			Sub Area: 17.AB7			Sub Area: 17.AB8			Sub Area: 17.AB9		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	0	0	0	10	10	10
Educational Facilities ²	1	1	1	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years.

Noise Indicators for Option A:

	Sub Area: 17.AB6		Sub Area: 17.AB7		Sub Area: 17.AB8		Sub Area: 17.AB9	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	40 to 49	63 to 67	44 to 52	59 to 62	47 to 56	53 to 57	53 to 60	55 to 58
L_{Aeq} 10pm-6am ¹	30 to 38	53 to 56	34 to 42	48 to 51	36 to 45	42 to 46	44 to 50	45 to 47
ANEC ²	4 to 14	31 to 34	7 to 18	24 to 29	12 to 23	17 to 23	20 to 28	21 to 24
Number of Noise Events ³								
Over 60 dBA per 24 Hours	6 to 62	139 to 207	17 to 106	153 to 248	50 to 143	176 to 270	74 to 166	158 to 257
Over 70 dBA per 24 Hours	1 to 8	105 to 175	2 to 31	99 to 157	6 to 57	24 to 85	36 to 121	58 to 108
Over 80 dBA per 24 Hours	0 to 0	49 to 114	0 to 0	19 to 44	1 to 10	1 to 8	5 to 33	5 to 16
Over 90 dBA per 24 Hours	0 to 0	11 to 29	0 to 0	0 to 3	0 to 0	0 to 0	0 to 1	0 to 0
Over 60 dBA per Night	0 to 5	12 to 15	1 to 8	14 to 18	5 to 10	14 to 19	11 to 13	14 to 19
Over 70 dBA per Night	0 to 1	9 to 14	0 to 3	9 to 11	0 to 5	2 to 6	4 to 8	5 to 8
Over 80 dBA per Night	0 to 0	4 to 8	0 to 0	2 to 3	0 to 1	0 to 1	1 to 3	1 to 1
Over 90 dBA per Night	0 to 0	1 to 2	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 19	57 to 85	2 to 30	57 to 90	9 to 49	37 to 82	26 to 71	48 to 80
Sleep Disturbance Index ⁴	0 to 0.1	0.7 to 1	0 to 0.2	0.5 to 0.7	0.1 to 0.3	0.3 to 0.5	0.3 to 0.6	0.4 to 0.5

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 17.AB1			Sub Area: 17.AB2			Sub Area: 17.AB3			Sub Area: 17.AB4			Sub Area: 17.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	110	120	120	20	20	20	40	40	40	10	10	10	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 17.AB1		Sub Area: 17.AB2		Sub Area: 17.AB3		Sub Area: 17.AB4		Sub Area: 17.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	37 to 46	43 to 48	34 to 42	40 to 50	40 to 48	46 to 49	42 to 51	48 to 52	43 to 54	49 to 56
L_{Aeq} 10pm-6am ¹	27 to 38	32 to 36	25 to 33	29 to 38	29 to 38	34 to 37	32 to 40	37 to 40	30 to 42	34 to 42
ANEC ²	-2 to 4	1 to 5	-4 to 2	-1 to 14	1 to 10	4 to 10	4 to 14	7 to 13	7 to 17	10 to 18
Number of Noise Events ³										
Over 60 dBA per 24 Hours	2 to 14	11 to 24	1 to 10	3 to 31	5 to 52	19 to 59	9 to 80	27 to 96	18 to 102	46 to 123
Over 70 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	0 to 11	0 to 4	1 to 7	3 to 20	12 to 29	2 to 29	7 to 40
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 2	0 to 0	0 to 0	0 to 0	0 to 1	0 to 5	1 to 8
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	1 to 1	0 to 2	0 to 2	0 to 5	1 to 4	0 to 6	1 to 6	1 to 8	3 to 8
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 2	1 to 2	0 to 3	0 to 3
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 5	2 to 9	0 to 0	0 to 8	1 to 13	7 to 17	2 to 25	9 to 28	2 to 27	6 to 32
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0	0 to 0	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.2	0 to 0.1	0 to 0.2	0 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 17.AB6			Sub Area: 17.AB7			Sub Area: 17.AB8			Sub Area: 17.AB9		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	0	0	0	10	10	10
Educational Facilities ²	1	1	1	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 17.AB6		Sub Area: 17.AB7		Sub Area: 17.AB8		Sub Area: 17.AB9	
	2006	2016	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	51 to 59	55 to 60	60 to 68	63 to 68	54 to 61	57 to 60	47 to 57	51 to 55
L _{Aeq} 10pm-6am ¹	40 to 49	43 to 48	51 to 59	53 to 57	44 to 51	46 to 49	36 to 48	39 to 44
ANEC ²	16 to 24	19 to 23	28 to 37	30 to 36	20 to 28	22 to 25	13 to 24	16 to 19
Number of Noise Events ³								
Over 60 dBA per 24 Hours	70 to 166	114 to 176	82 to 184	126 to 193	78 to 175	121 to 191	56 to 155	119 to 200
Over 70 dBA per 24 Hours	21 to 96	51 to 109	57 to 168	101 to 169	44 to 140	81 to 142	10 to 74	19 to 65
Over 80 dBA per 24 Hours	1 to 23	5 to 30	25 to 127	51 to 122	7 to 40	13 to 33	1 to 13	1 to 7
Over 90 dBA per 24 Hours	0 to 1	0 to 2	6 to 55	15 to 45	0 to 1	0 to 1	0 to 0	0 to 0
Over 60 dBA per Night	10 to 12	10 to 13	11 to 14	11 to 14	11 to 14	11 to 14	6 to 11	10 to 14
Over 70 dBA per Night	2 to 8	4 to 7	8 to 14	9 to 13	6 to 11	7 to 10	1 to 6	1 to 4
Over 80 dBA per Night	0 to 2	0 to 2	4 to 10	5 to 10	1 to 4	1 to 2	0 to 2	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	1 to 6	2 to 4	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	23 to 68	43 to 70	33 to 85	52 to 84	29 to 77	47 to 76	11 to 56	24 to 59
Sleep Disturbance Index ⁴	0.2 to 0.5	0.3 to 0.5	0.6 to 1.3	0.7 to 1.2	0.4 to 0.7	0.4 to 0.6	0.1 to 0.4	0.2 to 0.4

- Note:
- 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 17.C1			Sub Area: 17.C2			Sub Area: 17.C3			Sub Area: 17.C4			Sub Area: 17.C5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	60	60	60	30	30	30	10	10	10	40	40	40	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 17.C1		Sub Area: 17.C2		Sub Area: 17.C3		Sub Area: 17.C4		Sub Area: 17.C5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	39 to 49	45 to 51	47 to 55	53 to 57	47 to 59	52 to 61	58 to 67	62 to 67	54 to 61	57 to 62
L_{Aeq} 10pm-6am ¹	29 to 40	33 to 39	37 to 46	41 to 45	35 to 49	39 to 49	49 to 57	52 to 56	45 to 51	47 to 50
ANEC ²	4 to 14	7 to 16	10 to 21	13 to 23	13 to 26	18 to 28	24 to 33	30 to 36	19 to 27	24 to 29
Number of Noise Events ³										
Over 60 dBA per 24 Hours	4 to 50	19 to 91	8 to 67	33 to 132	16 to 85	62 to 163	121 to 272	164 to 255	114 to 265	160 to 245
Over 70 dBA per 24 Hours	0 to 9	1 to 15	3 to 38	14 to 65	4 to 53	14 to 100	36 to 115	115 to 221	22 to 97	82 to 192
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 3	1 to 6	1 to 23	4 to 36	13 to 76	49 to 146	4 to 37	18 to 62
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	2 to 25	8 to 40	0 to 0	0 to 1
Over 60 dBA per Night	0 to 4	1 to 7	1 to 6	2 to 10	1 to 7	5 to 13	17 to 20	15 to 19	16 to 20	15 to 19
Over 70 dBA per Night	0 to 1	0 to 1	0 to 4	1 to 4	0 to 5	1 to 8	5 to 10	11 to 18	3 to 8	8 to 14
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 3	0 to 3	2 to 6	5 to 11	0 to 4	2 to 4
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 3	1 to 3	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 16	6 to 26	2 to 26	9 to 46	4 to 33	16 to 57	20 to 57	61 to 106	17 to 54	59 to 106
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0.1	0 to 0.2	0.1 to 0.3	0 to 0.4	0.1 to 0.5	0.4 to 0.9	0.8 to 1.4	0.4 to 0.7	0.6 to 0.9

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 17.C6			Sub Area: 17.C7			Sub Area: 17.C8			Sub Area: 17.C9			Sub Area: 17.C10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	20	20	10	10	10	10	10	10	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

- Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 17.C6		Sub Area: 17.C7		Sub Area: 17.C8		Sub Area: 17.C9		Sub Area: 17.C10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	50 to 57	54 to 57	44 to 52	48 to 52	39 to 48	51 to 56	35 to 44	58 to 62	32 to 41	50 to 56
L_{Aeq} 10pm-6am ¹	40 to 47	43 to 45	34 to 42	38 to 41	29 to 38	40 to 46	24 to 34	48 to 51	22 to 31	39 to 45
ANEC ²	15 to 21	19 to 22	11 to 15	14 to 18	7 to 12	15 to 23	4 to 8	25 to 29	1 to 5	16 to 23
Number of Noise Events ³										
Over 60 dBA per 24 Hours	110 to 259	162 to 242	84 to 216	09 to 18	3 to 33	79 to 170	0 to 9	66 to 132	0 to 5	61 to 122
Over 70 dBA per 24 Hours	10 to 52	43 to 90	1 to 7	8 to 30	0 to 1	18 to 58	0 to 0	54 to 87	0 to 0	19 to 55
Over 80 dBA per 24 Hours	0 to 2	1 to 4	0 to 0	0 to 1	0 to 0	1 to 10	0 to 0	20 to 56	0 to 0	1 to 9
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	2 to 10	0 to 0	0 to 0
Over 60 dBA per Night	15 to 18	14 to 18	11 to 14	9 to 13	0 to 4	6 to 12	0 to 1	5 to 10	0 to 1	5 to 9
Over 70 dBA per Night	1 to 5	4 to 6	0 to 1	1 to 2	0 to 0	1 to 4	0 to 0	5 to 6	0 to 0	1 to 4
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	2 to 4	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	12 to 44	50 to 91	3 to 20	19 to 45	1 to 9	23 to 56	0 to 2	26 to 46	0 to 0	18 to 38
Sleep Disturbance Index ⁴	0.3 to 0.4	0.4 to 0.5	0.1 to 0.2	0.2 to 0.3	0 to 0.1	0.2 to 0.4	0 to 0	0.3 to 0.5	0 to 0	0.1 to 0.3

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 17.C11			Sub Area: 17.C12		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0		

- Notes: 1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 17.C11		Sub Area: 17.C12	
	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	31 to 39	45 to 50	41 to 50	64 to 69
L_{Aeq} 10pm-6am ¹	22 to 29	35 to 40	31 to 43	54 to 58
ANEC ²	-2 to 3	8 to 16	4 to 9	32 to 37
Number of Noise Events ³				
Over 60 dBA per 24 Hours	0 to 2	28 to 94	2 to 28	83 to 169
Over 70 dBA per 24 Hours	0 to 0	2 to 18	0 to 6	68 to 114
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	31 to 77
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	15 to 53
Over 60 dBA per Night	0 to 0	2 to 7	0 to 3	7 to 12
Over 70 dBA per Night	0 to 0	0 to 1	0 to 1	6 to 8
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	3 to 6
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	2 to 4
Over 65 dBA (9am-3pm)	0 to 0	5 to 22	1 to 4	36 to 61
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0.1	0.5 to 0.9

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 18

SHEET 1 / 6

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	875	890 ¹	920	910	930	910
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive Land Uses ³		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	44	L _{A90}	7am to 7pm	34
	7pm to 10pm	44		7pm to 10pm	36
	10pm to 7am	40		10pm to 7am	33

Monitored at: 68 Homestead Road, Orchard Hills

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹						
L_{Aeq} 10pm-6am ¹						
ANEC ²						
Number of Noise Events ³						
Over 60 dBA per 24 Hours		Refer Following Pages			Refer Following Pages	
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index ⁴						

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

Social Characteristics for Option A:

	Sub Area: 18.AB1			Sub Area: 18.AB2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	830	850	870	60	60	60
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	1			0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 18.AB1		Sub Area: 18.AB2	
	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	31 to 41	38 to 44	36 to 47	44 to 52
L _{Aeq} 10pm-6am ¹	18 to 29	26 to 31	21 to 35	28 to 38
ANEC ²	-3 to 6	4 to 10	2 to 13	10 to 18
Number of Noise Events ³				
Over 60 dBA per 24 Hours	1 to 11	7 to 27	2 to 19	12 to 49
Over 70 dBA per 24 Hours	0 to 2	1 to 5	1 to 11	4 to 21
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 2	1 to 6
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 2	0 to 1	0 to 3
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 3	2 to 7	1 to 8	3 to 15
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0.1

- Note:
- 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 18.AB1			Sub Area: 18.AB2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	830	850	870	60	60	60
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	1			0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 18.AB1		Sub Area: 18.AB2	
	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	31 to 41	37 to 43	38 to 49	43 to 50
L _{Aeq} 10pm-6am ¹	19 to 30	25 to 30	22 to 36	28 to 37
ANEC ²	-6 to 4	-3 to 5	0 to 12	4 to 12
Number of Noise Events ³				
Over 60 dBA per 24 Hours	1 to 14	5 to 21	3 to 23	10 to 38
Over 70 dBA per 24 Hours	0 to 3	1 to 4	1 to 13	3 to 18
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 2	0 to 3
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 2
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 4	2 to 6	1 to 9	3 to 13
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0.1	0 to 0.1

- Note:
- 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 18.C1			Sub Area: 18.C2			Sub Area: 18.C3			Sub Area: 18.C4			Sub Area: 18.C5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	170	180	180	90	90	90	360	370	370	70	70	70	110	110	110
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	1			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years.

Noise Indicators for Option C:

	Sub Area: 18.C1		Sub Area: 18.C2		Sub Area: 18.C3		Sub Area: 18.C4		Sub Area: 18.C5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	42 to 49	47 to 50	48 to 57	50 to 56	44 to 51	49 to 52	41 to 47	47 to 50	36 to 44	50 to 53
L_{Aeq} 10pm-6am ¹	30 to 38	35 to 38	39 to 46	40 to 45	35 to 41	38 to 40	32 to 37	37 to 39	26 to 33	40 to 42
ANEC ²	7 to 14	12 to 16	11 to 20	16 to 22	10 to 15	14 to 18	6 to 11	12 to 16	5 to 8	16 to 19
Number of Noise Events ³										
Over 60 dBA per 24 Hours	5 to 21	16 to 33	13 to 68	58 to 134	11 to 68	93 to 168	4 to 30	57 to 109	1 to 6	61 to 97
Over 70 dBA per 24 Hours	2 to 13	9 to 18	7 to 45	24 to 89	1 to 10	10 to 25	0 to 4	7 to 18	0 to 0	18 to 44
Over 80 dBA per 24 Hours	0 to 3	1 to 4	1 to 11	3 to 17	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	2 to 5
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	1 to 2	2 to 6	5 to 11	1 to 5	8 to 12	0 to 2	5 to 8	0 to 1	5 to 7
Over 70 dBA per Night	0 to 1	1 to 1	1 to 3	2 to 6	0 to 1	1 to 2	0 to 0	1 to 1	0 to 0	2 to 3
Over 80 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 8	5 to 12	4 to 28	17 to 54	2 to 21	19 to 39	1 to 7	11 to 24	0 to 0	17 to 31
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0.1	0.1 to 0.2	0.2 to 0.4	0.1 to 0.2	0.2 to 0.3	0 to 0.1	0.1 to 0.2	0 to 0	0.2 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 18.C6			Sub Area: 18.C7		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	80	90	90	0	0	0
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 18.C6		Sub Area: 18.C7	
	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	33 to 42	53 to 57	33 to 42	56 to 60
L _{Aeq} 10pm-6am ¹	23 to 31	43 to 46	23 to 32	46 to 49
ANEC ²	4 to 7	19 to 23	4 to 7	23 to 27
Number of Noise Events ³				
Over 60 dBA per 24 Hours	0 to 1	62 to 111	0 to 4	63 to 119
Over 70 dBA per 24 Hours	0 to 0	29 to 71	0 to 0	39 to 79
Over 80 dBA per 24 Hours	0 to 0	7 to 24	0 to 0	12 to 39
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	5 to 8	0 to 0	5 to 8
Over 70 dBA per Night	0 to 0	2 to 5	0 to 0	3 to 6
Over 80 dBA per Night	0 to 0	1 to 2	0 to 0	1 to 3
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	23 to 38	0 to 0	26 to 42
Sleep Disturbance Index ⁴	0 to 0	0.2 to 0.3	0 to 0	0.3 to 0.4

- Note:
- 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Social Characteristics:

Year	1991 Census	1996	2006		2016		
			Options A and B	Option C	Options A and B	Option C	
Estimated Population	9,407	12,220 ¹	14,480	14,480	16,270	16,270	
Educational Facilities ²		13	13	13	13	13	
Other Noise Sensitive Land Uses ³		11	Not estimated for these years				

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	53, 53	L _{A90}	7am to 7pm	35, 38
	7pm to 10pm	49, 47		7pm to 10pm	37, 37
	10pm to 7am	47, 39		10pm to 7am	33, 36

Monitored at: 8 Vivaldi Crescent, Claremont Meadows, 55 Manning Street, Kingswood

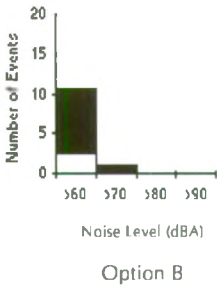
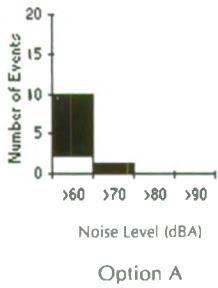
Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L _{Aeq} 24 Hour ¹	28 to 37	28 to 37		34 to 40	34 to 39	
L _{Aeq} 10pm-6am ¹	17 to 26	16 to 26		23 to 27	22 to 26	
ANEC ²	-6 to 2	-6 to 2		0 to 5	-1 to 4	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	0 to 4	1 to 7		2 to 10	2 to 11	
Over 70 dBA per 24 Hours	0 to 1	0 to 1		0 to 1	0 to 1	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 0	0 to 1		0 to 0	0 to 1	
Over 70 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm)	0 to 1	0 to 2		1 to 2	1 to 2	
Sleep Disturbance Index ⁴	0 to 0	0 to 0		0 to 0	0 to 0	

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

Potential Range of Events

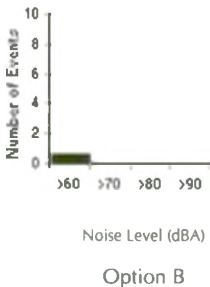
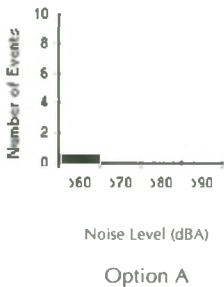


Refer Following
Pages

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Potential Range of Events



Refer Following
Pages

Option C

Social Characteristics for Option C:

	Sub Area: 19.C1			Sub Area: 19.C2			Sub Area: 19.C3		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	11940	14140	15890	260	310	350	30	30	40
Educational Facilities ²	13	13	13	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	11			0			0		

- Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 19.C1		Sub Area: 19.C2		Sub Area: 19.C3	
	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	42 to 50	47 to 50	45 to 54	48 to 53	35 to 43	49 to 52
L _{Aeq} 10pm-6am ¹	33 to 39	36 to 39	36 to 43	37 to 42	26 to 33	39 to 41
ANEC ²	6 to 13	12 to 15	8 to 17	13 to 19	4 to 8	14 to 17
Number of Noise Events ³						
Over 60 dBA per 24 Hours	7 to 43	50 to 114	11 to 57	48 to 117	1 to 6	56 to 92
Over 70 dBA per 24 Hours	1 to 13	7 to 22	3 to 27	12 to 49	0 to 0	14 to 31
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 2	1 to 3	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 3	4 to 8	1 to 5	4 to 9	0 to 1	5 to 7
Over 70 dBA per Night	0 to 1	1 to 2	0 to 2	1 to 3	0 to 0	1 to 2
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 13	10 to 27	3 to 20	12 to 38	0 to 1	14 to 30
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.2	0 to 0.2	0.1 to 0.3	0 to 0	0.1 to 0.2

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 20

SHEET 1 / 5

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	26,354	30,700 ¹	31,320	31,320	31,710	31,710
Educational Facilities ²		8	8	8	8	8
Other Noise Sensitive ³ Land Uses		13	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	51	L _{A90}	7am to 7pm	33
	7pm to 10pm	41		7pm to 10pm	31
	10pm to 7am	44		10pm to 7am	27

Monitored at: 28 Pine Creek Circuit, St Clair

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour	Refer Following Pages			Refer Following Pages		
L_{Aeq} 10pm-6am						
ANEC						
Number of Noise Events						
Over 60 dBA per 24 Hours						
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index						

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

Social Characteristics for Option A:

	Sub Area: 20.AB1			Sub Area: 20.AB2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	30690	31310	31700	10	10	10
Educational Facilities ²	8	8	8	0	0	0
Other Noise Sensitive ³ Land Uses	13			0		

- Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 20.AB1		Sub Area: 20.AB2	
	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	32 to 40	39 to 44	36 to 47	44 to 51
L _{Aeq} 10pm-6am ¹	19 to 27	26 to 32	21 to 35	29 to 38
ANEC ²	-3 to 4	3 to 9	2 to 13	9 to 18
Number of Noise Events ¹				
Over 60 dBA per 24 Hours	2 to 13	11 to 37	3 to 22	18 to 73
Over 70 dBA per 24 Hours	0 to 2	1 to 3	1 to 10	4 to 23
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	1 to 3
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 2	0 to 1	1 to 5
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 3	2 to 7	1 to 8	4 to 20
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0.1

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 20.AB1			Sub Area: 20.AB2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	30690	31310	31700	10	10	10
Educational Facilities ²	8	8	8	0	0	0
Other Noise Sensitive Land Uses ³	13			0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 20.AB1		Sub Area: 20.AB2	
	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	33 to 41	38 to 44	38 to 48	43 to 50
L _{Aeq} 10pm-6am ¹	20 to 29	25 to 31	22 to 36	28 to 37
ANEC ²	-5 to 4	-1 to 6	0 to 12	4 to 12
Number of Noise Events ³				
Over 60 dBA per 24 Hours	3 to 18	11 to 38	4 to 32	14 to 57
Over 70 dBA per 24 Hours	0 to 2	1 to 4	1 to 13	3 to 19
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 2	1 to 4
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 2	0 to 2	1 to 3
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 3	2 to 5	1 to 10	3 to 15
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0.1	0 to 0.1

- Note:
- 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 20.C1			Sub Area: 20.C2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	27560	28120	28470	3140	3200	3240
Educational Facilities ²	8	8	8	0	0	0
Other Noise Sensitive ³ Land Uses	13			0		

- Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 20.C1		Sub Area: 20.C2	
	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	25 to 31	35 to 41	28 to 36	44 to 49
L _{Aeq} 10pm-6am ¹	15 to 20	23 to 30	18 to 25	33 to 38
ANEC ²	-6 to -2	-1 to 6	-1 to 3	9 to 15
Number of Noise Events ³				
Over 60 dBA per 24 Hours	0 to 0	2 to 15	0 to 0	34 to 74
Over 70 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	4 to 15
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 1	0 to 0	3 to 5
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	0 to 2	0 to 0	7 to 18
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0.1 to 0.1

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 21

SHEET 1 / 2

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	350	50 ¹	60	60	60	60
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive Land Uses ³		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	57	L _{A90}	7am to 7pm	44
	7pm to 10pm	55		7pm to 10pm	38
	10pm to 7am	53		10pm to 7am	35

Monitored at: Lot 8, Ferrer Road, Eastern Creek

Noise Indicators:

	Option A	Option B	Option C	Option A	Option B	Option C
L_{Aeq} 24 Hour ¹	41 to 49	40 to 48	14 to 21	47 to 51	44 to 48	22 to 28
L_{Aeq} 10pm-6am ¹	32 to 39	31 to 38	4 to 11	37 to 40	35 to 37	11 to 16
ANEC ²	-2 to 7	5 to 12	-14 to -7	13 to 16	10 to 13	-9 to -4
Number of Noise Events ³						
Over 60 dBA per 24 Hours	2 to 13	10 to 70	0 to 0	40 to 108	26 to 66	0 to 0
Over 70 dBA per 24 Hours	0 to 2	2 to 11	0 to 0	9 to 27	5 to 10	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	1 to 6	0 to 0	4 to 9	3 to 5	0 to 0
Over 70 dBA per Night	0 to 0	0 to 1	0 to 0	1 to 2	1 to 1	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 2	2 to 19	0 to 0	12 to 34	7 to 17	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0	0.1 to 0.2	0 to 0.1	0 to 0

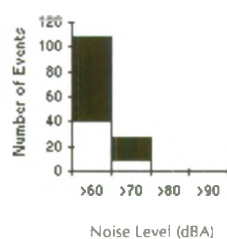
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

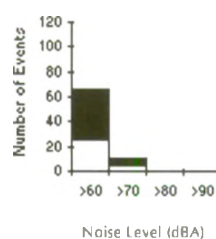
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

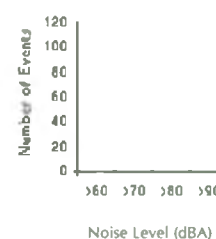
2016 - Number of Noise Events per 24 Hours (on average):



Option A



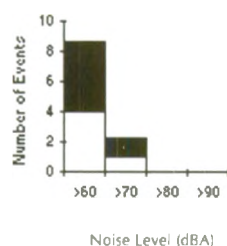
Option B



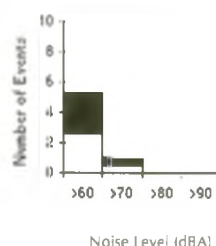
Option C

Potential Range of Events

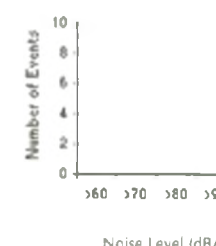
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

Social Characteristics for Option A:

	Sub Area: 22.AB1			Sub Area: 22.AB2			Sub Area: 22.AB3			Sub Area: 22.AB4			Sub Area: 22.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	22610	23430	24150	140	140	150	100	100	100	100	110	110	100	100	110
Educational Facilities ²	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	16			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 22.AB1		Sub Area: 22.AB2		Sub Area: 22.AB3		Sub Area: 22.AB4		Sub Area: 22.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	34 to 41	36 to 41	41 to 49	50 to 54	41 to 48	50 to 55	41 to 49	51 to 55	47 to 57	51 to 57
L_{Aeq} 10pm-6am ¹	25 to 31	26 to 30	32 to 39	40 to 44	32 to 38	41 to 44	32 to 38	41 to 45	39 to 47	41 to 46
ANEC ²	-1 to 7	0 to 4	7 to 13	15 to 19	7 to 13	16 to 20	7 to 14	17 to 20	13 to 22	16 to 21
Number of Noise Events ³										
Over 60 dBA per 24 Hours	2 to 14	4 to 10	12 to 77	59 to 175	11 to 73	57 to 168	12 to 77	60 to 176	27 to 138	53 to 156
Over 70 dBA per 24 Hours	0 to 2	0 to 0	2 to 10	17 to 49	2 to 10	19 to 54	2 to 10	20 to 58	14 to 94	25 to 86
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	1 to 2	0 to 1	2 to 4	0 to 1	3 to 7	1 to 14	3 to 13
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 1	1 to 7	6 to 14	1 to 7	6 to 14	2 to 7	6 to 14	4 to 12	5 to 14
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	2 to 4	0 to 1	2 to 4	0 to 1	2 to 4	2 to 7	2 to 7
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 2	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 2	0 to 1	3 to 21	15 to 47	2 to 19	18 to 55	3 to 22	19 to 56	9 to 57	18 to 54
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0.1	0.1 to 0.3	0 to 0.1	0.2 to 0.4	0 to 0.1	0.2 to 0.4	0.1 to 0.5	0.2 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 22.AB6			Sub Area: 22.AB7			Sub Area: 22.AB8		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	320	330	340	110	120	120	250	260	260
Educational Facilities ²	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 22.AB6		Sub Area: 22.AB7		Sub Area: 22.AB8	
	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	49 to 59	53 to 59	41 to 48	43 to 48	40 to 47	42 to 47
L_{Aeq} 10pm-6am¹	41 to 49	43 to 48	32 to 38	33 to 37	31 to 37	32 to 36
ANEC²	15 to 24	18 to 24	7 to 14	7 to 12	5 to 13	6 to 11
Number of Noise Events³						
Over 60 dBA per 24 Hours	28 to 139	52 to 150	11 to 72	22 to 69	8 to 59	14 to 50
Over 70 dBA per 24 Hours	17 to 107	30 to 101	2 to 10	2 to 8	1 to 7	1 to 4
Over 80 dBA per 24 Hours	3 to 36	6 to 28	0 to 1	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	4 to 12	5 to 13	1 to 6	2 to 5	1 to 6	1 to 4
Over 70 dBA per Night	2 to 8	3 to 8	0 to 1	0 to 1	0 to 1	0 to 0
Over 80 dBA per Night	0 to 4	1 to 2	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	11 to 62	19 to 57	2 to 19	4 to 15	2 to 14	3 to 12
Sleep Disturbance Index⁴	0.2 to 0.6	0.2 to 0.5	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 22.AB1			Sub Area: 22.AB2			Sub Area: 22.AB3			Sub Area: 22.AB4			Sub Area: 22.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population	22610	23430	24150	140	140	150	100	100	100	100	110	110	100	100	110
Educational Facilities ²	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	16			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 22.AB1		Sub Area: 22.AB2		Sub Area: 22.AB3		Sub Area: 22.AB4		Sub Area: 22.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	28 to 36	41 to 47	46 to 56	50 to 55	47 to 56	51 to 56	48 to 57	52 to 57	40 to 48	46 to 50
L_{Aeq} 10pm-6am ¹	19 to 25	31 to 36	37 to 46	40 to 44	38 to 47	41 to 45	39 to 48	42 to 46	32 to 38	37 to 39
ANEC ²	-2 to 1	7 to 12	12 to 21	15 to 20	12 to 22	16 to 21	14 to 23	17 to 22	6 to 13	11 to 15
Number of Noise Events ³										
Over 60 dBA per 24 Hours	0 to 5	17 to 59	27 to 137	50 to 134	27 to 138	50 to 133	28 to 139	51 to 134	12 to 80	41 to 124
Over 70 dBA per 24 Hours	0 to 0	2 to 8	10 to 80	23 to 71	13 to 91	28 to 84	16 to 103	33 to 97	2 to 12	7 to 16
Over 80 dBA per 24 Hours	0 to 0	0 to 0	1 to 4	2 to 5	1 to 13	4 to 11	2 to 29	6 to 24	0 to 0	0 to 1
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	2 to 5	4 to 12	5 to 12	4 to 12	5 to 12	4 to 12	5 to 12	2 to 7	4 to 10
Over 70 dBA per Night	0 to 0	0 to 1	1 to 7	2 to 5	2 to 7	3 to 6	2 to 8	3 to 8	0 to 1	1 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 2	0 to 1	0 to 3	1 to 2	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 1	3 to 15	9 to 56	18 to 51	10 to 58	20 to 54	11 to 60	21 to 56	3 to 22	10 to 30
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0.1 to 0.4	0.2 to 0.4	0.1 to 0.5	0.2 to 0.4	0.1 to 0.5	0.2 to 0.5	0 to 0.1	0.1 to 0.2

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 22.AB6			Sub Area: 22.AB7			Sub Area: 22.AB8		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	320	330	340	110	120	120	250	260	260
Educational Facilities ²	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 22.AB6		Sub Area: 22.AB7		Sub Area: 22.AB8	
	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	40 to 47	46 to 50	33 to 40	50 to 56	32 to 39	49 to 55
L_{Aeq} 10pm-6am ¹	31 to 37	37 to 39	23 to 30	40 to 46	23 to 29	39 to 44
ANEC ²	6 to 12	12 to 15	1 to 5	16 to 22	0 to 5	14 to 20
Number of Noise Events ³						
Over 60 dBA per 24 Hours	9 to 62	40 to 121	1 to 12	43 to 127	1 to 11	42 to 125
Over 70 dBA per 24 Hours	1 to 7	7 to 15	0 to 1	25 to 91	0 to 1	17 to 65
Over 80 dBA per 24 Hours	0 to 1	0 to 1	0 to 0	4 to 20	0 to 0	1 to 4
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 6	4 to 10	0 to 1	4 to 12	0 to 1	4 to 11
Over 70 dBA per Night	0 to 1	1 to 1	0 to 0	2 to 7	0 to 0	2 to 5
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 2	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 17	11 to 34	0 to 2	16 to 52	0 to 2	14 to 47
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.2	0 to 0	0.1 to 0.4	0 to 0	0.1 to 0.4

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 23

SHEET 1 / 2

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	31,825	31,810 ¹	33,480	33,480	34,690	34,690
Educational Facilities ²		14	14	14	14	14
Other Noise Sensitive ³ Land Uses		41	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	52	L _{A90}	7am to 7pm	38
	7pm to 10pm	47		7pm to 10pm	37
	10pm to 7am	45		10pm to 7am	30

Monitored at: 5A Evans Street, Fairfield Heights

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	17 to 26	17 to 26	11 to 23	24 to 28	25 to 29	17 to 24
L_{Aeq} 10pm-6am ¹	8 to 18	8 to 18	3 to 15	14 to 18	15 to 19	7 to 14
ANEC ²	-14 to -7	-14 to -7	-16 to -8	-10 to -5	-9 to -5	-11 to -5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

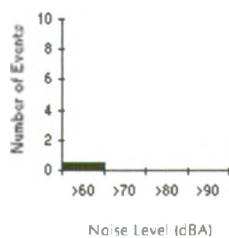
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

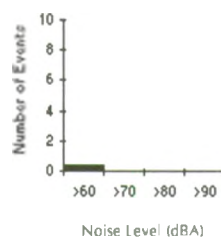
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

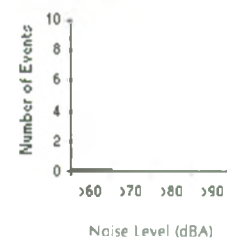
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

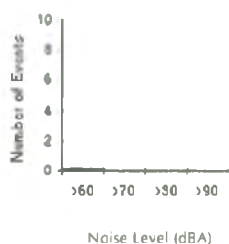


Option B

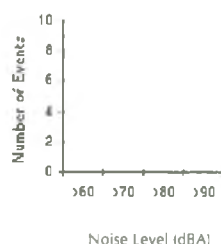


Option C

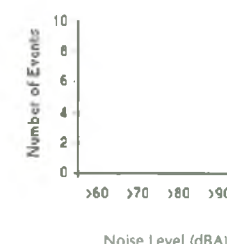
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 24

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	40,389	45,750 ¹	49,290	49,290	51,180	51,180
Educational Facilities ²		11	11	11	12	12
Other Noise Sensitive Land Uses ³		36	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	53	L_{A90}	7am to 7pm	40
	7pm to 10pm	49		7pm to 10pm	39
	10pm to 7am	45		10pm to 7am	33

Monitored at: 15 Allambie Road, Edensor Park

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	27 to 34	23 to 31	13 to 23	30 to 34	33 to 37	21 to 32
L_{Aeq} 10pm-6am ¹	18 to 24	14 to 21	4 to 14	21 to 23	23 to 26	10 to 21
ANEC ²	-8 to -2	-8 to -5	-19 to -11	-6 to -2	-2 to 1	-9 to -2
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	0 to 0	0 to 0	0 to 1	0 to 1	0 to 2
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

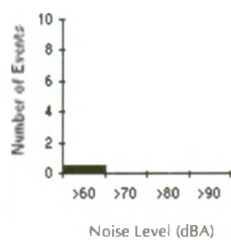
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

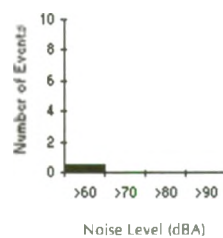
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

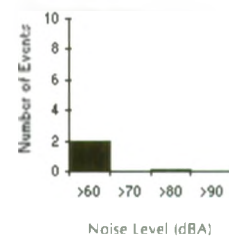
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

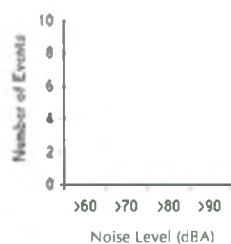


Option B

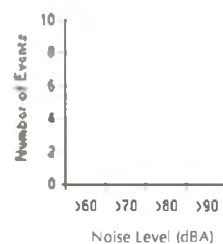


Option C

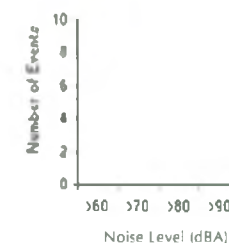
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 25

SHEET 1 / 4

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	470	450 ¹	470	500	470	500
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive Land Uses ³		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	55	L _{A90}	7am to 7pm	37
	7pm to 10pm	43		7pm to 10pm	31
	10pm to 7am	54		10pm to 7am	31

Monitored at: 93/108 Goodrich Road, Cecil Park

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹			19 to 27			28 to 39
L_{Aeq} 10pm-6am ¹			9 to 17			17 to 28
ANEC ²			-12 to -5			-6 to 5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	Refer Following Pages		0 to 0	Refer Following Pages		0 to 4
Over 70 dBA per 24 Hours			0 to 0			0 to 1
Over 80 dBA per 24 Hours			0 to 0			0 to 0
Over 90 dBA per 24 Hours			0 to 0			0 to 0
Over 60 dBA per Night			0 to 0			0 to 0
Over 70 dBA per Night			0 to 0			0 to 0
Over 80 dBA per Night			0 to 0			0 to 0
Over 90 dBA per Night			0 to 0			0 to 0
Over 65 dBA 9am to 3pm			0 to 0			0 to 1
Sleep Disturbance Index ⁴			0 to 0			0 to 0

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

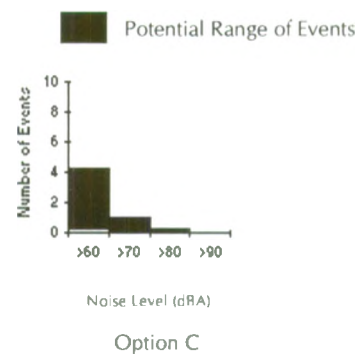
2016 - Number of Noise Events per 24 Hours (on average):

Refer Following
Pages

Option A

Refer Following
Pages

Option B



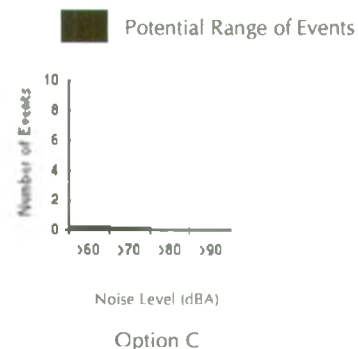
2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Refer Following
Pages

Option A

Refer Following
Pages

Option B



Social Characteristics for Option A:

	Sub Area: 25.AB1			Sub Area: 25.AB2			Sub Area: 25.AB3			Sub Area: 25.AB4		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	20	20	90	100	100	80	80	80	260	280	280
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 25.AB1		Sub Area: 25.AB2		Sub Area: 25.AB3		Sub Area: 25.AB4	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	49 to 58	52 to 58	44 to 52	46 to 52	40 to 46	42 to 46	36 to 43	39 to 42
L_{Aeq} 10pm-6am ¹	40 to 48	42 to 47	35 to 41	36 to 41	31 to 36	32 to 35	26 to 33	29 to 31
ANEC ²	15 to 23	17 to 23	10 to 17	11 to 16	5 to 13	6 to 10	0 to 8	3 to 6
Number of Noise Events ³								
Over 60 dBA per 24 Hours	28 to 137	47 to 131	19 to 108	38 to 101	8 to 51	19 to 46	2 to 23	7 to 21
Over 70 dBA per 24 Hours	13 to 87	25 to 87	3 to 25	5 to 23	0 to 6	0 to 0	0 to 2	0 to 0
Over 80 dBA per 24 Hours	2 to 19	4 to 19	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	4 to 12	5 to 11	3 to 8	4 to 8	1 to 5	2 to 4	0 to 2	1 to 2
Over 70 dBA per Night	2 to 7	2 to 7	0 to 3	1 to 2	0 to 1	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 2	0 to 2	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	10 to 57	17 to 52	5 to 34	9 to 29	2 to 10	2 to 7	0 to 5	0 to 2
Sleep Disturbance Index ⁴	0.1 to 0.4	0.1 to 0.4	0 to 0.2	0 to 0.1	0 to 0	0 to 0	0 to 0	0 to 0

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 25.AB1			Sub Area: 25.AB2			Sub Area: 25.AB3			Sub Area: 25.AB4		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	20	20	90	100	100	80	80	80	260	280	280
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years.

