

NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK

MANAGING THE RISK OF INTRUSIONS INTO THE PROTECTED OPERATIONAL AIRSPACE OF AIRPORTS

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Purpose of Guideline

1. This document provides guidance to State/Territory and local government decision makers as well as airport operators to jointly address the issue of intrusions into the operational airspace of airports by tall structures, such as buildings and cranes, as well as trees in the vicinity of airports.
2. The guidelines are also designed to address the following risks:
 - (a) activities that could cause air turbulence, where the turbulence could affect the normal flight of aircraft operating in the prescribed airspace; and
 - (b) activities that could cause the emission of steam, other gas, smoke, dust or other particulate matter, where the smoke, dust or particulate matter could affect the ability of aircraft to operate in the prescribed airspace in accordance with Visual Flight Rules (VFR).

Why it is important

3. The *Principles for a National Airports Safeguarding Framework* acknowledge the importance of airports to national, state/territory and local economics, transport networks and social capital.
4. The operational airspace of airports is the volume of airspace above a set of imaginary surfaces, the design of which is determined by criteria established by the International Civil Aviation Organisation (ICAO). These surfaces are established with the aim of protecting aircraft from obstacles or activities that could be a threat to safety.
5. Intrusions into operational airspace affect airport operations. The operational efficiency of safe operations at airports is affected by geographical features such as surrounding hills and artificial structures and activities such as those outlined in paragraph 2 (c) above. Tall structures and other activities that intrude into operational airspace have the potential to lower safety levels of aviation operations at airports. If these activities are not regulated, the aviation safety regulator may have to mitigate risk by placing restrictions on operations at affected airports.

6. The Civil Aviation Safety Authority (CASA) could choose to mitigate risk by imposing restrictions on the runway distance that can be used. The minimum descent altitude for aircraft approaching during inclement weather may have to be lifted to account for a new, taller obstacle, with the result that fewer aircraft may be able to land under such conditions.
7. This would affect the operational efficiency of airport operations in a number of ways. It could mean that the airport may not be open during inclement weather conditions. Reduced runway length could result in operational penalties and inefficiencies as aircraft operators may have to reduce:
 - aircraft fuel carried
 - number of passengers
 - weight of cargo.
8. The dimensions and volumes of operational airspace required are determined using two separate groups of criteria. The first group of criteria define surfaces that protect flights being operated visually. Most general aviation operations, such as recreational flying, are conducted visually. In addition, during good weather conditions, regular public transport operations can be conducted visually near airports.
9. The second group of criteria protect aircraft operations that are solely reliant on the aircraft's navigation instruments, without reliance on the pilot being able to navigate visually.

How it should be used

10. Some States/Territories already have planning guidelines or policies in place and this document provides guidance for review. For those without policies in place, these Guidelines (in addition to the associated Safeguarding Framework) will provide input to new policies.

Roles and Responsibilities

11. State/Territory and Local Governments are primarily responsible for land use planning in the vicinity of all airports.
12. Australia's 19 major airports are under Australian Government planning control and are administered under the *Airports Act 1996* (the Airports Act). Within 15km of major Defence airfields, the Defence (Areas Control) Regulations 1989 (D (AC) R) apply.
13. Planning around other airports is undertaken by State, Territory Governments and Local Governments or private operators.

Key considerations for managing risk of intrusions into the protected operational airspace of airports

Protection of visual operations - Obstacle limitation surfaces

14. The first group of criteria are used to determine the obstacle limitation surfaces (OLS) for a runway. Criteria for determining these surfaces are established by the International Civil Aviation Organisation (ICAO). In Australia, CASA publishes these criteria in the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations.

15. Structures, trees or other activities that intrude into the OLS could constitute obstacles to aircraft taking off or approaching to land. The OLS for an airport charts the volume and dimensions of operational airspace that should be kept free of obstacles to aircraft operations being conducted under VFR or during the visual stages of IFR operations.
16. It is important to note that the OLS does not prohibit all intrusions. The aim is to ensure that all objects that intrude into the OLS can be identified and assessed for their potential impact on aircraft operations. The assessment will enable a determination on whether the intrusion is permissible, and if so, a determination on whether any risk mitigation requirements should be imposed.
17. The requirements to protect operational airspace will be enforced most rigorously along the extended centrelines of runways in the approach and takeoff areas. This could extend up to 15 kilometres from the ends of runways at major airports. Other OLS surfaces that protect aircraft circling to land may also extend up to 15 kilometres from major airports.
18. The effects of individual obstacles may be relatively minor, but together a number of obstacles may seriously limit runway utilisation, cause airspace congestion and reduce the effective handling capacity of the airport. It is therefore important to understand that the pre-existence of a structure or other intrusion into operational airspace does not necessarily mean that a new proposal to penetrate operational airspace will be approved under Commonwealth legislation.
19. Land use planning authorities and state/territory governments should be aware that all intrusions into the OLS have the potential to create aviation safety risks and to limit the scope of aviation operations into and out of the airport. **Attachment 1** includes charts to demonstrate an example of an OLS chart as well as its constituent parts.

