Helipads and heliports

Design and Assessment Guide

November 2019

TWEED SHIRE COUNCIL

Landing a helicopter on your property?

Development Consent

Within the Tweed, most helipads or heliports require the consent of Council.

In these applications Council plays a crucial role in balancing the requests of land owners and the potential impacts of these activities on the surrounding community.

Council acknowledges the potential noise impacts that helicopter activities can have on local communities. Community concerns about these impacts are not taken lightly.

The guide seeks to address these concerns whilst providing development assessment guidance for applicants seeking approval for a helipad or heliport, and outline the considerations when assessing a development application for a helipad or heliport.

Great design, detailed planning and thoughtful considerations about potential impact made during the early stages of a proposal make a big difference to the final outcome.

Helipad or heliport?

The *Tweed Local Environmental Plan 2014* identifies helipads (not open to the public) and heliports (open to the public, an air transport facility) as places used for the taking off and landing of helicopters, and may include facilities for the parking, storage or repair of helicopters.

To find out whether a proposal needs development consent contact Council's duty planner on (02) 6670 2400 for free advice or request a Development Assessment Panel (DAP) meeting for technical feedback and advice prior to lodging your application (fees apply).

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Property Owners and Applicants

Considering residents and noise sensitive receivers

New helipads or heliports or changes to an existing helicopter operation can raise legitimate noise concerns for local communities.

This is particularly noticeable in areas that have not previously been exposed to this type of noise or where helicopter operations may cause sleep disruption.

Helicopter pilots can assist in how a community may react by flying in a way to make the sound of the helicopter as non-intrusive as possible.

Site specific consideration must also be given to factors such as background noise and the specific nature of the noise sensitive area that may be affected.

Increasing the distance (separation) from noise sensitive areas is the most effective means of reducing noise.

This guide may assist applicants when considering their helipad or heliport design and proposed operation. It includes technical information that is relevant to acoustic consultants and Council's assessing officers.

As helicopter noise can impact neighbouring residents and other noise sensitive receivers (land uses that are sensitive to noise such as schools, hospitals, places of worship, community centres and recreation areas) applicants must thoroughly consider their proposal before lodging an application.

Noise Sensitive Receivers: land uses that are sensitive to noise, such as residential areas, schools, hospitals, places of worship, community centres and recreation areas that would be able to hear noise from a development.

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Concerned Residents and Noise Sensitive Receivers

Increasing the separation distance between noise producing land uses and noise sensitive receivers reduces the potential for noise-related land-use conflicts.

Noise is generally more disturbing in the evening and at night as more noise sensitive activities occur at those times (socialising, relaxing and sleeping).

Also, most residents are typically at home and noise may be more intrusive due to lower background levels during the evening and at night.

People's individual sensitivity to noise varies considerably and for this reason noise consultants use agreed noise criteria and approaches in determining noise impact, not just that there is a complaint.

Can Council refuse a helipad or heliport application?

Council's responsibility is to consider and determine a development application on merit.

The *Tweed Local Environmental Plan (LEP) 2014* permits helipads and heliports with consent in certain land use zones, either stand-alone or in association with an air transport facility, airport, emergency services facility, health service facility, or hospital.

Where a land use zone has been identified as suitable for a particular purpose, in most cases it can be expected that a development application for that purpose would be approved if the design of the development results in acceptable environmental impacts.

Will residents hear helicopter noise?

Although potential impacts to residents and noise sensitive receivers are carefully considered during an assessment of a helipad or heliport, noise from helicopter activities may still be heard.

Technical information, recommended separation distances and other considerations have been included for applicants within this guide to avoid or minimise noise impacts that can occur from helicopter activities.

Guidelines and Standards

The following methods for the measurement of noise and amenity impacts associated with existing or proposed helicopter landing sites should be considered by the applicant's acoustic consultant.

AS 2021 – Acoustics – Aircraft noise intrusion – Building siting and construction

AS 2021 (the Standard) uses Australian Noise Exposure Forecast (ANEF) charts, contour maps that forecast aircraft noise levels.

According to the Standard, aircraft noise levels not exceeding 20 ANEF are generally considered acceptable for residential premises, however the noise may still be audible. This is where noise from other sources tends to predominate over aircraft noise.

Residents exposed to aircraft operations for the first time are usually more sensitive to such operations.

The recommendations of the Standard are based on the reactions of noise-accustomed communities, which is a limitation of the document. While residents may have concerns, the activity may be lawful.

Acoustic experts have suggested a design target of less than 13 ANEF (equivalent to 48 dB(A) 24 hour) at any noise sensitive receiver in areas not previously subjected to aircraft noise.

A general conversion from ANEF to L_{Aeq} is +35. So ANEF 13 + 35 dBA = 48dB(A) noise limit.

AS 2021 does not provide test procedures for helicopters which operate differently to fixed winged aircraft and references AS 2363 as a useful document for assessments.