Noise Indicators for Option B:

	Sub Area: 25.AB1		Sub Area: 25.AB2		Sub Area: 25.AB3		Sub Area: 25.AB4	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	38 to 45	47 to 53	35 to 42	51 to 57	32 to 41	50 to 56	31 to 40	44 to 50
L_{Aeq} 10pm-6am ¹	28 to 35	38 to 42	25 to 33	41 to 46	22 to 31	40 to 46	20 to 30	35 to 39
ANEC ²	5 to 10	13 to 18	3 to 8	17 to 23	0 to 6	16 to 22	-2 to 5	10 to 15
Number of Noise Events ³								
Over 60 dBA per 24 Hours	7 to 36	46 to 133	2 to 26	46 to 130	1 to 21	42 to 125	1 to 15	30 to 95
Over 70 dBA per 24 Hours	0 to 4	11 to 39	0 to 2	25 to 90	0 to 1	24 to 88	0 to 0	4 to 21
Over 80 dBA per 24 Hours	0 to 0	1 to 2	0 to 0	5 to 24	0 to 0	4 to 19	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 4	5 to 11	0 to 3	5 to 12	0 to 2	4 to 11	0 to 2	3 to 8
Over 70 dBA per Night	0 to 0	1 to 3	0 to 0	2 to 7	0 to 0	2 to 7	0 to 0	0 to 2
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	1 to 2	0 to 0	0 to 2	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 7	12 to 35	0 to 5	17 to 54	0 to 4	15 to 50	0 to 2	6 to 26
Sleep Disturbance Index ⁴	0 to 0	0.1 to 0.2	0 to 0	0.1 to 0.4	0 to 0	0.1 to 0.4	0 to 0	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 26

SHEET 1 / 6

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	394	570 ¹	580	580	580	590
Educational Facilities ²		3	3	3	3	3
Other Noise Sensitive Land Uses ³		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	52	L _{A90}	7am to 7pm	38
	7pm to 10pm	44		7pm to 10pm	32
	10pm to 7am	51		10pm to 7am	28

Monitored at: 114 Mount Vernon Road, Mount Vernon

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹			24 to 30			32 to 37
L_{Aeq} 10pm-6am ¹			14 to 20			21 to 25
ANEC ²			-10 to -3			-2 to 2
Number of Noise Events ³						
Over 60 dBA per 24 Hours	Refer Following Pages		0 to 0	Refer Following Pages		0 to 3
Over 70 dBA per 24 Hours			0 to 0			0 to 0
Over 80 dBA per 24 Hours			0 to 0			0 to 0
Over 90 dBA per 24 Hours			0 to 0			0 to 0
Over 60 dBA per Night			0 to 0			0 to 0
Over 70 dBA per Night			0 to 0			0 to 0
Over 80 dBA per Night			0 to 0			0 to 0
Over 90 dBA per Night			0 to 0			0 to 0
Over 65 dBA 9am to 3pm			0 to 0			0 to 0
Sleep Disturbance Index ⁴			0 to 0			0 to 0

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

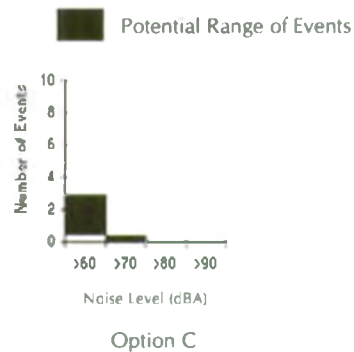
2016 - Number of Noise Events per 24 Hours (on average):

Refer Following
Pages

Option A

Refer Following
Pages

Option B



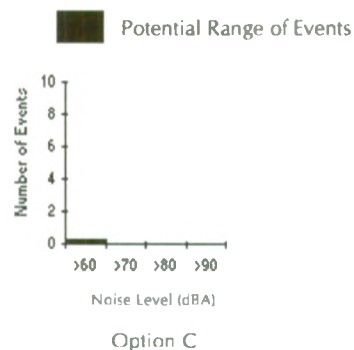
2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Refer Following
Pages

Option A

Refer Following
Pages

Option B



Social Characteristics for Option A:

	Sub Area: 26.AB1			Sub Area: 26.AB2			Sub Area: 26.AB3			Sub Area: 26.AB4			Sub Area: 26.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	60	60	60	60	60	60	50	50	50	40	40	40	30	30	30
Educational Facilities ²	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	1			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 26.AB1		Sub Area: 26.AB2		Sub Area: 26.AB3		Sub Area: 26.AB4		Sub Area: 26.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	36 to 44	44 to 49	38 to 46	53 to 56	39 to 48	56 to 61	41 to 48	52 to 57	43 to 50	54 to 57
L_{Aeq} 10pm-6am ¹	23 to 32	33 to 38	26 to 34	43 to 45	29 to 36	47 to 51	32 to 38	42 to 46	33 to 40	44 to 46
ANEC ²	0 to 9	8 to 15	2 to 12	19 to 22	4 to 13	23 to 28	7 to 14	18 to 21	8 to 16	20 to 23
Number of Noise Events ³										
Over 60 dBA per 24 Hours	4 to 33	30 to 83	6 to 51	84 to 143	10 to 64	80 to 154	13 to 68	61 to 175	21 to 84	88 to 189
Over 70 dBA per 24 Hours	0 to 5	2 to 11	1 to 8	29 to 72	1 to 11	46 to 122	1 to 9	25 to 71	2 to 21	29 to 76
Over 80 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	5 to 9	0 to 0	14 to 47	0 to 1	4 to 9	0 to 1	6 to 13
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	2 to 5	0 to 3	7 to 11	1 to 4	7 to 13	1 to 6	6 to 14	2 to 6	8 to 15
Over 70 dBA per Night	0 to 0	0 to 1	0 to 0	3 to 5	0 to 1	4 to 10	0 to 1	2 to 5	0 to 1	3 to 6
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	1 to 1	0 to 0	2 to 4	0 to 0	0 to 1	0 to 0	1 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 8	4 to 20	1 to 14	24 to 50	2 to 18	27 to 62	3 to 19	20 to 58	5 to 28	26 to 66
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0.1	0.2 to 0.3	0 to 0.1	0.3 to 0.7	0 to 0.1	0.2 to 0.4	0 to 0.1	0.2 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 26.AB6			Sub Area: 26.AB7			Sub Area: 26.AB8		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	120	120	120	170	170	170	40	40	40
Educational Facilities ²	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 26.AB6		Sub Area: 26.AB7		Sub Area: 26.AB8	
	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	50 to 60	53 to 59	53 to 63	56 to 63	45 to 53	47 to 53
L _{Aeq} 10pm-6am ¹	41 to 50	44 to 49	45 to 53	47 to 52	36 to 43	38 to 42
ANEC ²	17 to 26	19 to 25	21 to 30	23 to 29	11 to 18	12 to 18
Number of Noise Events ³						
Over 60 dBA per 24 Hours	29 to 141	54 to 152	42 to 151	65 to 152	23 to 117	45 to 116
Over 70 dBA per 24 Hours	18 to 112	32 to 105	25 to 132	38 to 121	5 to 39	10 to 38
Over 80 dBA per 24 Hours	3 to 39	6 to 29	7 to 66	12 to 55	0 to 2	0 to 2
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	5 to 12	6 to 13	6 to 13	7 to 13	3 to 9	5 to 9
Over 70 dBA per Night	3 to 8	3 to 8	4 to 11	4 to 11	1 to 4	1 to 3
Over 80 dBA per Night	0 to 4	1 to 3	1 to 6	1 to 4	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	12 to 64	20 to 58	15 to 67	22 to 59	6 to 39	11 to 34
Sleep Disturbance Index ⁴	0.2 to 0.6	0.2 to 0.5	0.2 to 0.8	0.3 to 0.7	0.1 to 0.2	0.1 to 0.2

- Note:
- 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 26.AB1			Sub Area: 26.AB2			Sub Area: 26.AB3			Sub Area: 26.AB4			Sub Area: 26.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	60	60	60	60	60	60	50	50	50	40	40	40	30	30	30
Educational Facilities ²	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	1			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 26.AB1		Sub Area: 26.AB2		Sub Area: 26.AB3		Sub Area: 26.AB4		Sub Area: 26.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	37 to 45	42 to 47	43 to 50	47 to 51	49 to 57	53 to 57	49 to 59	53 to 58	52 to 61	56 to 60
L_{Aeq} 10pm-6am ¹	26 to 33	29 to 35	34 to 40	36 to 40	40 to 47	43 to 46	40 to 49	43 to 47	43 to 51	46 to 50
ANEC ²	0 to 9	4 to 10	8 to 15	12 to 15	15 to 23	18 to 23	15 to 25	19 to 24	19 to 28	22 to 28
Number of Noise Events ³										
Over 60 dBA per 24 Hours	5 to 44	18 to 75	25 to 93	59 to 108	40 to 146	88 to 146	29 to 140	53 to 134	45 to 152	88 to 148
Over 70 dBA per 24 Hours	0 to 5	2 to 8	2 to 18	7 to 24	13 to 83	31 to 78	18 to 111	38 to 109	23 to 125	45 to 121
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	0 to 3	2 to 15	6 to 12	3 to 39	8 to 29	6 to 58	14 to 47
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 3	1 to 5	3 to 7	5 to 7	6 to 12	8 to 12	5 to 12	5 to 12	6 to 13	8 to 12
Over 70 dBA per Night	0 to 0	0 to 1	0 to 1	1 to 2	2 to 7	3 to 6	2 to 8	4 to 9	3 to 9	4 to 10
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 2	1 to 1	0 to 4	1 to 2	1 to 6	2 to 4
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 11	4 to 18	5 to 27	13 to 31	12 to 59	26 to 55	12 to 63	21 to 58	15 to 68	29 to 63
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0.1	0.1 to 0.2	0.1 to 0.4	0.2 to 0.4	0.2 to 0.6	0.2 to 0.5	0.2 to 0.7	0.3 to 0.7

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 26.AB6			Sub Area: 26.AB7			Sub Area: 26.AB8		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	120	120	120	170	170	170	40	40	40
Educational Facilities ²	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 26.AB6		Sub Area: 26.AB7		Sub Area: 26.AB8	
	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	41 to 48	47 to 50	41 to 49	47 to 50	36 to 44	51 to 57
L_{Aeq} 10pm-6am ¹	32 to 38	37 to 39	32 to 40	37 to 39	26 to 34	41 to 46
ANEC ²	7 to 13	12 to 15	8 to 15	13 to 16	3 to 9	17 to 23
Number of Noise Events ³						
Over 60 dBA per 24 Hours	13 to 83	42 to 122	18 to 75	52 to 125	3 to 31	48 to 130
Over 70 dBA per 24 Hours	2 to 10	6 to 14	1 to 16	6 to 15	0 to 4	25 to 90
Over 80 dBA per 24 Hours	0 to 1	0 to 1	0 to 1	0 to 1	0 to 0	5 to 24
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 7	4 to 10	2 to 6	5 to 9	0 to 3	5 to 11
Over 70 dBA per Night	0 to 1	1 to 1	0 to 2	1 to 1	0 to 1	2 to 7
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	1 to 2
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	3 to 23	10 to 30	4 to 22	12 to 32	0 to 8	17 to 52
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.1	0 to 0.1	0.1 to 0.1	0 to 0.1	0.2 to 0.5

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 27

SHEET 1 / 11

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	646	580 ¹	590	600	590	610
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive Land Uses ³		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	52	L _{A90}	7am to 7pm	36
	7pm to 10pm	44		7pm to 10pm	34
	10pm to 7am	46		10pm to 7am	30

Monitored at: 55 Clifton Avenue, Kemps Creek

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L _{Aeq} 24 Hour ¹						
L _{Aeq} 10pm-6am ¹						
ANEC ²						
Number of Noise Events ³						
Over 60 dBA per 24 Hours		Refer Following Pages			Refer Following Pages	
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index ⁴						

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events

Refer Following Pages

Refer Following Pages

Refer Following Pages

Option A

Option B

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events

Refer Following Pages

Refer Following Pages

Refer Following Pages

Option A

Option B

Option C

Social Characteristics for Option A:

	Sub Area: 27.AB1			Sub Area: 27.AB2			Sub Area: 27.AB3			Sub Area: 27.AB4			Sub Area: 27.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	0	0	0	10	10	10	10	10	10	10	10	10	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years.

Noise Indicators for Option A:

	Sub Area: 27.AB1		Sub Area: 27.AB2		Sub Area: 27.AB3		Sub Area: 27.AB4		Sub Area: 27.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	37 to 48	45 to 52	36 to 47	44 to 50	38 to 49	46 to 53	39 to 50	48 to 54	40 to 50	50 to 56
L_{Aeq} 10pm-6am ¹	22 to 36	30 to 39	22 to 35	29 to 38	23 to 37	32 to 40	24 to 38	34 to 42	24 to 38	37 to 43
ANEC ²	2 to 14	10 to 18	1 to 13	8 to 16	4 to 16	11 to 19	4 to 16	13 to 21	5 to 17	15 to 22
Number of Noise Events ³										
Over 60 dBA per 24 Hours	3 to 25	21 to 91	4 to 29	22 to 95	4 to 30	26 to 108	4 to 35	41 to 124	4 to 37	63 to 141
Over 70 dBA per 24 Hours	1 to 12	5 to 28	1 to 10	4 to 22	1 to 14	7 to 37	1 to 14	9 to 46	1 to 15	13 to 60
Over 80 dBA per 24 Hours	0 to 2	1 to 6	0 to 1	0 to 1	0 to 3	0 to 3	0 to 4	1 to 5	0 to 4	2 to 11
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 6	0 to 2	1 to 6	0 to 2	1 to 7	0 to 2	3 to 8	0 to 3	4 to 10
Over 70 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 2	0 to 1	0 to 3	0 to 1	0 to 4
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 9	6 to 29	1 to 10	6 to 28	1 to 10	7 to 33	1 to 11	8 to 38	1 to 11	16 to 46
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.2	0 to 0.1	0 to 0.2	0 to 0.1	0.1 to 0.3

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 27.AB6			Sub Area: 27.AB7			Sub Area: 27.AB8			Sub Area: 27.AB9			Sub Area: 27.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	20	20	10	10	10	10	10	10	30	30	30	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 27.AB6		Sub Area: 27.AB7		Sub Area: 27.AB8		Sub Area: 27.AB9		Sub Area: 27.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	41 to 52	57 to 60	43 to 54	58 to 62	43 to 54	59 to 63	45 to 54	53 to 56	50 to 57	52 to 55
L_{Aeq} 10pm-6am ¹	27 to 40	47 to 48	30 to 42	48 to 51	30 to 42	49 to 52	34 to 43	43 to 46	41 to 46	42 to 44
ANEC ²	6 to 18	23 to 26	8 to 20	25 to 29	8 to 20	26 to 30	10 to 21	19 to 23	16 to 24	18 to 21
Number of Noise Events ³										
Over 60 dBA per 24 Hours	6 to 53	117 to 169	14 to 82	123 to 183	14 to 86	131 to 194	31 to 107	127 to 216	55 to 151	126 to 211
Over 70 dBA per 24 Hours	1 to 17	72 to 115	2 to 27	62 to 131	2 to 25	76 to 138	4 to 37	30 to 59	19 to 77	25 to 56
Over 80 dBA per 24 Hours	0 to 6	12 to 26	0 to 7	18 to 49	0 to 7	20 to 55	0 to 8	2 to 9	1 to 13	1 to 4
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	1 to 2	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 4	10 to 12	1 to 6	11 to 14	1 to 6	12 to 14	3 to 8	11 to 16	7 to 11	11 to 15
Over 70 dBA per Night	0 to 1	6 to 8	0 to 2	5 to 10	0 to 2	7 to 11	0 to 2	3 to 4	2 to 6	2 to 4
Over 80 dBA per Night	0 to 0	1 to 2	0 to 0	2 to 4	0 to 0	2 to 4	0 to 1	0 to 1	0 to 1	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 16	41 to 65	2 to 23	40 to 67	2 to 24	46 to 70	7 to 37	34 to 68	16 to 58	32 to 67
Sleep Disturbance Index ⁴	0 to 0.1	0.4 to 0.5	0 to 0.2	0.4 to 0.7	0 to 0.2	0.5 to 0.7	0.1 to 0.2	0.3 to 0.4	0.2 to 0.4	0.3 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 27.AB11			Sub Area: 27.AB12			Sub Area: 27.AB13			Sub Area: 27.AB14			Sub Area: 27.AB15		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	30	30	30	0	0	0	100	110	110	50	60	60
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 27.AB11		Sub Area: 27.AB12		Sub Area: 27.AB13		Sub Area: 27.AB14		Sub Area: 27.AB15	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	56 to 65	58 to 64	54 to 63	57 to 63	54 to 62	57 to 62	49 to 56	51 to 56	45 to 54	49 to 55
L_{Aeq} 10pm-6am ¹	47 to 55	49 to 54	45 to 53	47 to 52	45 to 51	48 to 51	40 to 46	41 to 45	34 to 45	37 to 44
ANEC ²	24 to 33	25 to 32	21 to 30	23 to 30	22 to 29	24 to 29	15 to 22	17 to 22	10 to 21	14 to 23
Number of Noise Events ³										
Over 60 dBA per 24 Hours	65 to 165	116 to 178	57 to 159	92 to 153	74 to 167	123 to 187	47 to 146	81 to 140	27 to 114	59 to 118
Over 70 dBA per 24 Hours	37 to 147	47 to 128	28 to 133	41 to 122	39 to 135	63 to 124	12 to 72	22 to 68	3 to 36	8 to 41
Over 80 dBA per 24 Hours	14 to 96	22 to 84	8 to 64	15 to 61	8 to 53	15 to 46	1 to 7	2 to 8	0 to 7	1 to 10
Over 90 dBA per 24 Hours	1 to 18	3 to 16	0 to 1	0 to 2	0 to 2	1 to 4	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	9 to 13	11 to 14	8 to 13	9 to 12	10 to 13	11 to 14	6 to 11	8 to 11	3 to 8	5 to 9
Over 70 dBA per Night	5 to 12	5 to 11	4 to 10	4 to 11	5 to 9	6 to 10	1 to 6	2 to 5	0 to 3	0 to 3
Over 80 dBA per Night	2 to 7	2 to 6	1 to 6	1 to 5	1 to 5	2 to 4	0 to 1	0 to 1	0 to 1	0 to 1
Over 90 dBA per Night	0 to 2	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	21 to 73	33 to 64	19 to 71	28 to 62	26 to 74	42 to 67	12 to 56	22 to 50	6 to 38	13 to 35
Sleep Disturbance Index ⁴	0.4 to 0.9	0.4 to 0.8	0.3 to 0.8	0.3 to 0.7	0.4 to 0.7	0.5 to 0.7	0.2 to 0.4	0.2 to 0.4	0.1 to 0.3	0.1 to 0.3

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 27.AB16			Sub Area: 27.AB17			Sub Area: 27.AB18		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	100	110	110	100	100	100	90	90	90
Educational Facilities ²	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 27.AB16		Sub Area: 27.AB17		Sub Area: 27.AB18	
	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	43 to 50	46 to 49	40 to 48	44 to 49	38 to 48	43 to 50
L_{Aeq} 10pm-6am ¹	33 to 41	36 to 38	29 to 39	32 to 38	27 to 39	30 to 39
ANEC ²	8 to 17	11 to 15	5 to 15	8 to 16	3 to 15	8 to 17
Number of Noise Events ³						
Over 60 dBA per 24 Hours	23 to 86	52 to 87	10 to 64	26 to 71	5 to 46	13 to 63
Over 70 dBA per 24 Hours	2 to 19	3 to 13	1 to 15	2 to 15	1 to 13	3 to 18
Over 80 dBA per 24 Hours	0 to 1	0 to 0	0 to 1	0 to 1	0 to 1	0 to 2
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 7	4 to 7	1 to 5	2 to 6	0 to 4	0 to 5
Over 70 dBA per Night	0 to 2	0 to 1	0 to 2	0 to 1	0 to 2	0 to 2
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	4 to 25	11 to 23	1 to 17	4 to 18	1 to 14	3 to 18
Sleep Disturbance Index ⁴	0 to 0.2	0.1 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 27.AB1			Sub Area: 27.AB2			Sub Area: 27.AB3			Sub Area: 27.AB4			Sub Area: 27.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	0	0	0	10	10	10	10	10	10	10	10	10	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 27.AB1		Sub Area: 27.AB2		Sub Area: 27.AB3		Sub Area: 27.AB4		Sub Area: 27.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	39 to 49	44 to 51	37 to 47	43 to 50	40 to 50	45 to 52	41 to 51	46 to 53	42 to 52	47 to 54
L_{Aeq} 10pm-6am ¹	24 to 37	29 to 38	24 to 35	28 to 37	26 to 38	30 to 39	28 to 39	31 to 40	29 to 41	33 to 41
ANEC ²	1 to 13	5 to 14	0 to 11	5 to 12	2 to 13	7 to 15	4 to 15	8 to 16	6 to 16	10 to 17
Number of Noise Events ³										
Over 60 dBA per 24 Hours	6 to 43	18 to 76	6 to 46	21 to 85	7 to 56	21 to 93	8 to 66	24 to 101	13 to 84	35 to 116
Over 70 dBA per 24 Hours	1 to 14	4 to 21	1 to 12	3 to 18	1 to 17	5 to 27	2 to 22	7 to 36	2 to 26	7 to 41
Over 80 dBA per 24 Hours	0 to 3	1 to 6	0 to 1	0 to 1	0 to 2	1 to 3	0 to 3	1 to 6	0 to 5	1 to 8
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 3	1 to 5	0 to 3	1 to 6	0 to 4	0 to 6	0 to 5	1 to 6	1 to 6	2 to 7
Over 70 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 2	0 to 2	0 to 2	0 to 2	0 to 3
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm) ⁴	1 to 13	4 to 21	1 to 13	5 to 23	2 to 16	6 to 27	2 to 21	7 to 33	2 to 24	7 to 36
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.2	0 to 0.2	0 to 0.2

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 27.AB6			Sub Area: 27.AB7			Sub Area: 27.AB8			Sub Area: 27.AB9			Sub Area: 27.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	20	20	10	10	10	10	10	10	30	30	30	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 27.AB6		Sub Area: 27.AB7		Sub Area: 27.AB8		Sub Area: 27.AB9		Sub Area: 27.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	46 to 54	50 to 56	53 to 62	57 to 61	55 to 63	59 to 62	54 to 62	57 to 61	49 to 56	52 to 55
L_{Aeq} 10pm-6am ¹	36 to 44	39 to 44	44 to 52	48 to 50	46 to 53	49 to 51	45 to 52	47 to 50	40 to 47	41 to 45
ANEC ²	11 to 19	15 to 19	20 to 29	23 to 29	22 to 30	25 to 30	21 to 30	23 to 29	15 to 23	17 to 20
Number of Noise Events ³										
Over 60 dBA per 24 Hours	48 to 132	95 to 151	61 to 160	107 to 162	67 to 163	111 to 170	62 to 160	106 to 161	57 to 149	103 to 163
Over 70 dBA per 24 Hours	7 to 47	20 to 63	32 to 136	69 to 134	40 to 144	85 to 142	31 to 136	59 to 130	17 to 69	28 to 57
Over 80 dBA per 24 Hours	0 to 6	2 to 11	7 to 56	17 to 49	11 to 75	26 to 67	8 to 68	18 to 56	1 to 12	2 to 8
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1	0 to 4	1 to 4	0 to 0	0 to 1	0 to 0	0 to 0
Over 60 dBA per Night	6 to 9	7 to 10	9 to 13	9 to 12	10 to 13	10 to 13	9 to 13	9 to 12	8 to 10	9 to 12
Over 70 dBA per Night	1 to 4	1 to 4	4 to 10	6 to 10	6 to 11	7 to 11	4 to 11	5 to 11	2 to 6	2 to 4
Over 80 dBA per Night	0 to 1	0 to 1	1 to 5	2 to 4	1 to 6	2 to 5	1 to 6	2 to 4	0 to 2	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	10 to 43	21 to 49	21 to 72	41 to 68	24 to 73	42 to 68	22 to 72	39 to 67	17 to 57	29 to 52
Sleep Disturbance Index ⁴	0.1 to 0.3	0.2 to 0.3	0.3 to 0.7	0.4 to 0.7	0.4 to 0.8	0.5 to 0.7	0.3 to 0.8	0.4 to 0.7	0.2 to 0.4	0.2 to 0.3

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 27.AB11			Sub Area: 27.AB12			Sub Area: 27.AB13			Sub Area: 27.AB14			Sub Area: 27.AB15		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	30	30	30	0	0	0	100	110	110	50	60	60
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 27.AB11		Sub Area: 27.AB12		Sub Area: 27.AB13		Sub Area: 27.AB14		Sub Area: 27.AB15	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	44 to 54	48 to 52	42 to 52	48 to 51	42 to 52	49 to 52	41 to 51	50 to 56	40 to 50	56 to 62
L_{Aeq} 10pm-6am ¹	33 to 45	37 to 41	31 to 43	38 to 39	30 to 43	39 to 41	28 to 42	40 to 45	27 to 41	46 to 51
ANEC ²	11 to 21	14 to 16	9 to 19	13 to 17	7 to 19	15 to 18	7 to 18	16 to 22	5 to 18	24 to 30
Number of Noise Events ³										
Over 60 dBA per 24 Hours	22 to 108	73 to 145	14 to 82	73 to 144	13 to 91	103 to 167	7 to 60	71 to 143	5 to 51	89 to 147
Over 70 dBA per 24 Hours	3 to 36	4 to 22	2 to 27	10 to 22	2 to 24	17 to 38	1 to 20	20 to 68	1 to 16	43 to 124
Over 80 dBA per 24 Hours	0 to 8	0 to 1	0 to 6	0 to 1	0 to 2	0 to 1	0 to 4	2 to 10	0 to 3	14 to 58
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 8	6 to 10	1 to 6	7 to 10	1 to 7	9 to 12	0 to 5	7 to 12	0 to 4	8 to 12
Over 70 dBA per Night	0 to 3	0 to 2	0 to 3	1 to 2	0 to 3	2 to 3	0 to 2	2 to 5	0 to 2	5 to 11
Over 80 dBA per Night	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	1 to 5
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	5 to 34	16 to 36	2 to 24	15 to 30	2 to 26	22 to 43	2 to 19	20 to 52	1 to 16	29 to 61
Sleep Disturbance Index ⁴	0 to 0.3	0.1 to 0.2	0 to 0.2	0.1 to 0.2	0 to 0.2	0.2 to 0.3	0 to 0.2	0.2 to 0.4	0 to 0.1	0.4 to 0.8

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 27.AB16			Sub Area: 27.AB17			Sub Area: 27.AB18		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	100	110	110	100	100	100	90	90	90
Educational Facilities ²	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 27.AB16		Sub Area: 27.AB17		Sub Area: 27.AB18	
	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	39 to 49	54 to 60	38 to 49	50 to 56	37 to 49	46 to 50
L_{Aeq} 10pm-6am ¹	26 to 41	44 to 49	25 to 40	40 to 45	24 to 40	36 to 39
ANEC ²	5 to 17	21 to 27	4 to 16	16 to 22	3 to 16	11 to 15
Number of Noise Events ³						
Over 60 dBA per 24 Hours	5 to 45	60 to 135	5 to 39	58 to 131	4 to 35	53 to 104
Over 70 dBA per 24 Hours	1 to 15	33 to 113	1 to 15	18 to 67	1 to 14	6 to 20
Over 80 dBA per 24 Hours	0 to 3	7 to 35	0 to 3	2 to 10	0 to 2	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 4	6 to 12	0 to 4	6 to 11	0 to 3	5 to 8
Over 70 dBA per Night	0 to 2	3 to 10	0 to 2	2 to 5	0 to 2	1 to 2
Over 80 dBA per Night	0 to 1	1 to 3	0 to 1	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm) ⁴	1 to 14	20 to 58	1 to 13	18 to 50	1 to 12	10 to 26
Sleep Disturbance Index	0 to 0.1	0.2 to 0.6	0 to 0.1	0.2 to 0.4	0 to 0.1	0.1 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 27.C1			Sub Area: 27.C2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	0	0	0	580	600	610
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 27.C1		Sub Area: 27.C2	
	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	29 to 35	40 to 46	24 to 32	33 to 41
L_{Aeq} 10pm-6am ¹	18 to 25	28 to 36	15 to 21	22 to 30
ANEC ²	-3 to 0	5 to 12	-15 to -7	-2 to 8
Number of Noise Events ³				
Over 60 dBA per 24 Hours	0 to 0	10 to 51	0 to 0	1 to 8
Over 70 dBA per 24 Hours	0 to 0	1 to 7	0 to 0	0 to 2
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 3	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	1 to 12	0 to 0	0 to 2
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0	0 to 0

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 28

SHEET 1 / 7

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	1,356	1,530 ¹	1,540	1,540	1,560	1,560
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive ³ Land Uses		2	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	46, 49	L _{A90}	7am to 7pm	36, 37
	7pm to 10pm	43, 49		7pm to 10pm	34, 37
	10pm to 7am	38, 46		10pm to 7am	30, 32

Monitored at: 50B Ramsay Road, Kemps Creek, 616 Devonshire Road, Kemps Creek

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	Refer Following Pages	Refer Following Pages	Refer Following Pages	Refer Following Pages	Refer Following Pages	Refer Following Pages
L_{Aeq} 10pm-6am ¹						
ANEC ²						
Number of Noise Events ³						
Over 60 dBA per 24 Hours						
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index ⁴						

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events
Refer Following
PagesRefer Following
PagesRefer Following
Pages

Option A

Option B

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events
Refer Following
PagesRefer Following
PagesRefer Following
Pages

Option A

Option B

Option C

Social Characteristics for Option A:

	Sub Area: 28.AB1			Sub Area: 28.AB2			Sub Area: 28.AB3			Sub Area: 28.AB4			Sub Area: 28.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	100	110	110	60	60	60	60	60	60	80	80	80	160	160	160
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 28.AB1		Sub Area: 28.AB2		Sub Area: 28.AB3		Sub Area: 28.AB4		Sub Area: 28.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	54 to 61	58 to 61	49 to 58	53 to 59	46 to 56	51 to 58	43 to 54	48 to 55	42 to 53	47 to 55
L_{Aeq} 10pm-6am ¹	45 to 52	48 to 50	38 to 49	41 to 48	34 to 47	38 to 47	31 to 44	35 to 44	29 to 44	33 to 44
ANEC ²	21 to 29	24 to 29	14 to 26	18 to 27	11 to 24	16 to 25	8 to 21	13 to 23	7 to 20	13 to 23
Number of Noise Events ³										
Over 60 dBA per 24 Hours	78 to 169	134 to 206	56 to 156	105 to 181	23 to 129	48 to 145	15 to 105	33 to 117	7 to 67	18 to 84
Over 70 dBA per 24 Hours	46 to 134	80 to 128	11 to 81	27 to 81	6 to 62	16 to 70	3 to 38	11 to 53	2 to 22	7 to 39
Over 80 dBA per 24 Hours	7 to 43	16 to 35	1 to 18	3 to 21	1 to 10	2 to 15	0 to 4	1 to 7	0 to 6	1 to 10
Over 90 dBA per 24 Hours	0 to 2	0 to 3	0 to 0	0 to 2	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	11 to 13	12 to 16	7 to 11	8 to 13	2 to 10	3 to 11	1 to 8	2 to 9	0 to 5	0 to 7
Over 70 dBA per Night	6 to 9	8 to 10	1 to 7	2 to 6	0 to 5	1 to 6	0 to 3	0 to 4	0 to 2	0 to 3
Over 80 dBA per Night	1 to 4	2 to 3	0 to 2	0 to 2	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Over 90 dBA per Night	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	30 to 74	50 to 73	11 to 57	23 to 55	7 to 46	15 to 49	3 to 34	8 to 36	2 to 19	5 to 27
Sleep Disturbance Index ⁴	0.4 to 0.7	0.5 to 0.6	0.1 to 0.5	0.2 to 0.5	0 to 0.4	0.1 to 0.4	0 to 0.3	0 to 0.3	0 to 0.2	0 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 28.AB6			Sub Area: 28.AB7			Sub Area: 28.AB8			Sub Area: 28.AB9		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	150	150	150	200	200	200	280	280	290	440	440	450
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			2			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 28.AB6		Sub Area: 28.AB7		Sub Area: 28.AB8		Sub Area: 28.AB9	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	40 to 50	45 to 52	37 to 47	42 to 49	38 to 47	44 to 49	36 to 45	41 to 47
L_{Aeq} 10pm-6am ¹	27 to 41	32 to 41	25 to 38	29 to 38	27 to 37	32 to 38	24 to 35	27 to 35
ANEC ²	5 to 17	10 to 19	2 to 13	7 to 16	3 to 13	8 to 15	1 to 10	6 to 13
Number of Noise Events ³								
Over 60 dBA per 24 Hours	8 to 70	21 to 89	5 to 49	15 to 70	4 to 42	11 to 47	2 to 15	6 to 31
Over 70 dBA per 24 Hours	1 to 18	6 to 32	1 to 8	2 to 15	1 to 7	3 to 15	1 to 5	2 to 10
Over 80 dBA per 24 Hours	0 to 1	0 to 2	0 to 0	0 to 1	0 to 1	0 to 1	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 6	1 to 7	0 to 4	0 to 5	0 to 4	1 to 4	0 to 2	0 to 2
Over 70 dBA per Night	0 to 2	0 to 2	0 to 1	0 to 1	0 to 0	0 to 1	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 19	5 to 26	1 to 11	4 to 19	1 to 7	4 to 14	1 to 5	2 to 11
Sleep Disturbance Index ⁴	0 to 0.2	0 to 0.2	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANFC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 28.AB1			Sub Area: 28.AB2			Sub Area: 28.AB3			Sub Area: 28.AB4			Sub Area: 28.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	100	110	110	60	60	60	60	60	60	80	80	80	160	160	160
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 28.AB1		Sub Area: 28.AB2		Sub Area: 28.AB3		Sub Area: 28.AB4		Sub Area: 28.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	41 to 51	51 to 54	39 to 49	56 to 61	38 to 48	60 to 65	37 to 46	56 to 59	37 to 47	49 to 55
L_{Aeq} 10pm-6am¹	30 to 41	41 to 43	28 to 39	46 to 50	26 to 38	50 to 54	24 to 37	46 to 48	23 to 38	37 to 44
ANEC²	6 to 17	16 to 19	4 to 14	23 to 28	3 to 13	27 to 33	1 to 11	22 to 24	2 to 14	13 to 20
Number of Noise Events³										
Over 60 dBA per 24 Hours	11 to 90	120 to 195	8 to 71	118 to 181	7 to 59	123 to 188	3 to 39	108 to 158	3 to 34	71 to 108
Over 70 dBA per 24 Hours	2 to 22	23 to 46	1 to 13	53 to 121	1 to 8	67 to 134	0 to 4	62 to 105	0 to 9	10 to 39
Over 80 dBA per 24 Hours	0 to 1	0 to 2	0 to 0	12 to 45	0 to 0	34 to 104	0 to 0	11 to 23	0 to 1	1 to 9
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 2	0 to 0	6 to 30	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 7	10 to 14	0 to 6	11 to 13	0 to 5	11 to 14	0 to 3	10 to 12	0 to 3	6 to 9
Over 70 dBA per Night	0 to 2	2 to 4	0 to 1	5 to 10	0 to 1	7 to 12	0 to 0	6 to 8	0 to 1	1 to 3
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	1 to 4	0 to 0	4 to 8	0 to 0	1 to 2	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	1 to 3	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	3 to 30	32 to 58	1 to 18	38 to 65	1 to 13	40 to 66	1 to 10	38 to 62	1 to 9	15 to 33
Sleep Disturbance Index⁴	0 to 0.2	0.3 to 0.4	0 to 0.1	0.4 to 0.7	0 to 0.1	0.6 to 1	0 to 0.1	0.4 to 0.5	0 to 0.1	0.1 to 0.3

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 28.AB6			Sub Area: 28.AB7			Sub Area: 28.AB8			Sub Area: 28.AB9		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	150	150	150	200	200	200	280	280	290	440	440	450
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			2			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 28.AB6		Sub Area: 28.AB7		Sub Area: 28.AB8		Sub Area: 28.AB9	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	35 to 44	49 to 56	34 to 44	46 to 54	35 to 45	45 to 51	34 to 45	42 to 48
L_{Aeq} 10pm-6am ¹	22 to 35	37 to 45	22 to 35	33 to 43	23 to 35	33 to 40	21 to 36	29 to 37
ANEC ²	-1 to 9	13 to 21	-2 to 10	9 to 19	-1 to 10	8 to 16	-1 to 11	4 to 12
Number of Noise Events ³								
Over 60 dBA per 24 Hours	3 to 28	52 to 119	2 to 22	20 to 82	2 to 19	18 to 77	2 to 23	11 to 47
Over 70 dBA per 24 Hours	0 to 2	9 to 46	0 to 3	5 to 31	0 to 4	6 to 30	0 to 5	2 to 12
Over 80 dBA per 24 Hours	0 to 0	2 to 13	0 to 0	1 to 7	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 3	4 to 9	0 to 2	1 to 6	0 to 2	1 to 6	0 to 2	1 to 4
Over 70 dBA per Night	0 to 0	0 to 4	0 to 0	0 to 3	0 to 0	0 to 2	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 5	13 to 34	0 to 4	5 to 24	1 to 6	5 to 23	0 to 6	3 to 13
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.3	0 to 0.1	0 to 0.2	0 to 0	0 to 0.2	0 to 0.1	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 28.C1			Sub Area: 28.C2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	1090	1110	1120	430	440	440
Educational Facilities ²	1	1	1	0	0	0
Other Noise Sensitive ³ Land Uses	2			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 28.C1		Sub Area: 28.C2	
	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	27 to 34	36 to 48	29 to 37	40 to 50
L_{Aeq} 10pm-6am ¹	17 to 23	25 to 37	19 to 24	31 to 39
ANEC ²	-18 to -10	-1 to 15	-13 to -8	2 to 17
Number of Noise Events ³				
Over 60 dBA per 24 Hours	0 to 0	2 to 15	0 to 0	7 to 32
Over 70 dBA per 24 Hours	0 to 0	0 to 5	0 to 0	0 to 7
Over 80 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	0 to 2
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 1	0 to 0	1 to 3
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	0 to 4	0 to 0	3 to 11
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 29

SHEET 1 / 4

Social Characteristics:

Year	1991 Census	1996	2006		2016		
			Options A and B	Option C	Options A and B	Option C	
Estimated Population	791	2,500 ¹	8,510	8,510	14,070	14,070	
Educational Facilities ²		1	2	2	3	3	
Other Noise Sensitive ³ Land Uses		3	Not estimated for these years				

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	53, 53	L _{A90}	7am to 7pm	36, 40
	7pm to 10pm	46, 56		7pm to 10pm	35, 42
	10pm to 7am	43, 57		10pm to 7am	29, 33

Monitored at: 175 Sixteenth Ave, West Hoxton, 12 Margaret Way, Cecil Hills

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹			19 to 29			27 to 34
L_{Aeq} 10pm-6am ¹			9 to 18			16 to 22
ANEC ²			-20 to -10			-10 to -3
Number of Noise Events ³						
Over 60 dBA per 24 Hours	Refer Following Pages		0 to 0	Refer Following Pages		0 to 2
Over 70 dBA per 24 Hours			0 to 0			0 to 0
Over 80 dBA per 24 Hours			0 to 0			0 to 0
Over 90 dBA per 24 Hours			0 to 0			0 to 0
Over 60 dBA per Night			0 to 0			0 to 0
Over 70 dBA per Night			0 to 0			0 to 0
Over 80 dBA per Night			0 to 0			0 to 0
Over 90 dBA per Night			0 to 0			0 to 0
Over 65 dBA 9am to 3pm			0 to 0			0 to 0
Sleep Disturbance Index ⁴			0 to 0			0 to 0

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

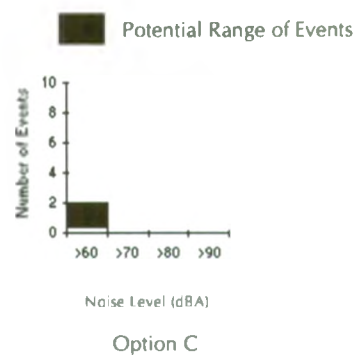
2016 - Number of Noise Events per 24 Hours (on average):

Refer Following
Pages

Option A

Refer Following
Pages

Option B



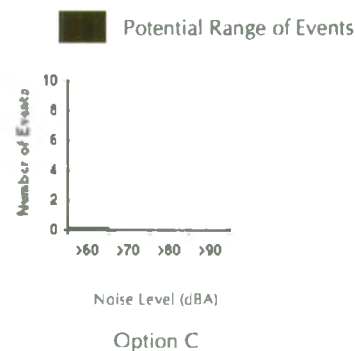
2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Refer Following
Pages

Option A

Refer Following
Pages

Option B



Social Characteristics for Option A:

	Sub Area: 29.AB1			Sub Area: 29.AB2			Sub Area: 29.AB3			Sub Area: 29.AB4		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	60	90	0	0	0	0	0	0	2480	8460	13970
Educational Facilities ²	0	0	0	0	0	0	0	0	0	1	2	3
Other Noise Sensitive ³ Land Uses	0			0			0			3		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 29.AB1		Sub Area: 29.AB2		Sub Area: 29.AB3		Sub Area: 29.AB4	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	40 to 51	45 to 53	38 to 49	43 to 51	37 to 48	42 to 50	34 to 45	39 to 47
L_{Aeq} 10pm-6am	26 to 42	31 to 42	24 to 40	29 to 40	23 to 39	28 to 39	20 to 36	25 to 36
ANEC ²	5 to 18	11 to 21	3 to 16	9 to 19	2 to 15	7 to 17	-1 to 12	4 to 14
Number of Noise Events ³								
Over 60 dBA per 24 Hours	5 to 43	13 to 65	4 to 36	13 to 64	3 to 28	11 to 53	3 to 25	9 to 48
Over 70 dBA per 24 Hours	1 to 18	5 to 32	1 to 12	3 to 21	1 to 10	2 to 17	0 to 6	1 to 10
Over 80 dBA per 24 Hours	0 to 4	1 to 7	0 to 2	0 to 3	0 to 2	0 to 3	0 to 0	0 to 1
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 4	0 to 5	0 to 3	0 to 5	0 to 3	0 to 4	0 to 2	0 to 4
Over 70 dBA per Night	0 to 2	0 to 3	0 to 1	0 to 2	0 to 1	0 to 1	0 to 1	0 to 1
Over 80 dBA per Night	0 to 1	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 14	5 to 24	1 to 11	4 to 19	1 to 9	3 to 16	0 to 7	2 to 11
Sleep Disturbance Index ⁴	0 to 0.2	0 to 0.2	0 to 0.1	0 to 0.2	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 29.AB1			Sub Area: 29.AB2			Sub Area: 29.AB3			Sub Area: 29.AB4		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	60	90	0	0	0	0	0	0	2480	8460	13970
Educational Facilities ²	0	0	0	0	0	0	0	0	0	1	2	3
Other Noise Sensitive Land Uses ³	0			0			0			3		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 29.AB1		Sub Area: 29.AB2		Sub Area: 29.AB3		Sub Area: 29.AB4	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	38 to 49	44 to 51	36 to 47	45 to 53	36 to 47	44 to 52	28 to 39	35 to 42
L_{Aeq} 10pm-6am ¹	24 to 40	32 to 40	23 to 39	31 to 42	22 to 39	30 to 41	15 to 29	22 to 32
ANEC ²	3 to 16	8 to 16	1 to 15	8 to 19	1 to 15	7 to 17	-7 to 4	-3 to 6
Number of Noise Events ³								
Over 60 dBA per 24 Hours	4 to 32	23 to 70	3 to 27	13 to 63	3 to 28	13 to 61	1 to 11	4 to 25
Over 70 dBA per 24 Hours	1 to 14	3 to 21	1 to 10	5 to 30	1 to 11	4 to 25	0 to 1	0 to 3
Over 80 dBA per 24 Hours	0 to 3	0 to 3	0 to 1	1 to 7	0 to 2	1 to 5	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 3	2 to 6	0 to 3	0 to 5	0 to 3	0 to 5	0 to 1	0 to 2
Over 70 dBA per Night	0 to 2	0 to 2	0 to 1	0 to 3	0 to 1	0 to 2	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm) ⁴	1 to 11	4 to 19	1 to 9	5 to 24	1 to 9	4 to 22	0 to 2	1 to 5
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0.2	0 to 0.1	0 to 0.2	0 to 0.1	0 to 0.2	0 to 0	0 to 0

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 30

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	12,996	15,080 ¹	18,010	18,010	18,590	18,590
Educational Facilities ²		9	9	9	9	9
Other Noise Sensitive Land Uses ³		10	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	51	L_{A90}	7am to 7pm	39
	7pm to 10pm	47		7pm to 10pm	39
	10pm to 7am	43		10pm to 7am	32

Monitored at: 51 Marriott Road, Bonnyrigg

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	19 to 27	18 to 26	16 to 28	26 to 30	26 to 29	22 to 30
L_{Aeq} 10pm-6am ¹	9 to 18	9 to 16	7 to 18	15 to 19	16 to 18	12 to 18
ANEC ²	-11 to -6	-13 to -6	-14 to -6	-7 to -4	-8 to -4	-9 to -3
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

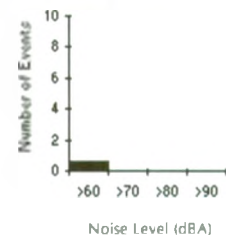
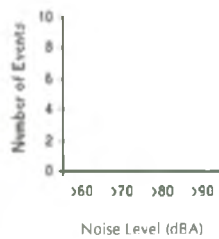
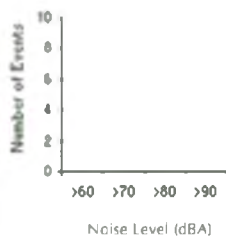
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

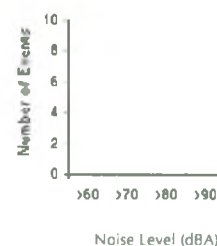
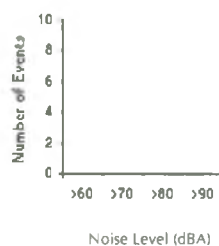
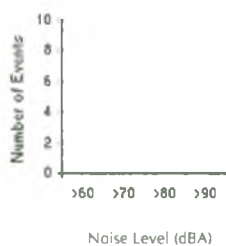
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



Potential Range of Events

2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 31

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	53,003	50,050 ¹	53,560	53,560	56,350	56,350
Educational Facilities ²		15	15	15	16	16
Other Noise Sensitive Land Uses ³		57	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	52	L _{A90}	7am to 7pm	38
	7pm to 10pm	46		7pm to 10pm	37
	10pm to 7am	50		10pm to 7am	32

Monitored at: 113 McBurney Road, Cabramatta

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	14 to 22	14 to 23	18 to 29	21 to 25	21 to 25	21 to 29
L_{Aeq} 10pm-6am ¹	5 to 15	5 to 15	10 to 21	11 to 15	11 to 15	12 to 19
ANEC ²	-15 to -7	-15 to -7	-14 to -4	-10 to -5	-10 to -5	-10 to -4
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

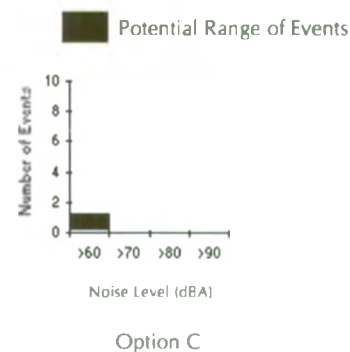
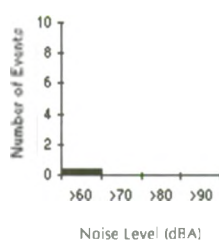
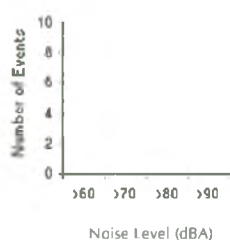
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

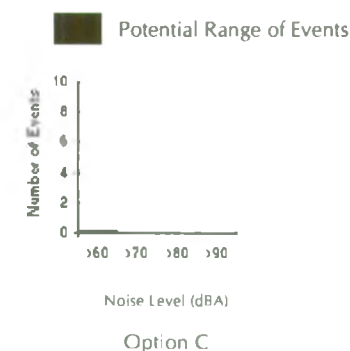
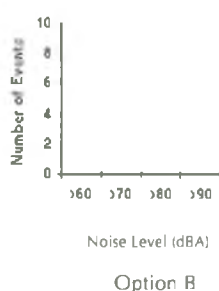
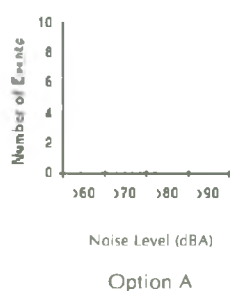
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 32

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	2006 Option C	2016 Options A and B	2016 Option C
Estimated Population	10,802	11,170 ¹	11,820	11,820	12,410	12,410
Educational Facilities ²		10	10	10	10	10
Other Noise Sensitive Land Uses ³		15	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	54	L_{A90}	7am to 7pm	44
	7pm to 10pm	50		7pm to 10pm	39
	10pm to 7am	48		10pm to 7am	38

Monitored at: 62 Bungara Road, Chipping Norton

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	17 to 28	16 to 27	23 to 35	23 to 30	19 to 24	29 to 37
L_{Aeq} 10pm-6am ¹	9 to 20	9 to 20	15 to 27	15 to 21	10 to 15	21 to 28
ANEC ²	-13 to -4	-14 to -5	-11 to 1	-8 to -2	-11 to -5	-6 to 2
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	0 to 5	0 to 2	0 to 0	1 to 8
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 2	0 to 0	0 to 0	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

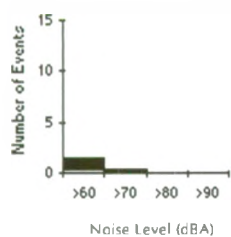
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

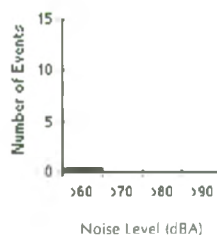
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

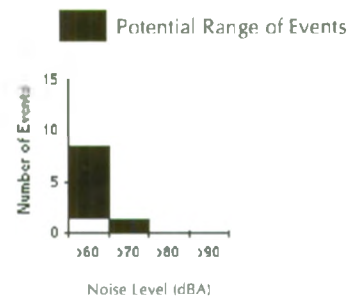
2016 - Number of Noise Events per 24 Hours (on average):