Protection of instrument operations - Procedures for Air Navigation Services – Operations (PANS-OPS) surfaces

20. A second group of criteria is used to determine the volumes and dimensions of airspace required to protect the safety of IFR operations. Under IFR operations, pilots fly aircraft relying on instruments for navigation. Airspace protection for IFR operations cannot allow for any long-term penetrations.
21. ICAO established these criteria which are published in a document titled 'Procedures for Air Navigation Services – Operations (PANS-OPS)'. The surfaces determined by using the criteria in the PANS-OPS publication are called PANS-OPS surfaces.
22. The PANS-OPS surfaces are used in the construction of take-off, landing and approach procedures based entirely on navigation with sole reference to aircraft instruments. They are designed to protect aircraft from colliding with obstacles when flying on instruments. Minimum safe altitudes are established for each segment of an instrument procedure.
23. If it is agreed by all stakeholders that a long-term penetration of the PANS-OPS surfaces is essential, the PANS-OPS surfaces must be raised so they are clear of the development causing the penetration. However, this may also have operational penalties for airport operations and could have community impacts, such as re-design of flight paths that increase the population exposed to high levels of aircraft noise.

24. **Attachment 2** includes charts to demonstrate an example of a PANS-OPS chart.

GUIDELINES FOR MANAGING RISK OF INTRUSIONS INTO THE PROTECTED OPERATIONAL AIRSPACE OF AIRPORTS

25. Operational airspace above and around airports needs to be protected from intrusions by objects or activities that could interfere with safe aviation operations. These guidelines set out a series of steps that should be adhered to by proponents wishing to conduct an activity or construct a structure that may penetrate prescribed airspace.
26. The activity that is proposed to be carried out will generally require an approval by state or local government authorities. Larger projects may require an Environmental Impact Statement, while most projects will require the issue of a building permit by the local council. Local councils in the vicinity of an airport's protected airspace are required to review all building and development applications they receive for any infringements of protected airspace. These local councils should refer proposals to the airport operator if an infringement is likely to occur. The proponent will then need to apply through the airport operator for approval.
27. Airport operators will make charts of the OLS and PANS-OPS surfaces available to the land use planning authorities. Ideally, these charts should be incorporated into the local council's planning information overlays. Proponents of objects/activities near airports (e.g. developers, builders and crane operators) should check with the airport operator or their local council at an early date.

The role of airport operators, governments and proponents

28. Local councils around airports should have an overlay map indicating the building heights in the relevant planning document. This overlay map could either be the OLS chart or a simplified version of the OLS chart. This could be used to trigger the need for a formal assessment of penetration of prescribed airspace. Local councils should then take the following steps when they receive an application proposing a development or activity around an airport:
 29. Check to see if the proposal involves an intrusion into prescribed airspace as shown in the overlay map. If the proposal appears to intrude into prescribed airspace, notify the relevant airport operator. If the airport operator determines that an intrusion will definitely occur, it will advise the proponent to lodge a formal application to penetrate prescribed airspace.
 30. On receipt of the application, the airport operator will seek advice from the Civil Aviation Safety Authority (CASA), Airservices Australia (Airservices) and airlines regarding impacts on aviation safety. The airport operator will also seek advice from relevant parties such as the local council.
 31. In the case of Commonwealth leased civil airports, the airport operator will provide consolidated advice from Airservices, CASA airlines and other parties to the Department of Infrastructure and Transport (DoIT). DoIT will make an assessment on whether to permit the proposal, and if so, whether any conditions should be imposed.

32. In the case of Defence airports, the Department of Defence (Defence) will make its own assessments under its legislation. Defence will make an assessment on whether to permit the proposal, and if so, whether any conditions should be imposed.
33. In the case of non-Commonwealth airports, councils should take account of advice from Airservices, CASA and airlines in determining whether to permit an intrusion into prescribed airspace.

Details of the assessment process

34. In the case of Commonwealth leased airports, applications to carry out a controlled activity are to be made to the airport operator in writing. The information required in the application must include:
- a description of the proposed controlled activity (building construction, crane operation, plume rise, etc);
 - its precise location (longitude/latitude; MGA 94 coordinates); and
 - the purpose of the controlled activity.
 - if the controlled activity consists of the erection of a building or structure:
 - the proposed maximum height of the structure above the Australian Height Datum (including any antennae or towers); and
 - the proposed maximum height of any temporary structure or equipment (e.g. cranes) intended to be used in the erection of the structure.
 - The airport operator will conduct the initial assessment of the application to check:
 - whether the activity results in an intrusion into the OLS or PANS-OPS surface;
 - the extent of the intrusion; and
 - the precise location of the development or activity.
35. If the airport operator determines that there would be an intrusion into operational airspace, it should invite the following organisations to assess or comment on the application:
- CASA - for an assessment of the impact on aviation safety;
 - Airservices - for assessments of proposals resulting in a penetration of the PANS-OPS surfaces or temporary redirection of flight paths;
 - the local land use planning authority, e.g. the council, responsible for building approvals; and
 - Defence in the case of Defence or joint-user airports.
36. In the case of Commonwealth leased airports, the approval process varies depending on the type of controlled activity:

- short-term controlled (up to 3 months) activities can be approved/refused by the airport operator after consultation with CASA and Airservices, or referred by the airport to DoIT for a decision;
 - long-term controlled activities (longer than 3 months) penetrating the OLS are referred by the airport to DoIT for a decision after consultation with CASA, Airservices and the relevant building authority; and
 - long-term controlled activities (longer than 3 months) penetrating the PANS-OPS airspace are not permitted and the airport operator can notify the refusal of such controlled activities.
37. DoIT will determine applications based on the safety, efficiency or regularity of existing or future air transport operations into or out of the airport. In the case of Defence airports, a similar process is applied to assess applications to intrude Defence OCS.
38. Councils and other land use decision making bodies should follow a similar assessment process at non-Commonwealth airports. Adelaide City Council uses an assessment process that could serve as a model for other land use planning authorities.
39. **Attachment 3** is a summary of the process that should be followed by planning authorities in the vicinity of the following three categories of airports to ensure the protection of operational airspace.
- Federal leased airports
 - Defence airfields
 - Other airports