Guidelines and Standards (continued)

AS 2363 – Acoustics – Measurement of noise from helicopter operations (Withdrawn)

Although now withdrawn, this former Standard provides guidance on the assessment of helicopter noise and considers whether helicopter landing sites and land uses are compatible. The information remains useful as a guideline.

The 1990 version identified maximum noise level targets (L_{Amax} (Hel)) and time-averaged sound level targets (L_{Aeq},T (Hel)) for different receivers during day and night periods (see Table 1 below).

AS 2363 recommended these levels are not exceeded within 30 metres of the building envelope of the most affected premises.

These recommended noise targets should be considered with any acoustic assessment.

Table 1: *Recommended acceptability criteria for 12-hour periods*

decibels (A)

Usage of premises and zoning	$L_{Aeq,T}$ (Hel)		L_{Amax} (Hel)[3]	
	Daytime	Nightime	Daytime	Nightime
Residential and hospital areas	60[2]	50[2]	85	80
Commercial areas	65	65	95	90
Other areas (churches, schools, theatres, etc)	60	60	90	90

Notes:

1. This Standard makes no recommendation on limits in industrial areas.
2. For these area classifications, $L_{Aeq,T}$ (Amb) + 10dB(A) can be used instead of $L_{Aeq,T}$ (Hel) if the former is lower.
3. Special consideration may be given to the operation of aerial ambulances. For this reason, $L_{Aeq,T}$ (Hel), either night or day, must be satisfied, but L_{Amax} (Hel) is not specified for aerial ambulances.
4. In the absence of further information, daytime is understood to be between 0700 and 1900 hours and nightime between 1900 and 0700 hours.
5. If the existing ambient level exceeds the L_{Aeq} level specified in the table, the introduction of helicopter operations should not raise the level by more than 2dB(A).

Noise Guide for Local Government (NSW EPA, 2013 updated 2018)

This Guide provides practical advice on planning, assessing, managing and preventing local noise problems including potential sleep disturbance.

It may assist in considering engine maintenance and activities other than aircraft movements associated with the helipad or heliport.

Noise Policy for Industry (NSW EPA, 2017)

This Policy provides assessment noise levels, mitigation methods, and best practice measures to manage industrial noise.

It may assist in considering engine maintenance and activities other than aircraft movements associated with the helipad or heliport.

Environmental Principles and Procedures for Minimising the Impact of Aircraft Noise (AirServices Australia, 2002)

This reference document provides fundamental principles for environmental assessments and preferred noise abatement procedures.

It may be used in association with Helicopter Association International's (HAI) *Fly Neighborly Guide* which discusses helicopter sound generation and includes measures on how to operate helicopters quietly, improving public relations, and preventing and responding to complaints.

Guidelines for the establishment and operation of on-shore Helicopter Landing Sites (CASA Civil Aviation Advisory Publication (CAPP) 92-2(2), 2014)

These Guidelines are based on international standards and provide advice on the Australian Civil Aviation regulations that pilots must adhere to when operating helicopters.

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Acoustic Assessment

All development applications must be supported by an acoustic assessment prepared by a suitably qualified acoustic consultant with demonstrated experience involving helicopters and assessing helicopter noise. Noise assessment is complex, highly technical and specialised.

The assessment must consider all noise associated with the helipad or heliport at affected residential and noise sensitive receivers including the following:

Hours of operation

It is recommended that helicopter operations (other than emergency services) are limited to daytime operation. Where night operations are proposed, sleep disturbance must be thoroughly considered.

Number of flight movements

Details of the number of flight movements per day and week, where a movement is defined as either a take-off or a landing. A flight involves two movements, a take-off and a landing.

Type and load of helicopters

Different types of helicopters produce different noise levels. Generally the older, larger and heavier the helicopter, the greater the noise.

Identifying the types of helicopters and respective loads ensures that the noise generated by helicopters using the helipad or heliport will be suitably considered in the noise assessment.

Proximity to residents and sensitive receivers

Increasing the distance between the noise source and noise sensitive receivers is the **most effective** means of noise reduction.

Suitable separation distance (both laterally and vertically) between the helicopter and noise sensitive receivers should be demonstrated.

A recommended minimum separation of 250m laterally (see **A** in Figure 1 below) and either 305m (1000 feet) vertically for single-engine helicopters (**B**) or 460m (1500 feet) for twin-engine helicopters (**C**) or greater from dwellings and noise sensitive receivers is recommended.

The use of exclusion zones to prevent helicopters flying over noise sensitive receivers en route to and from the helipad or heliport and during take-off and landing should be considered.

Avoid Steep Turns: Avoidance of steep turns result in reduced noise impact.