Option A

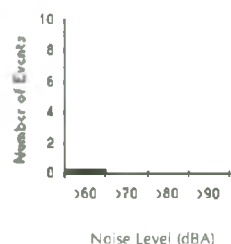


Option B

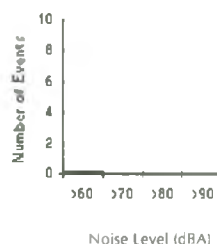


Option C

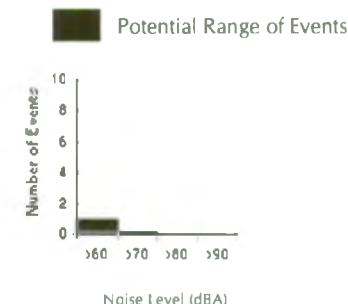
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 33

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	24,893	21,960 ¹	24,030	24,030	25,820	25,820
Educational Facilities ²		13	13	13	13	13
Other Noise Sensitive Land Uses ³		35	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	50	L _{A90}	7am to 7pm	39
	7pm to 10pm	45		7pm to 10pm	36
	10pm to 7am	44		10pm to 7am	31

Monitored at: 4 Phillis Street, Mount Pritchard

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	16 to 25	15 to 24	22 to 34	23 to 27	20 to 24	27 to 35
L_{Aeq} 10pm-6am ¹	8 to 17	6 to 16	14 to 25	13 to 18	11 to 14	18 to 25
ANEC ²	-14 to -7	-14 to -7	-13 to 0	-9 to -4	-10 to -5	-7 to 1
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	0 to 3	0 to 1	0 to 0	1 to 4
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

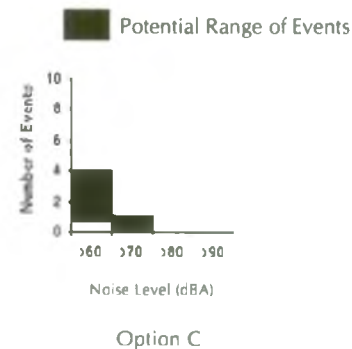
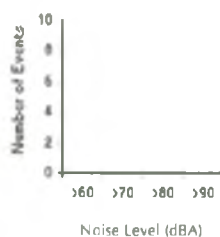
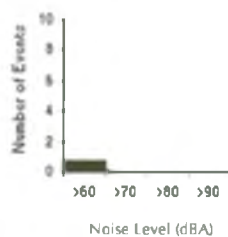
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

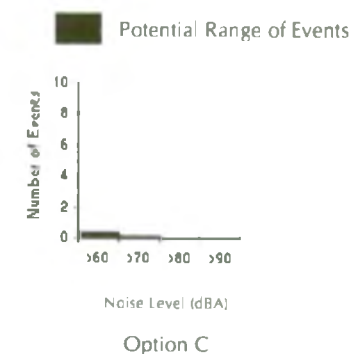
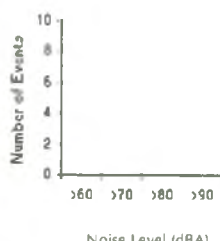
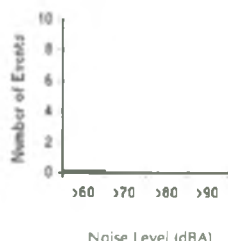
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 34

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	25,037	35,670 ¹	42,340	42,340	43,890	43,890
Educational Facilities ²		15	16	16	17	17
Other Noise Sensitive Land Uses ³		26	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	50	L _{A90}	7am to 7pm	40
	7pm to 10pm	49		7pm to 10pm	37
	10pm to 7am	41		10pm to 7am	34

Monitored at: 4 Lyndley Street, Busby

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	21 to 28	19 to 26	23 to 35	27 to 30	24 to 27	27 to 34
L_{Aeq} 10pm-6am ¹	11 to 18	10 to 17	14 to 26	17 to 19	13 to 16	17 to 24
ANEC ²	-11 to -6	-13 to -6	-11 to 1	-6 to -3	-8 to -4	-9 to -1
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 0	0 to 4	0 to 1	0 to 0	0 to 2
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

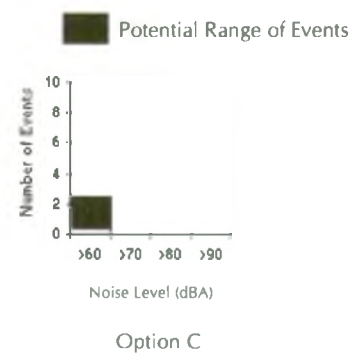
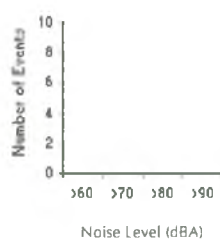
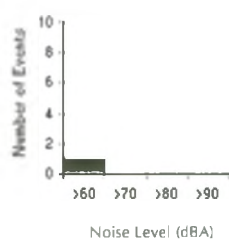
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

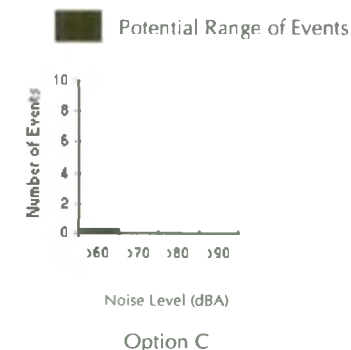
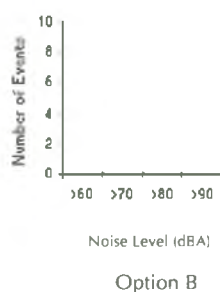
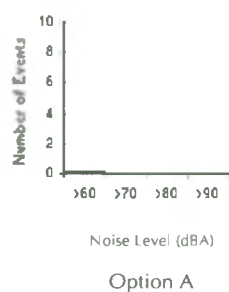
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 35

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	1,498	3,780 ¹	20,000	20,000	25,070	25,070
Educational Facilities ²		2	6	6	8	8
Other Noise Sensitive ³ Land Uses		5	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	52	L_{A90}	7am to 7pm	36
	7pm to 10pm	45		7pm to 10pm	34
	10pm to 7am	42		10pm to 7am	29

Monitored at: Lot 56, First Ave, Hoxton Park

Noise Indicators:

	Option A	Option B	Option C	Option A	Option B	Option C
L_{Aeq} 24 Hour ¹	31 to 41	26 to 33	27 to 38	37 to 43	32 to 39	32 to 39
L_{Aeq} 10pm-6am ¹	20 to 32	17 to 24	18 to 29	26 to 32	19 to 28	23 to 29
ANEC ²	-3 to 7	-7 to 0	-6 to 5	3 to 10	-2 to 4	0 to 6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	2 to 15	0 to 2	1 to 10	6 to 27	2 to 12	1 to 8
Over 70 dBA per 24 Hours	0 to 2	0 to 0	0 to 2	1 to 4	0 to 1	0 to 1
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	0 to 0	0 to 1	0 to 2	0 to 1	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 3	0 to 0	0 to 2	1 to 6	0 to 2	0 to 2
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0.1	0 to 0	0 to 0

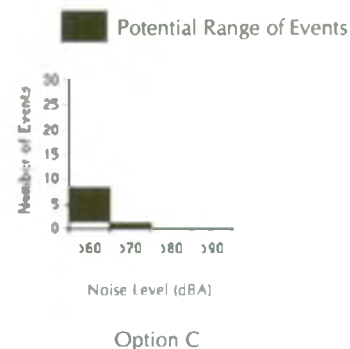
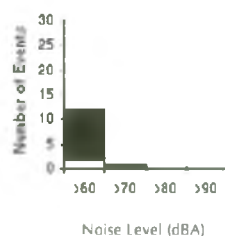
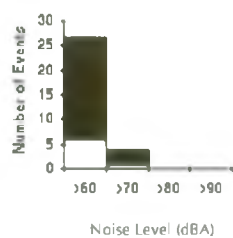
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

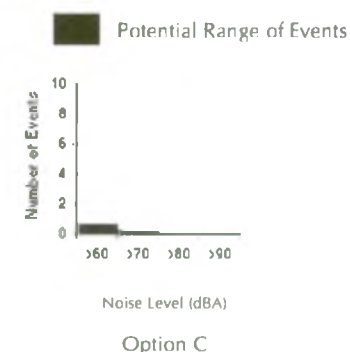
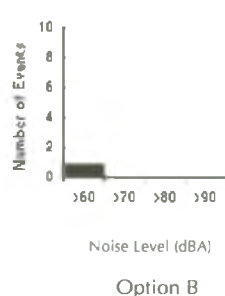
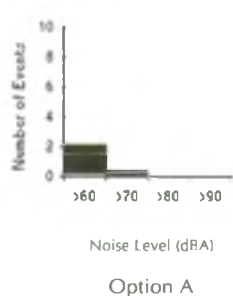
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 36

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	2,021	2,230 ¹	2,360	3,280	2,410	6,110
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive ³ Land Uses		4	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	49	L_{A90}	7am to 7pm	37
	7pm to 10pm	44		7pm to 10pm	36
	10pm to 7am	44		10pm to 7am	35

Monitored at: 275 Twelfth Avenue, Austral

Noise Indicators:

	Option A	Option B	Option C	Option A	Option B	Option C
L_{Aeq} 24 Hour ¹	34 to 44	31 to 42	27 to 37	40 to 47	41 to 49	34 to 40
L_{Aeq} 10pm-6am ¹	22 to 36	19 to 32	18 to 27	27 to 36	26 to 38	23 to 28
ANEC ²	0 to 11	-3 to 8	-6 to 3	5 to 14	6 to 16	0 to 4
Number of Noise Events ³						
Over 60 dBA per 24 Hours	2 to 21	2 to 18	0 to 6	8 to 37	9 to 47	3 to 11
Over 70 dBA per 24 Hours	0 to 6	0 to 3	0 to 1	1 to 9	2 to 14	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	0 to 2	0 to 0	0 to 3	0 to 4	0 to 1
Over 70 dBA per Night	0 to 1	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 5	0 to 5	0 to 1	2 to 8	2 to 12	1 to 3
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0	0 to 0	0 to 0.1	0 to 0.1	0 to 0

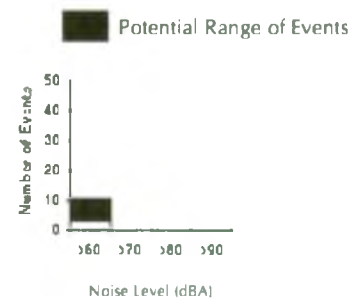
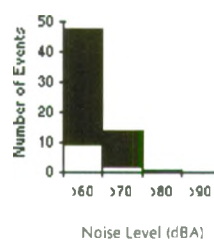
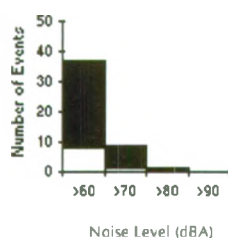
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

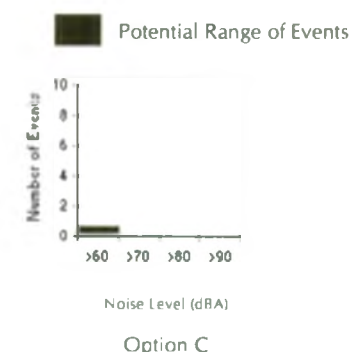
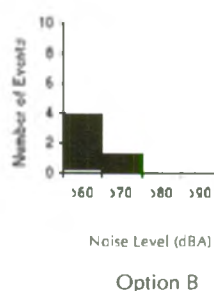
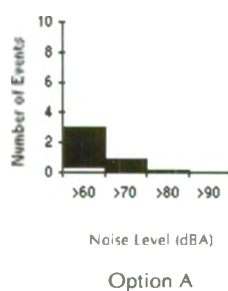
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 37

SHEET 1 / 3

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	1,558	1,620 ¹	1,640	2,560	1,660	5,670
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		2	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	48	L _{A90}	7am to 7pm	34
	7pm to 10pm	43		7pm to 10pm	33
	10pm to 7am	40		10pm to 7am	29

Monitored at: 27 Emmetts Farm Road, Rossmore

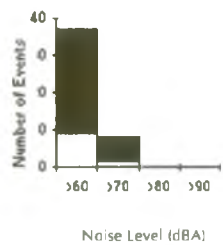
Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	34 to 44	34 to 45		40 to 46	41 to 48	
L_{Aeq} 10pm-6am ¹	21 to 34	21 to 35		27 to 35	27 to 37	
ANEC ²	0 to 10	-1 to 11		5 to 12	6 to 14	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	3 to 19	3 to 25		9 to 37	8 to 40	
Over 70 dBA per 24 Hours	0 to 5	0 to 7		1 to 8	2 to 11	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 2	0 to 2		0 to 3	0 to 3	
Over 70 dBA per Night	0 to 1	0 to 1		0 to 1	0 to 1	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm)	1 to 5	1 to 8		2 to 10	3 to 13	
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1		0 to 0.1	0 to 0.1	

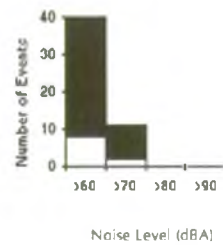
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

Potential Range of Events



Option A



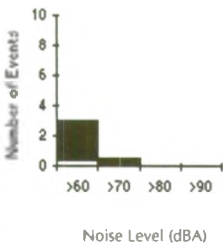
Option B

Refer Following
Pages

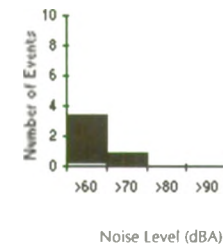
Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Potential Range of Events



Option A



Option B

Refer Following
Pages

Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No.38SHEET 1 / 11

Social Characteristics:

Year	1996 ¹			2006			2016		
	Option A	Option B	Option C	Option A	Option B	Option C	Option A	Option B	Option C
Estimated Population ²	1,680	1,250	1,050	1,700	1,270	1,070	1,700	1,270	1,070
Educational Facilities ³	2	2	2	2	2	2	2	2	2
Other Noise Sensitive Land Uses ⁴	0	0	0	Not estimated for future years					

- Notes: 1. Population estimates for 1996 are different for each option because they exclude the area of the option which differs between Option A, B and C.
2. Rounded to nearest 10.
3. The figures given for educational facilities in 2006 and 2016 are estimates of the number required to serve the estimated population in those years.
4. Includes hospitals, churches, facilities for aged persons and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	48, 53	L _{A90}	7am to 7pm	36, 38
	7pm to 10pm	44, 47		7pm to 10pm	35, 32
	10pm to 7am	43, 47		10pm to 7am	34, 28

Monitored at: 61 Kelvin Park Road, Bringelly, Lot 3, Lawson Road, Badgerys Creek

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	Refer Following Pages			Refer Following Pages		
L_{Aeq} 10pm-6am ¹						
ANEC ²						
Number of Noise Events ³						
Over 60 dBA per 24 Hours						
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index ⁴						

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

Social Characteristics for Option A:

	Sub Area: 38.AB1			Sub Area: 38.AB2			Sub Area: 38.AB3			Sub Area: 38.AB4			Sub Area: 38.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	70	80	80	70	80	80	40	40	40	40	40	40	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 38.AB1		Sub Area: 38.AB2		Sub Area: 38.AB3		Sub Area: 38.AB4		Sub Area: 38.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	57 to 63	59 to 63	57 to 64	61 to 63	50 to 60	56 to 60	45 to 54	52 to 55	43 to 51	49 to 52
L_{Aeq} 10pm-6am ¹	48 to 53	50 to 52	47 to 54	51 to 53	39 to 50	45 to 49	35 to 44	41 to 44	33 to 41	38 to 40
ANEC ²	24 to 31	26 to 29	24 to 32	27 to 31	15 to 27	19 to 27	11 to 21	14 to 20	9 to 17	11 to 16
Number of Noise Events ³										
Over 60 dBA per 24 Hours	79 to 170	154 to 265	79 to 173	136 to 214	64 to 174	123 to 198	28 to 138	60 to 150	18 to 108	38 to 112
Over 70 dBA per 24 Hours	57 to 149	110 to 167	58 to 148	98 to 161	17 to 107	43 to 98	3 to 47	16 to 40	2 to 36	5 to 23
Over 80 dBA per 24 Hours	13 to 73	19 to 50	14 to 68	30 to 55	2 to 35	3 to 23	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	1 to 7	1 to 1	1 to 9	1 to 7	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	12 to 13	13 to 20	12 to 13	12 to 16	8 to 13	10 to 14	3 to 11	5 to 11	1 to 8	3 to 8
Over 70 dBA per Night	8 to 11	10 to 12	8 to 10	9 to 12	1 to 8	4 to 8	0 to 4	1 to 3	0 to 3	0 to 2
Over 80 dBA per Night	1 to 6	2 to 4	2 to 6	3 to 4	0 to 3	0 to 2	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 1	0 to 0	0 to 2	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	32 to 78	59 to 91	33 to 78	57 to 85	14 to 64	32 to 66	5 to 42	13 to 45	2 to 28	8 to 21
Sleep Disturbance Index ⁴	0.5 to 0.8	0.7 to 0.8	0.5 to 0.8	0.7 to 0.8	0.1 to 0.5	0.3 to 0.5	0 to 0.3	0.1 to 0.3	0 to 0.2	0.1 to 0.2

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 38.AB6			Sub Area: 38.AB7			Sub Area: 38.AB8			Sub Area: 38.AB9			Sub Area: 38.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	50	50	50	380	380	380	310	320	320	90	90	90
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 38.AB6		Sub Area: 38.AB7		Sub Area: 38.AB8		Sub Area: 38.AB9		Sub Area: 38.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	42 to 49	47 to 49	50 to 58	53 to 56	44 to 50	49 to 51	39 to 45	43 to 46	39 to 47	45 to 50
L_{Aeq} 10pm-6am ¹	32 to 39	37 to 38	42 to 47	43 to 44	35 to 39	38 to 40	29 to 35	32 to 34	30 to 41	34 to 39
ANEC ²	7 to 14	10 to 13	17 to 24	19 to 22	9 to 16	12 to 15	4 to 9	6 to 9	3 to 9	7 to 10
Number of Noise Events ³										
Over 60 dBA per 24 Hours	9 to 66	25 to 65	78 to 206	108 to 191	32 to 119	57 to 98	6 to 35	14 to 39	4 to 43	10 to 25
Over 70 dBA per 24 Hours	0 to 2	1 to 4	21 to 110	39 to 91	1 to 20	11 to 22	0 to 3	3 to 7	0 to 3	1 to 6
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 6	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 6	2 to 5	11 to 15	10 to 14	4 to 9	5 to 7	1 to 3	1 to 3	1 to 5	1 to 2
Over 70 dBA per Night	0 to 0	0 to 1	3 to 9	4 to 6	0 to 2	1 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 23	7 to 18	23 to 73	36 to 56	4 to 32	12 to 30	0 to 2	1 to 4	0 to 3	2 to 5
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.1	0.3 to 0.5	0.3 to 0.4	0.1 to 0.2	0.1 to 0.2	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 38.AB11			Sub Area: 38.AB12			Sub Area: 38.AB13			Sub Area: 38.AB14		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	20	20	20	10	10	10	550	560	560
Educational Facilities ²	0	0	0	0	0	0	0	0	0	1	1	1
Other Noise Sensitive ³ Land Uses	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 38.AB11		Sub Area: 38.AB12		Sub Area: 38.AB13		Sub Area: 38.AB14	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	38 to 46	43 to 49	37 to 45	42 to 48	35 to 43	40 to 45	33 to 41	38 to 43
L_{Aeq} 10pm-6am ¹	28 to 39	32 to 38	27 to 38	31 to 37	26 to 35	30 to 34	23 to 32	27 to 32
ANEC ²	2 to 8	6 to 10	1 to 8	5 to 9	0 to 8	4 to 9	-3 to 6	1 to 8
Number of Noise Events ³								
Over 60 dBA per 24 Hours	2 to 17	9 to 18	1 to 9	5 to 16	1 to 10	5 to 17	1 to 7	4 to 12
Over 70 dBA per 24 Hours	0 to 3	1 to 6	0 to 3	1 to 6	0 to 1	1 to 2	0 to 1	0 to 2
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	1 to 2	0 to 1	1 to 2	0 to 1	0 to 2	0 to 1	0 to 1
Over 70 dBA per Night	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 3	1 to 5	0 to 3	1 to 5	0 to 3	1 to 5	0 to 2	0 to 2
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 38.AB1			Sub Area: 38.AB2			Sub Area: 38.AB3			Sub Area: 38.AB4			Sub Area: 38.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	70	80	80	70	80	80	40	40	40	40	40	40	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 38.AB1		Sub Area: 38.AB2		Sub Area: 38.AB3		Sub Area: 38.AB4		Sub Area: 38.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	47 to 56	52 to 56	46 to 53	54 to 57	45 to 53	57 to 60	45 to 54	64 to 70	43 to 52	56 to 60
L_{Aeq} 10pm-6am ¹	36 to 46	41 to 44	36 to 45	44 to 46	36 to 45	47 to 49	36 to 47	55 to 59	34 to 45	46 to 49
ANEC ²	11 to 22	14 to 19	7 to 17	15 to 20	5 to 14	22 to 25	3 to 12	32 to 38	2 to 11	20 to 26
Number of Noise Events ³										
Over 60 dBA per 24 Hours	27 to 135	84 to 208	12 to 97	123 to 227	8 to 70	133 to 209	6 to 55	133 to 202	5 to 49	126 to 194
Over 70 dBA per 24 Hours	7 to 63	21 to 68	4 to 31	30 to 68	2 to 11	77 to 138	2 to 11	100 to 169	2 to 11	59 to 107
Over 80 dBA per 24 Hours	0 to 7	0 to 1	0 to 1	0 to 4	0 to 0	12 to 25	0 to 0	50 to 124	0 to 0	4 to 26
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	18 to 64	0 to 0	0 to 1
Over 60 dBA per Night	2 to 10	6 to 14	1 to 7	9 to 16	0 to 6	12 to 16	0 to 5	12 to 15	0 to 5	12 to 15
Over 70 dBA per Night	0 to 5	1 to 5	0 to 3	3 to 5	0 to 2	7 to 10	0 to 2	10 to 14	0 to 2	5 to 9
Over 80 dBA per Night	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	1 to 2	0 to 0	6 to 11	0 to 0	0 to 2
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	2 to 5	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	9 to 52	22 to 64	3 to 31	27 to 65	3 to 28	51 to 83	2 to 11	51 to 83	2 to 10	44 to 71
Sleep Disturbance Index ⁴	0.1 to 0.4	0.1 to 0.4	0 to 0.2	0.2 to 0.4	0 to 0.2	0.5 to 0.6	0 to 0.1	0.8 to 1.4	0 to 0.1	0.4 to 0.6

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 38.AB6			Sub Area: 38.AB7			Sub Area: 38.AB8			Sub Area: 38.AB9			Sub Area: 38.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	50	0	0	380	0	0	310	320	320	90	90	90
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 38.AB6		Sub Area: 38.AB7		Sub Area: 38.AB8		Sub Area: 38.AB9		Sub Area: 38.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	41 to 49	51 to 56	41 to 47	68 to 70	40 to 47	60 to 62	36 to 44	47 to 51	34 to 42	45 to 49
L_{Aeq} 10pm-6am ¹	32 to 41	40 to 45	32 to 38	58 to 59	30 to 39	49 to 50	25 to 35	36 to 39	24 to 33	35 to 38
ANEC ²	1 to 10	13 to 21	6 to 11	35 to 37	1 to 9	26 to 28	-2 to 8	11 to 15	-3 to 6	9 to 13
Number of Noise Events ³										
Over 60 dBA per 24 Hours	4 to 32	62 to 144	12 to 70	190 to 302	4 to 25	134 to 237	3 to 22	76 to 130	1 to 17	32 to 71
Over 70 dBA per 24 Hours	2 to 11	22 to 65	1 to 10	131 to 226	1 to 11	87 to 159	0 to 4	2 to 15	0 to 1	1 to 9
Over 80 dBA per 24 Hours	0 to 0	0 to 4	0 to 0	99 to 164	0 to 0	34 to 49	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	40 to 69	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 4	5 to 11	1 to 6	17 to 22	0 to 3	12 to 18	0 to 3	5 to 9	0 to 2	3 to 5
Over 70 dBA per Night	0 to 2	1 to 5	0 to 2	12 to 17	0 to 2	8 to 13	0 to 1	0 to 1	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	9 to 13	0 to 0	3 to 4	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	3 to 5	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm) ⁴	1 to 7	20 to 46	2 to 10	68 to 118	1 to 9	56 to 96	0 to 3	13 to 26	0 to 3	5 to 15
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.4	0 to 0.2	1.2 to 1.6	0 to 0.1	0.6 to 0.8	0 to 0.1	0.1 to 0.2	0 to 0	0.1 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 38.AB11			Sub Area: 38.AB12			Sub Area: 38.AB13			Sub Area: 38.AB14		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	20	20	20	10	10	10	550	560	560
Educational Facilities ²	0	0	0	0	0	0	0	0	0	1	1	1
Other Noise Sensitive Land Uses ³	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 38.AB11		Sub Area: 38.AB12		Sub Area: 38.AB13		Sub Area: 38.AB14	
	2006	2016	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	33 to 41	44 to 54	32 to 41	43 to 68	32 to 40	42 to 55	32 to 42	43 to 49
L _{Aeq} 10pm-6am ¹	23 to 33	33 to 43	22 to 32	32 to 56	21 to 32	31 to 43	20 to 34	34 to 38
ANEC ²	-4 to 6	7 to 19	-4 to 6	5 to 35	-5 to 6	3 to 20	-4 to 8	1 to 8
Number of Noise Events ³								
Over 60 dBA per 24 Hours	1 to 10	16 to 53	1 to 10	13 to 48	1 to 10	11 to 44	1 to 15	5 to 22
Over 70 dBA per 24 Hours	0 to 1	0 to 17	0 to 3	0 to 23	0 to 2	1 to 24	0 to 3	3 to 6
Over 80 dBA per 24 Hours	0 to 0	0 to 5	0 to 0	0 to 20	0 to 0	0 to 7	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 13	0 to 0	0 to 1	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	2 to 4	0 to 1	1 to 4	0 to 1	1 to 3	0 to 2	0 to 2
Over 70 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 2	0 to 0	0 to 2	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 3	4 to 18	0 to 3	2 to 16	0 to 3	2 to 15	0 to 5	1 to 4
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0	0 to 0.3	0 to 0	0 to 0.1	0 to 0	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 38.C1			Sub Area: 38.C2			Sub Area: 38.C3			Sub Area: 38.C4			Sub Area: 38.C5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	250	260	260	10	10	10	0	0	0	0	0	0	120	120	120
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 38.C1		Sub Area: 38.C2		Sub Area: 38.C3		Sub Area: 38.C4		Sub Area: 38.C5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	34 to 41	46 to 50	35 to 42	47 to 55	39 to 53	53 to 64	39 to 44	50 to 57	62 to 72	65 to 71
L_{Aeq} 10pm-6am ¹	24 to 32	35 to 38	24 to 31	36 to 43	26 to 33	38 to 53	27 to 35	38 to 45	52 to 62	55 to 60
ANEC ²	-4 to 1	11 to 14	-3 to 3	13 to 22	6 to 19	19 to 33	1 to 9	16 to 24	27 to 37	33 to 40
Number of Noise Events ³										
Over 60 dBA per 24 Hours	0 to 6	41 to 87	0 to 5	79 to 136	0 to 5	79 to 156	0 to 5	78 to 150	41 to 102	139 to 213
Over 70 dBA per 24 Hours	0 to 0	2 to 19	0 to 0	4 to 27	0 to 0	8 to 44	0 to 0	8 to 40	29 to 90	92 to 177
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 4	0 to 0	0 to 18	0 to 0	0 to 5	16 to 79	56 to 146
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 12	0 to 0	0 to 1	5 to 48	20 to 80
Over 60 dBA per Night	0 to 1	3 to 6	0 to 1	6 to 9	0 to 1	7 to 13	0 to 1	6 to 11	5 to 9	12 to 16
Over 70 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 2	0 to 0	1 to 3	0 to 0	1 to 3	4 to 8	9 to 14
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	2 to 7	6 to 11
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 4	2 to 6
Over 65 dBA (9am-3pm)	0 to 0	5 to 20	0 to 0	13 to 35	0 to 3	18 to 46	0 to 3	22 to 48	17 to 48	53 to 93
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0	0.1 to 0.2	0 to 0	0.1 to 0.4	0 to 0	0.1 to 0.3	0.3 to 0.9	0.8 to 1.5

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 38.C6			Sub Area: 38.C7			Sub Area: 38.C8			Sub Area: 38.C9			Sub Area: 38.C10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	40	40	40	90	90	90	110	120	120
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 38.C6		Sub Area: 38.C7		Sub Area: 38.C8		Sub Area: 38.C9		Sub Area: 38.C10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	52 to 61	55 to 59	49 to 58	53 to 57	45 to 54	51 to 56	44 to 51	54 to 59	42 to 52	63 to 66
L_{Aeq} 10pm-6am ¹	43 to 51	46 to 49	40 to 48	44 to 47	36 to 44	41 to 45	34 to 42	43 to 48	32 to 44	53 to 55
ANEC ²	16 to 25	22 to 27	12 to 22	19 to 25	8 to 17	16 to 22	5 to 12	20 to 26	2 to 9	31 to 34
Number of Noise Events ³										
Over 60 dBA per 24 Hours	37 to 95	147 to 231	32 to 83	44 to 24	15 to 66	108 to 256	8 to 50	131 to 247	3 to 31	130 to 224
Over 70 dBA per 24 Hours	16 to 59	63 to 112	10 to 53	48 to 113	3 to 30	25 to 87	1 to 7	45 to 121	0 to 5	93 to 141
Over 80 dBA per 24 Hours	1 to 17	5 to 27	1 to 9	2 to 14	0 to 0	0 to 0	0 to 0	4 to 21	0 to 0	40 to 98
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	8 to 26
Over 60 dBA per Night	5 to 8	13 to 17	4 to 7	13 to 18	2 to 7	11 to 20	1 to 5	11 to 20	0 to 4	11 to 17
Over 70 dBA per Night	2 to 5	6 to 9	1 to 5	5 to 9	0 to 4	2 to 6	0 to 1	4 to 10	0 to 1	8 to 10
Over 80 dBA per Night	0 to 2	1 to 2	0 to 2	0 to 2	0 to 0	0 to 0	0 to 0	0 to 2	0 to 0	4 to 7
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	1 to 2
Over 65 dBA (9am-3pm)	13 to 38	49 to 81	8 to 31	35 to 76	3 to 24	22 to 78	1 to 17	32 to 88	1 to 7	51 to 83
Sleep Disturbance Index ⁴	0.2 to 0.4	0.5 to 0.7	0.1 to 0.3	0.4 to 0.6	0 to 0.2	0.3 to 0.6	0 to 0.1	0.3 to 0.7	0 to 0.1	0.7 to 0.9

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 38.C11			Sub Area: 38.C12			Sub Area: 38.C13		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	40	40	40	360	360	360
Educational Facilities ²	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 38.C11		Sub Area: 38.C12		Sub Area: 38.C13	
	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	40 to 49	56 to 61	38 to 47	51 to 56	36 to 42	47 to 51
L_{Aeq} 10pm-6am¹	30 to 41	46 to 51	29 to 39	40 to 45	26 to 33	36 to 40
ANEC²	-1 to 4	23 to 28	-3 to 3	16 to 22	-5 to 1	12 to 17
Number of Noise Events³						
Over 60 dBA per 24 Hours	2 to 20	119 to 201	1 to 8	72 to 167	0 to 5	43 to 109
Over 70 dBA per 24 Hours	0 to 5	65 to 124	0 to 5	25 to 74	0 to 0	8 to 27
Over 80 dBA per 24 Hours	0 to 0	7 to 34	0 to 0	1 to 6	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	1 to 3	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 3	10 to 16	0 to 1	6 to 13	0 to 1	3 to 8
Over 70 dBA per Night	0 to 1	5 to 9	0 to 1	2 to 5	0 to 0	1 to 2
Over 80 dBA per Night	0 to 0	1 to 3	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 4	47 to 76	0 to 3	24 to 59	0 to 0	6 to 23
Sleep Disturbance Index⁴	0 to 0.1	0.4 to 0.7	0 to 0	0.2 to 0.4	0 to 0	0.1 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 39

SHEET 1 / 14

Social Characteristics:

Year	1996 ¹			2006			2016		
	Option A	Option B	Option C	Option A	Option B	Option C	Option A	Option B	Option C
Estimated Population ²	2,510	2,370	2,430	2,550	2,410	2,540	2,550	2,410	2,600
Educational Facilities ³	3	3	3	3	3	3	3	3	3
Other Noise Sensitive Land Uses ⁴	6	6	6	Not estimated for these years					

- Notes:
1. Population estimates for 1996 are different for each option because they exclude the area of the option which differs between Option A, B and C.
 2. Rounded to nearest 10.
 3. The figures for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 4. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	56, 55	L _{A90}	7am to 7pm	41, 37
	7pm to 10pm	45, 54		7pm to 10pm	35, 35
	10pm to 7am	52, 48		10pm to 7am	28, 30

Monitored at: 43 Blaxland Ave, Luddenham, 38 Greendale Road, Wallacia

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	Refer Following Pages			Refer Following Pages		
L_{Aeq} 10pm-6am ¹						
ANEC ²						
Number of Noise Events ³						
Over 60 dBA per 24 Hours						
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index ⁴						

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events
Refer Following
PagesRefer Following
PagesRefer Following
Pages

Option A

Option B

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events
Refer Following
PagesRefer Following
PagesRefer Following
Pages

Option A

Option B

Option C

Social Characteristics for Option A:

	Sub Area: 39.AB1			Sub Area: 39.AB2			Sub Area: 39.AB3			Sub Area: 39.AB4			Sub Area: 39.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	1440	1460	1460	20	20	20	50	50	50	330	330	330	10	10	10
Educational Facilities ²	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0
Other Noise Sensitive ³ Land Uses	2			0			0			2			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 39.AB1		Sub Area: 39.AB2		Sub Area: 39.AB3		Sub Area: 39.AB4		Sub Area: 39.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	30 to 37	36 to 41	29 to 37	47 to 51	32 to 38	44 to 47	36 to 43	50 to 53	34 to 42	49 to 56
L_{Aeq} 10pm-6am ¹	20 to 27	26 to 30	20 to 27	35 to 39	22 to 28	34 to 35	27 to 36	40 to 41	25 to 33	39 to 45
ANEC ²	-5 to 1	1 to 4	-8 to 1	4 to 7	-5 to 2	7 to 10	0 to 6	12 to 17	-1 to 7	16 to 23
Number of Noise Events ³										
Over 60 dBA per 24 Hours	0 to 3	1 to 5	0 to 1	11 to 22	0 to 2	19 to 45	1 to 6	51 to 145	2 to 20	40 to 143
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	2 to 14	0 to 0	11 to 22	0 to 2	15 to 34	0 to 0	12 to 55
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	1 to 8
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	1 to 1	0 to 1	2 to 3	0 to 1	5 to 12	0 to 2	4 to 12
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	1 to 1	0 to 1	1 to 3	0 to 0	1 to 5
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	0 to 0	0 to 0	5 to 11	0 to 0	5 to 11	0 to 1	11 to 33	0 to 2	11 to 46
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0.1	0 to 0	0 to 0.1	0 to 0	0.1 to 0.2	0 to 0	0.1 to 0.3

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 39.AB6			Sub Area: 39.AB7			Sub Area: 39.AB8			Sub Area: 39.AB9			Sub Area: 39.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	150	150	150	40	40	40	20	20	20	10	10	10	20	20	20
Educational Facilities ²	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	2			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 39.AB6		Sub Area: 39.AB7		Sub Area: 39.AB8		Sub Area: 39.AB9		Sub Area: 39.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	36 to 44	52 to 57	37 to 43	50 to 53	37 to 43	51 to 54	35 to 41	47 to 49	37 to 44	53 to 56
L_{Aeq} 10pm-6am¹	26 to 34	42 to 47	27 to 36	39 to 41	28 to 34	40 to 42	26 to 33	37 to 38	28 to 35	42 to 44
ANEC²	1 to 8	18 to 25	-1 to 6	15 to 18	1 to 7	17 to 20	-2 to 4	12 to 15	1 to 8	19 to 22
Number of Noise Events³										
Over 60 dBA per 24 Hours	3 to 32	71 to 181	1 to 8	94 to 196	1 to 14	107 to 208	1 to 3	47 to 109	2 to 27	126 to 199
Over 70 dBA per 24 Hours	0 to 0	19 to 83	0 to 2	9 to 38	0 to 2	11 to 38	0 to 0	2 to 15	0 to 2	23 to 71
Over 80 dBA per 24 Hours	0 to 0	2 to 11	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 4	7 to 15	0 to 1	8 to 15	0 to 2	10 to 16	0 to 1	4 to 7	0 to 2	12 to 15
Over 70 dBA per Night	0 to 0	2 to 7	0 to 1	1 to 3	0 to 1	1 to 3	0 to 0	0 to 1	0 to 0	1 to 4
Over 80 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 2	21 to 63	0 to 1	21 to 46	0 to 1	28 to 64	0 to 1	9 to 25	0 to 1	28 to 59
Sleep Disturbance Index⁴	0 to 0	0.2 to 0.5	0 to 0	0.1 to 0.2	0 to 0	0.1 to 0.3	0 to 0	0 to 0.1	0 to 0	0.2 to 0.3

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 39.AB11			Sub Area: 39.AB12			Sub Area: 39.AB13			Sub Area: 39.AB14			Sub Area: 39.AB15		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	30	30	20	30	30	20	30	30	10	10	10	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 39.AB11		Sub Area: 39.AB12		Sub Area: 39.AB13		Sub Area: 39.AB14		Sub Area: 39.AB15	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	38 to 44	52 to 54	38 to 46	56 to 62	40 to 49	60 to 64	42 to 51	62 to 66	45 to 54	57 to 61
L_{Aeq} 10pm-6am¹	28 to 34	41 to 43	28 to 36	47 to 52	31 to 39	50 to 53	33 to 42	51 to 54	36 to 45	47 to 50
ANEC²	2 to 8	18 to 21	3 to 12	24 to 30	5 to 15	27 to 32	8 to 18	29 to 33	11 to 21	23 to 29
Number of Noise Events³										
Over 60 dBA per 24 Hours	3 to 22	144 to 233	5 to 49	134 to 216	9 to 73	139 to 225	14 to 91	150 to 234	27 to 129	173 to 274
Over 70 dBA per 24 Hours	0 to 2	23 to 58	0 to 1	45 to 130	1 to 9	106 to 158	2 to 26	107 to 155	4 to 44	63 to 121
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	8 to 43	0 to 0	29 to 62	0 to 0	43 to 105	0 to 2	9 to 32
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	1 to 7	0 to 0	3 to 12	0 to 0	7 to 23	0 to 0	0 to 1
Over 60 dBA per Night	0 to 2	13 to 17	1 to 5	11 to 16	1 to 7	12 to 17	2 to 8	13 to 18	4 to 10	15 to 20
Over 70 dBA per Night	0 to 1	2 to 4	0 to 0	4 to 11	0 to 1	9 to 12	0 to 3	9 to 11	1 to 5	5 to 9
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	1 to 4	0 to 0	3 to 5	0 to 0	4 to 7	0 to 0	1 to 3
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 1	40 to 79	1 to 11	37 to 80	2 to 20	57 to 88	3 to 27	57 to 87	6 to 41	55 to 91
Sleep Disturbance Index⁴	0 to 0	0.2 to 0.3	0 to 0.1	0.3 to 0.7	0 to 0.1	0.6 to 0.8	0 to 0.2	0.7 to 0.9	0.1 to 0.3	0.5 to 0.7

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 39.AB16			Sub Area: 39.AB17			Sub Area: 39.AB18			Sub Area: 39.AB19			Sub Area: 39.AB20		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	20	20	10	10	10	0	0	0	0	0	0	60	70	70
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 39.AB16		Sub Area: 39.AB17		Sub Area: 39.AB18		Sub Area: 39.AB19		Sub Area: 39.AB20	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	53 to 61	55 to 58	62 to 71	64 to 71	56 to 64	58 to 61	51 to 60	54 to 58	46 to 55	50 to 54
L_{Aeq} 10pm-6am ¹	44 to 51	45 to 47	51 to 60	51 to 60	47 to 55	49 to 51	42 to 51	44 to 48	37 to 45	41 to 44
ANEC ²	19 to 29	21 to 24	29 to 39	31 to 38	23 to 32	25 to 29	18 to 28	20 to 26	12 to 22	15 to 21
Number of Noise Events ³										
Over 60 dBA per 24 Hours	77 to 169	163 to 271	85 to 181	149 to 243	80 to 172	126 to 187	64 to 164	109 to 169	27 to 133	57 to 134
Over 70 dBA per 24 Hours	32 to 116	71 to 124	63 to 163	92 to 168	56 to 143	72 to 140	21 to 111	35 to 76	6 to 59	12 to 40
Over 80 dBA per 24 Hours	3 to 34	3 to 7	27 to 131	35 to 111	11 to 66	19 to 39	2 to 34	3 to 15	0 to 2	1 to 4
Over 90 dBA per 24 Hours	0 to 1	0 to 0	9 to 71	14 to 64	1 to 11	1 to 5	0 to 1	0 to 1	0 to 0	0 to 0
Over 60 dBA per Night	11 to 13	16 to 21	12 to 13	14 to 18	12 to 13	12 to 15	9 to 13	10 to 13	4 to 11	6 to 11
Over 70 dBA per Night	4 to 9	7 to 9	8 to 12	9 to 13	8 to 10	6 to 10	3 to 9	4 to 6	1 to 6	1 to 3
Over 80 dBA per Night	0 to 4	0 to 1	3 to 9	2 to 8	1 to 6	2 to 3	0 to 4	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	1 to 5	1 to 4	0 to 2	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	26 to 71	52 to 90	33 to 81	50 to 85	32 to 77	46 to 79	17 to 66	32 to 55	6 to 46	11 to 38
Sleep Disturbance Index ⁴	0.3 to 0.6	0.5 to 0.6	0.6 to 1.3	0.6 to 1.2	0.5 to 0.8	0.5 to 0.7	0.2 to 0.6	0.3 to 0.4	0.1 to 0.4	0.1 to 0.3

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 39.AB21			Sub Area: 39.AB22			Sub Area: 39.AB23			Sub Area: 39.AB24			Sub Area: 39.AB25		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	50	50	50	10	10	10	10	10	10	30	30	30	100	100	100
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 39.AB21		Sub Area: 39.AB22		Sub Area: 39.AB23		Sub Area: 39.AB24		Sub Area: 39.AB25	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour	45 to 53	50 to 54	43 to 53	48 to 54	43 to 50	48 to 51	40 to 49	46 to 50	41 to 47	45 to 50
L_{Aeq} 10pm-6am¹	36 to 44	41 to 44	35 to 44	39 to 44	33 to 41	38 to 40	32 to 40	37 to 40	31 to 40	35 to 39
ANEC²	10 to 20	14 to 20	10 to 20	15 to 22	7 to 16	10 to 15	6 to 15	11 to 16	4 to 11	8 to 12
Number of Noise Events³										
Over 60 dBA per 24 Hours	17 to 108	31 to 98	11 to 78	27 to 81	13 to 90	32 to 82	9 to 68	22 to 63	6 to 53	13 to 35
Over 70 dBA per 24 Hours	4 to 38	10 to 33	2 to 20	9 to 34	1 to 8	3 to 7	1 to 8	5 to 12	0 to 3	2 to 7
Over 80 dBA per 24 Hours	0 to 1	0 to 2	0 to 3	1 to 5	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	3 to 9	4 to 9	2 to 7	3 to 7	2 to 8	3 to 6	1 to 7	3 to 5	1 to 5	2 to 2
Over 70 dBA per Night	0 to 4	1 to 2	0 to 2	1 to 3	0 to 1	0 to 1	0 to 1	1 to 1	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	4 to 36	9 to 30	3 to 26	8 to 27	2 to 28	5 to 14	2 to 14	5 to 17	1 to 4	3 to 6
Sleep Disturbance Index⁴	0.1 to 0.3	0.1 to 0.2	0 to 0.2	0.1 to 0.2	0 to 0.2	0.1 to 0.1	0 to 0.1	0.1 to 0.1	0 to 0.1	0 to 0

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 39.AB1			Sub Area: 39.AB2			Sub Area: 39.AB3			Sub Area: 39.AB4			Sub Area: 39.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	1440	1460	1460	20	20	20	50	50	50	330	330	330	10	10	10
Educational Facilities ²	1	1	1	0	0	0	0	0	0	1	1	1	0	0	0
Other Noise Sensitive Land Uses ³	2			0			0			2			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 39.AB1		Sub Area: 39.AB2		Sub Area: 39.AB3		Sub Area: 39.AB4		Sub Area: 39.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	30 to 37	35 to 40	36 to 43	42 to 51	39 to 46	45 to 58	42 to 49	47 to 51	39 to 48	44 to 50
L_{Aeq} 10pm-6am ¹	21 to 27	25 to 28	27 to 35	31 to 39	29 to 37	34 to 47	33 to 40	37 to 39	30 to 38	34 to 39
ANEC ²	-7 to -1	-5 to 2	-3 to 3	0 to 15	1 to 6	4 to 26	6 to 12	8 to 12	2 to 11	6 to 12
Number of Noise Events ³										
Over 60 dBA per 24 Hours	0 to 1	0 to 3	2 to 13	11 to 42	3 to 21	14 to 49	9 to 64	30 to 75	7 to 58	22 to 89
Over 70 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	0 to 10	2 to 12	11 to 40	0 to 9	2 to 14	1 to 8	3 to 14
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 2	0 to 0	0 to 13	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 4	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 2	1 to 3	0 to 3	1 to 3	1 to 6	3 to 6	1 to 6	2 to 7
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 2	1 to 3	0 to 1	0 to 1	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	0 to 1	0 to 4	1 to 12	1 to 6	5 to 20	2 to 25	8 to 27	1 to 17	5 to 24
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0.1	0 to 0.1	0 to 0.2	0 to 0.1	0.1 to 0.1	0 to 0.1	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 39.AB6			Sub Area: 39.AB7			Sub Area: 39.AB8			Sub Area: 39.AB9			Sub Area: 39.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	150	150	150	40	40	40	20	20	20	10	10	10	20	20	20
Educational Facilities ²	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	2			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 39.AB6		Sub Area: 39.AB7		Sub Area: 39.AB8		Sub Area: 39.AB9		Sub Area: 39.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	46 to 53	51 to 55	42 to 48	46 to 55	44 to 50	47 to 62	40 to 47	45 to 49	45 to 52	49 to 53
L_{Aeq} 10pm-6am¹	36 to 45	41 to 43	33 to 37	35 to 44	35 to 39	37 to 51	30 to 36	34 to 38	35 to 41	39 to 41
ANEC²	6 to 15	10 to 16	7 to 14	10 to 20	10 to 15	13 to 29	4 to 11	8 to 12	10 to 17	13 to 17
Number of Noise Events³										
Over 60 dBA per 24 Hours	16 to 99	44 to 139	24 to 101	54 to 118	46 to 128	88 to 155	11 to 72	31 to 75	33 to 138	74 to 145
Over 70 dBA per 24 Hours	3 to 25	14 to 39	1 to 10	3 to 30	1 to 15	4 to 35	0 to 9	2 to 14	2 to 36	7 to 39
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 7	0 to 0	0 to 17	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 9	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 8	4 to 11	2 to 7	4 to 8	6 to 10	8 to 12	1 to 6	3 to 5	3 to 10	6 to 10
Over 70 dBA per Night	0 to 3	1 to 3	0 to 2	0 to 2	0 to 2	0 to 2	0 to 1	0 to 1	0 to 3	0 to 2
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	3 to 30	11 to 35	2 to 22	8 to 29	6 to 31	15 to 38	2 to 16	7 to 19	6 to 41	18 to 42
Sleep Disturbance Index⁴	0 to 0.2	0.1 to 0.2	0 to 0.1	0 to 0.2	0 to 0.2	0.1 to 0.3	0 to 0.1	0 to 0.1	0 to 0.2	0.1 to 0.2

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 39.AB11			Sub Area: 39.AB12			Sub Area: 39.AB13			Sub Area: 39.AB14			Sub Area: 39.AB15		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	30	30	20	30	30	20	20	20	10	10	10	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

- Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 39.AB11		Sub Area: 39.AB12		Sub Area: 39.AB13		Sub Area: 39.AB14		Sub Area: 39.AB15	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	46 to 51	49 to 54	46 to 55	51 to 56	50 to 59	55 to 61	56 to 62	59 to 64	59 to 68	64 to 68
L _{Aeq} 10pm-6am ¹	36 to 40	39 to 42	37 to 45	41 to 46	41 to 49	45 to 50	46 to 53	49 to 53	49 to 57	53 to 56
ANEC ²	12 to 17	15 to 19	10 to 19	14 to 20	15 to 24	19 to 25	22 to 29	25 to 28	26 to 36	29 to 35
Number of Noise Events ³										
Over 60 dBA per 24 Hours	61 to 148	114 to 179	28 to 131	68 to 172	62 to 159	127 to 205	78 to 180	141 to 223	83 to 188	150 to 233
Over 70 dBA per 24 Hours	2 to 18	6 to 26	5 to 48	22 to 72	16 to 85	45 to 121	44 to 143	104 to 162	60 to 166	117 to 179
Over 80 dBA per 24 Hours	0 to 0	0 to 3	0 to 4	1 to 7	1 to 20	6 to 31	9 to 55	23 to 60	21 to 120	53 to 122
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1	1 to 5	2 to 10	5 to 46	15 to 40
Over 60 dBA per Night	8 to 11	10 to 13	4 to 10	7 to 14	8 to 12	10 to 16	11 to 14	12 to 17	12 to 14	13 to 17
Over 70 dBA per Night	0 to 1	0 to 2	1 to 5	2 to 6	2 to 7	4 to 10	5 to 10	9 to 12	8 to 13	10 to 13
Over 80 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 2	1 to 3	1 to 5	2 to 5	2 to 8	5 to 9
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1	0 to 4	1 to 3
Over 65 dBA (9am-3pm)	10 to 39	24 to 46	7 to 44	19 to 57	15 to 60	33 to 74	31 to 80	58 to 90	33 to 84	61 to 93
Sleep Disturbance Index ⁴	0.1 to 0.2	0.1 to 0.2	0.1 to 0.3	0.2 to 0.4	0.2 to 0.5	0.3 to 0.6	0.4 to 0.7	0.6 to 0.8	0.5 to 1.1	0.8 to 1.1

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 39.AB21			Sub Area: 39.AB22			Sub Area: 39.AB23			Sub Area: 39.AB24			Sub Area: 39.AB25		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	20	20	10	10	10	10	10	10	30	30	30	100	100	100
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 39.AB21		Sub Area: 39.AB22		Sub Area: 39.AB23		Sub Area: 39.AB24		Sub Area: 39.AB25	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	40 to 46	55 to 60	37 to 45	50 to 56	39 to 48	52 to 56	36 to 43	48 to 51	35 to 42	47 to 50
L _{Aeq} 10pm-6am ¹	30 to 38	46 to 50	28 to 36	41 to 45	29 to 40	42 to 45	27 to 34	38 to 40	26 to 34	37 to 38
ANEC ²	2 to 9	21 to 25	1 to 9	14 to 20	1 to 8	16 to 21	0 to 6	11 to 15	-2 to 6	10 to 13
Number of Noise Events ³										
Over 60 dBA per 24 Hours	7 to 51	111 to 181	4 to 28	49 to 110	5 to 31	96 to 163	3 to 18	32 to 89	2 to 18	36 to 74
Over 70 dBA per 24 Hours	0 to 2	48 to 81	0 to 2	16 to 51	1 to 10	25 to 67	0 to 0	8 to 24	0 to 1	6 to 19
Over 80 dBA per 24 Hours	0 to 0	5 to 23	0 to 0	1 to 7	0 to 0	2 to 8	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	1 to 3	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 5	11 to 14	0 to 3	6 to 10	1 to 4	9 to 12	0 to 2	4 to 8	0 to 2	4 to 5
Over 70 dBA per Night	0 to 0	5 to 6	0 to 0	2 to 4	0 to 2	2 to 5	0 to 0	1 to 2	0 to 0	1 to 1
Over 80 dBA per Night	0 to 0	0 to 2	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 9	36 to 66	1 to 5	14 to 34	1 to 8	28 to 51	0 to 3	8 to 23	0 to 3	5 to 14
Sleep Disturbance Index ⁴	0 to 0.1	0.4 to 0.5	0 to 0.1	0.2 to 0.3	0 to 0.1	0.2 to 0.3	0 to 0	0.1 to 0.2	0 to 0	0.1 to 0.1

- Note:
- 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 39.C1			Sub Area: 39.C2			Sub Area: 39.C3			Sub Area: 39.C4			Sub Area: 39.C5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	1940	2030	2070	80	90	90	20	30	30	70	70	80	40	40	40
Educational Facilities ²	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	5			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 39.C1		Sub Area: 39.C2		Sub Area: 39.C3		Sub Area: 39.C4		Sub Area: 39.C5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	30 to 37	35 to 46	43 to 50	48 to 51	50 to 57	54 to 57	28 to 35	34 to 53	31 to 38	38 to 56
L_{Aeq} 10pm-6am ¹	20 to 27	24 to 34	34 to 40	37 to 39	40 to 46	45 to 46	17 to 25	22 to 42	21 to 27	25 to 45
ANEC ²	-5 to 0	1 to 13	10 to 15	13 to 16	16 to 22	20 to 24	-11 to -2	-2 to 21	-6 to -1	1 to 24
Number of Noise Events ³										
Over 60 dBA per 24 Hours	0 to 1	0 to 6	8 to 60	38 to 110	32 to 100	114 to 188	0 to 3	1 to 20	0 to 1	2 to 25
Over 70 dBA per 24 Hours	0 to 0	0 to 3	0 to 3	2 to 6	6 to 48	28 to 84	0 to 0	0 to 13	0 to 0	0 to 17
Over 80 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 8	0 to 0	0 to 11
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 3
Over 60 dBA per Night	0 to 0	0 to 0	1 to 5	4 to 8	4 to 10	11 to 14	0 to 0	0 to 1	0 to 0	0 to 2
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 5	3 to 7	0 to 0	0 to 1	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	0 to 2	1 to 17	6 to 26	7 to 33	28 to 60	0 to 1	0 to 7	0 to 0	0 to 9
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0.1	0 to 0.1	0.1 to 0.3	0.2 to 0.4	0 to 0	0 to 0.1	0 to 0	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 39.C6			Sub Area: 39.C7			Sub Area: 39.C8			Sub Area: 39.C9			Sub Area: 39.C10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	30	30	60	60	60	110	110	110	60	60	60	30	30	30
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

- Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 39.C6		Sub Area: 39.C7		Sub Area: 39.C8		Sub Area: 39.C9		Sub Area: 39.C10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	39 to 46	46 to 62	43 to 54	48 to 55	51 to 61	56 to 63	49 to 58	55 to 60	44 to 55	50 to 56
L _{Aeq} 10pm-6am ¹	29 to 38	33 to 51	31 to 46	35 to 42	40 to 51	44 to 50	38 to 47	43 to 47	34 to 44	39 to 44
ANEC ²	1 to 7	10 to 31	2 to 9	8 to 13	17 to 28	24 to 31	14 to 26	21 to 28	10 to 21	16 to 24
Number of Noise Events ³										
Over 60 dBA per 24 Hours	2 to 17	11 to 47	3 to 25	13 to 43	20 to 77	73 to 153	8 to 56	29 to 100	7 to 53	27 to 94
Over 70 dBA per 24 Hours	0 to 5	1 to 29	1 to 6	3 to 14	7 to 50	25 to 87	4 to 31	15 to 49	3 to 28	13 to 43
Over 80 dBA per 24 Hours	0 to 0	0 to 18	0 to 0	0 to 1	1 to 24	6 to 35	1 to 14	4 to 20	0 to 6	2 to 10
Over 90 dBA per 24 Hours	0 to 0	0 to 8	0 to 0	0 to 0	0 to 6	2 to 10	0 to 4	1 to 7	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	1 to 3	0 to 3	1 to 3	2 to 6	7 to 12	1 to 5	2 to 8	1 to 5	2 to 7
Over 70 dBA per Night	0 to 1	0 to 2	0 to 1	0 to 1	1 to 5	2 to 7	0 to 3	1 to 4	0 to 3	1 to 3
Over 80 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 0	0 to 3	1 to 3	0 to 1	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 4	4 to 19	1 to 7	5 to 13	6 to 32	26 to 57	2 to 21	9 to 32	2 to 20	9 to 31
Sleep Disturbance Index ⁴	0 to 0	0 to 0.2	0 to 0.1	0 to 0.1	0.1 to 0.4	0.2 to 0.5	0 to 0.2	0.1 to 0.3	0 to 0.2	0.1 to 0.2

- Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 40

SHEET 1 / 6

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	2,821	3,020 ¹	3,260	3,370	3,470	3,630
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive Land Uses ³		3	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	44, 47	L _{A90}	7am to 7pm	33, 38
	7pm to 10pm	43, 45		7pm to 10pm	32, 37
	10pm to 7am	37, 43		10pm to 7am	30, 36

Monitored at: 27 Third Street, Warragamba, 112 Ridgehaven Road, Silverdale

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L _{Aeq} 24 Hour ¹			27 to 37			33 to 50
L _{Aeq} 10pm-6am ¹			14 to 26			19 to 38
ANEC ²			-9 to 1			-4 to 16
Number of Noise Events ³						
Over 60 dBA per 24 Hours	Refer Following Pages		0 to 6	Refer Following Pages		2 to 21
Over 70 dBA per 24 Hours			0 to 0			0 to 10
Over 80 dBA per 24 Hours			0 to 0			0 to 3
Over 90 dBA per 24 Hours			0 to 0			0 to 0
Over 60 dBA per Night			0 to 1			0 to 2
Over 70 dBA per Night			0 to 0			0 to 1
Over 80 dBA per Night			0 to 0			0 to 0
Over 90 dBA per Night			0 to 0			0 to 0
Over 65 dBA 9am to 3pm			0 to 2			0 to 8
Sleep Disturbance Index ⁴			0 to 0			0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

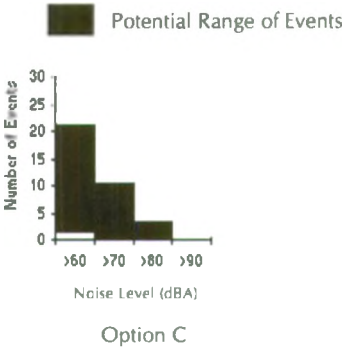
2016 - Number of Noise Events per 24 Hours (on average):

Refer Following Pages

Option A

Refer Following Pages

Option B



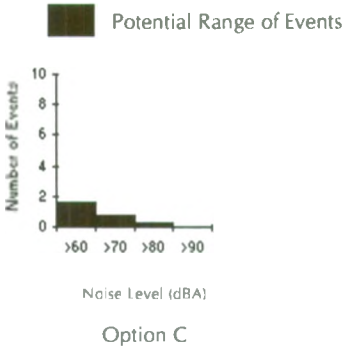
2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Refer Following Pages

Option A

Refer Following Pages

Option B



Social Characteristics for Option A:

	Sub Area: 40.AB1			Sub Area: 40.AB2			Sub Area: 40.AB3			Sub Area: 40.AB4			Sub Area: 40.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	70	80	80	80	80	90	600	650	690	800	860	920	410	450	480
Educational Facilities ²	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			2			1		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 40.AB1		Sub Area: 40.AB2		Sub Area: 40.AB3		Sub Area: 40.AB4		Sub Area: 40.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	35 to 41	38 to 43	36 to 42	43 to 49	37 to 44	47 to 53	42 to 48	51 to 55	39 to 48	51 to 57
L_{Aeq} 10pm-6am ¹	26 to 30	27 to 31	27 to 31	33 to 38	28 to 33	37 to 42	32 to 37	40 to 43	29 to 38	41 to 46
ANEC ²	0 to 6	2 to 7	1 to 6	9 to 15	2 to 9	13 to 20	8 to 15	17 to 22	5 to 14	18 to 25
Number of Noise Events ³										
Over 60 dBA per 24 Hours	3 to 12	4 to 17	3 to 12	17 to 67	8 to 25	31 to 100	14 to 42	63 to 131	7 to 45	65 to 158
Over 70 dBA per 24 Hours	0 to 1	0 to 0	0 to 1	2 to 10	0 to 3	6 to 27	3 to 11	23 to 45	1 to 9	18 to 65
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	1 to 3	0 to 1	2 to 8	0 to 1	3 to 16
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 1	0 to 1	2 to 5	1 to 2	3 to 8	1 to 3	5 to 10	1 to 3	5 to 13
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 2	0 to 1	2 to 3	0 to 1	2 to 6
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 3	0 to 2	0 to 2	4 to 16	1 to 5	7 to 29	4 to 13	20 to 42	1 to 13	18 to 53
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0.1	0 to 0	0.1 to 0.2	0 to 0.1	0.2 to 0.3	0 to 0.1	0.2 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 40.AB6		
	1996	2006	2016
Estimated Population ¹	1060	1150	1220
Educational Facilities ²	0	0	0
Other Noise Sensitive ³ Land Uses	0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 40.AB6	
	2006	2016
L _{Aeq} 24 Hour ¹	41 to 51	54 to 58
L _{Aeq} 10pm-6am ¹	32 to 40	43 to 46
ANEC ²	8 to 18	20 to 25
Number of Noise Events ³		
Over 60 dBA per 24 Hours	12 to 61	76 to 165
Over 70 dBA per 24 Hours	1 to 19	41 to 79
Over 80 dBA per 24 Hours	0 to 3	6 to 18
Over 90 dBA per 24 Hours	0 to 0	0 to 0
Over 60 dBA per Night	1 to 5	7 to 13
Over 70 dBA per Night	0 to 2	3 to 6
Over 80 dBA per Night	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 19	27 to 59
Sleep Disturbance Index ⁴	0 to 0.1	0.2 to 0.5

- Note:
- 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 40.AB1			Sub Area: 40.AB2			Sub Area: 40.AB3			Sub Area: 40.AB4			Sub Area: 40.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	70	80	80	80	80	90	600	650	690	800	860	920	410	450	480
Educational Facilities ²	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			2			1		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 40.AB1		Sub Area: 40.AB2		Sub Area: 40.AB3		Sub Area: 40.AB4		Sub Area: 40.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	31 to 38	36 to 40	34 to 42	39 to 44	36 to 45	42 to 47	41 to 49	46 to 51	42 to 52	48 to 54
L_{Aeq} 10pm-6am ¹	22 to 28	26 to 29	25 to 32	29 to 33	27 to 35	31 to 36	31 to 39	35 to 40	33 to 42	38 to 43
ANEC ²	-6 to 0	-2 to 2	-3 to 4	0 to 5	0 to 8	4 to 9	4 to 13	9 to 14	6 to 16	11 to 17
Number of Noise Events ³										
Over 60 dBA per 24 Hours	0 to 2	1 to 5	2 to 17	7 to 28	4 to 32	14 to 54	10 to 49	33 to 86	11 to 67	33 to 119
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1	0 to 3	1 to 5	1 to 11	4 to 18	2 to 22	7 to 33
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 2	1 to 3	0 to 3	1 to 5
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	1 to 2	0 to 3	1 to 4	1 to 4	3 to 7	1 to 6	3 to 10
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1	0 to 2	1 to 3
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	0 - 1	0 to 2	1 to 3	1 to 7	2 to 11	2 to 15	7 to 22	2 to 21	8 to 34
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0.1	0 to 0.1	0 to 0.1	0.1 to 0.2	0 to 0.2	0.1 to 0.3

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 40.AB6		
	1996	2006	2016
Estimated Population ¹	1060	1150	1220
Educational Facilities ²	0	0	0
Other Noise Sensitive ³ Land Uses	0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 40.AB6	
	2006	2016
L_{Aeq} 24 Hour¹	44 to 54	50 to 56
L_{Aeq} 10pm-6am¹	35 to 44	40 to 45
ANEC²	9 to 19	13 to 20
Number of Noise Events³		
Over 60 dBA per 24 Hours	17 to 82	53 to 146
Over 70 dBA per 24 Hours	3 to 33	12 to 52
Over 80 dBA per 24 Hours	1 to 9	3 to 13
Over 90 dBA per 24 Hours	0 to 0	0 to 0
Over 60 dBA per Night	2 to 7	5 to 12
Over 70 dBA per Night	0 to 3	1 to 5
Over 80 dBA per Night	0 to 1	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	4 to 29	13 - 47
Sleep Disturbance Index⁴	0.1 to 0.3	0.1 to 0.4

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 41

SHEET 1 / 8

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	1,015	1,180 ¹	1,270	1,310	1,360	1,420
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		2	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	41	L _{A90}	7am to 7pm	30
	7pm to 10pm	39		7pm to 10pm	34
	10pm to 7am	39		10pm to 7am	31

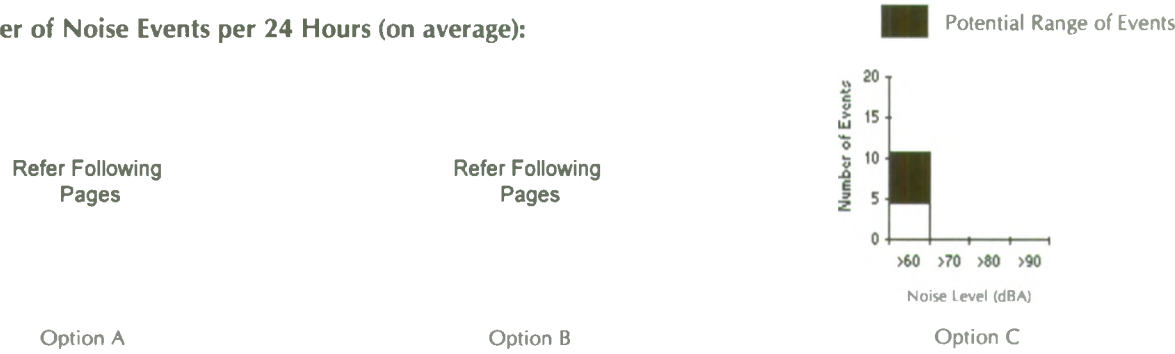
Monitored at: 9 Barrington Drive, Silverdale

Noise Indicators:

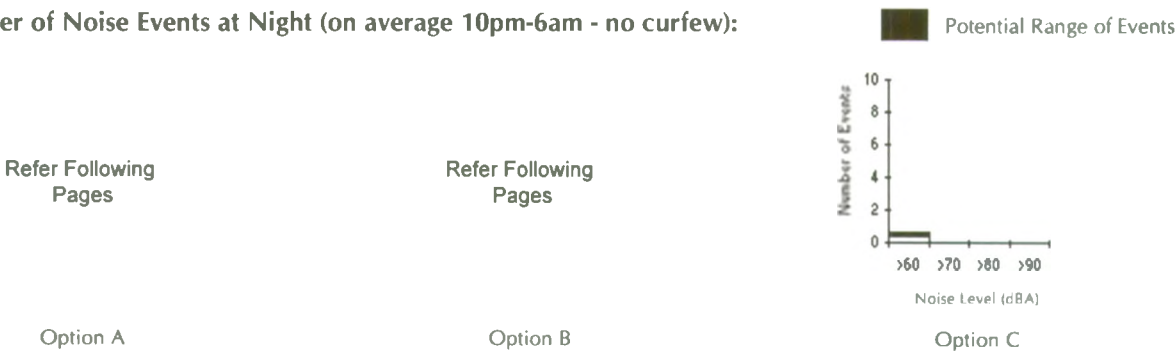
	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L _{Aeq} 24 Hour ¹			29 to 36			35 to 38
L _{Aeq} 10pm-6am ¹			18 to 26			24 to 26
ANEC ²			-7 to 0			-1 to 3
Number of Noise Events ³						
Over 60 dBA per 24 Hours	Refer Following Pages		1 to 6	Refer Following Pages		4 to 11
Over 70 dBA per 24 Hours			0 to 0			0 to 0
Over 80 dBA per 24 Hours			0 to 0			0 to 0
Over 90 dBA per 24 Hours			0 to 0			0 to 0
Over 60 dBA per Night			0 to 1			0 to 1
Over 70 dBA per Night			0 to 0			0 to 0
Over 80 dBA per Night			0 to 0			0 to 0
Over 90 dBA per Night			0 to 0			0 to 0
Over 65 dBA 9am to 3pm			0 to 1			1 to 2
Sleep Disturbance Index ⁴			0 to 0			0 to 0

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):



Social Characteristics for Option A:

	Sub Area: 41.AB1			Sub Area: 41.AB2			Sub Area: 41.AB3			Sub Area: 41.AB4			Sub Area: 41.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	890	960	1020	20	20	30	40	40	50	90	100	100
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			1		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 41.AB1		Sub Area: 41.AB2		Sub Area: 41.AB3		Sub Area: 41.AB4		Sub Area: 41.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	43 to 51	48 to 53	46 to 53	52 to 56	43 to 52	56 to 59	38 to 47	44 to 51	45 to 54	54 to 57
L_{Aeq} 10pm-6am¹	33 to 40	38 to 42	36 to 43	42 to 45	33 to 43	46 to 47	28 to 37	36 to 41	35 to 44	44 to 45
ANEC²	9 to 18	14 to 21	12 to 20	18 to 23	9 to 20	23 to 26	4 to 14	12 to 19	11 to 22	20 to 24
Number of Noise Events³										
Over 60 dBA per 24 Hours	15 to 62	39 to 112	22 to 77	66 to 138	12 to 73	110 to 178	6 to 47	19 to 71	20 to 85	101 to 159
Over 70 dBA per 24 Hours	3 to 24	10 to 36	8 to 33	21 to 54	2 to 27	51 to 89	1 to 11	4 to 20	3 to 36	35 to 66
Over 80 dBA per 24 Hours	1 to 5	1 to 6	1 to 7	5 to 13	0 to 4	11 to 25	0 to 1	1 to 6	1 to 9	6 to 15
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 5	3 to 9	3 to 6	6 to 11	2 to 6	9 to 13	1 to 4	2 to 6	3 to 7	8 to 12
Over 70 dBA per Night	0 to 2	1 to 3	1 to 3	2 to 5	0 to 3	4 to 7	0 to 1	1 to 2	0 to 3	3 to 5
Over 80 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 0	1 to 2	0 to 0	0 to 1	0 to 1	1 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	3 to 20	11 to 35	7 to 28	18 to 43	3 to 26	35 to 62	1 to 13	4 to 18	5 to 30	29 to 50
Sleep Disturbance Index⁴	0 to 0.2	0.1 to 0.3	0.1 to 0.2	0.2 to 0.4	0 to 0.2	0.3 to 0.5	0 to 0.1	0.1 to 0.2	0.1 to 0.3	0.3 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 41.AB6			Sub Area: 41.AB7			Sub Area: 41.AB8			Sub Area: 41.AB9			Sub Area: 41.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	20	20	20	40	40	50	40	40	50	10	20	20
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			1			0			0		

- Notes:
- 1. Rounded to nearest 10.
 - 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 - 3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 41.AB6		Sub Area: 41.AB7		Sub Area: 41.AB8		Sub Area: 41.AB9		Sub Area: 41.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	45 to 55	57 to 62	47 to 56	52 to 57	44 to 52	46 to 51	42 to 51	48 to 54	50 to 56	48 to 54
L _{Aeq} 10pm-6am ¹	36 to 46	46 to 50	38 to 46	40 to 46	34 to 42	37 to 41	33 to 43	37 to 42	40 to 46	37 to 43
ANEC ²	12 to 23	23 to 28	14 to 23	17 to 22	10 to 19	13 to 19	9 to 19	14 to 18	16 to 23	13 to 19
Number of Noise Events ³										
Over 60 dBA per 24 Hours	18 to 92	136 to 193	32 to 105	82 to 158	18 to 72	40 to 82	12 to 64	44 to 86	48 to 136	69 to 179
Over 70 dBA per 24 Hours	4 to 44	58 to 121	8 to 50	22 to 59	4 to 27	4 to 19	2 to 21	10 to 32	14 to 64	11 to 46
Over 80 dBA per 24 Hours	1 to 9	12 to 39	1 to 13	2 to 11	1 to 5	1 to 4	0 to 5	1 to 4	2 to 12	0 to 1
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 8	12 to 14	4 to 8	7 to 11	2 to 6	4 to 7	1 to 6	4 to 6	6 to 10	5 to 12
Over 70 dBA per Night	1 to 4	5 to 8	1 to 5	2 to 4	0 to 3	1 to 2	0 to 3	1 to 2	2 to 5	1 to 3
Over 80 dBA per Night	0 to 1	1 to 3	0 to 2	0 to 1	0 to 1	0 to 0	0 to 1	0 to 0	0 to 2	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	4 to 32	40 to 68	9 to 38	22 to 50	4 to 24	9 to 24	3 to 22	11 to 28	13 to 50	16 to 48
Sleep Disturbance Index ⁴	0.1 to 0.3	0.4 to 0.6	0.1 to 0.3	0.2 to 0.4	0.1 to 0.2	0.1 to 0.2	0 to 0.2	0.1 to 0.2	0.2 to 0.4	0.1 to 0.3

- Note:
- 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.
 - 2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
 - 3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
 - 4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 41.AB11			Sub Area: 41.AB12		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	20	20	0	0	0
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0		

- Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 41.AB11		Sub Area: 41.AB12	
	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	44 to 54	57 to 61	37 to 46	44 to 51
L _{Aeq} 10pm-6am ¹	35 to 44	46 to 49	28 to 38	36 to 41
ANEC ²	11 to 21	24 to 27	3 to 14	12 to 19
Number of Noise Events ³				
Over 60 dBA per 24 Hours	14 to 83	128 to 187	5 to 39	14 to 51
Over 70 dBA per 24 Hours	3 to 36	63 to 121	1 to 8	3 to 18
Over 80 dBA per 24 Hours	0 to 6	12 to 33	0 to 1	1 to 6
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 7	11 to 14	1 to 4	2 to 5
Over 70 dBA per Night	0 to 4	5 to 8	0 to 1	1 to 2
Over 80 dBA per Night	0 to 1	1 to 2	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	3 to 28	43 to 68	1 to 9	4 to 15
Sleep Disturbance Index ⁴	0.1 to 0.3	0.4 to 0.6	0 to 0.1	0.1 to 0.2

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 41.AB1			Sub Area: 41.AB2			Sub Area: 41.AB3			Sub Area: 41.AB4			Sub Area: 41.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	890	960	1020	20	20	30	40	40	50	90	100	100
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			1		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 41.AB1		Sub Area: 41.AB2		Sub Area: 41.AB3		Sub Area: 41.AB4		Sub Area: 41.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	45 to 52	51 to 54	48 to 55	53 to 57	47 to 56	52 to 59	40 to 49	45 to 51	49 to 56	54 to 58
L_{Aeq} 10pm-6am ¹	35 to 42	40 to 43	38 to 45	43 to 45	38 to 47	43 to 48	30 to 40	35 to 40	39 to 47	44 to 47
ANEC ²	10 to 17	15 to 18	13 to 20	18 to 21	12 to 22	16 to 23	4 to 14	9 to 15	14 to 22	19 to 23
Number of Noise Events ³										
Over 60 dBA per 24 Hours	21 to 74	64 to 129	25 to 88	74 to 158	30 to 105	80 to 172	9 to 57	30 to 96	33 to 104	85 to 172
Over 70 dBA per 24 Hours	6 to 29	22 to 45	10 to 44	36 to 70	6 to 52	22 to 83	1 to 17	6 to 27	12 to 52	41 to 86
Over 80 dBA per 24 Hours	1 to 6	5 to 11	1 to 10	6 to 16	1 to 15	5 to 24	0 to 3	1 to 4	2 to 16	7 to 25
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	3 to 6	6 to 10	3 to 7	7 to 13	4 to 8	7 to 14	1 to 5	3 to 8	4 to 8	8 to 14
Over 70 dBA per Night	1 to 3	2 to 3	1 to 4	3 to 6	1 to 5	2 to 7	0 to 2	1 to 3	1 to 5	4 to 7
Over 80 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 2	1 to 2	0 to 0	0 to 0	0 to 2	1 to 2
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	6 to 26	20 - 41	9 to 34	27 to 57	7 to 37	20 to 60	2 to 18	7 to 26	10 to 38	29 to 61
Sleep Disturbance Index ⁴	0.1 to 0.2	0.2 to 0.3	0.1 to 0.3	0.2 to 0.5	0.1 to 0.4	0.2 to 0.6	0 to 0.2	0.1 to 0.2	0.1 to 0.4	0.3 to 0.5

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 41.AB6			Sub Area: 41.AB7			Sub Area: 41.AB8			Sub Area: 41.AB9			Sub Area: 41.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	20	20	20	40	40	50	40	40	50	10	20	20
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			1			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 41.AB6		Sub Area: 41.AB7		Sub Area: 41.AB8		Sub Area: 41.AB9		Sub Area: 41.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	53 to 61	58 to 61	52 to 61	55 to 60	43 to 51	48 to 54	44 to 50	47 to 51	47 to 56	51 to 56
L_{Aeq} 10pm-6am ¹	43 to 50	47 to 49	40 to 51	44 to 48	34 to 43	39 to 43	35 to 41	37 to 41	36 to 46	41 to 44
ANEC ²	19 to 27	23 to 26	17 to 29	20 to 27	8 to 17	13 to 19	9 to 16	12 to 17	12 to 22	16 to 22
Number of Noise Events ³										
Over 60 dBA per 24 Hours	65 to 165	129 to 200	48 to 156	114 to 169	18 to 74	52 to 118	22 to 94	51 to 97	40 to 145	98 to 154
Over 70 dBA per 24 Hours	29 to 118	82 to 127	21 to 119	52 to 117	3 to 22	11 to 36	3 to 19	6 to 22	10 to 71	27 to 66
Over 80 dBA per 24 Hours	6 to 45	20 to 43	5 to 55	11 to 36	0 to 6	2 to 10	0 to 2	1 to 4	1 to 11	3 to 12
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	8 to 12	11 to 15	5 to 12	10 to 12	2 to 6	5 to 9	2 to 8	5 to 7	4 to 11	8 to 11
Over 70 dBA per Night	3 to 8	7 to 9	2 to 8	4 to 8	0 to 3	1 to 4	0 to 2	1 to 2	1 to 5	2 to 4
Over 80 dBA per Night	1 to 4	2 to 3	0 to 5	1 to 2	0 to 1	0 to 1	0 to 0	0 to 0	0 to 1	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	21 to 70	47 - 73	15 to 67	37 to 66	4 to 23	13 to 36	5 to 28	12 to 27	10 to 53	25 to 47
Sleep Disturbance Index ⁴	0.3 to 0.6	0.5 to 0.7	0.2 to 0.7	0.4 to 0.6	0.1 to 0.2	0.1 to 0.3	0.1 to 0.2	0.1 to 0.2	0.1 to 0.4	0.2 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 41.AB11			Sub Area: 41.AB12		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	20	20	0	0	0
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years.

Noise Indicators for Option B:

	Sub Area: 41.AB11		Sub Area: 41.AB12	
	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	50 to 58	55 to 60	39 to 49	44 to 51
L_{Aeq} 10pm-6am ¹	41 to 49	45 to 49	30 to 41	36 to 41
ANEC ²	16 to 23	20 to 24	4 to 15	9 to 16
Number of Noise Events ³				
Over 60 dBA per 24 Hours	56 to 147	120 to 189	6 to 44	21 to 74
Over 70 dBA per 24 Hours	17 to 72	47 to 111	1 to 14	4 to 22
Over 80 dBA per 24 Hours	2 to 21	7 to 33	0 to 3	1 to 5
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	7 to 10	10 to 14	1 to 4	2 to 7
Over 70 dBA per Night	2 to 5	4 to 9	0 to 2	1 to 3
Over 80 dBA per Night	0 to 3	1 to 3	0 to 1	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	17 to 54	38 - 69	1 to 12	5 to 19
Sleep Disturbance Index ⁴	0.2 to 0.4	0.3 to 0.6	0 to 0.2	0.1 to 0.2

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 42

SHEET 1 / 14

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	161	200 ¹	200	200	200	210
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive Land Uses ³		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	49, 48	L _{A90}	7am to 7pm	31, 35
	7pm to 10pm	43, 51		7pm to 10pm	33, 41
	10pm to 7am	43, 46		10pm to 7am	27, 28

Monitored at: 495 Wolstenholme Ave, Greendale, Lot 10, Greendale Road, Greendale

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	Refer Following Pages			Refer Following Pages		
L_{Aeq} 10pm-6am ¹						
ANEC ²						
Number of Noise Events ³						
Over 60 dBA per 24 Hours						
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index ⁴						

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

Social Characteristics for Option A:

	Sub Area: 42.AB11			Sub Area: 42.AB12			Sub Area: 42.AB13			Sub Area: 42.AB14			Sub Area: 42.AB15		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	10	10	10	10	10	10	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years.

Noise Indicators for Option A:

	Sub Area: 42.AB11		Sub Area: 42.AB12		Sub Area: 42.AB13		Sub Area: 42.AB14		Sub Area: 42.AB15	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	45 to 55	48 to 56	53 to 59	54 to 58	39 to 48	42 to 48	43 to 49	45 to 49	44 to 52	47 to 51
L_{Aeq} 10pm-6am ¹	33 to 45	34 to 44	44 to 50	44 to 47	29 to 38	30 to 37	34 to 39	34 to 37	35 to 42	38 to 40
ANEC ²	10 to 21	12 to 20	20 to 27	21 to 24	4 to 13	5 to 12	8 to 15	9 to 13	10 to 18	13 to 17
Number of Noise Events ³										
Over 60 dBA per 24 Hours	22 to 116	30 to 117	75 to 168	108 to 165	11 to 69	17 to 73	26 to 93	44 to 88	28 to 115	55 to 107
Over 70 dBA per 24 Hours	5 to 53	11 to 56	34 to 113	49 to 96	1 to 7	1 to 6	2 to 12	2 to 5	3 to 32	6 to 23
Over 80 dBA per 24 Hours	0 to 7	1 to 6	5 to 27	6 to 16	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 2
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 9	2 to 9	11 to 13	11 to 13	1 to 6	1 to 5	3 to 8	3 to 6	4 to 9	6 to 9
Over 70 dBA per Night	0 to 4	0 to 4	4 to 8	4 to 7	0 to 1	0 to 0	0 to 2	0 to 0	0 to 4	1 to 2
Over 80 dBA per Night	0 to 1	0 to 0	1 to 3	1 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	6 to 41	9 to 42	25 to 70	36 to 62	2 to 18	3 to 18	5 to 25	7 to 20	6 to 39	13 to 30
Sleep Disturbance Index ⁴	0 to 0.3	0 to 0.3	0.3 to 0.6	0.3 to 0.5	0 to 0.1	0 to 0.1	0.1 to 0.2	0.1 to 0.1	0.1 to 0.3	0.1 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 42.AB16			Sub Area: 42.AB17			Sub Area: 42.AB18			Sub Area: 42.AB19			Sub Area: 42.AB20		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	10	10	10	0	0	0	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years.

Noise Indicators for Option A:

	Sub Area: 42.AB16		Sub Area: 42.AB17		Sub Area: 42.AB18		Sub Area: 42.AB19		Sub Area: 42.AB20	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	49 to 59	53 to 59	47 to 57	52 to 58	36 to 44	39 to 45	35 to 41	39 to 42	36 to 43	41 to 44
L_{Aeq} 10pm-6am¹	41 to 50	44 to 49	39 to 48	43 to 48	25 to 34	27 to 34	26 to 32	29 to 31	27 to 33	31 to 33
ANEC²	16 to 27	21 to 27	14 to 25	19 to 26	0 to 8	2 to 9	0 to 6	3 to 7	1 to 8	6 to 9
Number of Noise Events³										
Over 60 dBA per 24 Hours	58 to 156	94 to 155	27 to 128	51 to 120	3 to 37	7 to 40	3 to 16	8 to 16	5 to 34	16 to 43
Over 70 dBA per 24 Hours	12 to 83	25 to 69	7 to 59	19 to 65	0 to 0	0 to 1	0 to 0	0 to 1	0 to 1	1 to 2
Over 80 dBA per 24 Hours	1 to 18	4 to 19	1 to 12	3 to 17	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 2	1 to 4	0 to 1	0 to 2	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	8 to 12	9 to 12	4 to 11	6 to 10	0 to 4	0 to 3	0 to 2	1 to 1	1 to 4	2 to 3
Over 70 dBA per Night	2 to 7	3 to 6	1 to 6	2 to 6	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 2	0 to 2	0 to 1	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	12 to 56	22 to 47	6 to 43	12 to 37	0 to 5	1 to 5	0 to 2	1 to 3	1 to 6	3 to 8
Sleep Disturbance Index⁴	0.2 to 0.5	0.2 to 0.4	0.1 to 0.4	0.2 to 0.4	0 to 0.1	0 to 0.1	0 to 0	0 to 0	0 to 0.1	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 42.AB21			Sub Area: 42.AB22			Sub Area: 42.AB23			Sub Area: 42.AB24		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	10	10	10	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 42.AB21		Sub Area: 42.AB22		Sub Area: 42.AB23		Sub Area: 42.AB24	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	45 to 55	50 to 56	41 to 50	46 to 52	42 to 52	48 to 54	38 to 47	44 to 49
L_{Aeq} 10pm-6am ¹	37 to 46	41 to 47	33 to 41	37 to 42	34 to 43	39 to 44	29 to 39	35 to 39
ANEC ²	12 to 23	18 to 24	8 to 18	13 to 19	9 to 20	15 to 22	5 to 14	10 to 16
Number of Noise Events ³								
Over 60 dBA per 24 Hours	12 to 85	30 to 92	9 to 58	25 to 73	8 to 53	24 to 70	3 to 24	14 to 37
Over 70 dBA per 24 Hours	5 to 36	17 to 62	2 to 19	9 to 33	2 to 17	7 to 29	1 to 5	2 to 8
Over 80 dBA per 24 Hours	1 to 8	2 to 12	0 to 1	0 to 2	0 to 3	1 to 5	0 to 1	0 to 1
Over 90 dBA per 24 Hours	0 to 1	0 to 2	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 8	4 to 9	1 to 6	3 to 7	1 to 5	3 to 6	0 to 2	2 to 3
Over 70 dBA per Night	1 to 3	2 to 5	0 to 2	1 to 2	0 to 1	1 to 2	0 to 1	0 to 1
Over 80 dBA per Night	0 to 1	0 to 1	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	4 to 28	9 to 30	3 to 17	9 to 29	2 to 14	8 to 24	1 to 6	4 to 9
Sleep Disturbance Index ⁴	0.1 to 0.3	0.1 to 0.3	0 to 0.2	0.1 to 0.2	0 to 0.1	0.1 to 0.2	0 to 0.1	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 42.AB1			Sub Area: 42.AB2			Sub Area: 42.AB3			Sub Area: 42.AB4			Sub Area: 42.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	10	10	10	10	10	10	30	30	30
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 42.AB1		Sub Area: 42.AB2		Sub Area: 42.AB3		Sub Area: 42.AB4		Sub Area: 42.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	47 to 57	52 to 59	50 to 59	55 to 61	55 to 61	59 to 63	52 to 59	57 to 60	47 to 57	50 to 55
L_{Aeq} 10pm-6am ¹	38 to 47	43 to 48	40 to 50	45 to 50	45 to 51	48 to 51	43 to 49	47 to 48	39 to 48	41 to 44
ANEC ²	12 to 22	16 to 22	15 to 24	19 to 25	21 to 28	24 to 27	18 to 26	22 to 26	14 to 24	14 to 19
Number of Noise Events ³										
Over 60 dBA per 24 Hours	26 to 113	63 to 167	56 to 145	114 to 194	74 to 171	132 to 206	72 to 170	133 to 213	40 to 143	112 to 223
Over 70 dBA per 24 Hours	5 to 51	20 to 84	13 to 72	36 to 115	39 to 128	96 to 153	32 to 122	74 to 125	8 to 65	13 to 54
Over 80 dBA per 24 Hours	1 to 12	4 to 19	2 to 23	7 to 35	8 to 55	23 to 55	5 to 33	16 to 35	1 to 12	1 to 3
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	0 to 2	0 to 2	1 to 3	0 to 0	0 to 1	0 to 1	0 to 0
Over 60 dBA per Night	3 to 9	6 to 14	7 to 10	9 to 15	10 to 13	11 to 16	10 to 13	12 to 16	5 to 11	10 to 16
Over 70 dBA per Night	1 to 5	2 to 7	2 to 6	4 to 10	5 to 9	8 to 11	3 to 8	6 to 8	1 to 7	2 to 5
Over 80 dBA per Night	0 to 1	0 to 2	0 to 3	1 to 3	1 to 5	2 to 4	0 to 3	2 to 2	0 to 1	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	6 to 37	17 to 57	12 to 49	27 to 66	24 to 73	49 to 76	23 to 72	46 to 72	9 to 50	22 to 60
Sleep Disturbance Index ⁴	0.1 to 0.4	0.2 to 0.5	0.2 to 0.5	0.3 to 0.7	0.3 to 0.7	0.5 to 0.8	0.3 to 0.6	0.5 to 0.6	0.1 to 0.4	0.2 to 0.4

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 42.AB6			Sub Area: 42.AB7			Sub Area: 42.AB8			Sub Area: 42.AB9			Sub Area: 42.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	0	0	0	30	30	30	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 42.AB6		Sub Area: 42.AB7		Sub Area: 42.AB8		Sub Area: 42.AB9		Sub Area: 42.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	49 to 59	52 to 58	44 to 50	48 to 51	45 to 55	49 to 52	41 to 49	48 to 51	39 to 45	46 to 51
L_{Aeq} 10pm-6am ¹	36 to 49	39 to 46	35 to 41	38 to 40	37 to 46	39 to 41	33 to 40	37 to 40	30 to 35	34 to 39
ANEC ²	14 to 26	16 to 24	9 to 16	12 to 15	12 to 22	13 to 16	7 to 15	11 to 16	2 to 10	8 to 15
Number of Noise Events ³										
Over 60 dBA per 24 Hours	27 to 126	67 to 117	35 to 112	82 to 146	19 to 101	106 to 177	16 to 86	74 to 154	8 to 51	40 to 127
Over 70 dBA per 24 Hours	11 to 85	21 to 68	3 to 23	9 to 24	5 to 41	15 to 33	1 to 15	7 to 24	0 to 1	4 to 21
Over 80 dBA per 24 Hours	2 to 36	4 to 23	0 to 1	0 to 1	0 to 7	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	3 to 10	6 to 9	4 to 9	8 to 10	3 to 9	10 to 13	2 to 8	6 to 11	1 to 5	3 to 9
Over 70 dBA per Night	1 to 6	1 to 5	0 to 3	1 to 2	1 to 4	2 to 3	0 to 2	1 to 2	0 to 0	0 to 2
Over 80 dBA per Night	0 to 3	0 to 2	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	8 to 52	18 to 43	7 to 35	17 to 35	4 to 32	20 to 43	3 to 23	15 to 35	1 to 10	9 to 33
Sleep Disturbance Index ⁴	0.1 to 0.5	0.2 to 0.4	0.1 to 0.2	0.2 to 0.2	0.1 to 0.3	0.2 to 0.3	0 to 0.2	0.1 to 0.2	0 to 0.1	0.1 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 42.AB16			Sub Area: 42.AB17			Sub Area: 42.AB18			Sub Area: 42.AB19			Sub Area: 42.AB20		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	10	10	10	0	0	0	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 42.AB16		Sub Area: 42.AB17		Sub Area: 42.AB18		Sub Area: 42.AB19		Sub Area: 42.AB20	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	45 to 52	60 to 65	41 to 50	60 to 65	33 to 39	48 to 55	35 to 43	43 to 47	39 to 48	46 to 50
L_{Aeq} 10pm-6am ¹	36 to 42	48 to 54	33 to 41	49 to 54	24 to 29	33 to 43	27 to 34	33 to 36	31 to 39	36 to 39
ANEC ²	7 to 16	25 to 33	6 to 16	26 to 33	-3 to 2	11 to 20	1 to 9	7 to 12	5 to 15	10 to 14
Number of Noise Events ³										
Over 60 dBA per 24 Hours	11 to 77	118 to 190	10 to 69	113 to 187	1 to 9	27 to 116	5 to 27	33 to 80	7 to 38	44 to 81
Over 70 dBA per 24 Hours	1 to 13	69 to 135	1 to 13	71 to 137	0 to 0	11 to 59	0 to 3	2 to 4	1 to 12	5 to 19
Over 80 dBA per 24 Hours	0 to 1	23 to 87	0 to 1	27 to 95	0 to 0	1 to 6	0 to 0	0 to 0	0 to 1	0 to 1
Over 90 dBA per 24 Hours	0 to 0	3 to 21	0 to 0	6 to 25	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 7	12 to 15	2 to 7	11 to 15	0 to 1	1 to 9	1 to 2	2 to 6	1 to 3	5 to 6
Over 70 dBA per Night	0 to 1	6 to 11	0 to 1	6 to 11	0 to 0	0 to 4	0 to 0	0 to 0	0 to 1	1 to 2
Over 80 dBA per Night	0 to 0	1 to 6	0 to 0	2 to 7	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 2	0 to 0	0 to 2	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm) ⁴	3 to 23	41 to 77	2 to 17	37 to 68	0 to 1	9 to 42	1 to 7	6 to 19	2 to 14	10 to 23
Sleep Disturbance Index ⁴	0 to 0.2	0.4 to 0.9	0 to 0.2	0.4 to 0.9	0 to 0	0 to 0.3	0 to 0.1	0.1 to 0.1	0 to 0.1	0.1 to 0.2