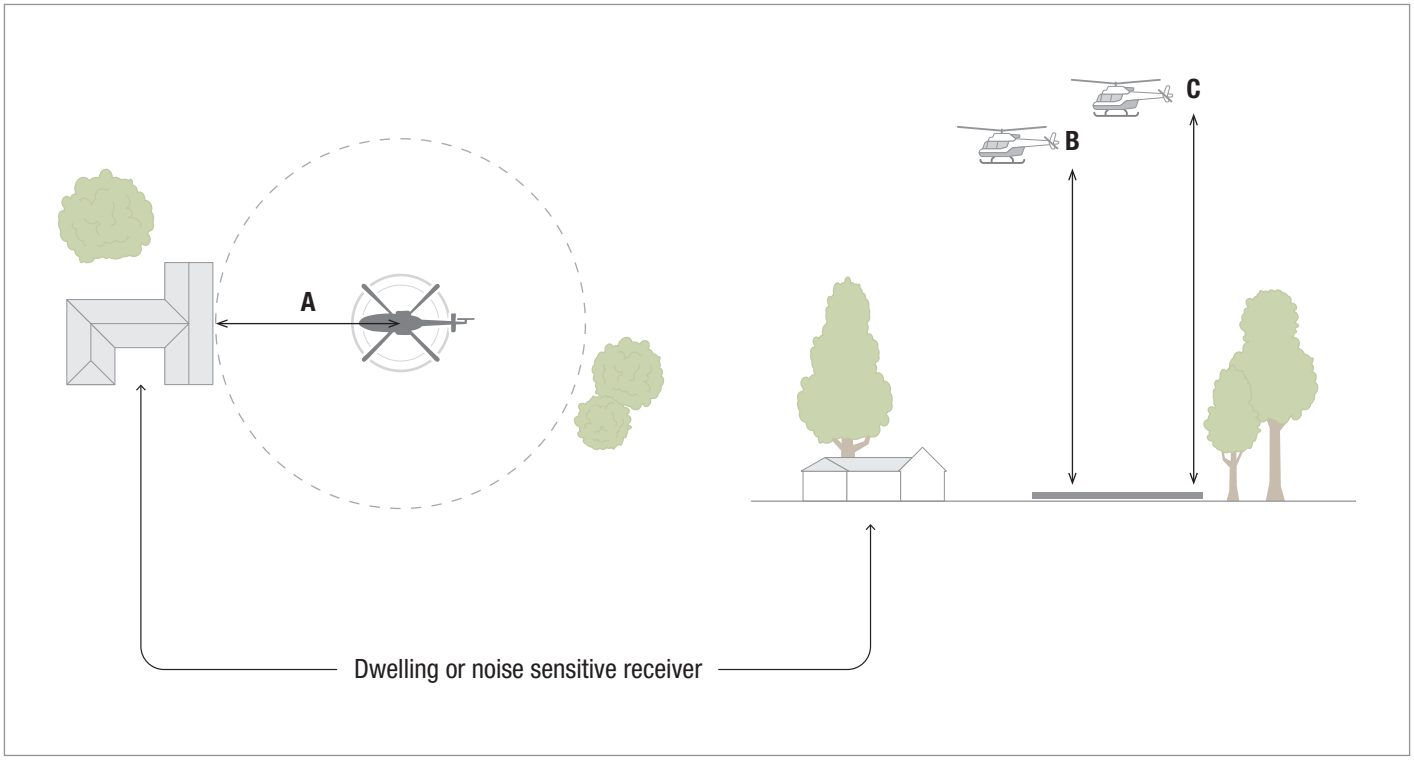

Figure 1: *Recommended minimum separation from dwellings and noise sensitive receivers*

Acoustic Assessment (continued)

Nominated flight paths

Flight paths should be designed to minimise potential impacts to the community.

Approach and departure flight paths must satisfy aviation requirements and be evaluated by an aviation consultant with expertise in helicopter operations in consultation with the acoustic consultant.

Considerations may include avoiding dwellings and noise sensitive receivers or maintaining altitude as high as possible near these areas, avoiding sharp manoeuvres, using steep take-off and landing profiles, observe low-noise speed and descent recommendations, and minimising ground operations.

Noise is minimised if helicopters fly in a straight line near residential areas.

Associated activities

Details of any helicopter maintenance, fuel storage areas, or other activities associated with the helipad or heliport must be provided.

To reduce the impact of helicopter noise, helicopter training including circuit training is not recommended near residential and noise sensitive receivers.

Site management plan

Outline how the site will be managed. The site management plan may include:

- hours of operation;
- types of helicopters being used;
- landing sites;
- approach and departure paths;
- nearby residential and noise sensitive receivers;
- flight exclusion zones;
- flight movement management; and
- compliance measures (methods to monitor conditions of consent, tracking and recording flight paths and altitude of helicopters, number of helicopter movements, types of helicopters, complaint register, and maintaining and acting upon complaints).