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 42.AB11			Sub Area: 42.AB12			Sub Area: 42.AB13			Sub Area: 42.AB14			Sub Area: 42.AB15		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	10	10	10	10	10	10	0	0	0
Educational Facilities ²	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 42.AB11		Sub Area: 42.AB12		Sub Area: 42.AB13		Sub Area: 42.AB14		Sub Area: 42.AB15	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	39 to 45	50 to 56	45 to 54	52 to 55	36 to 43	53 to 61	41 to 51	56 to 63	44 to 54	58 to 65
L_{Aeq} 10pm-6am¹	30 to 34	37 to 45	36 to 45	42 to 44	27 to 33	38 to 49	33 to 42	42 to 52	36 to 45	45 to 54
ANEC²	1 to 7	13 to 22	11 to 21	16 to 20	-1 to 6	18 to 28	8 to 18	22 to 31	11 to 22	24 to 33
Number of Noise Events³										
Over 60 dBA per 24 Hours	5 to 33	41 to 137	15 to 95	119 to 195	3 to 24	36 to 127	8 to 55	79 to 153	9 to 63	98 to 167
Over 70 dBA per 24 Hours	0 to 1	12 to 65	4 to 32	32 to 66	0 to 1	21 to 103	2 to 16	26 to 109	4 to 26	43 to 119
Over 80 dBA per 24 Hours	0 to 0	2 to 12	0 to 5	1 to 2	0 to 0	8 to 46	0 to 2	16 to 80	0 to 6	18 to 88
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	2 to 12	0 to 0	4 to 25
Over 60 dBA per Night	1 to 4	3 to 11	2 to 8	12 to 15	0 to 3	2 to 10	1 to 6	7 to 12	2 to 7	10 to 13
Over 70 dBA per Night	0 to 0	0 to 4	1 to 3	3 to 5	0 to 0	1 to 8	0 to 2	1 to 9	1 to 2	3 to 9
Over 80 dBA per Night	0 to 0	0 to 1	0 to 1	0 to 0	0 to 0	0 to 3	0 to 0	0 to 5	0 to 1	1 to 6
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 2
Over 65 dBA (9am-3pm)	1 to 6	12 - 47	4 to 33	36 to 64	0 to 4	12 to 52	3 to 18	22 to 60	3 to 21	34 to 66
Sleep Disturbance Index⁴	0 to 0.1	0.1 to 0.4	0.1 to 0.3	0.3 to 0.4	0 to 0.1	0.1 to 0.5	0 to 0.2	0.2 to 0.7	0 to 0.2	0.3 to 0.9

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 42.AB21			Sub Area: 42.AB22			Sub Area: 42.AB23			Sub Area: 42.AB24		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	10	10	10	0	0	0
Educational Facilities ²	1	1	1	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 42.AB21		Sub Area: 42.AB22		Sub Area: 42.AB23		Sub Area: 42.AB24	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	40 to 50	53 to 59	41 to 51	51 to 57	35 to 44	48 to 51	34 to 40	45 to 51
L_{Aeq} 10pm-6am ¹	32 to 41	45 to 49	32 to 42	42 to 47	26 to 34	38 to 41	24 to 31	34 to 40
ANEC ²	6 to 16	18 to 24	8 to 19	16 to 22	0 to 9	9 to 14	-2 to 5	6 to 9
Number of Noise Events ³								
Over 60 dBA per 24 Hours	7 to 46	86 to 139	7 to 39	44 to 97	3 to 19	24 to 67	1 to 9	13 to 30
Over 70 dBA per 24 Hours	1 to 12	29 to 71	2 to 17	18 to 62	0 to 2	6 to 16	0 to 1	1 to 6
Over 80 dBA per 24 Hours	0 to 1	4 to 19	0 to 3	3 to 15	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	1 to 4	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 5	8 to 11	1 to 4	5 to 9	0 to 2	3 to 6	0 to 1	1 to 2
Over 70 dBA per Night	0 to 1	3 to 6	0 to 1	2 to 6	0 to 0	1 to 1	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 2	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 14	22 to 42	2 to 14	10 to 30	1 to 4	7 to 19	0 to 2	3 to 8
Sleep Disturbance Index ⁴	0 to 0.1	0.3 to 0.4	0 to 0.1	0.2 to 0.3	0 to 0	0.1 to 0.1	0 to 0	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 42.C1			Sub Area: 42.C2			Sub Area: 42.C3			Sub Area: 42.C4			Sub Area: 42.C5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	40	40	40	100	100	100	30	30	30	20	20	20	20	20	20
Educational Facilities ²	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 42.C1		Sub Area: 42.C2		Sub Area: 42.C3		Sub Area: 42.C4		Sub Area: 42.C5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	31 to 39	37 to 41	38 to 49	44 to 51	41 to 52	47 to 54	44 to 55	50 to 57	38 to 49	44 to 51
L_{Aeq} 10pm-6am ¹	21 to 28	26 to 29	26 to 38	32 to 38	29 to 41	35 to 41	31 to 44	37 to 43	26 to 37	32 to 37
ANEC ²	-4 to 3	2 to 6	5 to 16	11 to 18	8 to 19	14 to 21	11 to 22	17 to 25	4 to 16	11 to 18
Number of Noise Events ³										
Over 60 dBA per 24 Hours	1 to 10	4 to 16	2 to 20	8 to 31	3 to 23	9 to 36	4 to 34	16 to 52	3 to 21	9 to 31
Over 70 dBA per 24 Hours	0 to 0	0 to 1	1 to 14	4 to 20	2 to 17	5 to 26	2 to 18	6 to 28	1 to 14	4 to 20
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 2	1 to 4	0 to 8	2 to 12	1 to 11	3 to 16	0 to 3	1 to 5
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 1	0 to 2	1 to 2	0 to 2	1 to 2	0 to 4	1 to 4	0 to 2	1 to 2
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 1	0 to 2	0 to 2	0 to 2	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 3	1 to 5	1 to 9	3 to 13	1 to 10	3 to 15	1 to 12	4 to 18	1 to 9	3 to 13
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.2	0 to 0.1	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 42.C6			Sub Area: 42.C7		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	0	0	0	0	0	0
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 42.C6		Sub Area: 42.C7	
	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	49 to 58	53 to 59	55 to 62	58 to 61
L_{Aeq} 10pm-6am ¹	40 to 50	44 to 49	46 to 53	49 to 51
ANEC ²	14 to 25	20 to 28	20 to 28	26 to 30
Number of Noise Events ³				
Over 60 dBA per 24 Hours	24 to 73	85 to 142	35 to 96	20 to 19
Over 70 dBA per 24 Hours	5 to 40	17 to 70	22 to 75	73 to 144
Over 80 dBA per 24 Hours	1 to 13	3 to 19	4 to 28	18 to 43
Over 90 dBA per 24 Hours	0 to 1	0 to 2	0 to 2	1 to 5
Over 60 dBA per Night	3 to 6	8 to 11	5 to 9	11 to 15
Over 70 dBA per Night	1 to 4	2 to 6	3 to 6	7 to 10
Over 80 dBA per Night	0 to 2	0 to 2	1 to 3	2 to 3
Over 90 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0
Over 65 dBA (9am-3pm)	6 to 30	24 to 52	13 to 43	42 to 79
Sleep Disturbance Index ⁴	0.1 to 0.3	0.2 to 0.5	0.2 to 0.5	0.5 to 0.7

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 43

SHEET 1 / 11

Social Characteristics:

Year	1991 Census	1996	2006		2016		
			Options A and B	Option C	Options A and B	Option C	
Estimated Population	299	390 ¹	2,300	400	9,910	400	
Educational Facilities ²		0	0	0	2	0	
Other Noise Sensitive ³ Land Uses		0	Not estimated for these years				

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	51	L _{A90}	7am to 7pm	33
	7pm to 10pm	45		7pm to 10pm	39
	10pm to 7am	47		10pm to 7am	28

Monitored at: 15 Colonel Pye Drive, Cobbitty

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	Refer Following Pages			Refer Following Pages		
L_{Aeq} 10pm-6am ¹						
ANEC ²						
Number of Noise Events ³						
Over 60 dBA per 24 Hours						
Over 70 dBA per 24 Hours						
Over 80 dBA per 24 Hours						
Over 90 dBA per 24 Hours						
Over 60 dBA per Night						
Over 70 dBA per Night						
Over 80 dBA per Night						
Over 90 dBA per Night						
Over 65 dBA 9am to 3pm						
Sleep Disturbance Index ⁴						

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events

Refer Following
Pages

Refer Following
Pages

Refer Following
Pages

Option A

Option B

Option C

Social Characteristics for Option A:

	Sub Area: 43.AB1			Sub Area: 43.AB2			Sub Area: 43.AB3			Sub Area: 43.AB4			Sub Area: 43.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	0	0	0	0	0	0	10	20	80	10	50	220	10	70	300
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 43.AB1		Sub Area: 43.AB2		Sub Area: 43.AB3		Sub Area: 43.AB4		Sub Area: 43.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour	35 to 42	40 to 44	38 to 46	43 to 48	41 to 50	47 to 52	41 to 52	47 to 53	38 to 46	43 to 48
L_{Aeq} 10pm-6am ¹	26 to 32	31 to 33	29 to 36	34 to 37	33 to 42	38 to 42	33 to 43	38 to 44	29 to 36	34 to 37
ANEC ²	0 to 7	5 to 9	4 to 12	9 to 14	8 to 18	14 to 20	9 to 20	15 to 21	4 to 12	9 to 14
Number of Noise Events ³										
Over 60 dBA per 24 Hours	4 to 22	15 to 41	7 to 38	23 to 66	8 to 43	25 to 72	7 to 38	24 to 69	7 to 33	23 to 65
Over 70 dBA per 24 Hours	0 to 2	1 to 3	1 to 8	4 to 15	3 to 21	10 to 37	2 to 18	8 to 29	1 to 8	4 to 15
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 2	1 to 4	0 to 4	1 to 6	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 2	2 to 3	1 to 4	3 to 6	1 to 4	3 to 7	1 to 3	3 to 6	1 to 3	3 to 6
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 2	1 to 3	0 to 2	1 to 2	0 to 1	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 5	3 to 9	2 to 11	6 to 19	3 to 16	9 to 29	2 to 15	8 to 26	2 to 11	7 to 22
Sleep Disturbance Index ⁴	0 to 0	0 to 0.1	0 to 0.1	0.1 to 0.1	0 to 0.1	0.1 to 0.2	0 to 0.1	0.1 to 0.2	0 to 0.1	0.1 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 43.AB6			Sub Area: 43.AB7			Sub Area: 43.AB8			Sub Area: 43.AB9			Sub Area: 43.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	100	440	20	120	520	80	480	2070	30	150	670	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 43.AB6		Sub Area: 43.AB7		Sub Area: 43.AB8		Sub Area: 43.AB9		Sub Area: 43.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	40 to 49	45 to 51	39 to 49	45 to 50	37 to 45	42 to 47	37 to 46	43 to 48	36 to 42	41 to 44
L_{Aeq} 10pm-6am ¹	32 to 40	36 to 41	31 to 40	36 to 40	29 to 35	33 to 36	29 to 37	34 to 38	27 to 34	32 to 33
ANEC ²	7 to 17	12 to 19	6 to 16	12 to 18	3 to 11	8 to 13	4 to 13	9 to 15	1 to 8	7 to 10
Number of Noise Events ³										
Over 60 dBA per 24 Hours	7 to 37	25 to 70	6 to 34	22 to 62	7 to 32	22 to 62	6 to 32	21 to 61	2 to 11	7 to 18
Over 70 dBA per 24 Hours	2 to 16	7 to 27	1 to 13	5 to 20	1 to 7	3 to 13	1 to 8	3 to 12	0 to 2	1 to 3
Over 80 dBA per 24 Hours	0 to 2	1 to 3	0 to 2	1 to 3	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 3	3 to 6	1 to 3	3 to 5	1 to 3	3 to 6	1 to 3	2 to 5	0 to 1	1 to 2
Over 70 dBA per Night	0 to 2	1 to 2	0 to 1	1 to 2	0 to 1	0 to 1	0 to 1	0 to 1	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 14	8 to 26	2 to 12	7 to 20	2 to 10	6 to 18	2 to 10	6 to 17	0 to 4	2 to 5
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.2	0 to 0.1	0.1 to 0.2	0 to 0.1	0.1 to 0.1	0 to 0.1	0.1 to 0.1	0 to 0	0 to 0

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 43.AB11			Sub Area: 43.AB12			Sub Area: 43.AB13			Sub Area: 43.AB14		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	50	220	60	330	1410	150	910	3920	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 43.AB11		Sub Area: 43.AB12		Sub Area: 43.AB13		Sub Area: 43.AB14	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	37 to 45	42 to 47	36 to 46	42 to 47	34 to 43	40 to 45	33 to 41	37 to 42
L_{Aeq} 10pm-6am¹	28 to 36	33 to 37	28 to 37	34 to 38	26 to 34	31 to 35	24 to 31	26 to 31
ANEC²	4 to 13	9 to 14	4 to 13	10 to 15	1 to 10	7 to 12	-3 to 5	0 to 6
Number of Noise Events³								
Over 60 dBA per 24 Hours	2 to 13	9 to 19	2 to 14	10 to 20	3 to 18	11 to 30	1 to 9	2 to 13
Over 70 dBA per 24 Hours	1 to 5	3 to 8	1 to 6	3 to 9	0 to 3	2 to 5	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 1	0 to 1	0 to 1	0 to 2	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	1 to 2	0 to 2	1 to 2	0 to 2	1 to 2	0 to 1	0 to 1
Over 70 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 5	3 to 7	1 to 5	3 to 7	1 to 5	3 to 7	0 to 1	0 to 2
Sleep Disturbance Index⁴	0 to 0	0 to 0.1	0 to 0	0 to 0.1	0 to 0	0 to 0.1	0 to 0	0 to 0

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 43.AB1			Sub Area: 43.AB2			Sub Area: 43.AB3			Sub Area: 43.AB4			Sub Area: 43.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	0	0	0	0	0	0	10	20	70	10	50	220	10	70	300
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 43.AB1		Sub Area: 43.AB2		Sub Area: 43.AB3		Sub Area: 43.AB4		Sub Area: 43.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	37 to 46	45 to 50	40 to 50	49 to 55	39 to 49	49 to 55	36 to 46	44 to 49	37 to 47	47 to 54
L_{Aeq} 10pm-6am ¹	29 to 37	36 to 40	31 to 41	40 to 45	31 to 40	40 to 45	27 to 37	35 to 39	29 to 38	39 to 44
ANEC ²	3 to 13	9 to 15	7 to 17	13 to 19	6 to 17	13 to 19	2 to 13	7 to 12	4 to 15	12 to 18
Number of Noise Events ³										
Over 60 dBA per 24 Hours	6 to 35	23 to 68	6 to 36	26 to 75	5 to 32	26 to 74	3 to 21	22 to 59	5 to 32	24 to 70
Over 70 dBA per 24 Hours	1 to 10	5 to 21	1 to 14	12 to 46	1 to 11	11 to 40	0 to 5	3 to 11	1 to 11	8 to 31
Over 80 dBA per 24 Hours	0 to 0	0 to 1	0 to 2	2 to 9	0 to 2	1 to 7	0 to 1	0 to 0	0 to 1	1 to 5
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 3	3 to 6	1 to 3	3 to 7	1 to 3	3 to 7	0 to 2	3 to 5	1 to 3	3 to 7
Over 70 dBA per Night	0 to 1	0 to 2	0 to 1	1 to 4	0 to 1	1 to 3	0 to 1	0 to 1	0 to 1	1 to 3
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	2 to 11	7 - 24	2 to 14	9 to 29	1 to 11	9 to 27	1 to 5	6 to 16	1 to 11	8 to 26
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.2	0 to 0.1	0.1 to 0.3	0 to 0.1	0.1 to 0.3	0 to 0	0.1 to 0.1	0 to 0.1	0.1 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 43.AB6			Sub Area: 43.AB7			Sub Area: 43.AB8			Sub Area: 43.AB9			Sub Area: 43.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	20	100	440	20	120	520	80	480	2070	30	150	670	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 43.AB6		Sub Area: 43.AB7		Sub Area: 43.AB8		Sub Area: 43.AB9		Sub Area: 43.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	37 to 47	44 to 50	36 to 46	42 to 47	36 to 46	45 to 51	36 to 46	42 to 47	32 to 40	42 to 63
L_{Aeq} 10pm-6am ¹	28 to 38	35 to 40	27 to 37	33 to 37	27 to 36	36 to 41	28 to 38	33 to 37	22 to 31	31 to 52
ANEC ²	4 to 15	8 to 13	3 to 14	5 to 10	2 to 13	9 to 15	3 to 14	5 to 10	-5 to 5	1 to 31
Number of Noise Events ³										
Over 60 dBA per 24 Hours	3 to 22	21 to 60	2 to 19	16 to 46	4 to 25	21 to 61	2 to 18	13 to 37	1 to 8	4 to 38
Over 70 dBA per 24 Hours	0 to 6	4 to 14	0 to 6	2 to 6	0 to 7	4 to 19	0 to 6	2 to 7	0 to 1	1 to 27
Over 80 dBA per 24 Hours	0 to 1	0 to 1	0 to 1	0 to 0	0 to 1	1 to 4	0 to 2	0 to 0	0 to 0	0 to 17
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 10
Over 60 dBA per Night	0 to 2	2 to 5	0 to 2	2 to 3	1 to 2	3 to 5	0 to 2	2 to 3	0 to 1	0 to 3
Over 70 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 2	0 to 1	0 to 1	0 to 0	0 to 2
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 65 dBA (9am-3pm)	1 to 7	5 - 16	0 to 5	4 to 11	1 to 7	5 to 19	0 to 6	3 to 10	0 to 3	1 to 14
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.1	0 to 0	0 to 0.1	0 to 0.1	0.1 to 0.2	0 to 0.1	0 to 0.1	0 to 0	0 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 43.AB11			Sub Area: 43.AB12			Sub Area: 43.AB13			Sub Area: 43.AB14		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	50	220	60	330	1410	150	910	3920	0	0	0
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 43.AB11		Sub Area: 43.AB12		Sub Area: 43.AB13		Sub Area: 43.AB14	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	33 to 40	38 to 60	33 to 42	36 to 57	35 to 45	39 to 44	32 to 39	42 to 48
L_{Aeq} 10pm-6am ¹	24 to 31	26 to 49	24 to 33	25 to 45	26 to 37	30 to 33	23 to 29	30 to 36
ANEC ²	-2 to 6	-1 to 27	-1 to 9	-3 to 24	2 to 13	2 to 6	-4 to 3	4 to 12
Number of Noise Events ³								
Over 60 dBA per 24 Hours	1 to 7	3 to 36	1 to 10	3 to 33	1 to 13	8 to 18	2 to 11	17 to 71
Over 70 dBA per 24 Hours	0 to 2	1 to 23	0 to 3	0 to 20	0 to 5	1 to 3	0 to 0	1 to 6
Over 80 dBA per 24 Hours	0 to 0	0 to 15	0 to 0	0 to 12	0 to 1	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 7	0 to 0	0 to 3	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 3	0 to 1	0 to 3	0 to 1	1 to 2	0 to 1	1 to 5
Over 70 dBA per Night	0 to 0	0 to 2	0 to 0	0 to 2	0 to 1	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 2	1 - 13	0 to 3	1 to 13	0 to 5	1 to 4	0 to 2	4 to 19
Sleep Disturbance Index ⁴	0 to 0	0 to 0.2	0 to 0	0 to 0.1	0 to 0	0 to 0	0 to 0	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 43.C1			Sub Area: 43.C2			Sub Area: 43.C3			Sub Area: 43.C4			Sub Area: 43.C5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	30	30	30	10	10	10	30	40	40	50	50	50
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 43.C1		Sub Area: 43.C2		Sub Area: 43.C3		Sub Area: 43.C4		Sub Area: 43.C5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	53 to 62	54 to 62	38 to 46	61 to 66	38 to 48	43 to 50	37 to 44	42 to 46	38 to 47	44 to 49
L_{Aeq} 10pm-6am ¹	26 to 36	43 to 51	29 to 36	51 to 55	29 to 39	33 to 39	28 to 34	33 to 34	29 to 39	34 to 39
ANEC ²	19 to 30	21 to 30	-2 to 6	29 to 34	3 to 14	9 to 17	2 to 9	8 to 11	4 to 14	10 to 17
Number of Noise Events ³										
Over 60 dBA per 24 Hours	60 to 155	89 to 163	2 to 23	25 to 20	4 to 41	15 to 68	5 to 22	20 to 37	5 to 30	20 to 53
Over 70 dBA per 24 Hours	25 to 127	34 to 126	0 to 0	88 to 131	1 to 12	3 to 19	1 to 5	2 to 8	1 to 10	3 to 15
Over 80 dBA per 24 Hours	5 to 64	9 to 63	0 to 0	30 to 94	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1	0 to 2
Over 90 dBA per 24 Hours	0 to 4	1 to 6	0 to 0	7 to 32	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	4 to 6	8 to 13	0 to 3	11 to 16	1 to 4	2 to 6	1 to 2	2 to 3	1 to 3	2 to 4
Over 70 dBA per Night	2 to 4	3 to 9	0 to 0	7 to 10	0 to 2	0 to 2	0 to 1	0 to 1	0 to 1	0 to 2
Over 80 dBA per Night	0 to 2	0 to 4	0 to 0	2 to 7	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	1 to 2	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	13 to 32	27 to 67	0 to 2	47 to 74	1 to 13	4 to 20	1 to 6	4 to 9	1 to 9	5 to 15
Sleep Disturbance Index ⁴	0.2 to 0.3	0.3 to 0.7	0 to 0	0.5 to 0.9	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 43.C6			Sub Area: 43.C7			Sub Area: 43.C8			Sub Area: 43.C9			Sub Area: 43.C10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	160	160	170	10	10	10	0	0	0	0	0	0	60	60	60
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 43.C6		Sub Area: 43.C7		Sub Area: 43.C8		Sub Area: 43.C9		Sub Area: 43.C10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	44 to 52	48 to 54	52 to 62	54 to 62	48 to 55	49 to 53	45 to 54	48 to 51	39 to 50	57 to 62
L_{Aeq} 10pm-6am¹	35 to 44	39 to 43	42 to 51	41 to 50	39 to 45	38 to 42	36 to 44	38 to 40	31 to 40	47 to 51
ANEC²	9 to 19	15 to 22	14 to 27	20 to 29	7 to 16	14 to 19	3 to 9	14 to 18	-4 to 1	24 to 29
Number of Noise Events³										
Over 60 dBA per 24 Hours	12 to 44	44 to 84	20 to 79	81 to 159	13 to 60	92 to 155	8 to 36	94 to 154	1 to 7	104 to 166
Over 70 dBA per 24 Hours	3 to 19	11 to 31	9 to 66	30 to 126	2 to 21	14 to 40	0 to 3	8 to 27	0 to 0	55 to 112
Over 80 dBA per 24 Hours	0 to 5	1 to 8	2 to 34	8 to 59	0 to 2	0 to 2	0 to 0	0 to 1	0 to 0	15 to 60
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	1 to 7
Over 60 dBA per Night	2 to 4	4 to 7	3 to 7	8 to 13	2 to 5	8 to 11	1 to 3	8 to 11	0 to 1	9 to 13
Over 70 dBA per Night	0 to 2	1 to 3	1 to 5	2 to 9	0 to 2	1 to 3	0 to 0	1 to 2	0 to 0	4 to 8
Over 80 dBA per Night	0 to 1	0 to 1	0 to 3	0 to 4	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	1 to 4
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 65 dBA (9am-3pm)	3 to 15	11 to 26	7 to 36	25 to 66	4 to 21	23 to 44	2 to 8	19 to 39	0 to 1	38 to 59
Sleep Disturbance Index⁴	0 to 0.2	0.1 to 0.2	0.1 to 0.4	0.2 to 0.7	0 to 0.2	0.2 to 0.3	0 to 0.1	0.2 to 0.2	0 to 0	0.4 to 0.6

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 43.C11			Sub Area: 43.C12		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	30	30	30
Educational Facilities ²	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 43.C11		Sub Area: 43.C12	
	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	39 to 50	50 to 56	42 to 51	50 to 55
L_{Aeq} 10pm-6am¹	30 to 40	40 to 46	33 to 41	40 to 44
ANEC²	-8 to -3	17 to 23	3 to 9	16 to 22
Number of Noise Events³				
Over 60 dBA per 24 Hours	0 to 1	81 to 145	8 to 34	10 to 20
Over 70 dBA per 24 Hours	0 to 0	16 to 49	0 to 3	14 to 51
Over 80 dBA per 24 Hours	0 to 0	2 to 9	0 to 0	1 to 4
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	6 to 11	1 to 4	10 to 15
Over 70 dBA per Night	0 to 0	1 to 4	0 to 0	1 to 4
Over 80 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 1
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	19 to 44	1 to 6	21 to 55
Sleep Disturbance Index⁴	0 to 0	0.1 to 0.3	0 to 0.1	0.2 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 44

SHEET 1 / 3

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	1,717	1,750 ¹	2,860	1,920	3,930	2,040
Educational Facilities ³		0	0	0	0	0
Other Noise Sensitive Land Uses		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	48, 52	L _{A90}	7am to 7pm	34, 39
	7pm to 10pm	48, 49		7pm to 10pm	37, 38
	10pm to 7am	43, 48		10pm to 7am	31, 33

Monitored at: 438 Catherine Fields Rd, Catherine Field, 72 Robinson Road, Bringelly

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	29 to 38	32 to 39		36 to 41	39 to 44	
L_{Aeq} 10pm-6am ¹	19 to 28	23 to 29		25 to 29	30 to 34	
ANEC ²	-6 to 3	-2 to 5		0 to 5	5 to 11	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	1 to 11	2 to 13		4 to 18	8 to 19	
Over 70 dBA per 24 Hours	0 to 0	0 to 1		0 to 1	1 to 4	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 1	0 to 1		0 to 1	1 to 1	
Over 70 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 1	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm)	0 to 2	0 to 4		1 to 3	2 to 5	
Sleep Disturbance Index ⁴	0 to 0	0 to 0		0 to 0	0 to 0	

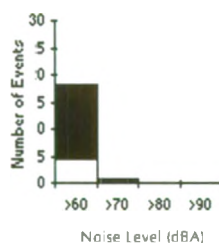
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

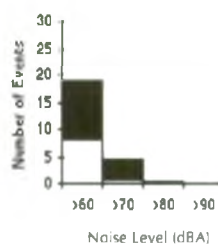
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

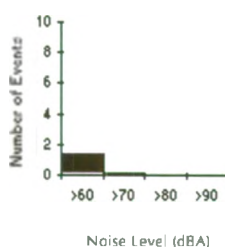


Option B

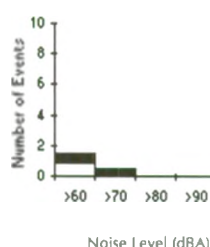
Refer Following
Pages

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events


Option A



Option B

Refer Following
Pages

Option C

Social Characteristics for Option C:

	Sub Area: 44.C1			Sub Area: 44.C2			Sub Area: 44.C3			Sub Area: 44.C4		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	40	50	50	410	450	480	20	20	20	1280	1400	1490
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			1		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 44.C1		Sub Area: 44.C2		Sub Area: 44.C3		Sub Area: 44.C4	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	37 to 44	53 to 58	34 to 43	44 to 49	37 to 48	47 to 54	29 to 41	40 to 47
L_{Aeq} 10pm-6am ¹	27 to 34	43 to 47	25 to 32	33 to 38	29 to 39	37 to 44	20 to 30	29 to 36
ANEC ²	-4 to 2	19 to 25	-7 to -2	9 to 15	-8 to -6	14 to 21	-16 to -5	6 to 13
Number of Noise Events ³								
Over 60 dBA per 24 Hours	1 to 9	109 to 179	0 to 0	23 to 86	0 to 0	31 to 114	0 to 0	8 to 43
Over 70 dBA per 24 Hours	0 to 0	34 to 90	0 to 0	2 to 10	0 to 0	6 to 33	0 to 0	1 to 6
Over 80 dBA per 24 Hours	0 to 0	2 to 14	0 to 0	0 to 0	0 to 0	1 to 8	0 to 0	0 to 1
Over 90 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	9 to 14	0 to 0	2 to 6	0 to 0	2 to 9	0 to 0	1 to 3
Over 70 dBA per Night	0 to 0	3 to 7	0 to 0	0 to 1	0 to 0	1 to 3	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 2	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 1	27 to 62	0 to 0	4 to 20	0 to 0	7 to 33	0 to 0	2 to 10
Sleep Disturbance Index ⁴	0 to 0	0.2 to 0.5	0 to 0	0 to 0.1	0 to 0	0.1 to 0.3	0 to 0	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 45

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	2006 Option C	2016 Options A and B	2016 Option C
Estimated Population	2,701	3,000 ¹	3,100	4,100	3,210	7,220
Educational Facilities ²		2	2	2	2	2
Other Noise Sensitive Land Uses ³		2	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	49	L_{A90}	7am to 7pm	35
	7pm to 10pm	40		7pm to 10pm	32
	10pm to 7am	47		10pm to 7am	28

Monitored at: 18 Phillip Road, Leppington

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	35 to 42	33 to 40	34 to 46	41 to 45	39 to 44	41 to 48
L_{Aeq} 10pm-6am ¹	26 to 33	25 to 31	26 to 37	32 to 34	28 to 32	32 to 38
ANEC ²	1 to 9	-1 to 7	1 to 13	8 to 11	5 to 9	8 to 15
Number of Noise Events ³						
Over 60 dBA per 24 Hours	3 to 18	2 to 12	2 to 25	11 to 31	10 to 34	13 to 56
Over 70 dBA per 24 Hours	1 to 4	0 to 2	0 to 7	3 to 5	1 to 4	3 to 14
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 2
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 2	0 to 1	0 to 2	1 to 3	1 to 3	1 to 5
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	1 to 6	1 to 3	0 to 7	3 to 9	2 to 6	3 to 14
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0.1	0 to 0.1	0 to 0	0 to 0.1

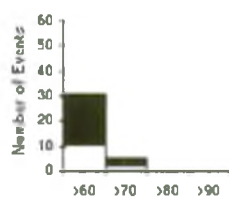
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

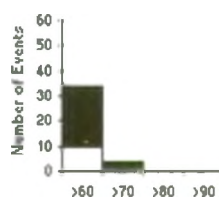
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



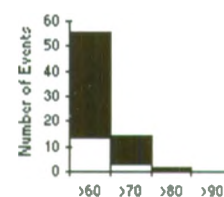
Noise Level (dBA)

Option A



Noise Level (dBA)

Option B

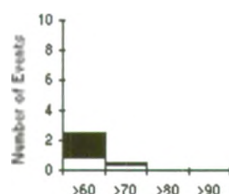


Noise Level (dBA)

Option C

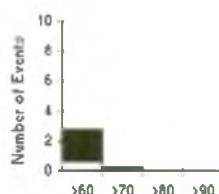
Potential Range of Events

2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



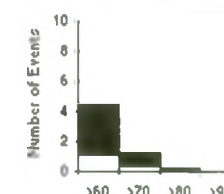
Noise Level (dBA)

Option A



Noise Level (dBA)

Option B



Noise Level (dBA)

Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 46

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	2,183	3,430 ¹	5,330	5,330	13,210	13,210
Educational Facilities ²		1	1	1	3	3
Other Noise Sensitive Land Uses ³		4	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	51, 49	L _{A90}	7am to 7pm	36, 36
	7pm to 10pm	45, 40		7pm to 10pm	38, 33
	10pm to 7am	43, 42		10pm to 7am	29, 29

Monitored at: 75 Jardine Drive, Edmondson Park, 10 Blaxland Rd, Ingleburn Military Camp

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	31 to 39	27 to 36	29 to 41	37 to 40	33 to 36	37 to 45
L_{Aeq} 10pm-6am ¹	23 to 30	19 to 27	21 to 32	28 to 30	24 to 26	28 to 35
ANEC ²	-3 to 5	-7 to 2	-4 to 8	3 to 7	-1 to 3	5 to 12
Number of Noise Events ³						
Over 60 dBA per 24 Hours	1 to 7	1 to 5	1 to 13	6 to 11	2 to 4	4 to 23
Over 70 dBA per 24 Hours	0 to 1	0 to 1	0 to 4	0 to 2	0 to 1	1 to 7
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 1	0 to 1	1 to 1	0 to 0	0 to 2
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 2	0 to 1	0 to 4	1 to 4	0 to 1	1 to 8
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0.1

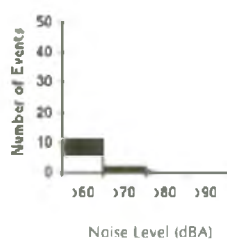
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

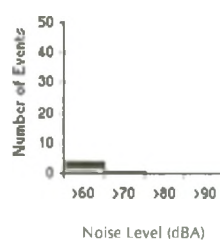
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

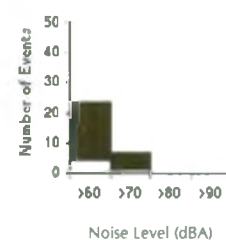
2016 - Number of Noise Events per 24 Hours (on average):



Option A

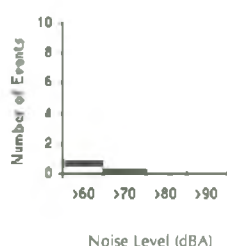


Option B

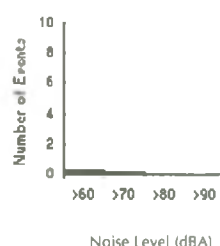


Option C

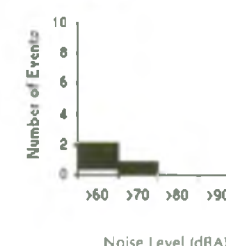
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 47

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	306	260 ¹	1,320	1,320	4,180	4,180
Educational Facilities ²		1	1	1	2	2
Other Noise Sensitive Land Uses ³		0	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	51	L _{A90}	7am to 7pm	38
	7pm to 10pm	51		7pm to 10pm	42
	10pm to 7am	47		10pm to 7am	37

Monitored at: 92 Skipton Lane, Prestons

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	26 to 34	22 to 32	27 to 39	32 to 36	27 to 30	33 to 41
L_{Aeq} 10pm-6am ¹	17 to 25	14 to 23	18 to 30	23 to 26	18 to 20	24 to 31
ANEC ²	-8 to 1	-11 to -1	-6 to 5	-2 to 3	-6 to -2	0 to 6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 3	0 to 2	1 to 11	1 to 5	0 to 1	3 to 16
Over 70 dBA per 24 Hours	0 to 1	0 to 0	0 to 2	0 to 1	0 to 0	0 to 2
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 1	0 to 3	0 to 1	0 to 0	1 to 3
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

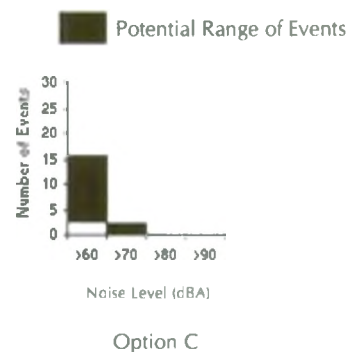
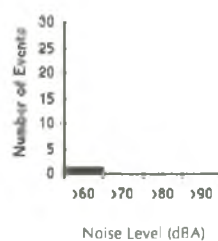
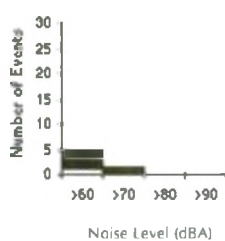
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

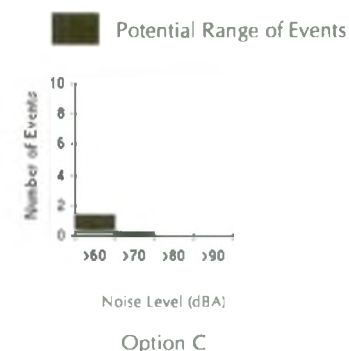
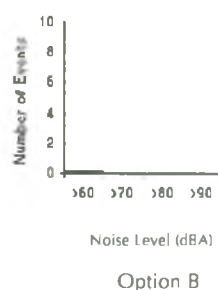
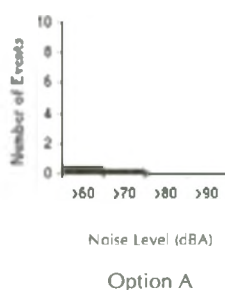
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 48

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	19,578	23,040 ¹	26,080	26,080	26,310	26,310
Educational Facilities ²		7	7	7	7	7
Other Noise Sensitive Land Uses ³		18	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	54, 52	L _{A90}	7am to 7pm	37, 40
	7pm to 10pm	47, 44		7pm to 10pm	35, 34
	10pm to 7am	44, 43		10pm to 7am	29, 34

Monitored at: 39 Gill Avenue, Liverpool, 8 Roberts Road, Casula

Noise Indicators:

	Option A	Option B	Option C	Option A	Option B	Option C
L_{Aeq} 24 Hour ¹	22 to 32	20 to 30	26 to 38	28 to 34	24 to 29	33 to 40
L_{Aeq} 10pm-6am ¹	14 to 24	12 to 23	18 to 29	20 to 25	15 to 20	24 to 30
ANEC ²	-11 to -1	-12 to -3	-6 to 4	-5 to 1	-8 to -3	-1 to 6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 3	0 to 1	0 to 8	1 to 5	0 to 1	3 to 15
Over 70 dBA per 24 Hours	0 to 1	0 to 0	0 to 2	0 to 1	0 to 0	0 to 2
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 1	0 to 2	0 to 1	0 to 0	1 to 4
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

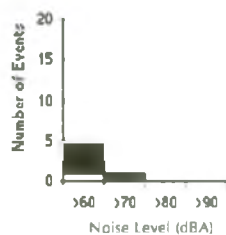
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

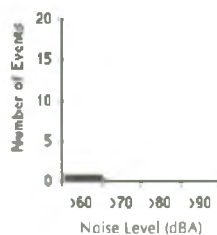
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

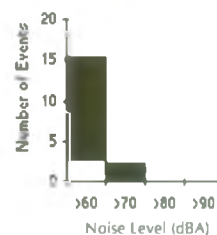
2016 - Number of Noise Events per 24 Hours (on average):



Option A



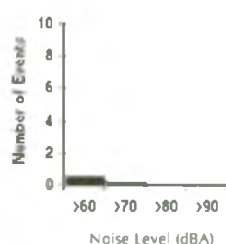
Option B



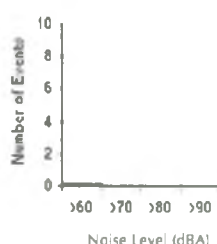
Option C

Potential Range of Events

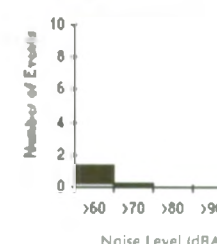
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 49

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	5,827	6,980 ¹	7,340	7,340	7,450	7,450
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive ³ Land Uses		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	52, 52, 50	L _{A90}	7am to 7pm	39, 38, 40
	7pm to 10pm	44, 46, 48		7pm to 10pm	36, 34, 36
	10pm to 7am	46, 44, 45		10pm to 7am	30, 31, 33

Monitored at: 29 Birdwood Avenue, Holsworthy, 11 Curtis Crescent, Moorebank, 46 Market Street, Moorebank

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	19 to 30	18 to 29	25 to 37	25 to 32	21 to 28	31 to 39
L_{Aeq} 10pm-6am ¹	11 to 22	10 to 21	17 to 29	17 to 23	13 to 19	22 to 29
ANEC ²	-13 to -3	-13 to -4	-9 to 3	-7 to -1	-9 to -4	-3 to 5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	0 to 7	0 to 2	0 to 1	2 to 10
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 2	0 to 0	0 to 0	0 to 2
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 2	0 to 1	0 to 0	1 to 3
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

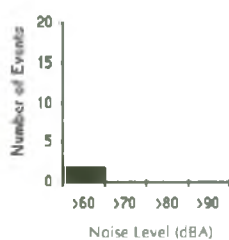
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

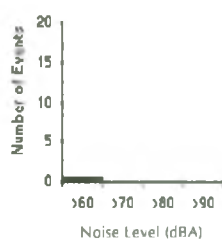
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

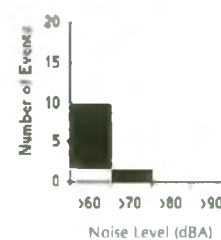
2016 - Number of Noise Events per 24 Hours (on average):



Option A



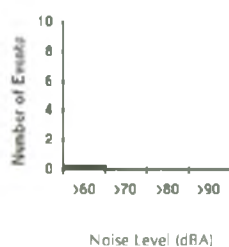
Option B



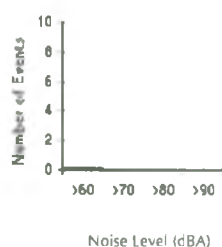
Option C

Potential Range of Events

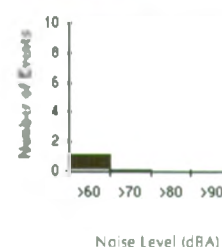
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 50

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	4,183	4,010 ¹	4,040	4,040	4,080	4,080
Educational Facilities ²		3	3	3	3	3
Other Noise Sensitive Land Uses ³		5	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	54	L _{A90}	7am to 7pm	38
	7pm to 10pm	46		7pm to 10pm	37
	10pm to 7am	38		10pm to 7am	31

Monitored at: 69 Raleigh Road, Milperra

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	18 to 29	17 to 28	23 to 35	24 to 31	21 to 28	31 to 38
L_{Aeq} 10pm-6am ¹	11 to 22	10 to 21	15 to 27	16 to 23	13 to 20	22 to 29
ANEC ²	-13 to -4	-14 to -5	-11 to 1	-8 to -1	-9 to -4	-3 to 5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	0 to 4	0 to 2	0 to 1	2 to 9
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 2
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

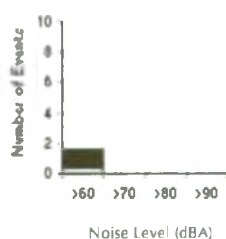
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

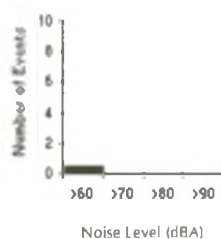
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

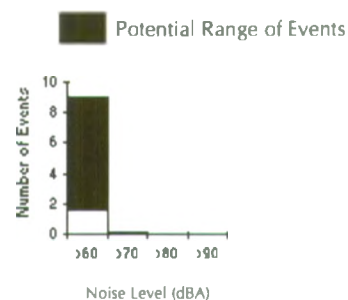
2016 - Number of Noise Events per 24 Hours (on average):



Option A

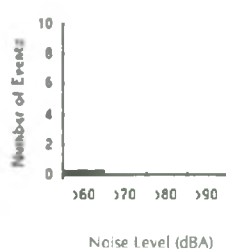


Option B

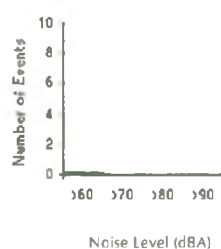


Option C

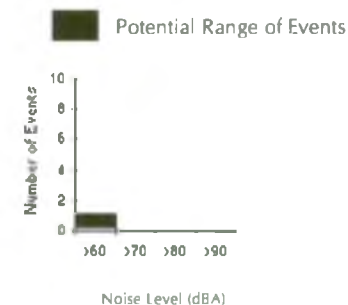
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 51

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	18,057	18,370 ¹	18,770	18,770	19,190	19,190
Educational Facilities ²		10	10	10	10	10
Other Noise Sensitive ³ Land Uses		25	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	56	L_{A90}	7am to 7pm	39
	7pm to 10pm	47		7pm to 10pm	32
	10pm to 7am	48		10pm to 7am	28

Monitored at: 69 Ardath Avenue, Panania

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	19 to 30	18 to 30	21 to 33	26 to 33	23 to 30	29 to 36
L_{Aeq} 10pm-6am ¹	12 to 23	11 to 22	13 to 25	17 to 24	15 to 21	20 to 27
ANEC ²	-13 to -3	-14 to -4	-11 to -1	-7 to -1	-9 to -3	-4 to 2
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	0 to 2	0 to 4	1 to 3	0 to 2	1 to 7
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

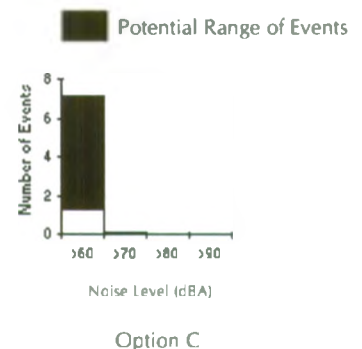
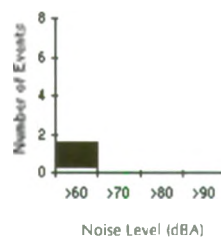
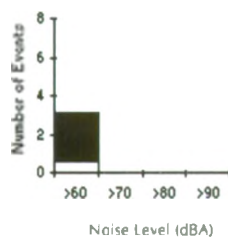
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

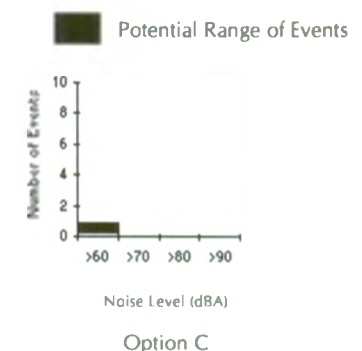
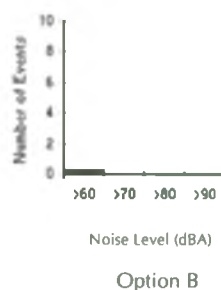
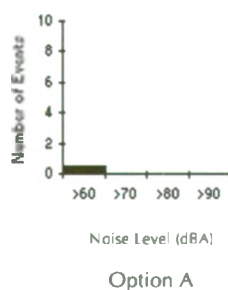
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 52

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	1,127	1,270 ¹	2,360	2,360	3,140	3,140
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	50, 51, 48	L_{A90}	7am to 7pm	37, 40, 37
	7pm to 10pm	45, 46, 44		7pm to 10pm	36, 34, 36
	10pm to 7am	43, 42, 40		10pm to 7am	32, 26, 30

Monitored at: East Hills Barracks, Voyager Point, 32 Riverview Rd, Pleasure Point, 84 George Crescent, Sandy Point

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	20 to 32	19 to 31	21 to 33	27 to 34	24 to 31	29 to 37
L_{Aeq} 10pm-6am ¹	13 to 24	12 to 23	13 to 25	19 to 25	16 to 22	20 to 27
ANEC ²	-12 to -2	-13 to -3	-10 to -1	-6 to 1	-8 to -2	-4 to 2
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	0 to 2	0 to 2	1 to 3	0 to 2	1 to 8
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

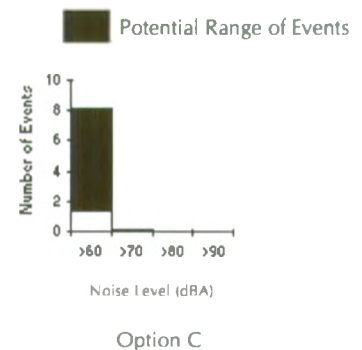
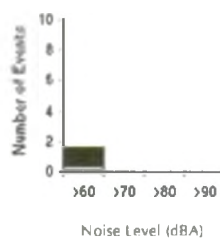
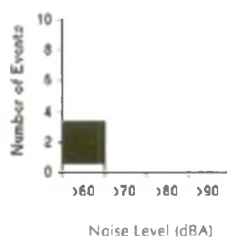
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

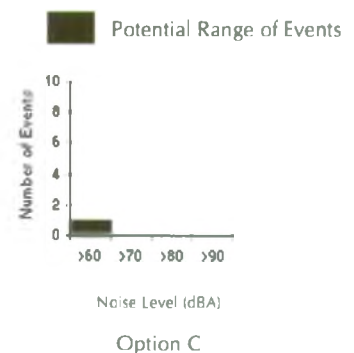
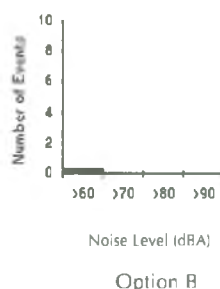
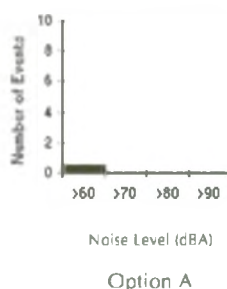
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 53

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	2,196	2,300 ¹	2,360	2,360	2,410	2,410
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive ³ Land Uses		4	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	54, 54	L _{A90}	7am to 7pm	40, 45
	7pm to 10pm	47, 51		7pm to 10pm	39, 41
	10pm to 7am	46, 48		10pm to 7am	36, 32

Monitored at: 43 Stewart Street, Hammondville, 21 Fitzgerald Ave, Hammondville

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	20 to 31	18 to 30	24 to 36	26 to 33	23 to 30	31 to 39
L_{Aeq} 10pm-6am ¹	12 to 23	11 to 22	16 to 28	18 to 24	15 to 21	23 to 30
ANEC ²	-12 to -2	-13 to -3	-10 to 2	-6 to 0	-9 to -3	-2 to 6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	0 to 2	0 to 4	1 to 3	0 to 1	2 to 11
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 3
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 2	0 to 1	0 to 0	0 to 2
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

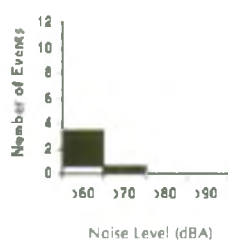
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

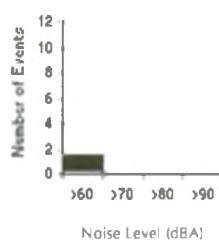
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

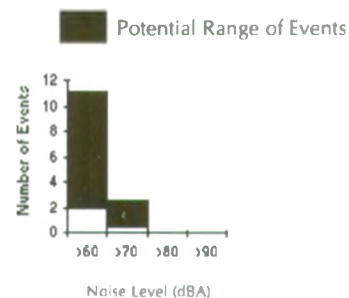
2016 - Number of Noise Events per 24 Hours (on average):



Option A

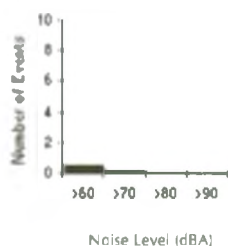


Option B

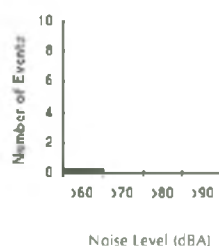


Option C

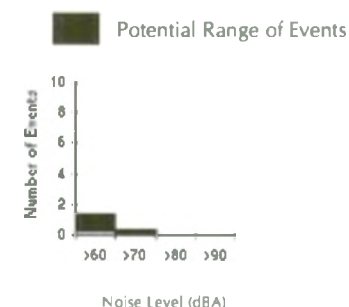
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 54

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	590	590 ¹	590	590	590	590
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive Land Uses ³		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	46	L _{A90}	7am to 7pm	35
	7pm to 10pm	41		7pm to 10pm	30
	10pm to 7am	40		10pm to 7am	30

Monitored at: Illawarra Road, Holsworthy Barracks

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	21 to 33	20 to 31	21 to 33	28 to 35	25 to 32	29 to 37
L_{Aeq} 10pm-6am ¹	14 to 25	13 to 24	14 to 26	20 to 26	17 to 23	21 to 28
ANEC ²	-11 to 0	-12 to -2	-10 to -1	-5 to 2	-7 to -1	-4 to 3
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 3	0 to 2	0 to 2	1 to 4	1 to 3	2 to 9
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

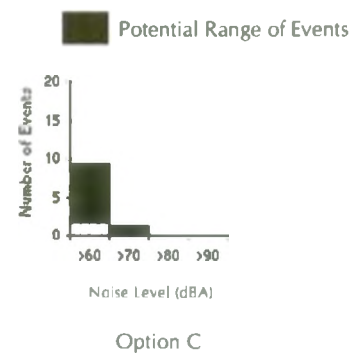
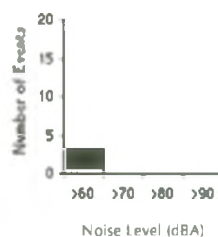
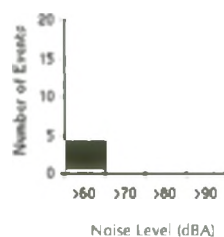
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

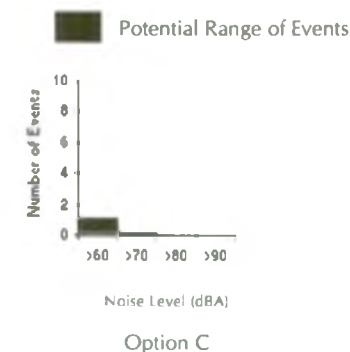
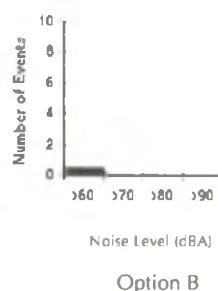
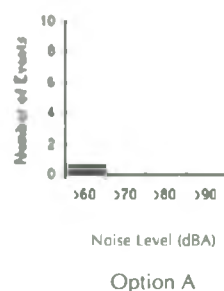
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 55

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	3,349	8,890 ¹	11,090	11,090	11,090	11,090
Educational Facilities ²		2	2	2	2	2
Other Noise Sensitive Land Uses ³		7	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	51, 58, 51	L_{A90}	7am to 7pm	43, 33, 41
	7pm to 10pm	49, 42, 46		7pm to 10pm	41, 31, 38
	10pm to 7am	45, 40, 43		10pm to 7am	33, 26, 36

Monitored at: 15 Murray Court, Wattle Grove, 13 Hyde Park Court, Wattle Grove, 33 Salamaua Cres. Holsworthy

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	21 to 32	19 to 31	24 to 36	27 to 34	24 to 31	32 to 39
L_{Aeq} 10pm-6am ¹	13 to 24	12 to 23	16 to 28	19 to 25	15 to 22	23 to 30
ANEC ²	-11 to -1	-12 to -2	-9 to 2	-6 to 1	-8 to -2	-1 to 6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	0 to 2	0 to 6	1 to 4	0 to 2	2 to 11
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 3
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 0	0 to 2	0 to 1	0 to 0	1 to 3
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

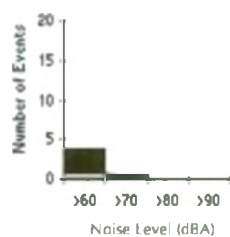
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

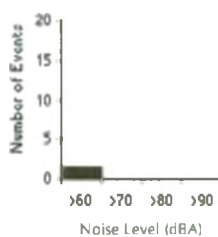
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

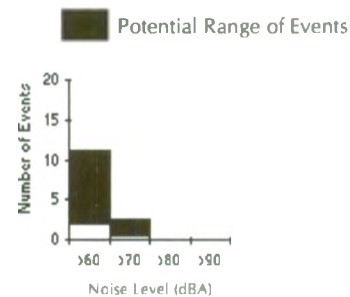
2016 - Number of Noise Events per 24 Hours (on average):



Option A

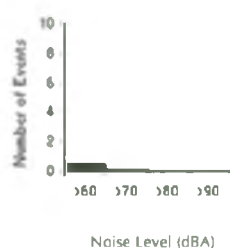


Option B

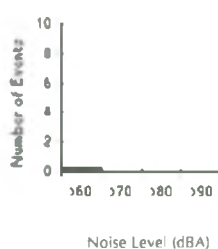


Option C

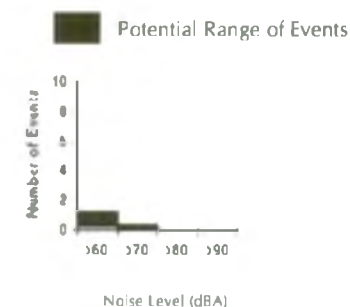
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 56

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	442	1,920 ¹	2,390	2,390	2,390	2,390
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	49	L_{A90}	7am to 7pm	40
	7pm to 10pm	45		7pm to 10pm	36
	10pm to 7am	46		10pm to 7am	34

Monitored at: School of Military Engineering

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	22 to 33	20 to 31	25 to 37	28 to 35	24 to 31	33 to 41
L_{Aeq} 10pm-6am ¹	14 to 25	12 to 24	17 to 29	20 to 26	16 to 22	24 to 31
ANEC ²	-11 to 0	-12 to -2	-7 to 3	-5 to 2	-8 to -1	1 to 8
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 3	0 to 2	0 to 7	1 to 5	0 to 2	3 to 16
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 2	0 to 1	0 to 0	1 to 4
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 0	0 to 2	0 to 1	0 to 0	1 to 3
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

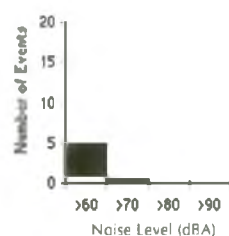
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

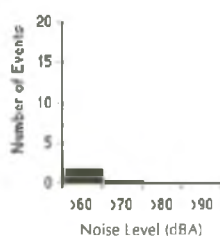
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

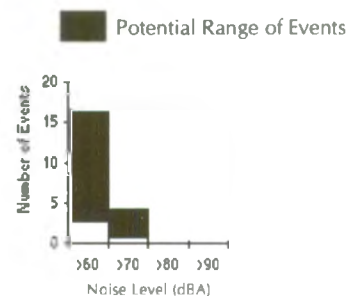
2016 - Number of Noise Events per 24 Hours (on average):



Option A

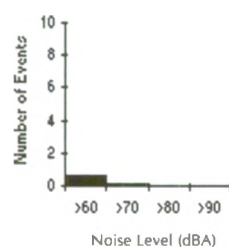


Option B

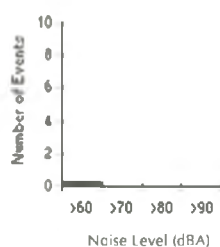


Option C

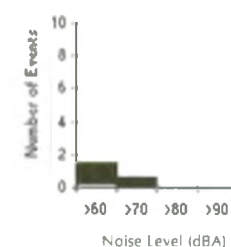
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 57

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	7,166	9,510 ¹	10,360	10,360	10,390	10,390
Educational Facilities ²		6	6	6	6	6
Other Noise Sensitive Land Uses ³		8	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	50	L _{A90}	7am to 7pm	35
	7pm to 10pm	45		7pm to 10pm	35
	10pm to 7am	43		10pm to 7am	32

Monitored at: 98 Belmont Road, Glenfield

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	24 to 35	23 to 34	24 to 36	31 to 37	28 to 34	33 to 40
L_{Aeq} 10pm-6am ¹	16 to 27	15 to 26	16 to 28	22 to 28	19 to 25	24 to 31
ANEC ²	-9 to 2	-10 to 1	-8 to 2	-3 to 4	-5 to 1	0 to 6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 4	0 to 4	0 to 8	1 to 7	1 to 4	3 to 15
Over 70 dBA per 24 Hours	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 2
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 1	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 1	0 to 1	0 to 2	0 to 1	1 to 4
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

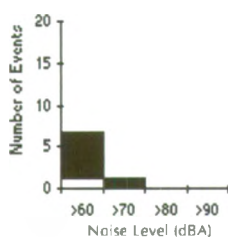
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

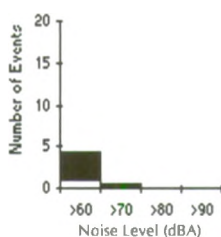
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

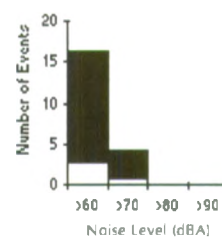
2016 - Number of Noise Events per 24 Hours (on average):



Option A



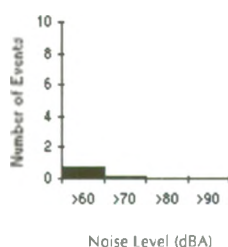
Option B



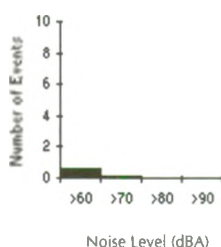
Option C

Potential Range of Events

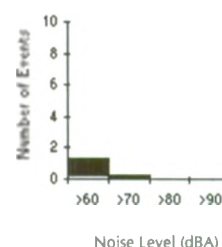
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 58

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	12,612	16,180 ¹	16,570	16,570	16,640	16,640
Educational Facilities ²		5	5	5	5	5
Other Noise Sensitive Land Uses ³		10	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	48	L_{A90}	7am to 7pm	33
	7pm to 10pm	42		7pm to 10pm	26
	10pm to 7am	40		10pm to 7am	23

Monitored at: 28 Mimmulos Place, Macquarie Fields

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	22 to 33	21 to 32	21 to 33	28 to 35	29 to 36	30 to 37
L_{Aeq} 10pm-6am ¹	14 to 24	13 to 24	13 to 24	20 to 25	21 to 27	20 to 27
ANEC ²	-11 to -1	-11 to -1	-10 to -1	-5 to 1	-4 to 3	-3 to 3
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 3	0 to 3	0 to 3	1 to 5	1 to 5	1 to 6
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1	0 to 1
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 1	0 to 0	0 to 1	0 to 2	0 to 2
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

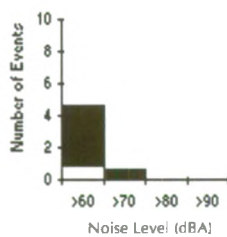
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

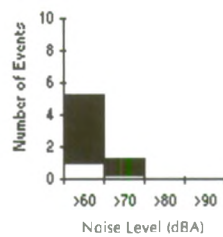
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

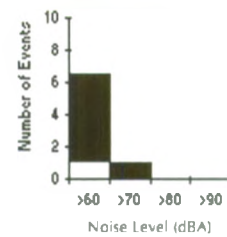
2016 - Number of Noise Events per 24 Hours (on average):



Option A

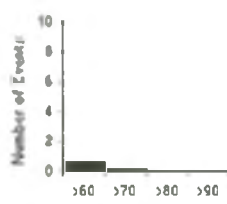


Option B

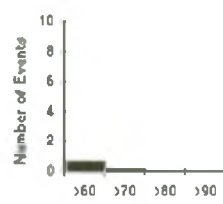


Option C

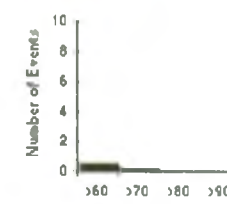
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 59

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	414	480 ¹	480	480	480	480
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	46	L _{A90}	7am to 7pm	30
	7pm to 10pm	38		7pm to 10pm	27
	10pm to 7am	37		10pm to 7am	26

Monitored at: 12 Kingdon Pde, Long Point

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	19 to 29	18 to 29	15 to 27	25 to 31	28 to 35	24 to 31
L_{Aeq} 10pm-6am ¹	11 to 21	11 to 22	7 to 18	17 to 22	20 to 26	14 to 21
ANEC ²	-13 to -3	-13 to -4	-15 to -9	-7 to -1	-5 to 1	-7 to -5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	0 to 1	0 to 2	1 to 5	0 to 2
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 2	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

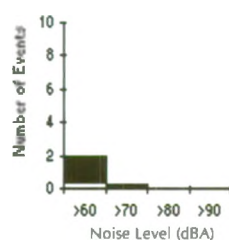
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

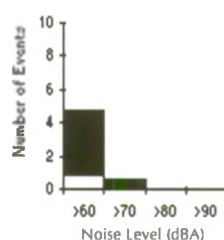
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

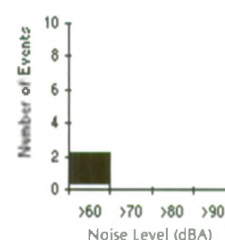
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

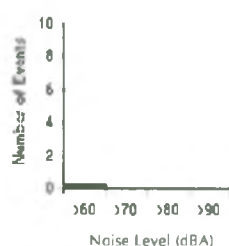


Option B

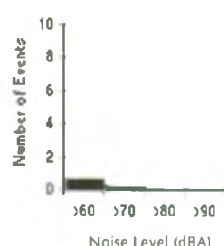


Option C

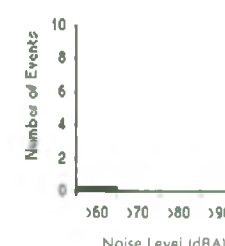
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 60

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	14,257	18,960 ¹	19,780	19,780	19,960	19,960
Educational Facilities ²		6	6	6	6	6
Other Noise Sensitive ³ Land Uses		10	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	54	L_{A90}	7am to 7pm	44
	7pm to 10pm	46		7pm to 10pm	37
	10pm to 7am	51		10pm to 7am	28

Monitored at: 22 Maserati Drive, Ingleburn

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	23 to 32	21 to 32	19 to 31	29 to 34	31 to 37	29 to 36
L_{Aeq} 10pm-6am ¹	15 to 23	13 to 24	11 to 22	20 to 24	22 to 27	19 to 26
ANEC ²	-10 to -1	-11 to -2	-11 to -4	-5 to 1	-3 to 4	-4 to 1
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	0 to 2	0 to 1	1 to 3	1 to 5	1 to 6
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 1	0 to 0	0 to 1	0 to 2	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

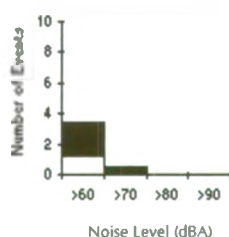
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

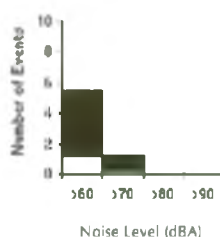
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

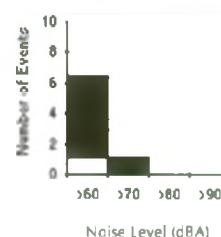
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

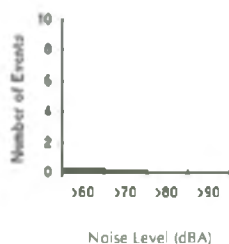


Option B

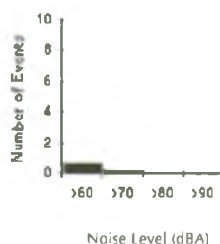


Option C

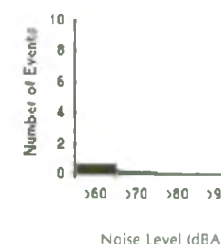
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 61

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	254	490 ¹	500	500	500	500
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive Land Uses ³		1	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	47	L _{A90}	7am to 7pm	34
	7pm to 10pm	46		7pm to 10pm	40
	10pm to 7am	38		10pm to 7am	31

Monitored at: 15 St James Road, Varroville

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	29 to 37	29 to 36	25 to 37	35 to 39	38 to 41	35 to 42
L_{Aeq} 10pm-6am ¹	19 to 27	20 to 26	17 to 28	25 to 28	28 to 31	25 to 32
ANEC ²	-5 to 1	-5 to 2	-7 to 3	1 to 3	3 to 8	2 to 8
Number of Noise Events ³						
Over 60 dBA per 24 Hours	1 to 9	1 to 10	0 to 5	4 to 15	6 to 12	3 to 18
Over 70 dBA per 24 Hours	0 to 0	0 to 1	0 to 1	0 to 1	0 to 2	1 to 3
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 1	0 to 1	0 to 0	0 to 1	1 to 1	0 to 2
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 2	0 to 1	0 to 1	1 to 2	1 to 4	1 to 3
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

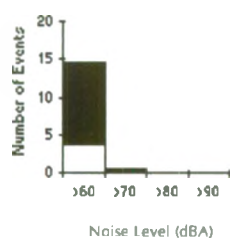
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

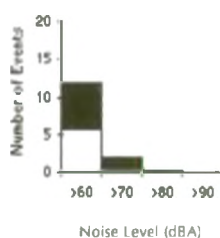
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

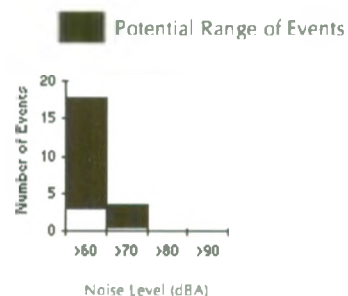
2016 - Number of Noise Events per 24 Hours (on average):



Option A

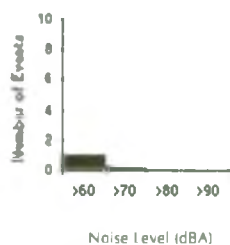


Option B

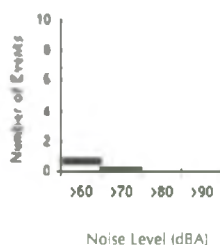


Option C

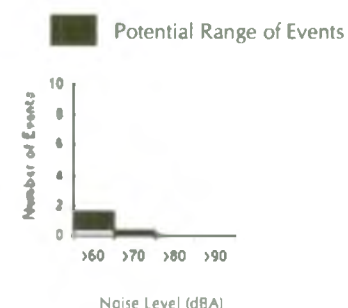
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 62

SHEET 1 / 4

Social Characteristics:

Year	1991 Census	1996	2006		2016		
			Options A and B	Option C	Options A and B	Option C	
Estimated Population	550	580 ¹	640	610	680	610	
Educational Facilities ²		2	2	2	2	2	
Other Noise Sensitive Land Uses ³		1	Not estimated for these years				

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	51	L _{A90}	7am to 7pm	34
	7pm to 10pm	40		7pm to 10pm	33
	10pm to 7am	45		10pm to 7am	28

Monitored at: 220 Chittick Lane, Cobbitty

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	33 to 40	29 to 36		38 to 42	40 to 44	
L_{Aeq} 10pm-6am ¹	24 to 29	20 to 26		29 to 31	30 to 33	
ANEC ²	-2 to 5	-6 to 1		3 to 7	5 to 9	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	3 to 15	1 to 7		11 to 28	13 to 31	
Over 70 dBA per 24 Hours	0 to 1	0 to 0		1 to 1	2 to 7	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 1	0 to 1		1 to 2	1 to 2	
Over 70 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 1	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm)	0 to 3	0 to 1		2 to 5	3 to 6	
Sleep Disturbance Index ⁴	0 to 0	0 to 0		0 to 0	0 to 0	

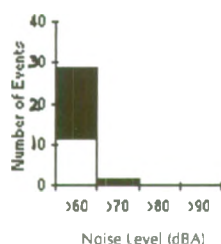
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

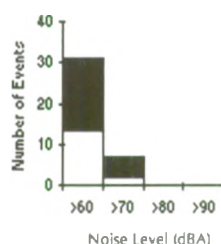
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

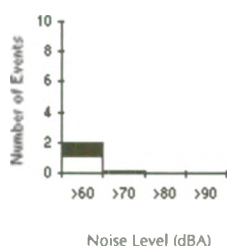


Option B

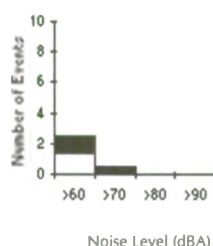
Refer Following
Pages

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events


Option A



Option B

Refer Following
Pages

Option C

Social Characteristics for Option C:

	Sub Area: 62.C1			Sub Area: 62.C2			Sub Area: 62.C3			Sub Area: 62.C4		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	180	190	190	10	10	10	20	20	20	10	10	10
Educational Facilities ²	1	1	1	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	1			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 62.C1		Sub Area: 62.C2		Sub Area: 62.C3		Sub Area: 62.C4	
	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	41 to 47	44 to 47	47 to 57	49 to 57	40 to 47	46 to 50	38 to 48	51 to 58
L_{Aeq} 10pm-6am ¹	32 to 37	34 to 35	36 to 46	37 to 45	31 to 37	36 to 39	29 to 38	39 to 46
ANEC ²	4 to 9	9 to 12	9 to 20	14 to 23	1 to 6	11 to 15	-5 to 1	17 to 24
Number of Noise Events ³								
Over 60 dBA per 24 Hours	10 to 32	35 to 59	13 to 55	51 to 112	5 to 21	66 to 126	1 to 5	87 to 128
Over 70 dBA per 24 Hours	1 to 4	3 to 7	4 to 37	15 to 74	0 to 1	7 to 21	0 to 0	24 to 90
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 12	2 to 18	0 to 0	0 to 0	0 to 0	3 to 22
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 3	4 to 4	2 to 5	5 to 9	1 to 2	5 to 8	0 to 0	7 to 10
Over 70 dBA per Night	0 to 0	0 to 0	0 to 3	1 to 5	0 to 0	0 to 1	0 to 0	2 to 6
Over 80 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 1	0 to 0	0 to 0	0 to 0	0 to 2
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 8	6 to 12	4 to 23	13 to 43	1 to 3	13 to 28	0 to 1	23 to 49
Sleep Disturbance Index ⁴	0 to 0.1	0.1 to 0.1	0 to 0.2	0.1 to 0.4	0 to 0	0.1 to 0.2	0 to 0	0.2 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option C:

	Sub Area: 62.C5			Sub Area: 62.C6		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	370	390	390
Educational Facilities ²	0	0	0	1	1	1
Other Noise Sensitive ³ Land Uses	0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 62.C5		Sub Area: 62.C6	
	2006	2016	2006	2016
L _{Aeq} 24 Hour ¹	35 to 45	48 to 53	37 to 42	40 to 43
L _{Aeq} 10pm-6am ¹	26 to 35	37 to 42	28 to 33	30 to 33
ANEC ²	-8 to -2	14 to 18	-1 to 7	5 to 9
Number of Noise Events ³				
Over 60 dBA per 24 Hours	0 to 2	75 to 115	3 to 18	12 to 31
Over 70 dBA per 24 Hours	0 to 0	14 to 43	0 to 2	0 to 3
Over 80 dBA per 24 Hours	0 to 0	1 to 5	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	6 to 8	0 to 2	1 to 3
Ove. 70 dBA per Night	0 to 0	1 to 3	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 0	19 to 39	0 to 4	1 to 5
Sleep Disturbance Index ⁴	0 to 0	0.1 to 0.2	0 to 0	0 to 0

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 63

SHEET 1 / 3

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	415	450 ¹	500	500	540	540
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive ³ Land Uses		2	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	46	L _{A90}	7am to 7pm	31
	7pm to 10pm	44		7pm to 10pm	32
	10pm to 7am	36		10pm to 7am	31

Monitored at: 176 Terry Road, Theresa Park

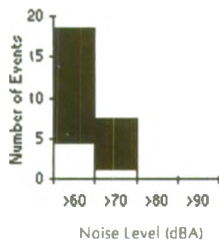
Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	32 to 43	35 to 41		38 to 45	37 to 40	
L_{Aeq} 10pm-6am ¹	21 to 32	26 to 31		26 to 34	28 to 29	
ANEC ²	-4 to 7	-1 to 6		2 to 9	2 to 5	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	1 to 13	3 to 13		4 to 19	7 to 14	
Over 70 dBA per 24 Hours	0 to 5	0 to 4		1 to 7	0 to 0	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 1	0 to 1		0 to 1	1 to 1	
Over 70 dBA per Night	0 to 0	0 to 0		0 to 1	0 to 0	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm)	0 to 4	0 to 4		1 to 6	1 to 2	
Sleep Disturbance Index ⁴	0 to 0	0 to 0		0 to 0	0 to 0	

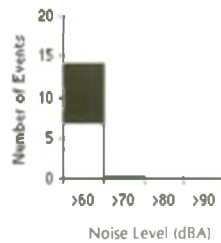
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

Potential Range of Events



Option A



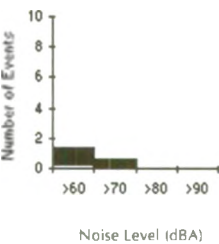
Option B

Refer Following
Pages

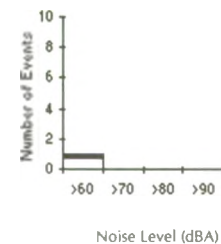
Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Potential Range of Events



Option A



Option B

Refer Following
Pages

Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	296	320 ¹	340	360	370	390
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	45	L _{A90}	7am to 7pm	32
	7pm to 10pm	47		7pm to 10pm	37
	10pm to 7am	38		10pm to 7am	31

Monitored at: 75 Pine Ridge Crescent, Weromba

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹			39 to 48			45 to 50
L_{Aeq} 10pm-6am ¹			27 to 36			33 to 36
ANEC ²			5 to 14			11 to 16
Number of Noise Events ³						
Over 60 dBA per 24 Hours	Refer Following Pages		5 to 21	Refer Following Pages		16 to 32
Over 70 dBA per 24 Hours			2 to 13			7 to 18
Over 80 dBA per 24 Hours			0 to 2			1 to 4
Over 90 dBA per 24 Hours			0 to 0			0 to 0
Over 60 dBA per Night			0 to 2			1 to 2
Over 70 dBA per Night			0 to 1			1 to 1
Over 80 dBA per Night			0 to 0			0 to 0
Over 90 dBA per Night			0 to 0			0 to 0
Over 65 dBA 9am to 3pm			1 to 9			5 to 13
Sleep Disturbance Index ⁴			0 to 0.1			0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

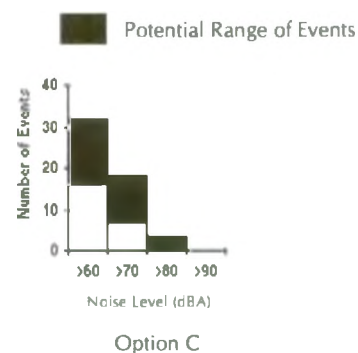
2016 - Number of Noise Events per 24 Hours (on average):

Refer Following
Pages

Option A

Refer Following
Pages

Option B



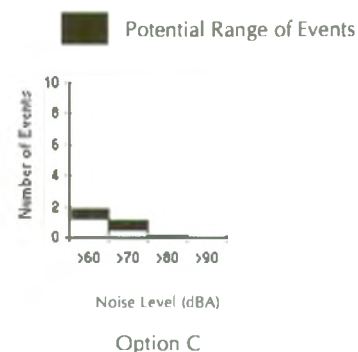
2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

Refer Following
Pages

Option A

Refer Following
Pages

Option B



Social Characteristics for Option A:

	Sub Area: 64.AB1			Sub Area: 64.AB2			Sub Area: 64.AB3			Sub Area: 64.AB4			Sub Area: 64.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	0	0	0	40	50	50	10	10	20	30	30	30	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			1			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 64.AB1		Sub Area: 64.AB2		Sub Area: 64.AB3		Sub Area: 64.AB4		Sub Area: 64.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour¹	42 to 49	49 to 56	38 to 47	47 to 54	42 to 50	46 to 53	43 to 54	47 to 54	47 to 59	51 to 59
L_{Aeq} 10pm-6am¹	33 to 41	35 to 45	30 to 39	34 to 42	32 to 40	33 to 42	29 to 43	32 to 43	33 to 48	36 to 48
ANEC²	8 to 17	13 to 21	5 to 15	11 to 18	8 to 15	10 to 17	6 to 18	10 to 18	11 to 24	15 to 24
Number of Noise Events³										
Over 60 dBA per 24 Hours	14 to 62	38 to 118	5 to 30	26 to 78	15 to 80	34 to 138	11 to 79	24 to 114	16 to 104	27 to 127
Over 70 dBA per 24 Hours	1 to 15	12 to 50	1 to 9	8 to 34	2 to 18	6 to 35	4 to 39	7 to 41	8 to 76	18 to 89
Over 80 dBA per 24 Hours	0 to 2	2 to 12	0 to 1	1 to 5	0 to 1	0 to 2	0 to 6	1 to 6	2 to 28	4 to 29
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 6	3 to 9	1 to 3	2 to 6	2 to 6	2 to 10	1 to 6	1 to 8	1 to 8	1 to 10
Over 70 dBA per Night	0 to 2	0 to 3	0 to 1	0 to 2	0 to 2	0 to 2	0 to 3	0 to 3	0 to 5	0 to 6
Over 80 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 3	0 to 2
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	3 to 16	10 to 35	1 to 8	7 to 25	3 to 22	7 to 38	3 to 29	7 to 35	6 to 45	10 to 50
Sleep Disturbance Index⁴	0 to 0.2	0.1 to 0.3	0 to 0.1	0 to 0.2	0 to 0.2	0 to 0.3	0 to 0.2	0 to 0.3	0 to 0.4	0 to 0.4

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option A:

	Sub Area: 64.AB6			Sub Area: 64.AB7			Sub Area: 64.AB8			Sub Area: 64.AB9			Sub Area: 64.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	160	170	190	0	0	0	60	60	60
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive ³ Land Uses	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option A:

	Sub Area: 64.AB6		Sub Area: 64.AB7		Sub Area: 64.AB8		Sub Area: 64.AB9		Sub Area: 64.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	43 to 54	47 to 55	42 to 54	47 to 55	43 to 55	47 to 55	39 to 51	45 to 52	36 to 48	42 to 50
L_{Aeq} 10pm-6am ¹	29 to 44	32 to 43	28 to 43	31 to 43	29 to 44	32 to 43	25 to 40	29 to 41	23 to 37	27 to 38
ANEC ²	7 to 19	10 to 19	6 to 18	10 to 19	7 to 19	10 to 19	2 to 15	7 to 16	-1 to 12	4 to 13
Number of Noise Events ³										
Over 60 dBA per 24 Hours	12 to 91	22 to 107	10 to 83	20 to 99	10 to 76	19 to 91	4 to 45	10 to 56	1 to 18	5 to 28
Over 70 dBA per 24 Hours	4 to 45	9 to 49	3 to 37	8 to 46	5 to 47	9 to 45	1 to 12	3 to 19	0 to 8	2 to 12
Over 80 dBA per 24 Hours	0 to 8	1 to 7	0 to 6	1 to 8	1 to 12	2 to 10	0 to 4	1 to 7	0 to 1	0 to 2
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	1 to 7	1 to 8	0 to 6	1 to 7	0 to 6	1 to 7	0 to 4	0 to 4	0 to 2	0 to 2
Over 70 dBA per Night	0 to 3	0 to 3	0 to 3	0 to 3	0 to 3	0 to 3	0 to 1	0 to 1	0 to 1	0 to 1
Over 80 dBA per Night	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	4 to 34	7 to 37	3 to 31	7 to 35	4 to 31	6 to 32	1 to 12	3 to 16	0 to 6	1 to 9
Sleep Disturbance Index ⁴	0 to 0.3	0 to 0.3	0 to 0.2	0 to 0.2	0 to 0.2	0 to 0.2	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 64.AB1			Sub Area: 64.AB2			Sub Area: 64.AB3			Sub Area: 64.AB4			Sub Area: 64.AB5		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	0	0	0	40	50	50	10	10	20	30	30	30	10	10	10
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			1			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 64.AB1		Sub Area: 64.AB2		Sub Area: 64.AB3		Sub Area: 64.AB4		Sub Area: 64.AB5	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L _{Aeq} 24 Hour	47 to 58	49 to 55	41 to 50	45 to 48	46 to 57	48 to 55	41 to 51	44 to 51	38 to 46	45 to 51
L _{Aeq} 10pm-6am ¹	34 to 47	37 to 44	30 to 40	35 to 37	32 to 46	35 to 44	27 to 41	30 to 39	27 to 36	32 to 39
ANEC ²	13 to 24	14 to 21	5 to 15	9 to 13	11 to 23	12 to 21	5 to 16	7 to 16	0 to 11	7 to 15
Number of Noise Events ³										
Over 60 dBA per 24 Hours	21 to 113	48 to 98	12 to 72	29 to 65	16 to 103	33 to 92	10 to 80	19 to 87	5 to 51	26 to 112
Over 70 dBA per 24 Hours	9 to 75	14 to 51	2 to 19	4 to 11	8 to 71	12 to 52	2 to 28	4 to 23	0 to 4	4 to 21
Over 80 dBA per 24 Hours	1 to 26	2 to 13	0 to 1	0 to 1	1 to 23	2 to 14	0 to 2	0 to 2	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	2 to 9	4 to 7	1 to 6	3 to 5	1 to 8	3 to 7	0 to 6	1 to 6	0 to 5	1 to 8
Over 70 dBA per Night	0 to 5	1 to 3	0 to 2	1 to 1	0 to 5	0 to 3	0 to 2	0 to 1	0 to 0	0 to 2
Over 80 dBA per Night	0 to 3	0 to 1	0 to 0	0 to 0	0 to 2	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	7 to 47	14 - 36	2 to 21	6 to 16	5 to 43	9 to 33	3 to 28	5 to 26	1 to 12	5 to 30
Sleep Disturbance Index ⁴	0.1 to 0.4	0.1 to 0.3	0 to 0.2	0.1 to 0.1	0 to 0.4	0.1 to 0.3	0 to 0.2	0 to 0.2	0 to 0.1	0 to 0.2

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

Social Characteristics for Option B:

	Sub Area: 64.AB6			Sub Area: 64.AB7			Sub Area: 64.AB8			Sub Area: 64.AB9			Sub Area: 64.AB10		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Estimated Population ¹	10	10	10	10	10	10	160	170	190	0	0	0	60	60	60
Educational Facilities ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Noise Sensitive Land Uses ³	0			0			0			0			0		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option B:

	Sub Area: 64.AB6		Sub Area: 64.AB7		Sub Area: 64.AB8		Sub Area: 64.AB9		Sub Area: 64.AB10	
	2006	2016	2006	2016	2006	2016	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	39 to 50	45 to 53	38 to 47	50 to 57	35 to 46	43 to 50	36 to 44	49 to 56	33 to 43	42 to 49
L_{Aeq} 10pm-6am ¹	25 to 39	31 to 42	28 to 36	35 to 46	22 to 35	29 to 39	26 to 33	34 to 44	22 to 32	28 to 38
ANEC ²	5 to 15	9 to 18	-1 to 11	13 to 22	-1 to 10	6 to 14	-3 to 8	12 to 22	-4 to 7	5 to 14
Number of Noise Events ³										
Over 60 dBA per 24 Hours	4 to 42	20 to 103	2 to 22	24 to 116	4 to 40	18 to 87	1 to 14	23 to 111	1 to 12	12 to 66
Over 70 dBA per 24 Hours	1 to 15	6 to 34	0 to 7	14 to 72	0 to 5	3 to 20	0 to 4	13 to 68	0 to 3	2 to 13
Over 80 dBA per 24 Hours	0 to 3	1 to 4	0 to 1	3 to 20	0 to 0	0 to 1	0 to 0	2 to 15	0 to 0	0 to 1
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 4	1 to 8	0 to 2	1 to 9	0 to 3	1 to 6	0 to 1	1 to 9	0 to 1	0 to 5
Over 70 dBA per Night	0 to 1	0 to 2	0 to 1	0 to 5	0 to 1	0 to 2	0 to 0	0 to 5	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 2	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	1 to 12	6 - 31	0 to 6	9 to 46	1 to 11	4 to 25	0 to 4	8 to 43	0 to 4	3 to 15
Sleep Disturbance Index ⁴	0 to 0.1	0 to 0.2	0 to 0.1	0 to 0.4	0 to 0.1	0 to 0.2	0 to 0	0 to 0.3	0 to 0	0 to 0.1

Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 65

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	444	500 ¹	580	580	640	640
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive Land Uses ³		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	47	L_{A90}	7am to 7pm	33
	7pm to 10pm	43		7pm to 10pm	38
	10pm to 7am	42		10pm to 7am	31

Monitored at: 110 Eagle Creek Road, Weromba

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	23 to 32	27 to 37	25 to 34	29 to 35	34 to 41	30 to 36
L_{Aeq} 10pm-6am ¹	10 to 22	15 to 26	18 to 25	15 to 23	19 to 29	22 to 26
ANEC ²	-13 to -3	-9 to 1	-8 to -1	-8 to -1	-3 to 5	-3 to 2
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	1 to 6	0 to 3	1 to 3	3 to 14	2 to 5
Over 70 dBA per 24 Hours	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 1	0 to 1	0 to 1	1 to 3	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

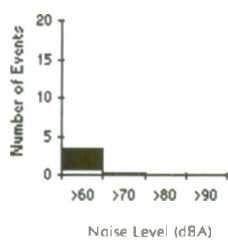
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

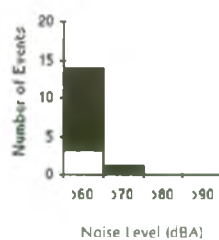
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

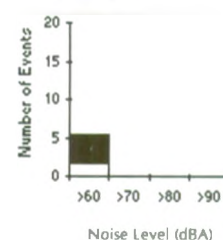
2016 - Number of Noise Events per 24 Hours (on average):



Option A



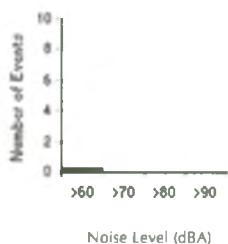
Option B



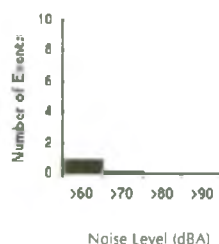
Option C

Potential Range of Events

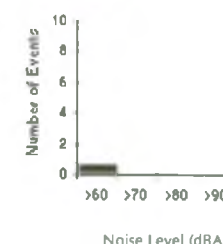
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 66

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	889	930 ¹	1,050	1,050	1,150	1,150
Educational Facilities ²		4	4	4	4	4
Other Noise Sensitive Land Uses		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	43	L _{A90}	7am to 7pm	32
	7pm to 10pm	41		7pm to 10pm	33
	10pm to 7am	36		10pm to 7am	31

Monitored at: 70 Silverwood Road, Brownlow Hill

Noise Indicators:

	Option A	Option B	Option C	Option A	Option B	Option C
L_{Aeq} 24 Hour ¹	27 to 33	28 to 35	30 to 39	32 to 36	34 to 38	35 to 41
L_{Aeq} 10pm-6am ¹	18 to 23	19 to 25	21 to 31	22 to 25	24 to 27	25 to 31
ANEC ²	-7 to -3	-6 to -1	-5 to 5	-3 to 0	-1 to 3	1 to 7
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	1 to 5	1 to 9	2 to 4	3 to 12	2 to 13
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 2
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 1	0 to 1	0 to 0	0 to 1	0 to 1
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 1	0 to 3	0 to 1	0 to 2	1 to 4
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

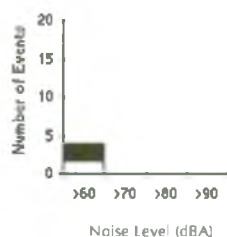
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

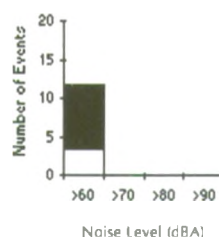
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

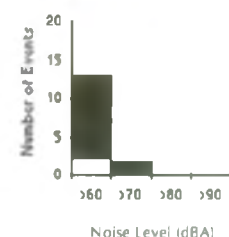
2016 - Number of Noise Events per 24 Hours (on average):



Option A

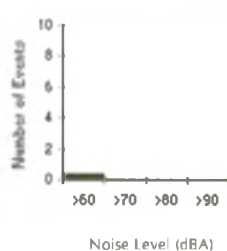


Option B

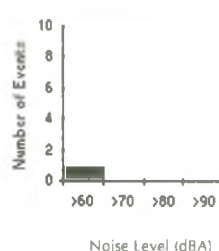


Option C

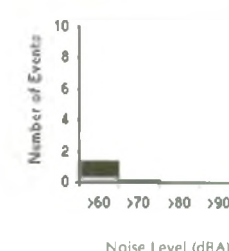
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 67

SHEET 1 / 3

Social Characteristics:

Year	1991	1996	2006		2016	
	Census		Options A and B	Option C	Options A and B	Option C
Estimated Population	12,943	15,550 ¹	21,450	21,770	25,890	23,320
Educational Facilities ²		13	14	14	15	14
Other Noise Sensitive ³ Land Uses		26	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	47	L _{A90}	7am to 7pm	39
	7pm to 10pm	43		7pm to 10pm	37
	10pm to 7am	36		10pm to 7am	34

Monitored at: 68 Valley View Drive, Narellan

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	25 to 33	21 to 30		30 to 36	29 to 35	
L_{Aeq} 10pm-6am ¹	16 to 24	13 to 20		20 to 25	19 to 24	
ANEC ²	-9 to -3	-11 to -7		-4 to 0	-4 to -1	
Number of Noise Events ³			Refer Following Pages			Refer Following Pages
Over 60 dBA per 24 Hours	0 to 5	0 to 2		2 to 8	1 to 3	
Over 70 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 80 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per 24 Hours	0 to 0	0 to 0		0 to 0	0 to 0	
Over 60 dBA per Night	0 to 1	0 to 0		0 to 1	0 to 0	
Over 70 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 80 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 90 dBA per Night	0 to 0	0 to 0		0 to 0	0 to 0	
Over 65 dBA (9am-3pm)	0 to 1	0 to 0		0 to 1	0 to 1	
Sleep Disturbance Index ⁴	0 to 0	0 to 0		0 to 0	0 to 0	

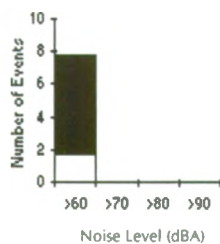
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

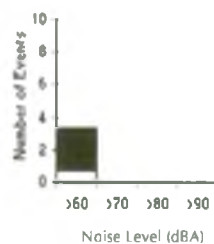
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

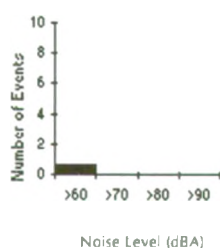


Option B

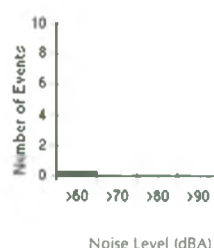
Refer Following
Pages

Option C

2016 - Number of Noise Events at Night (on average 10pm-6am - no curfew):

 Potential Range of Events


Option A



Option B

Refer Following
Pages

Option C

Social Characteristics for Option C:

	Sub Area: 67.C1			Sub Area: 67.C2		
	1996	2006	2016	1996	2006	2016
Estimated Population ¹	30	50	50	15510	21720	23270
Educational Facilities ²	1	1	1	12	13	14
Other Noise Sensitive ³ Land Uses	0			26		

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres. Not estimated for future years

Noise Indicators for Option C:

	Sub Area: 67.C1		Sub Area: 67.C2	
	2006	2016	2006	2016
L_{Aeq} 24 Hour ¹	34 to 40	47 to 54	34 to 44	41 to 48
L_{Aeq} 10pm-6am ¹	25 to 29	35 to 43	13 to 20	30 to 36
ANEC ²	-5 to 1	11 to 19	-2 to 8	5 to 12
Number of Noise Events ³				
Over 60 dBA per 24 Hours	1 to 5	45 to 106	4 to 27	21 to 71
Over 70 dBA per 24 Hours	0 to 0	11 to 64	0 to 4	1 to 12
Over 80 dBA per 24 Hours	0 to 0	1 to 9	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	3 to 8	0 to 1	1 to 5
Over 70 dBA per Night	0 to 0	0 to 4	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 1	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA (9am-3pm)	0 to 1	10 to 40	0 to 5	3 to 14
Sleep Disturbance Index ⁴	0 to 0	0.1 to 0.3	0 to 0	0 to 0.1

Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 68

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	4,595	10,630 ¹	28,080	29,000	32,850	29,760
Educational Facilities ²		5	9	9	11	10
Other Noise Sensitive Land Uses ³		11	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	44	L_{A90}	7am to 7pm	31
	7pm to 10pm	40		7pm to 10pm	29
	10pm to 7am	33		10pm to 7am	26

Monitored at: 16 Charles Place, Mount Annan

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	22 to 29	20 to 28	22 to 29	27 to 31	28 to 41	33 to 36
L_{Aeq} 10pm-6am ¹	11 to 19	9 to 18	12 to 18	16 to 20	17 to 30	22 to 24
ANEC ²	-14 to -6	-15 to -7	-13 to -7	-9 to -4	-8 to 6	-3 to -1
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 2	0 to 0	0 to 1	0 to 10	1 to 3
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 3	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 3	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

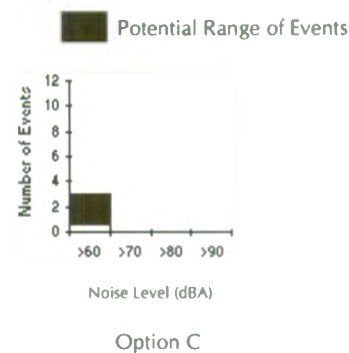
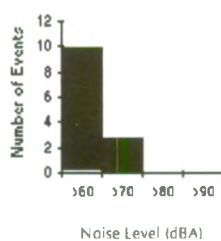
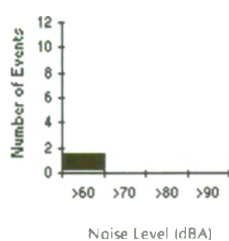
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

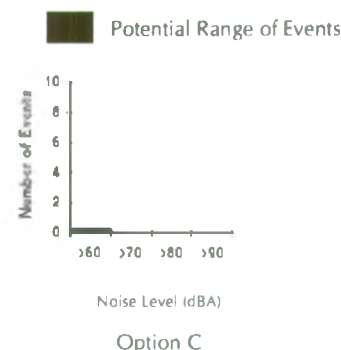
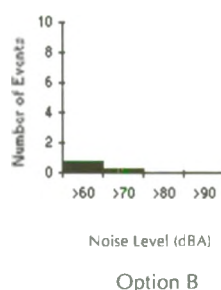
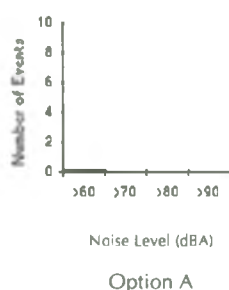
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 69

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	6,131	6,660 ¹	6,790	6,790	6,790	6,790
Educational Facilities ²		2	2	2	2	2
Other Noise Sensitive ³ Land Uses		4	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	50	L _{A90}	7am to 7pm	35
	7pm to 10pm	46		7pm to 10pm	37
	10pm to 7am	39		10pm to 7am	29

Monitored at: 4 Gladiator Street, Raby

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	23 to 33	23 to 31	17 to 28	29 to 36	34 to 38	26 to 32
L_{Aeq} 10pm-6am ¹	11 to 23	13 to 21	7 to 17	16 to 24	24 to 27	15 to 21
ANEC ²	-15 to -4	-14 to -7	-15 to -8	-8 to -2	0 to 3	-7 to -4
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 5	0 to 2	0 to 0	1 to 7	4 to 14	0 to 1
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	1 to 1	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

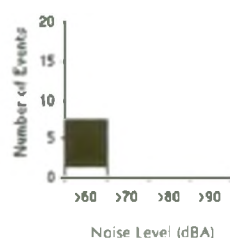
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

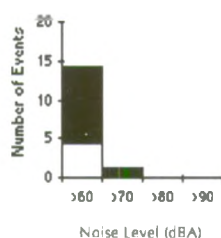
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

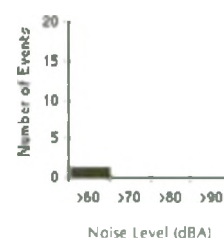
2016 - Number of Noise Events per 24 Hours (on average):



Option A

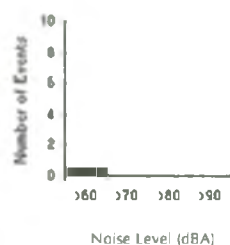


Option B

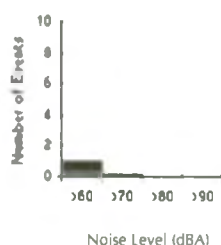


Option C

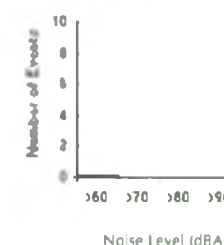
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 70

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	9,870	11,660 ¹	11,880	11,880	11,880	11,880
Educational Facilities ²		5	5	5	5	5
Other Noise Sensitive ³ Land Uses		8	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	47	L _{A90}	7am to 7pm	33
	7pm to 10pm	47		7pm to 10pm	34
	10pm to 7am	40		10pm to 7am	31

Monitored at: 49 Chardonnay Ave, Eschol Park

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	21 to 31	19 to 28	14 to 24	26 to 33	31 to 35	23 to 29
L_{Aeq} 10pm-6am ¹	8 to 20	9 to 18	4 to 14	13 to 21	20 to 24	12 to 17
ANEC ²	-17 to -7	-18 to -9	-17 to -8	-12 to -5	-5 to -2	-11 to -5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	0 to 1	0 to 0	1 to 4	2 to 7	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

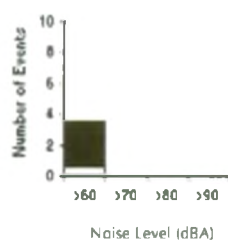
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

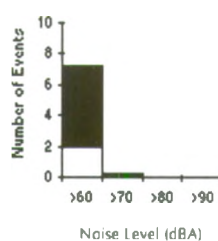
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

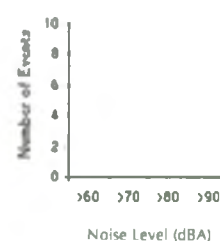
2016 - Number of Noise Events per 24 Hours (on average):



Option A



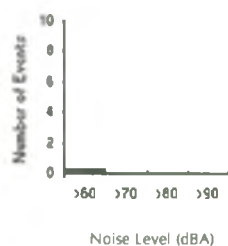
Option B



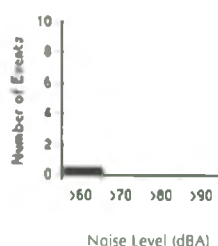
Option C

Potential Range of Events

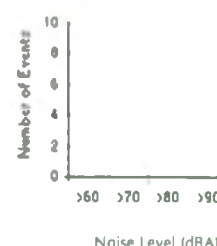
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 71

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	6,685	7,920 ¹	8,280	8,280	8,310	8,310
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive ³ Land Uses		5	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	50	L _{A90}	7am to 7pm	38
	7pm to 10pm	48		7pm to 10pm	43
	10pm to 7am	46		10pm to 7am	40

Monitored at: 21 Rutherglen Drive, St Andrews

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	22 to 32	21 to 28	16 to 27	28 to 34	33 to 36	24 to 31
L_{Aeq} 10pm-6am ¹	11 to 21	13 to 19	6 to 16	16 to 22	24 to 26	14 to 20
ANEC ²	-9 to -5	-11 to -5	-16 to -8	-5 to -3	-2 to 2	-8 to -5
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 4	0 to 1	0 to 0	1 to 7	4 to 11	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

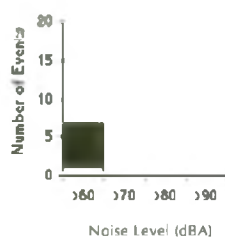
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

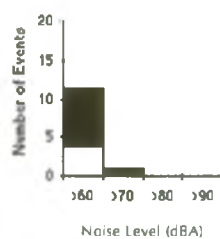
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

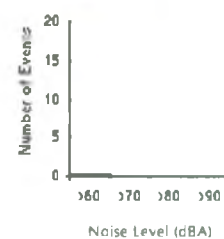
2016 - Number of Noise Events per 24 Hours (on average):



Option A



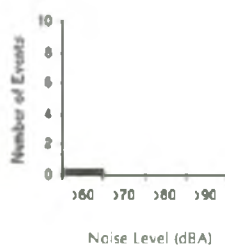
Option B



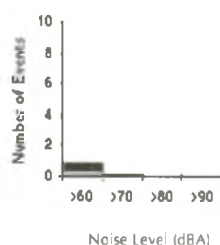
Option C

■ Potential Range of Events

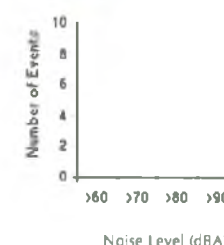
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

■ Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 72

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	11,626	15,770 ¹	15,900	15,900	15,900	15,900
Educational Facilities ²		9	9	9	9	9
Other Noise Sensitive ³ Land Uses		10	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	56	L _{A90}	7am to 7pm	42
	7pm to 10pm	47		7pm to 10pm	34
	10pm to 7am	45		10pm to 7am	29

Monitored at: 82 Gurnsey Ave, Minto

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	19 to 27	19 to 25	13 to 24	25 to 29	29 to 33	21 to 28
L_{Aeq} 10pm-6am ¹	9 to 17	10 to 17	3 to 14	14 to 18	20 to 24	11 to 17
ANEC ²	-12 to -7	-13 to -7	-17 to -8	-8 to -5	-5 to 0	-11 to -6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	0 to 0	0 to 1	1 to 2	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

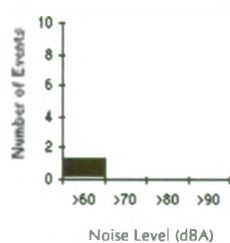
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

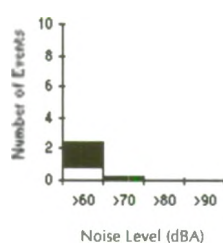
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

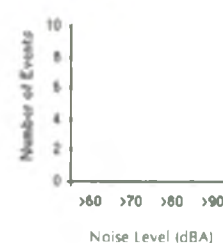
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

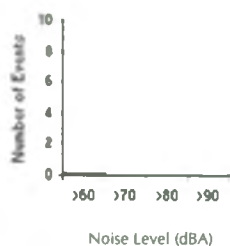


Option B

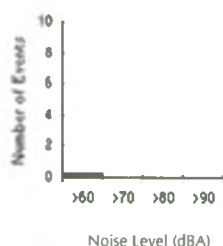


Option C

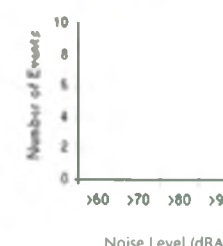
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 73

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	1,171	1,340 ¹	1,370	1,370	1,400	1,400
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		1	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	45	L _{A90}	7am to 7pm	34
	7pm to 10pm	40		7pm to 10pm	29
	10pm to 7am	38		10pm to 7am	28

Monitored at: 13 Morton Road, Minto Heights

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	13 to 20	15 to 23	10 to 22	18 to 22	21 to 25	16 to 21
L_{Aeq} 10pm-6am ¹	3 to 12	8 to 15	1 to 12	8 to 13	13 to 15	6 to 10
ANEC ²	-14 to -8	-15 to -8	-19 to -9	-10 to -6	-10 to -5	-15 to -7
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

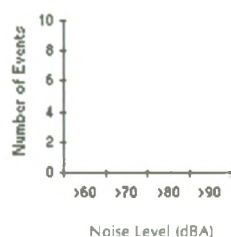
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

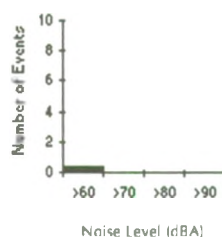
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

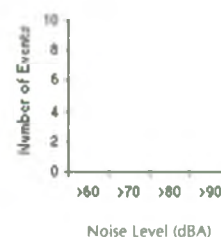
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

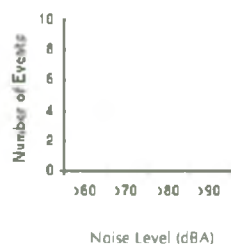


Option B

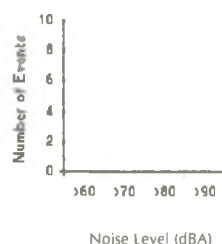


Option C

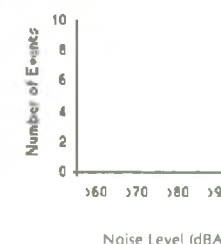
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 74

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	714	670 ¹	700	700	730	730
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive Land Uses ³		2	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	46	L _{A90}	7am to 7pm	34
	7pm to 10pm	40		7pm to 10pm	30
	10pm to 7am	44		10pm to 7am	26

Monitored at: 79 Old Kent Road, Kentlyn

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	14 to 22	11 to 18	7 to 18	18 to 24	20 to 25	18 to 22
L_{Aeq} 10pm-6am ¹	3 to 13	3 to 9	-2 to 8	7 to 15	10 to 15	8 to 11
ANEC ²	-14 to -11	-18 to -12	-20 to -9	-22 to -13	-19 to -13	-15 to -7
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

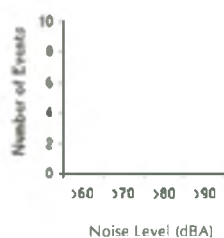
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

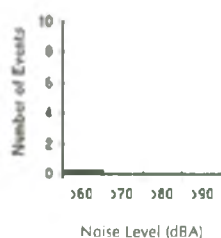
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

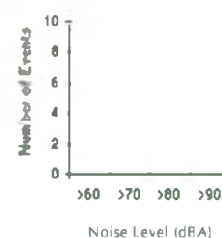
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

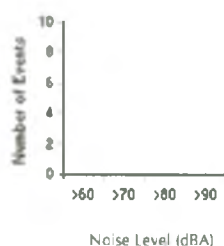


Option B

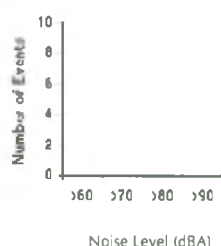


Option C

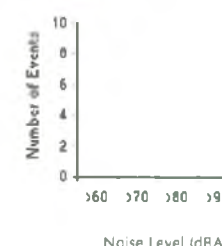
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 75

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	39,212	41,190 ¹	42,890	42,890	43,880	43,880
Educational Facilities ²		15	15	15	15	15
Other Noise Sensitive Land Uses ³		27	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	46, 49, 51	L _{A90}	7am to 7pm	36, 34, 39
	7pm to 10pm	40, 42, 48		7pm to 10pm	31, 31, 39
	10pm to 7am	41, 42, 42		10pm to 7am	26, 23, 36

Monitored at: 19 Taburie Street, Lumeah, 15 Kelburn Place, Airds, 64 Palmer Cres. St Helens Park

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	18 to 27	12 to 19	10 to 18	23 to 29	26 to 31	19 to 25
L_{Aeq} 10pm-6am ¹	6 to 17	2 to 11	1 to 8	10 to 18	15 to 20	9 to 13
ANEC ²	-21 to -10	-27 to -18	-19 to -9	-16 to -9	-12 to -7	-13 to -6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 0	0 to 0	0 to 2	0 to 2	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

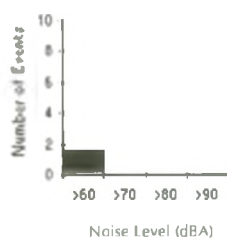
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

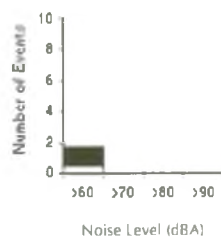
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

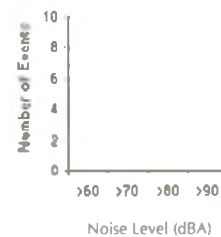
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

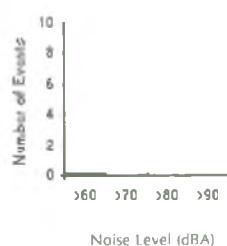


Option B

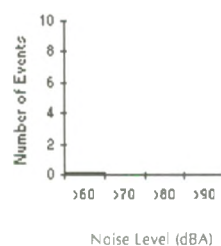


Option C

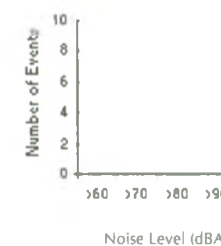
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 76

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	3,066	3,200 ¹	3,350	3,350	3,490	3,490
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive Land Uses ³		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	49	L_{A90}	7am to 7pm	38
	7pm to 10pm	42		7pm to 10pm	36
	10pm to 7am	40		10pm to 7am	30

Monitored at: 72 Queenscliff Drive, Woodbine

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	19 to 29	16 to 24	11 to 21	24 to 31	27 to 33	21 to 26
L_{Aeq} 10pm-6am ¹	7 to 19	6 to 15	2 to 11	11 to 20	16 to 22	11 to 15
ANEC ²	-19 to -8	-23 to -14	-19 to -8	-15 to -6	-10 to -4	-13 to -6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 0	0 to 0	0 to 2	1 to 3	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

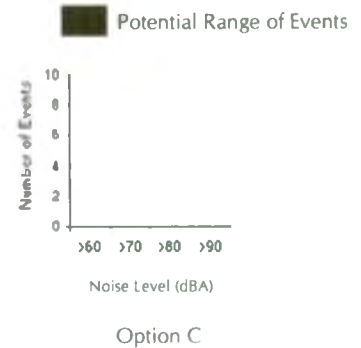
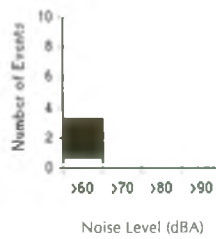
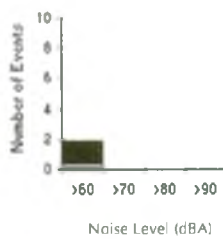
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

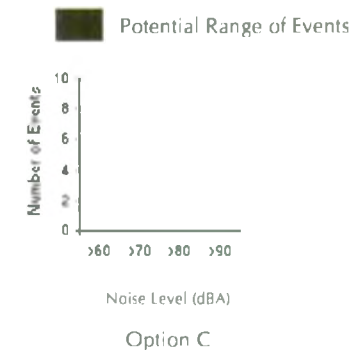
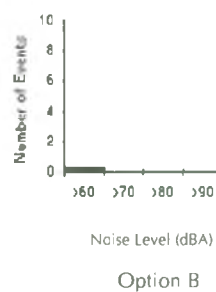
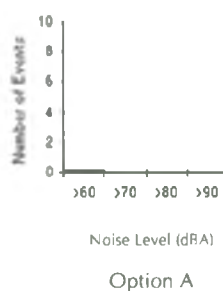
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 77

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	4,767	4,940 ¹	5,070	5,070	5,070	5,070
Educational Facilities ²		3	3	3	3	3
Other Noise Sensitive Land Uses ³		5	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	57	L _{A90}	7am to 7pm	42
	7pm to 10pm	55		7pm to 10pm	45
	10pm to 7am	47		10pm to 7am	36

Monitored at: 13 Gidley Crescent, Claymore

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	17 to 25	18 to 27	13 to 23	22 to 27	24 to 35	29 to 36
L_{Aeq} 10pm-6am ¹	6 to 16	7 to 17	3 to 13	10 to 18	11 to 24	16 to 25
ANEC ²	-19 to -10	-17 to -9	-19 to -9	-13 to -5	-11 to -1	-9 to -1
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 1	0 to 1	0 to 0	0 to 1	1 to 5	0 to 4
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

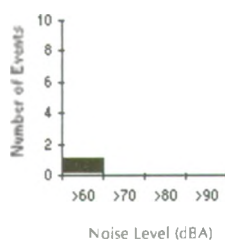
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

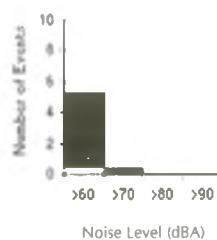
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

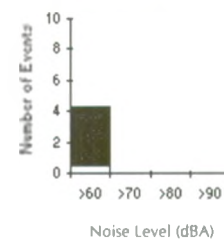
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

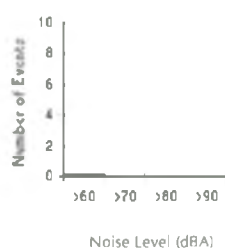


Option B

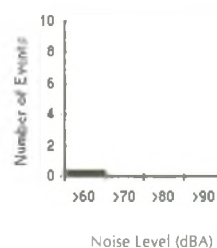


Option C

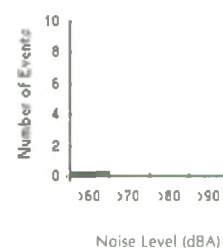
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 78

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	315	300 ¹	3,020	3,020	4,440	4,440
Educational Facilities ²		2	2	2	3	3
Other Noise Sensitive Land Uses ³		5	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	48	L _{A90}	7am to 7pm	35
	7pm to 10pm	41		7pm to 10pm	32
	10pm to 7am	44		10pm to 7am	28

Monitored at: 91 Cummins Road, Menangle Park

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	16 to 24	17 to 24	18 to 30	20 to 26	23 to 28	20 to 24
L_{Aeq} 10pm-6am ¹	4 to 15	5 to 15	6 to 18	8 to 16	11 to 18	9 to 13
ANEC ²	-18 to -9	-19 to -10	-18 to -6	-19 to -11	-15 to -9	-15 to -6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 1	0 to 1	0 to 1	0 to 1	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

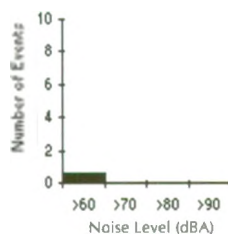
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

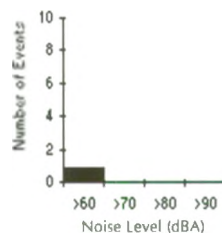
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

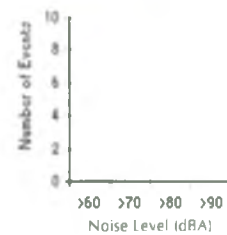
2016 - Number of Noise Events per 24 Hours (on average):



Option A



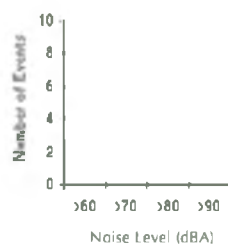
Option B



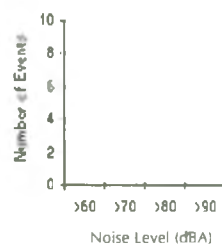
Option C

Potential Range of Events

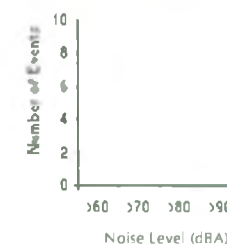
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 79

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	3,079	2,900 ¹	3,150	3,150	3,300	3,300
Educational Facilities ²		5	5	5	5	5
Other Noise Sensitive ³ Land Uses		12	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	51	L _{A90}	7am to 7pm	41
	7pm to 10pm	47		7pm to 10pm	37
	10pm to 7am	43		10pm to 7am	31

Monitored at: 27 Phelps Crescent, Bradbury

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	18 to 24	14 to 21	12 to 19	20 to 26	21 to 28	27 to 36
L_{Aeq} 10pm-6am ¹	4 to 14	4 to 13	2 to 9	7 to 16	9 to 17	13 to 24
ANEC ²	-17 to -9	-20 to -11	-20 to -9	-13 to -6	-13 to -6	-10 to -1
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1	0 to 4
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 1
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

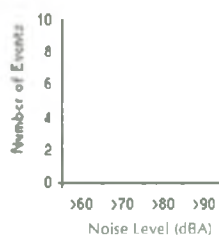
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

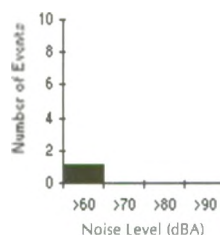
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

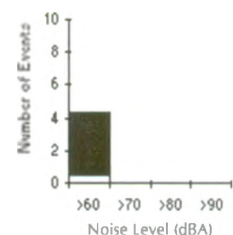
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

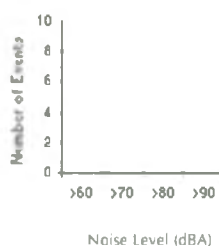


Option B

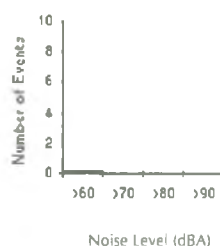


Option C

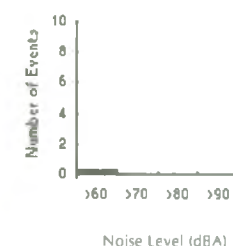
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 80

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006		2016	
			Options A and B	Option C	Options A and B	Option C
Estimated Population	15,518	19,860 ¹	23,680	23,680	24,280	24,280
Educational Facilities ²		8	8	8	9	9
Other Noise Sensitive ³ Land Uses		12	Not estimated for these years			

Notes: 1. Rounded to nearest 10.
2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	55	L _{A90}	7am to 7pm	42
	7pm to 10pm	49		7pm to 10pm	42
	10pm to 7am	47		10pm to 7am	34

Monitored at: 25 Trotwood Avenue, Ambervale

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	11 to 19	14 to 21	17 to 30	13 to 20	14 to 23	24 to 32
L_{Aeq} 10pm-6am ¹	1 to 12	4 to 14	5 to 18	3 to 14	4 to 14	9 to 21
ANEC ²	-18 to -9	-18 to -9	-18 to -7	-15 to -8	-15 to -7	-13 to -4
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 3
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

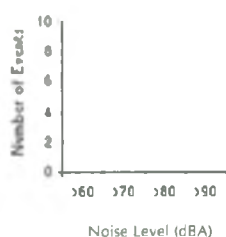
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

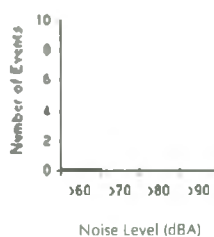
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

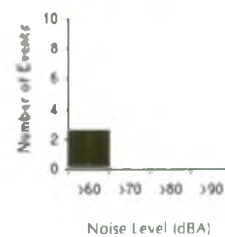
2016 - Number of Noise Events per 24 Hours (on average):



Option A



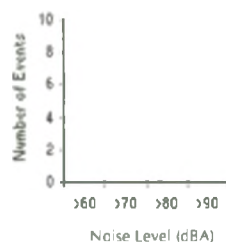
Option B



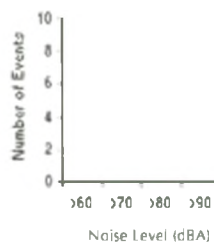
Option C

Potential Range of Events

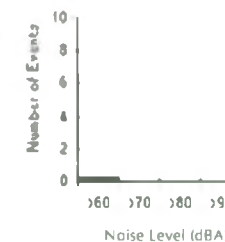
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

Potential Range of Events

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 81

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	1,398	1,720 ¹	1,940	1,940	2,110	2,110
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive ³ Land Uses		2	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	57	L_{A90}	7am to 7pm	39
	7pm to 10pm	51		7pm to 10pm	35
	10pm to 7am	56		10pm to 7am	28

Monitored at: 28 William Street, The Oaks

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	8 to 13	14 to 20	18 to 25	10 to 14	13 to 17	23 to 27
L_{Aeq} 10pm-6am ¹	2 to 7	5 to 10	10 to 18	4 to 8	6 to 11	15 to 18
ANEC ²	-18 to -10	-19 to -11	-16 to -10	-15 to -9	-14 to -9	-11 to -8
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

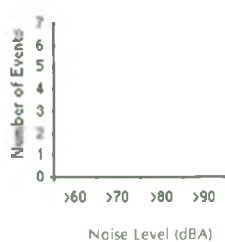
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

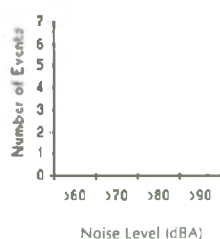
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

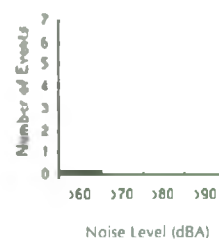
2016 - Number of Noise Events per 24 Hours (on average):

 Potential Range of Events


Option A

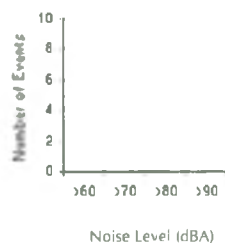


Option B

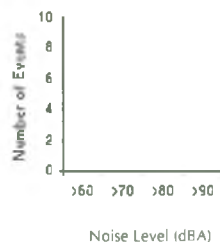


Option C

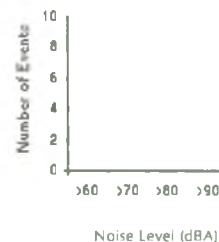
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):

 Potential Range of Events


Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 82

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	302	320 ¹	360	360	400	400
Educational Facilities ²		1	1	1	1	1
Other Noise Sensitive ³ Land Uses		0	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	42	L_{A90}	7am to 7pm	30
	7pm to 10pm	38		7pm to 10pm	30
	10pm to 7am	35		10pm to 7am	27

Monitored at: 184 Glendiver Road, The Oaks

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	20 to 30	16 to 21	30 to 41	26 to 33	20 to 23	35 to 43
L_{Aeq} 10pm-6am ¹	6 to 19	7 to 12	21 to 33	11 to 21	9 to 11	27 to 33
ANEC ²	-15 to -5	-17 to -10	-4 to 7	-10 to -2	-13 to -7	2 to 10
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 2	0 to 0	1 to 13	1 to 3	0 to 0	3 to 20
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 3	0 to 0	0 to 0	1 to 5
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 2	0 to 0	0 to 0	1 to 2
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 0	0 to 3	0 to 0	0 to 0	1 to 5
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0.1

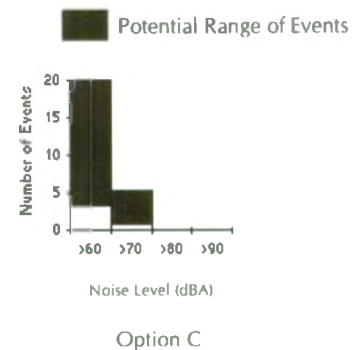
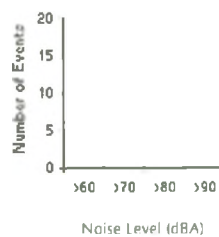
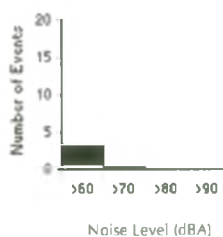
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

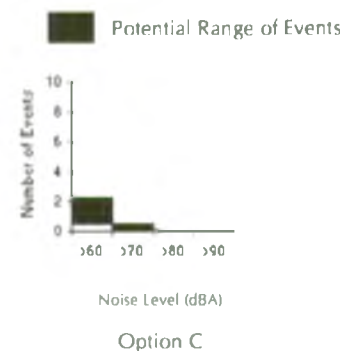
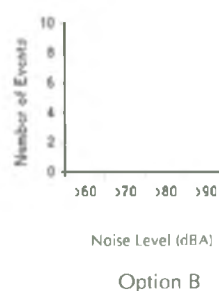
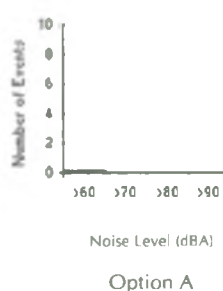
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 83

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	1,007	1,280 ¹	1,490	1,490	1,610	1,610
Educational Facilities ²		0	0	0	0	0
Other Noise Sensitive ³ Land Uses		2	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	42	L_{A90}	7am to 7pm	29
	7pm to 10pm	42		7pm to 10pm	32
	10pm to 7am	43		10pm to 7am	29

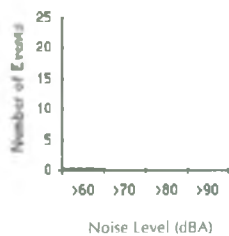
Monitored at: 225 Calf Farm Road, Mount Hunter

Noise Indicators:

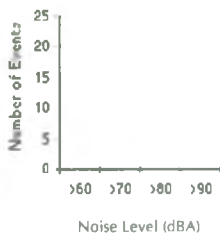
	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	16 to 25	25 to 32	29 to 40	22 to 27	22 to 24	34 to 42
L_{Aeq} 10pm-6am ¹	5 to 14	17 to 21	21 to 32	9 to 15	11 to 13	26 to 32
ANEC ²	-18 to -9	-10 to -4	-5 to 6	-13 to -6	-13 to -7	1 to 9
Number of Noise Events ³						
Over 60 dBA per 24 Hours	0 to 0	0 to 3	1 to 11	0 to 0	0 to 0	3 to 17
Over 70 dBA per 24 Hours	0 to 0	0 to 0	0 to 3	0 to 0	0 to 0	1 to 6
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 2	0 to 0	0 to 0	0 to 2
Over 70 dBA per Night	0 to 0	0 to 0	0 to 1	0 to 0	0 to 0	0 to 1
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 0	0 to 1	0 to 4	0 to 0	0 to 0	1 to 6
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0.1	0 to 0	0 to 0	0 to 0

- Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.
2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

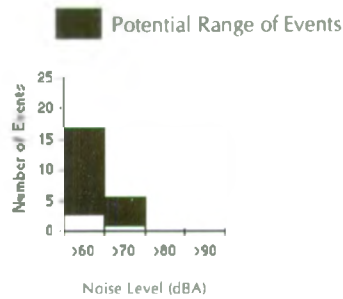
2016 - Number of Noise Events per 24 Hours (on average):



Option A

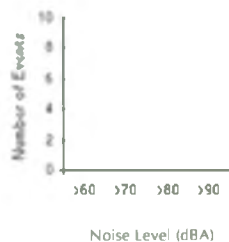


Option B

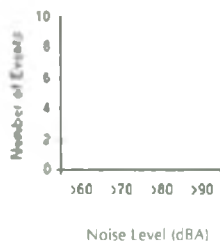


Option C

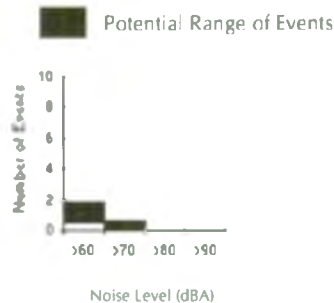
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 84

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	16,116	17,570 ¹	18,310	18,310	18,880	18,880
Educational Facilities ²		8	8	8	8	8
Other Noise Sensitive Land Uses ³		44	Not estimated for these years			

Notes: 1. Rounded to nearest 10.

2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.

3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L _{Aeq}	7am to 7pm	44	L _{A90}	7am to 7pm	34
	7pm to 10pm	44		7pm to 10pm	32
	10pm to 7am	39		10pm to 7am	28

Monitored at: 36 Ravine Avenue, Blaxland

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	31 to 38	33 to 37	19 to 27	36 to 40	37 to 39	26 to 34
L_{Aeq} 10pm-6am ¹	17 to 25	16 to 24	8 to 17	23 to 25	21 to 24	15 to 21
ANEC ²	-7 to 0	-2 to 2	-14 to -8	1 to 5	2 to 4	-9 to -1
Number of Noise Events ³						
Over 60 dBA per 24 Hours	1 to 6	1 to 5	0 to 0	4 to 8	3 to 7	0 to 1
Over 70 dBA per 24 Hours	0 to 1	0 to 1	0 to 0	1 to 1	1 to 1	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 2	0 to 1	0 to 0	1 to 3	1 to 2	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

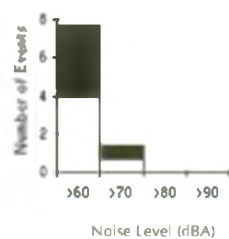
Note: 1. The forecast LAeq noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

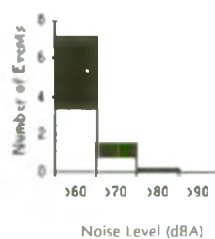
3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

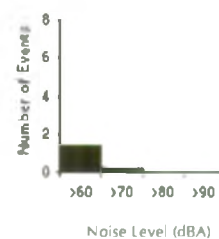
2016 - Number of Noise Events per 24 Hours (on average):



Option A

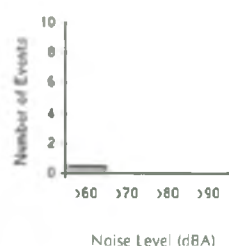


Option B

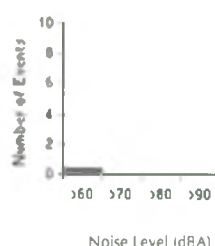


Option C

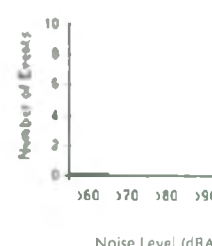
2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Option A



Option B



Option C

AIRCRAFT OVERFLIGHT NOISE FOR AIRPORT OPTIONS

Community Assessment Area No. 85

SHEET 1 / 2

Social Characteristics:

Year	1991 Census	1996	2006 Options A and B	Option C	2016 Options A and B	Option C
Estimated Population	19,458	20,570 ¹	21,420	21,420	22,070	22,070
Educational Facilities ²		10	10	10	10	10
Other Noise Sensitive ³ Land Uses		38	Not estimated for these years			

- Notes:
1. Rounded to nearest 10.
 2. The figures given for educational facilities in 2006 and 2016 are estimates of the numbers required to serve the estimated population in those years.
 3. Includes hospitals, churches, facilities for aged people and child care centres.

Existing Noise Environment (in decibels):

L_{Aeq}	7am to 7pm	41	L_{A90}	7am to 7pm	29
	7pm to 10pm	39		7pm to 10pm	27
	10pm to 7am	37		10pm to 7am	25

Monitored at: 63 Norton Avenue, Springwood

Noise Indicators:

	Option A	2006 Option B	Option C	Option A	2016 Option B	Option C
L_{Aeq} 24 Hour ¹	17 to 24	1 to 9	6 to 17	22 to 26	26 to 31	19 to 26
L_{Aeq} 10pm-6am ¹	7 to 14	-8 to 3	-4 to 7	12 to 15	17 to 22	9 to 15
ANEC ²	-6 to 1	-18 to -11	-13 to -9	-9 to -5	-7 to -1	-13 to -6
Number of Noise Events ³						
Over 60 dBA per 24 Hours	1 to 7	0 to 0	0 to 0	0 to 0	0 to 2	0 to 0
Over 70 dBA per 24 Hours	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per 24 Hours	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 60 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 70 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 80 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 90 dBA per Night	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Over 65 dBA 9am to 3pm	0 to 1	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0
Sleep Disturbance Index ⁴	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0	0 to 0

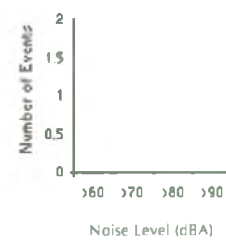
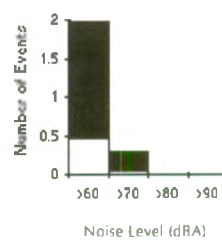
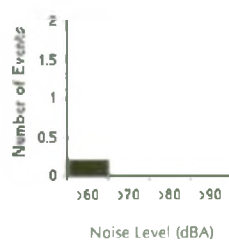
Note: 1. The forecast L_{Aeq} noise levels are for aircraft overflight noise only and do not include existing noise levels.

2. The ANEC formulation allows negative ANEC values to be calculated. ANEC values of zero or less than zero indicate relatively minor noise effects.

3. Event values are rounded to the nearest whole number. Zero values represent those results less than 0.5 events per period.

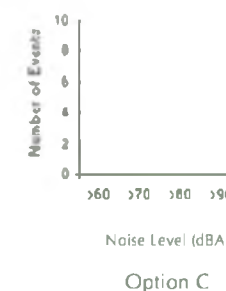
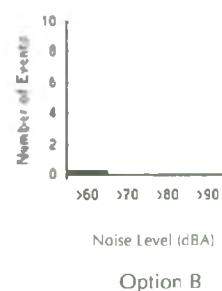
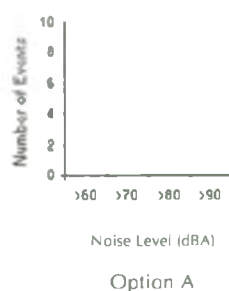
4. Sleep Disturbance Index values are rounded to the nearest 0.1. Zero values represent those results less than 0.1.

2016 - Number of Noise Events per 24 Hours (on average):



Potential Range of Events

2016 - Number of Noise Events at Night (on average 10pm to 6am - no curfew):



Potential Range of Events

Appendix E

Description of Water Quality Parameters

Appendix E

Description of Water Quality Parameters

1. Suspended Solids and Turbidity

Suspended solids reflect the amount of particles within the water column, which may include wastewater treatment plant discharge contributions, but the major contributor in Australian systems comes from diffuse sources such as soil and stream bank erosion (Australia and New Zealand Environment Conservation Council, 1992). Algal growth can also substantially increase suspended solids concentrations. Turbidity is a measure of light penetration through the water column. Suspended solids and turbidity affect aquatic plant growth and hence ecosystem health by restricting the penetration of light and, as sediments settle, by smothering. Particulates may also be detrimental to fish by clogging gills. Highly turbid waters impair aesthetic and recreational quality.

2. Conductivity

The concentration of dissolved salts in an aquatic system is determined by electrical conductivity (measured in microsiemens per centimetre) or salinity (milligram per litre). Increased conductivity can affect aquatic organisms (and irrigated crops or watered stock) by impairing cell function. In fresh waters the upper limit for ecosystem protection is 1,500 microsiemens per centimetre, however, for saline intolerant crop irrigation, a limit of 800 microsiemens per centimetre is suggested (Australia and New Zealand Environment Conservation Council, 1992). The Environment Protection Authority recommend a criteria of 800 microsiemens per centimetre for the Hawkesbury-Nepean River.

3. Phosphorus

Phosphorus is a major nutrient needed for plant growth and has been implicated in encouraging algal blooms in the non-estuarine sections of the Hawkesbury-Nepean River (Environment Protection Authority, 1994). Phosphorus analysis provides an indication of the potential for algal and higher plant growth and possible eutrophication (excessive aquatic plants or macrophytes and/or algae). Total phosphorus provides a measure of all phosphorus forms; soluble, colloidal or particulate. Phosphorus can change forms due to the influence of pH or redox potential (generally oxygen availability) as well as various biological processes.

Sources of phosphorus include wastewater treatment plant discharges and diffuse urban and agricultural runoff. Sewage overflows are high in phosphorus from sources such as household soaps and detergents. Sewage and treated effluent phosphorus tends to be predominantly soluble (Sainty and Jacobs, 1981). Phosphorus is readily adsorbed onto the surface of clays. These fine soils are rapidly transported into waterways during periods of wet weather.

Eutrophication can result in impaired ecological health through elimination of species, reduction in habitat quality, reduction in light penetration, and, in the case

of macrophytes, physical obstruction to fish migration. Eutrophication impacts on human activities in reducing aesthetic and recreational amenity, obstructing boating and in imparting taste and odour to drinking water. Cyanobacteria or blue-green algae are a specific nuisance group which have the potential to produce toxins with implications for human and animal health. Some cyanobacteria can grow under low nitrogen concentrations by fixing atmospheric nitrogen.

3. Nitrogen

Nitrogen, another plant nutrient, is present in a number of forms including ammonia, nitrate, nitrite or organic nitrogen. Total nitrogen is a sum of all forms, and TKN (Total Kjeldahl Nitrogen) the sum of organic nitrogen and ammonia. Nitrogen is important in sustaining algal and macrophyte growth, although it is not considered to be the major limiting factor for algal growth in the non-estuarine Hawkesbury-Nepean system (Environment Protection Authority, 1993). The most bioavailable forms of nitrogen are ammonia and nitrate. Ammonia is also important as an acute (short term effect) toxin to aquatic organisms, depending on the specific pH and temperature. Major sources of nitrogen to the Hawkesbury-Nepean system include Sewage treatment plant discharges, fertilisers applied to agricultural crops and gardens and animal droppings.

3. Dissolved Oxygen

Dissolved oxygen levels are required for aerobic organisms such as fish and invertebrate animals. As dissolved oxygen concentrations depend on water temperature, levels are often expressed as a percentage saturation rather than milligram per litre. Oxygen can be reduced through additions of organic material or indirectly through excessive plant growth. The parameter, BOD5 (biochemical oxygen demand) provides an indicator of aquatic materials which consume oxygen. Dissolved oxygen concentrations can fluctuate during the day, with maxima associated with photosynthesis during daylight hours and minima occurring in the early morning from oxygen removal often through night-time plant respiration. The decomposition of macrophytes or algae can also create an oxygen demand. Australia and New Zealand Environment Conservation Council state a level of 6 milligram per litre or 80 percent oxygen saturation for the protection of aquatic ecosystems.

4. pH

The parameter pH measures the acidity or alkalinity of a water (ranging from acidic to alkaline, 1 to 14), with most fresh waters having a pH near 7 (neutrality). Extremes of pH (below 6 and over 9) can have chronic or acute effects on biota, including fish spawning failure and diminished egg hatching (Australia and New Zealand Environment Conservation Council, 1992). Elevated pH also increases the toxicity of ammonia, whereas increased acidity can release toxic levels of aluminum. Changes in pH can occur with additions of some industrial wastes, influx of acid sulphate soils or from algal growth activity. Australia and New Zealand Environment Conservation Council recommends two ranges for pH: 6.5 to 9.0 for the protection of aquatic ecosystems and 5.0 to 9.0 for primary contact such as swimming and bathing.

5. Oil and Grease (Total Grease)

Oils are simply greases which are liquid at room temperature. They may be categorised into two types; material derived from fatty tissue from animals and plants

or from petroleum based products. This analysis may also detect other chemical such as chlorophyll (plant pigments), sulphur and certain organic compounds (often synthetic materials), consequently results should be interpreted with caution. Oils and greases may form films, inhibiting the passage of gases such as oxygen and carbon dioxide between the water and air interface. They may also contain toxic chemicals derived from petroleum.

6. Total Petroleum Hydrocarbons (TPH)

This analysis assists in qualifying any oils and greases, as it specifically detects chemicals arising from petroleum. Crude petroleum may consist of thousands of different chemicals. Many of these chemicals are toxic and persistent and are therefore an environmental concern. As this procedure does not identify specific chemicals, it is more difficult to set environmental guidelines. There are no Australia and New Zealand Environment Conservation Council guidelines for this parameter

7. Polynuclear Aromatic Hydrocarbons (PAH's)

This group of chemicals are by products of combustion and are often associated with industry and vehicle emissions. Bushfires are also a source. Atmospheric settling of PAHs is understood to be a major source of these chemicals entering waterways, however runoff from roads is also believed to contribute significant levels. Many of the individual PAH'S are toxic and are persistent. In addition, combinations of certain PAH's have been found to be deleterious to fish. Australia and New Zealand Environment Conservation Council recommends that the concentration of PAH's should not exceed three micrograms per litre (Australia and New Zealand Environment Conservation Council 1992).

8. Methylene Blue Active Substances (MBAS)

These are substances such as certain detergents which can cause a number of environmental effects. Most Methylene Blue Active Substances type detergents may be divided into two categories, depending upon their persistence in the environment. Generally, the more persistent substances are less toxic whilst the more toxic substances are more biodegradable. Some detergents have been attributed to lowering the dissolved oxygen of running waters. Many of these chemicals are toxic and change the surface tension of water, as well as having their own intrinsic toxicity. Such changes may have implications for surface dwelling organisms and may also effect surface chemistry (Australia and New Zealand Environment Conservation Council 1992).

9. Total Organic Carbon

Carbon is a ubiquitous element, essential for life and is a vital component of nearly all synthetic or manufactured products. It may exist in the environment in both living and decaying organisms, as naturally occurring substances, such as carbon dioxide or from anthropogenic sources. Differentiating the organic carbon (biological and often synthetic sources) from the inorganic carbon (for example carbon dioxide) can assist in understanding the productivity of a waterbody. Usually low Total Organic Carbon levels correspond to a pristine or unproductive system whereas higher concentrations can indicate human influences.

10. Volatile Halogenated Compounds

This group consists of synthetic chemicals to which one or more of the halogens, chlorine, fluorine or bromine has been added, such as chloroform, vinyl chloride and carbon tetrachloride. The addition halogens may increase the toxicity of a chemical or may also render the compound less vulnerable to degradation in the environment. Some of the volatile halogenated compounds can dissolve readily into water whilst others are more likely to be found attached to sediments of organic matter. The toxicity these chemicals is complex and in many instances is quite organism specific. Consequently there are no Australia and New Zealand Environment Conservation Council guidelines for Volatile Halogenated Compounds. They have a wide variety of uses as solvents, dry cleaning fluids, anaesthetics, soil fumigants, degreasing agents and as chemical intermediates and may enter the environment through volatilisation during production or use, discharge of industrial waste and runoff from agricultural of municipal lands.

11. Volatile Aromatic Compounds

Volatile aromatic compounds are a diverse group of chemicals which include substances such as Benzene, Toluene and chlorinated benzenes. The structure of aromatic compounds generally makes them less resistant to breakdown in the environment and more toxic than some other synthetic chemicals. The chlorinated aromatic compounds are particularly persistent and more readily bioaccumulated than the more simple aromatics. This group of substances is used extensively in industry as intermediate chemicals and as components of deodorants, petrol, paints, inks, explosives, detergents and pesticides. Entry into the environment may be through industrial air and wastewater emissions and through their use. Australia and New Zealand Environment Conservation Council have recommended some limits for some of the chemicals such as benzene, at 300 micrograms per litre, whilst there is insufficient data to set levels for other volatile aromatic compounds (Australia and New Zealand Environment Conservation Council 1992).

12. Total Phenols

This group of chemicals is used widely in industry as an intermediate substance in the manufacture of other chemicals and as a by product of coal and oil refining. They are also used as disinfectants, dyes, pesticides and preservatives. Emissions during manufacture or refining are a major route of entry for phenols into the environment. Phenol itself may be broken down quite quickly in the environment through the action of microorganisms. It does not easily bioaccumulate and is eliminated from an organism fairly quickly once exposure has stopped. Australia and New Zealand Environment Conservation Council set a limit of 50 micrograms per litre in fresh waters. Chlorinated phenols are generally more persistent and toxic chemicals and some have been shown to bioaccumulate. The behaviour of chlorinated phenols in the environment is complex and no single figure has been provided as a guideline value by Australia and New Zealand Environment Conservation Council.

13. Metals

The toxicity and fate of metals in the environment is specific to the particular metal and may depend upon a wide variety of factors including levels of dissolved oxygen, pH, the presence of other metals or compounds, temperature and water hardness. In addition, metals may exist in several forms, some of which may be quite innocuous

whilst others may be highly toxic. Consequently Australia and New Zealand Environment Conservation Council have often set maximum ranges for certain metals to accommodate this factor. Bioaccumulation is a problem with specific metals, especially mercury (Australia and New Zealand Environment Conservation Council 1992) Metals are used in a great number of applications, however air pollution and road runoff are major routes of entry into the environment for some metals such as lead, iron and copper (Hogan 1996).

Appendix F

Species Lists

Appendix F

Species Lists

Table F.1 Plant Species of National Conservation Significance within Airport Sites

Plant Name	ROTAP	Status in Study Area	Location
<i>Pultenaea parviflora</i>	2E	Rare	Both sides of Longleys Road; east of Ferndale Road; west of Taylor Road

Note 2 Geographic range in Australia is less than 100 kilometres
 E Endangered

Table F.2 Plant Species of Regional Conservation Significance within Airport Sites

Plant Name	Status in Study Area	Location
<i>Acacia implexa</i>	uncommon	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Amyema gaudichaudii</i>	uncommon	River flat forest; Badgerys and Cosgrove Creeks
<i>Amyema miquelii</i>	occasional	Grey Box Woodland
<i>Angophora subvelutina</i>	occasional	River flat forest; Badgerys Creek, especially south of Longleys Road
<i>Arthropodium milleflorum</i>	uncommon	Grey Box Woodland; east of Willowdene Avenue
<i>Bothriochloa macra</i>	uncommon	Road reserve Elizabeth Drive
<i>Carex breviculmis</i>	uncommon	Drainage line in Grey Box Woodland; east of Willowdene Avenue
<i>Chrysocephalum apiculatum</i>	rare	Grey Box Woodland; east of Willowdene Avenue
<i>Clematis glycinoides</i>	uncommon	River Flat forest; Badgerys Creek
<i>Convolvulus erubescens</i>	uncommon	River Flat forest, near Badgerys Creek Road
<i>Cymbonotus lawsonianus</i>	rare	Grey Box Woodland; east of Willowdene Avenue
<i>Cymbopogon refractu</i>	rare	River Flat forest; Thompsons Creek
<i>Cyperus difformis</i>	uncommon	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Cyperus polystachyos</i>	occasional	Margins of treatment pond, north of Longleys Road
<i>Daviesia genistifolia</i>	occasional	Grey Box Woodland; east of Willowdene Avenue and Longleys Road
<i>Desmodium brachypodum</i>	occasional	Grey Box Woodland; east of Willowdene Avenue; Roadside, Badgerys Creek Road
<i>Dillwynia parvifolia</i>	uncommon	Road reserve; Elizabeth Drive
<i>Einadia nutans</i>	uncommon	Grey Box Woodland; east of Willowdene Avenue and Longleys Road
<i>Eleocharis acuta</i>	uncommon	Drainage line in Grey Box Woodland; east of Willowdene Avenue
<i>Epilobium billardieranum subsp cinereum</i>	uncommon	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Eremophila debilis</i>	occasional	Grey Box Woodland; east of Willowdene Avenue and Longleys Road
<i>Eucalyptus amplifolia</i>	occasional	River Flat forest; Badgerys and Cosgroves Creek
<i>Eucalyptus bosistoana</i>	rare	Grey Box Woodland, east of Badgerys Creek

Table F.2 Continued

Plant Name	Status in Study Area	Location
<i>Euchiton sphaericus</i>	rare	Grey Box Woodland; east of Willowdene Avenue
<i>Exocarpos strictus</i>	rare	Grey Box Woodland; east of Willowdene Avenue
<i>Geranium solanderi</i>	uncommon	Grey Box Woodland; east of Willowdene Avenue
<i>Leucopogon juniperinus</i>	occasional	Grey Box Woodland; east of Willowdene Avenue and Longleys Road; also in sections of road reserve
<i>Linum marginale</i>	uncommon	Roadside; Badgerys Creek Road
<i>Lythrum hyssopifolia</i>	rare	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Marsilea hirsuta</i>	rare	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Opercularia aspera</i>	uncommon	Roadside; Willowdene Avenue
<i>Opismenus aemulus</i>	occasional	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Ottelia ovalifolia</i>	uncommon	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Oxalis perennans</i>	uncommon	Roadside; Longleys Road
<i>Pandorea pandorana</i>	occasional	On introduced vegetation at foot of small cliff; southern end of Willowdene Avenue
<i>Paspalum distichum</i>	uncommon	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Phyllanthus similis</i>	uncommon	Grey Box Woodland; east of Willowdene Avenue
<i>Plantago debilis</i>	uncommon	River Flat forest; Badgerys Creek
<i>Poa labillardieri</i>	occasional	Grey Box Woodland
<i>Potamogeton tricarlinatus</i>	uncommon	Tributary of Badgerys Creek, south of junction of Badgerys Creek and Badgerys Creek Road
<i>Ranunculus lappaceus</i>	occasional	Creeklines and drainage lines
<i>Rumex brownii</i>	occasional	Creeklines and drainage lines
<i>Senecio hispidulus</i>	occasional	Grey Box Woodland; east of Willowdene Avenue and OTC site
<i>Sida corrugata</i>	uncommon	Grey Box Woodland
<i>Solanum pungetium</i>	occasional	Grey Box Woodland; east of Willowdene Avenue
<i>Tricoryne simplex</i>	occasional	Grey Box Woodland; east of Willowdene Avenue
<i>Vittadinia cuneata</i>	rare	Grey Box Woodland; east of Willowdene Avenue
<i>Vittadinia pustulata</i>	rare	Grey Box Woodland; east of Willowdene Avenue

Table F.3 Significant Fauna Species Recorded or which may Occur within the Airport Sites

Common Name	Scientific Name	Status	This Study	Other Studies
Amphibians				
Green and Golden Bell Frog	<i>Litoria aurea</i>	S (e)		
Green Tree Frog	<i>Litoria caerulea</i>	R		
Brown Toadlet	<i>Pseudophryne bibronii</i>	R		
Tusked Frog	<i>Adelotus brevis</i>	R		

Table F.3 Continued

Common Name	Scientific Name	Status	This Study	Other Studies
Reptiles				
Bearded Dragon	<i>Bogona barbata</i>	R		
Diamond Python	<i>Morelia spilota spilota</i>	R		
Lace Monitor	<i>Varanus varius</i>	R		✓
Birds				
Australian Bittern	<i>Botaurus poiciloptilus</i>	S (v)		
Black Bittern	<i>Ixobrychus flavicollis</i>	S(v)		
Brown Songlark	<i>Cincloramphus cruralis</i>	R	✓	✓
Buff-rumped Thornbill	<i>Acanthiza reguloides</i>	R		✓
Cattle Egret	<i>Ardea ibis</i>	J/C		✓
Diamond Firetail Finch	<i>Stagonopleura guttata</i>	R		✓
Double-barred Finch	<i>Taeniopygia bichenovii</i>	R	✓	✓
Fork-tailed Swift	<i>Apus pacificus</i>	J/C		
Fuscous Honeyeater	<i>Lichenostomus flavescens</i>	R		
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	S(v)		
Great Crested Grebe	<i>Podiceps cristatus</i>	R		
Great Egret	<i>Ardea alba</i>	R, J/C		✓
Hooded Robin	<i>Melanodryas cucullata</i>	R		
Jacky Winter	<i>Microeca fascians</i>	R		✓
Nankeen Night Heron	<i>Nycticorax caledonicus</i>	R	✓	✓
Lathams Snipe	<i>Gallinago hardwickii</i>	R, J/C		
Little Eagle	<i>Hieraaetus morphnoides</i>	R		
Peaceful Dove	<i>Geopelia placida</i>	R	✓	
Peregrine Falcon	<i>Falco peregrinus</i>	R		
Powerful Owl	<i>Ninox strenua</i>	S(v)		
Red-capped Robin	<i>Petroica goodenovii</i>	R		
Regent Honeyeater	<i>Xanthomyza phrygia</i>	N(e),S(e)		
Restless Flycatcher	<i>Myiagra inquieta</i>	R	✓	✓
Rufous Songlark	<i>Cincloramphus mathewsi</i>	R		
Shrike-tit	<i>Falcunculus frontatus</i>	R		
Speckled Warbler	<i>Chthonicola sagittata</i>	R		
Swift Parrot	<i>Lathamus discolor</i>	N(v), S(v)		
Wedge-tailed Eagle	<i>Aquila audax</i>	R		✓
Weebill	<i>Smicromis brevirostris</i>	R		✓
Whistling Kite	<i>Haliastur sphenurus</i>	R		
White-bellied Cuckoo shrike	<i>Coracina papuensis</i>	R		
White-fronted Chat	<i>Epthianura albibrons</i>	R	✓	✓
White-throated Needletail	<i>Hirundapus caudacutus</i>	J/C		
White-winged Chough	<i>Corcorax melanorhamphos</i>	R		
White-winged Triller	<i>Lalage sueurii</i>	R		
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	R	✓	✓
Zebra Finch	<i>Taeniopygia guttata</i>	R		

Table F.3 Continued

Common Name	Scientific Name	Status	This Study	Other Studies
Mammals				
Common Bentwing Bat	<i>Miniopterus schreibersii</i>	S(v)	✓	✓
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	S(v)	✓	
Eastern Little Mastiff Bat	<i>Mormopterus norfolkensis</i>	S(v)		
Greater Broadnosed Bat	<i>Scoteanax rueppellii</i>	S(v)		
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	R	✓	
Large-footed Myotis	<i>Myotis adversus</i>	S(v)		
Large Pied Bat	<i>Chalinolobus dwyeri</i>	S(v)		
Little Red Flying Fox	<i>Pteropus scapulatus</i>	R		
White-striped Mastiff-bat	<i>Nyctinomus australis</i>	R		✓
Yellow-bellied Sheathtail Bat	<i>Saccolaimus flaviventris</i>	S(v)		

Note Status: Nie) = Listed on Schedule 1 of the Endangered Species Protection Act (1992); N(v) = Listed on Schedule 2 of the Endangered Species Protection Act 1992; S(e) = Listed on Schedule 1 of the NSW Threatened Species Conservation Act 1995; S(v) = Listed on Schedule 2 of the NSW Threatened Species Conservation Act 1995, R = Regional significance; J/C = JAMBA/CAMBA International Treaties, C = CAMBA. ✓ = Recorded at site. (Blank) = may occur at site.

Table F.4 Summary of Fish and Crayfish Species Recorded within and around Airport Options Sites

Location	Native Fish Species	High Conservation Value Fish	High Recreation Value Fish	Introduced Fish Species	High Recreation Value Crayfish
South Creek and upper tributaries	10	-	Australian Bass	3	possibly yabby
Duncans Creek to the lower Nepean River	16	'Macquarie Perch'	Australian Bass, Eel-tailed Catfish, 'Macquarie Perch'	3	-

Appendix G

Potential Environmental Management

Appendix G

Potential Environmental Management

Table G1 Outline Environmental Management Plan - Construction Phase

Issue	Standard	Objective for Second Sydney Airport	Proposed Mitigation Measures	Monitoring
Noise Impacts				
<i>Construction Noise</i> (Chapter 13)	Airports (Environment Protection) Regulations (amended as required)	Compliance with Airports (Environment Protection) Regulations.	Mitigation measures to be incorporated into construction plans at detailed design phase.	Noise monitoring during construction.
Physical and Biological Impacts				
<i>Air Quality</i> (Chapter 15)	Airports (Environment Protection) Regulations (amended as required)	Minimisation of fugitive dust emissions, and compliance with Airport (Environment Protection) Regulations.	Construction equipment to be required to meet exhaust emission standards. Planning of earthworks activities to minimise simultaneous active work areas and use of water sprays for dust control. Prompt vegetation of exposed areas.	Site specific air quality monitoring to establish baseline conditions before construction. Air quality monitoring during construction.
<i>Water</i> (Chapter 16)	Airports (Environment Protection) Regulations (amended as required) and ANZECC Water Quality Guidelines	No degradation of water quality and habitats in creek systems.	Soil and sediment control, through careful construction planning and use of detention basins. Use of flocculants and desludging of sediment basins. Proper storage of fuels and materials.	Baseline monitoring of receiving streams prior to and during construction. Monitoring of the integrity of drains and sediment basins.
<i>Flora and Fauna</i> (Chapter 17)	Endangered Species Protection Act and Airports (Environment Protection) Regulations	Protection of fauna and fauna habitat at the periphery of the site, within adjacent high quality areas and along transport and services corridors.	Emergency rescue procedures for injured and displaced fauna. Creation of river and stream crossings and wetland habitats. Use of non-invasive species for landscaping. Implementation of weed and dieback control strategies.	Pre-construction surveys, especially of buildings for bats.
<i>Agricultural Resources</i> (Chapter 18)	Not applicable	Value of production small compared to total Sydney regional output of about \$1 billion per annum.	Relocation assistance for some enterprises. Control of dust emissions which could impact on nearby facilities.	Monitor airborne dust levels during construction.

Table G1 Continued

Issue	Standard	Objective for Second Sydney Airport	Proposed Mitigation	Monitoring
<i>Energy</i> (Chapter 18)	National Greenhouse Response Strategy	Minimise use of energy during construction.	Limited opportunities to reduce energy consumption during earthworks phase of construction.	Not applicable
<i>Waste Management</i> (Chapter 18)	ANZECC Waste Guidelines	Minimise waste generation. Maximise re-use of materials during construction. Correctly dispose of hazardous wastes.	Good design and accurate ordering of materials. Recycling of demolition wastes (50% target) and vegetation for mulch or chips. Balanced cut and fill to earthworks design. Segregation of hazardous and general waste.	Monitor compliance with Environment Management Plan.
<i>Hazards and Risks - Fuel Supply Pipeline and Storage</i> (Chapter 19)	National Standard for Control of Major Hazard Facilities (NOHCS:1014, 1996); NSW Department of Urban Affairs and Planning Hazardous Industry Planning Advisory Papers	Compliance with National Standard and Department of Urban Affairs and Planning requirements.	Quantitative risk assessment as part of EIS for pipeline. Hazard Operability Study, Updated Hazard Analysis, and Fire Safety Studies undertaken during planning and design phase. Construction Safety Study also undertaken.	
<i>Hazards and Risks - Contaminated Sites</i> (Chapter 19)	Airports (Environmental Protection) Regulations	Prevention of adverse health and environmental impacts.	Contamination testing and planning of earthworks activities to ensure that any contaminated soils do not cause adverse health/environmental impacts.	Assessment and validation as part of construction.
<i>Hazards and Risks - Seismic Activity</i> (Chapter 19)	Not applicable	All building structures to be designed to comply with AS 1170.4-1993 Part 4: Earthquake Loads.	Seismic risk is estimated to be no different to Sydney Metropolitan area.	Not applicable
Social and Economic Impacts				
<i>Aboriginal Cultural Heritage</i> (Chapter 20)	Airports (Environment Protection) Regulations, Australian Heritage Commission Act, 1975, NSW National Parks and Wildlife Act, 1974, Draft Guidelines for Protection, Management and Use of Aboriginal and Torres Strait Islander Places	Selectively salvage physical materials and collect and document information.	Management options are limited because the preferred option of <i>in situ</i> conservation is mostly unavailable. Surface survey and salvage of remaining unsurveyed areas. Selected subsurface testing and salvage. Tree scar salvage. Emergency plan for sites identified during construction Conservation and management plans for <i>in situ</i> conservation where possible. Aftercare of salvaged materials.	Education of construction workers and Aboriginal monitoring program during construction.

Table G1 Continued

Issue	Standard	Objective for Second Sydney Airport	Proposed Mitigation Measures	Monitoring
Non-Aboriginal Cultural Heritage (Chapter 21)	Airports (Environment Protection) Regulations, Australian Heritage Commission Act, 1975, NSW Heritage Act, 1977	Maximum possible retention of heritage items. Mitigation of the loss of non-retained items.	Implementation of recommended site-specific management proposals. Conservation <i>in situ</i> where possible. Archaeological assessment of potential sites before or during construction. Archival recording for sites to be lost. Protection of retained items during construction.	Identification and reporting of unexpected heritage sites during construction
Transport - Land, Aviation (Chapter 22)	Local Government requirements	Minimise local traffic congestion and control dust hazards.	Temporary and permanent diversions of The Northern Road, Badgerys Creek Road and some improvements to Adams Road. Construction vehicle wash facilities.	Monitor compliance during construction
Visual and Landscape - Visual (Chapter 23)	Not applicable	Minimise visual impact.	Careful planning and design of construction operations to minimise visual impacts. Development setback from boundaries and road margins of at least 200 metres. Landscape perimeter zones.	Monitor compliance during construction
Visual and Landscape - Earthworks (Chapter 23)	Not applicable	Minimise visual impact.	Construct cut and fill embankments to avoid abrupt changes in grade.	Monitor compliance during construction
Visual and Landscape - Vegetation (Chapter 23)	Not applicable	Minimise loss of native vegetation.	Location and fencing of vegetation to be protected during construction phase. Plan site development to maximise retention of native vegetation. Revegetate with native woodland plant communities.	Monitor compliance during construction
Visual and Landscape - Drainage (Chapter 23)	Not applicable	Minimise visual impact.	Wherever possible, new drainage patterns should reflect scale and character of existing drainage.	Monitor compliance during construction
Visual and Landscape - Fencing (Chapter 26)	Not applicable	Minimise visual impact.	Set back security fencing substantially from road boundaries to be not visible from any point along road edge.	Monitor compliance during construction

Table G1 Continued

Issue	Standard	Objective for Second Sydney Airport	Proposed Mitigation Measures	Monitoring
Social/Economic (Chapter 25)	Refer to other parts of table	Minimise social impacts within affected communities.	Consultation with affected communities. Appoint community reference groups to advise on avoidance of construction impacts and provision of alternative facilities. Undertake community audit detailing facilities, services, access patterns, condition of communities. Nominate indicators for ongoing monitoring. Implement mitigation measures discussed in other parts of this table.	Consultation with community reference groups throughout construction to monitor impacts and to identify additional mitigation opportunities.

Table G2 Outline Environmental Management Plan - Operational Phase

Issue	Standard	Objective for Second Sydney Airport	Proposed Mitigation Measures	Monitoring
Planning and Land Use Impacts				
<i>Future Urban Development</i> (Chapter 10)	Not applicable	As far as possible to be consistent with metropolitan planning strategies.	Options A and B, in particular, present opportunities to create urban villages which would be well serviced by public transport and close to employment.	Local statutory planning controls. Greater restrictions outside of the 20 ANEC contour may be appropriate.
<i>Development of Commercial Areas around and adjoining the Airport Site</i> (Chapter 10)	Local Government requirements	Significant open space and landscaped areas.	Development control plans to ensure that future development maximises landscape character	Regular monitoring of landscape environment, revegetation, water quality and weed control
Noise Impacts				
<i>Aircraft Overflight Noise</i> (Chapter 12)	Air Navigation (Aircraft Noise) Regulations	Minimise impacts of aircraft overflight noise.	Aircraft noise cannot be prevented, so mitigation consists of the optimum set of management measures, including: <ul style="list-style-type: none">- possible night-time curfews to minimise sleep disturbance- selection of airport optimum operating modes and flight paths- voluntary acquisition of highly affected properties- acoustical treatment of affected properties- and use planning for future developments	Noise monitoring program as part of extensive noise management plan
<i>Ground Operation Noise</i> (Chapter 13)	Airports (Environment Protection) Regulations	Compliance with Regulations.	Mitigation recommendations include: <ul style="list-style-type: none">- aircraft orientation to the east during testing- night-time curfew on non emergency testing- noise shielding	Noise monitoring program as part of extensive noise management plan
<i>Property Values</i> (Chapter 11 and 12)	Not applicable	Minimise impacts on property values.	Selection of airport operating modes which affect the least number of properties, consistent with complying with Civil Aviation Safety Authority standards. Consideration of financial compensation measures.	Not applicable

Table G2 Continued

Issue	Standard	Objective for Second Sydney Airport	Proposed Mitigation Measures	Monitoring
Physical and Biological Impacts				
<i>Meteorology</i> (Chapter 14)	Not applicable	Obtain accurate meteorological data for the airport site and environs.	Install site specific meteorological instruments to gather information for predicting air quality impacts and adverse meteorological conditions.	Implement meteorological monitoring program
<i>Air Quality</i> (Chapter 15)	Airports (Environment Protection) Regulations , Air Navigation (Engine Emissions) Regulations and proposed National Environment Protection Measures	Minimise adverse air quality impacts.	Consistent with meeting Civil Aviation Safety Authority standards, implement as far as practicably possible the following mitigation measures: - reduction in number of engines in use during taxi and idle - take off under reduced power - reduced use of reverse thrust - turning off auxiliary power when aircraft docked - low emission ground support fleet vehicles - air traffic control procedures to reduce queuing and taxi time - high quality aircraft maintenance standards - efficient management of passenger fleet to avoid congestion.	Implementation of air quality monitoring as part of an air quality management plan for the airport. Establishment of air quality monitoring stations to undertake continuous monitoring of: - wind speed and direction; - vertical temperature and wind profiles; - ozone and nitrogen dioxide; - particulates; and - organic pollutants..
<i>Water</i> (Chapter 16)	Airports (Environment Protection) Regulations and ANZECC Water Quality Guidelines	Minimise impact on downstream creek systems of treated sewage and stormwater discharges.	Regular cleaning of traps, desilting of sediment basins, maintenance of reed beds. Effective management of sewage treatment plants and adoption of best available commercially viable technology.	Regular water quality monitoring of creeks, stormwater discharge points, and groundwater (including or around fuel storage facilities)
<i>Flora and Fauna</i> (Chapter 17)	Airports (Environment Protection) Regulations and Endangered Species Protection Act	No deterioration of remaining habitats.	Strategies to reduce bird strikes. Strategies to maintain water quality.	Monitor bird strikes. Ecological monitoring of receiving waters and inspection stormwater discharge points.
<i>Energy</i> (Chapter 18)	National Greenhouse Response Strategy	Aim to reduce energy consumption wherever possible.	Energy efficient design of buildings. Energy conservation programs.	Energy consumption monitoring program
<i>Waste Management</i> (Chapter 18)	ANZECC Waste Guidelines	Minimise waste generation. Correct disposal of hazardous wastes such as quarantine materials.	Sterilise quarantine wastes. Implement waste minimisation plan. Maximise separation and recycling of wastes.	Regular tracking of waste and waste audits
<i>Hazards and Risks - Bird Strikes</i> (Chapter 18)	Civil Aviation Safety Authority standards	Minimise bird hazards.	Detailed attention to airport and near-airport design and planning. Site-specific bird hazard management plan.	Monitor bird and bat activity. Regular review of bird hazard management plan. Controls on future land use in vicinity of airport.

Table G2 Continued

Issue	Standard	Objective for Second Sydney Airport	Proposed Mitigation Measures	Monitoring
<i>Hazards and Risks - Aircraft Accidents (Chapter 18)</i>	Not applicable	Maintain fatality risk levels as low as possible.	Select options and operating modes with lowest fatality risk levels. Prepare detailed flight planning measures aimed at reducing fatality risk levels. Future land use planning to prevent sensitive uses where risks exceed current NSW guidelines.	Periodically review actual fatality risk levels based on operational data and latest aircraft crash statistics.
<i>Hazards and Risks - Fuel Supply Pipeline and Storage</i>	National Standard for Control of Major Hazard Facilities (NOHCS:1014, 1996); NSW Department of Urban Affairs and Planning Hazardous Industry Planning Advisory Papers	Compliance with National Standard and Department of Urban Affairs and Planning requirements.	Comprehensive emergency response plan and safety management system. Land use controls in vicinity of pipeline.	Periodic independent audits of facilities, and reporting of incidents.
<i>Hazards and Risks - Orchard Hills Defence Facilities</i>	Not applicable	Minimise increase in the risks of handling explosives for Defence personnel and electromagnetic radiation risks to explosives (assuming Defence facilities remain).	Evaluate need to upgrade facilities or introduce procedures to reduce noise effects and shield explosives from electromagnetic radiation.	Monitor noise and electromagnetic radiation levels in sensitive locations or during sensitive activities.
Social and Economic Impacts				
<i>Aboriginal Cultural Heritage (Chapter 20)</i>	Airports (Environment Protection) Regulations, Australian Heritage Commission Act, 1975, NSW National Parks and Wildlife Act, 1974, Draft Guidelines for Protection, Management and Use of Aboriginal and Torres Strait Islander Places	No significant further impact on Aboriginal cultural heritage sites or values	Not applicable	Monitor the condition of remaining Aboriginal cultural heritage items
<i>Non-Aboriginal Cultural Heritage (Chapter 20)</i>	Airports (Environment Protection) Regulations, Australian Heritage Commission Act, 1975, NSW Heritage Act, 1977	No significant further impact on non-Aboriginal cultural heritage sites or values	Not applicable	Monitor the condition of remaining non-Aboriginal cultural heritage items

Table G2 Continued

Issue	Standard	Objective for Second Sydney Airport	Proposed Mitigation Measures	Monitoring
<i>Transport - Land, Aviation</i> (Chapter 22)	Local Government requirements	Optimise the balance of transport infrastructure for private and public use.	Increased viability for a rail line to the area. Increased viability for public bus services to the area. Significant improvements to local and regional road networks.	
<i>Social/Economic</i> (Chapter 25)	Local Government standards and requirements	As far as possible minimise impacts, as discussed in other parts of table	Planning restrictions on sensitive future developments. Individual noise mitigation measures. Assistance to community groups eg. relocation of some facilities, adaptation to changes.	Consultation with affected individuals, community groups and organisations. Community hotline. Post-airport construction audits on affected communities.

Appendix H

General Approach to the Development of Environmental Management Systems

Appendix H

General Approach to the Development of Environmental Management Systems

The first stage of developing an environmental management system (EMS) would be to develop the overall environmental goal for the project and to clarify what the various influencing factors (drivers) are in working towards the achievement of the goal. This would involve discussion with various stakeholders in the Airport's construction or operation, such as government agencies, industry and the community.

The elements of an EMS may include:

- organisation commitment;
- environmental policy;
- community consultation;
- objectives and targets;
- environmental management plans;
- documentation;
- operations and emergency procedures;
- responsibilities and reporting structures;
- training; and
- environmental impact, compliance and review audits.

Organisation Commitment

The commitment of all staff to the environmental goal of the organisation is crucial. The environmental goal of the Airport constructor/operator would be clearly defined. A process to build commitment to the goal with all the staff in the organisation(s) would then be designed. This process would involve clear statements of direction from the Management through promulgation of the policy, establishing a forum for regularly discussing environmental issues (for example, an environmental committee), and through various activities to develop environmental awareness such as training events and workshops.

The key to developing commitment in an organisation is to be able to demonstrate leadership from the top of the organisation. Environmental issues would be built into existing staff management processes such as performance appraisals to provide the opportunity for showing the interest and commitment of management.

Environmental Policy

The environmental policy is the basis for implementing the Airport constructor's/operator's EMS. The various drivers for achieving the environmental goal would be identified and developed into a bullet-form policy which indicates how the Management would like to achieve the environmental goal. It would include the specific requirements of ISO 14001 for environmental policies.

Planning

It is important that new infrastructure and new operations are planned in a manner that adequately protects the environment and provides the public with confidence that the environment would not be adversely affected. Mechanisms would be devised to ensure that all development plans receive appropriate environmental input early in the planning process, and that the local community are provided with opportunities for involvement such that they are assured of the adequacy of environmental protection measures.

Community Consultation

A process for regular community consultation would be designed. In terms of an EMS meeting the ISO 14001 standard, it is important that there are procedures for receiving, documenting and responding to relevant communication from external interested parties. There may also be value in establishing a community consultation group which would meet regularly to discuss areas of community interest in Airport construction/operation.

Objectives and Targets

The environmental management planning process should be built upon the identification of the significant environmental aspects (issues) relevant to the organisation. It should also be based upon legal and other requirements to which the organisation subscribes.

An initial ranking (in order of importance) of environmental aspects would be produced for which plans would be required. Objectives and targets for each of the significant aspects of Airport construction/operation would then be developed.

It is important that the objectives set are realistic and that the targets are quantified for each of the forthcoming years in the planning horizon. Objectives and targets should be set for the more significant environmental aspects, and particularly for those where specific improvement is required. These would be regularly updated.

Environmental Management Plans

Specific environmental tasks should be developed in order to meet the objectives and targets. The responsible party and the timeframe for completion should be set against each task or action item. This then forms the environmental management plan. A process for regular update of the environmental plan would also be designed.

Documentation

Documentation of the EMS would be required in the form of a manual to describe the core elements of the management system and their interaction. It should also provide direction to related documentation.

Other documents required by the ISO 14001 standard include those relating to the policy, planning, monitoring procedures, and auditing. These documents would need to be controlled by a document control system which would prompt for regular updates. Environmental records are also required to be kept.

Operations and Emergency Procedures

The EMS should include procedures for those situations where their absence could lead to deviations from the environmental policy and objectives and targets. Emergency response procedures are also required. Where possible, environmental requirements would be integrated with existing procedures in preference to having separate *environmental* procedures.

Responsibilities and Reporting Structure

It is usual for environmental protection to be seen as a “line” responsibility with all employees having a role to play. Often advisory staff are available to provide environmental advice to the line.

Training

ISO 14001 standard requires that there are adequate processes in place to ensure that staff are aware of relevant environmental issues and that they understand their responsibilities. Appropriate induction and other training would need to be put in place which might cover environmental issues.

Environmental Impact, Compliance and Review Audits

Processes for regularly checking the adequacy of environmental protection measures are particularly important in the design of an EMS. It is necessary to specify key issues that should be monitored, measured and reviewed. These would include matters such as routine discharges of specific effluents, emissions and waste. They would also include the non routine reports of environmental incidents. Regular surveys of the receiving environment would also be required.

The ISO 14001 standard specifies that regular environmental management system audits should be done. These would involve independent auditors. An audit programme and protocols would be developed.

Appendix I

Overview of the Airports (Environment Protection) Regulations

Appendix I

Overview of the Airports (Environment Protection) Regulations

The object of the Airports (Environment Protection) Regulations, as expressed in regulation 1.02, is:

- “(a) to establish in conjunction with national environment protection measures made under section 14 of the *National Environment Protection Council Act 1994*, a Commonwealth system of regulation of, and accountability for, activities at airports that generate, or have potential to generate:
 - (i) pollution; or
 - (ii) excessive noise; and
- (b) to promote improving environmental management practices for activities carried out at airport sites.”

The Regulations aim to establish a cooperative approach to environmental management on airports. The intent is to promote awareness of environmental issues and to ensure that management systems are in place to deal with the pollution, noise and other environmental impacts that are produced by and on airports, with a view to reducing those environmental impacts and increasing public amenity over time.

This approach is exemplified in Division 2 of Part 6 of the Act, which deals with environment strategies. Environment strategies will become the central plank in the regulatory regime, being the basis upon which the Commonwealth will measure the environmental performance of airport-lessee companies, and the document by which airport users will determine what their environmental responsibilities are. To accommodate this enhanced role, the required content of environment strategies has been further specified in Part 3 of the Regulations. While the list of contents is quite comprehensive, it contains nothing more than what would be present in an adequate program for environmental management of a major facility such as an airport. Environment strategies remain documents of the airport-lessee companies, and hence will allow those operators considerable flexibility in dealing with the environmental management of their airports.

To provide guidance on what is expected of people undertaking activities on airports, and to give some background by which an airport-lessee company can determine what to put in an environmental strategy, Part 4 of the Regulations sets out environmental duties that every operator of an undertaking at an airport is expected to comply with. The first of these duties is the general duty to avoid polluting. Further environmental duties include duties in relation to pollution control equipment, preservation of environmentally sensitive habitat and sites, prevention of excessive noise, and noise control equipment.

Allied to these environmental duties are the methods by which they are considered to be discharged. There are broadly three ways in which a person is presumed to have complied with the general duty to avoid polluting and the duty not to make excessive noise:

- (a) by complying with a pollution or noise standard set out in one of the Schedules to the Regulations; or

- (b) by complying with a local pollution or noise standard approved by the Minister under Division 1 of Part 5 of the Regulations; or
- (c) by complying with the terms and conditions of an authorisation granted under Division 2 of Part 5 of the Regulations.

The first two methods of “presumed” compliance operate to allow airport users “safe havens”, but the objective of imposing the duties is not merely to enforce compliance with objective standards or authorisations, but to make people aware of the environmental impacts associated with their activities. The third method of presumed compliance with the duty, compliance with the terms and conditions of an authorisation, is designed for those airport users who can demonstrate that their activities (whether or not they breach the objective standards) are conducted in such a way that the net effect is that the environmental health of the airport is no worse, and preferably better, than it would be had there been rigid compliance with the standards.

In conjunction with the environmental duties present in Part 4, Part 6 of the Regulations imposes pollution monitoring and reporting obligations on the airport-lessee company. The purpose of this Part is to ensure that the environmental health of an airport is initially determined and then continually monitored, with a view to improving that health.

As can be seen by the approach to environmental management noted above, much of the responsibility for positive environmental outcomes is placed upon the airport-lessee company, sublessees, and airport users. Regulation is less a matter of prescriptive rules and penalties for non-compliance, and more a matter of broad duties and obligations to maintain and improve the environmental health of an airport. Occupiers of airport land are given flexibility in determining how they will discharge their duties and obligations, in conjunction with the regulator, so that mutually beneficial outcomes are reached. The “regulator” in this equation will usually be the airport environment officer, a person appointed by the Secretary of the Department under Part 10, with suitable qualifications and experience, to work with the airport-lessee company, sublessees and airport users on environmental matters.

To perform their job, airport environmental officers will be authorised to exercise powers under Part 18 of the Act in relation to monitoring and searches, and will be able to make decisions under the Regulations in relation to such matters as the grant of authorisations, land contamination investigation, directions to remediate, issue of environment protection orders and directions to comply with authorisations. The Secretary will retain certain powers of compulsion and enforcement, and will be able to review decisions of airport environment officers.

While the underlying theme of the Regulations is one of cooperative environmental management between the airport-lessee company, sublessees, airport users, and the regulator, there may be occasions when enforcement of the duties and obligations becomes necessary to protect the environment. Part 7 of the Regulations provides the airport environment officer with powers of enforcement. Enforcement will primarily be through the mechanism of environment protection orders. These orders are issued by the airport environment officer where he or she is of the opinion that one of the environmental duties is or will be breached. The order may direct compliance with a duty, for example, by taking particular action which will prevent pollution, or ceasing to perform some activity which is causing pollution. The environment protection order is the primary tool for enforcement of the duties, as intentional or reckless failure to comply with the terms of an order is a criminal offence under subsection

132(2) of the Act, with a penalty of up to \$125,000 *per day* of non-compliance by corporations (up to \$25,000 per day for individuals). However, under Part 8 of the Regulations there is scope for infringement notices to be issued for such offences, and payment of the fine will prevent prosecution.

Part 7 of the Regulations also provides for general offences which are not linked to the duties and obligations, but are intended to deal with the intentional or reckless polluters who cause environmental nuisance or material or serious environmental harm.

Part 9 of the Regulations also provides for general offences which are not linked to the duties and obligations, but are intended to deal with the intentional or reckless polluters who cause environmental nuisance or material to serious environmental harm.

Part 9 of the Regulations provides that most decisions of the regulator under the Regulations are susceptible to merits review to ensure consistent and fair decisions and best outcomes for the environment, airport-lessee companies, sublessees, and airport users. Decisions of airport environment officers are reviewable by the Secretary, and decisions of the Secretary are reviewable by the Administrative Appeals Tribunal.

Schedules 1, 2, 3 and 4 set out pollution and noise standards. If these are followed, an operator of an undertaking will be assumed to have complied with his or her environmental duties as set out in Part 4. These standards are substantially based upon recommendations by the Australian and New Zealand Environment and Conservation Council (hereafter ANZECC) and the National Health and Medical Research Council (hereafter NH&MRC).

An important, emerging development is the commitment of Commonwealth, State and Territory Governments to the formulation of national environmental protection measures (hereafter NEPMs) and this has been kept in mind during the development of these Regulations. As the NEPMs are made over the coming years, the Regulations will be reviewed periodically and amended if necessary to reflect the new measures. It is envisaged that the first review will occur within two years of the Regulations coming into force.

Source: *Department of Transport and Regional Development*

