

12

Safeguarding the Airport



12.1. Introduction

The safety of aircraft operations to and from Adelaide Airport, and the capacity of the airport to operate and respond to growing demand, can be directly impacted by inappropriate land use and activities that occur on the land surrounding the airport.

Long-term and effective protection and safeguarding of Adelaide Airport is critical to ensuring ongoing aviation operations and safety. The safeguarding of the airport, which refers to measures taken to minimise inappropriate land uses and activities, is the shared responsibility of AAL and all levels of government.

The Commonwealth Government has enacted regulations to protect airspace around airports (the Airports (Protection of Airspace) Regulations 1996) and, in recent years, has developed a series of Guidelines as part of the National Airports Safeguarding Framework (NASF) to protect the long term safe operations of airports. These Guidelines have been developed by the Commonwealth Government in conjunction with the relevant State and Territory planning Ministers and are being implemented throughout Australia by the relevant State and Territory planning authorities.

12.2. National Airports Safeguarding Framework

The current and future viability of aviation operations at Adelaide Airport can be impacted by inappropriate developments in areas beyond the airport boundary. The safeguarding measures applied by AAL in its planning include the NASF guidance documents, which are listed in Table 12-1.

GUIDELINE	DESCRIPTION
Guideline A	Measures for Managing Impacts of Aircraft Noise
Guideline B	Managing the Risk of Building Generated Windshear and Turbulence at Airports
Guideline C	Managing the Risk of Wildlife Strikes in the Vicinity of Airports
Guideline D	Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation
Guideline E	Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports
Guideline F	Managing the Risk of Intrusions into the Protected Airspace of Airports
Guideline G	Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)
Guideline H	Protecting Strategically Important Helicopter Landing Sites (HLS)
Guideline I	Managing the Risk in Public Safety Areas at the Ends of Runways

Table 12-1: National Airports Safeguarding Framework Guidelines

12.3. South Australian Government Planning Policies

The South Australian Government has given commitments to implementing the outcomes of NASF. The current South Australian planning system (established under the *Development Act 1993*) provides a framework for addressing some of the NASF Guidelines in relation to off-airport development.

The current planning policy module 'Buildings Near Airfields' has been included in most development plans within the State. The objective of this planning policy module states:

Development that ensures the long-term operational, safety, commercial and military aviation requirements of airfields (airports, airstrips and helicopter landing sites) continue to be met.

The Principles of Development Control provide general guidance with regard to:

- Limiting height and location of buildings and structures adjacent to airports
- Considering the risks to public safety of development in the vicinity of an airport (i.e. consideration of lighting glare, smoke, dust and exhaust emissions, air turbulence, storage of flammable liquids, attraction of birds, reflective surfaces, and materials that affect aircraft navigational aids)
- Lighting within six kilometres of an airport
- Minimising development that increases the attraction of birds within three kilometres of an airport
- Limiting development within areas affected by aircraft noise

Development proposals which exceed building height limitations around airports, as shown in Development Plans, will trigger a referral to the Commonwealth Government for assessment.

The South Australian planning system is in transition. The new *Planning, Development and Infrastructure Act 2016* and the State-wide Planning and Development Code replacing the current *Development Act 1993* and associated development plans for each council area being replaced by 2021.

12.4. Aircraft Noise

Guideline A – Measures for Managing Impacts of Aircraft Noise

Over the long term, inappropriate development around airports can result in unnecessary constraints on airport operations and negative impacts on community amenity due to the effects of aircraft noise. These impacts need to be managed in a balanced and transparent way.

Guideline A provides advice on the use of a complementary suite of noise metrics, including the Australian Noise Exposure Forecast system and frequency-based noise metrics, to inform strategic planning and provide communities with comprehensive and understandable information about aircraft noise.

Guideline A Measures for Managing Impacts of Aircraft Noise relates to measures for managing the impacts of aircraft noise.

Chapter 13 of the Master Plan provides a detailed assessment of aircraft-noise exposure associated with Adelaide Airport.

The most effective way to manage aircraft-noise intrusion in areas forecast to be exposed to high levels of aircraft noise is to implement in operation and appropriate land-use and planning controls and acoustic standards for such areas.

AAL has prepared an Australian Noise Exposure Forecast (ANEF) for Adelaide Airport since 1999, with the Federal Airports Corporation developing an ANEF prior to privatisation. The ANEF has been reviewed as part of this Master Plan and was technically endorsed by Airservices in July 2019 (see Appendix B). The ANEF, which is a land-use planning tool to manage noise-sensitive land uses around the airport, provides guidance for the South Australian Government and Local Government authorities to make informed planning and development decisions. Preparation of the ANEF requires consultation with the South Australian Government and Local Government authorities in areas around the airport.

The ANEF underpins *Australian Standard AS2021:2015 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction*, which provides guidance on the siting and construction of new buildings within forecast aircraft noise exposure zones and on the acoustical adequacy of buildings in areas near airports and aerodromes.

New building developments on the airport will be designed to minimise aircraft-noise intrusion and achieve compliance with the Standard.

Within the West Torrens, Charles Sturt and Adelaide City Council Development Plans, areas exposed to current or future aircraft noise have been defined. The planning controls seek to minimise new residential development within such areas.

AAL is working with the State Government to ensure the State planning reform currently underway continues to protect and considers the ANEF, linked to AS2021:2015 for proposed developments.

Guideline A also recommended the use of additional metrics to communicate aircraft noise to the community. This Master Plan also includes noise-above contours as recommended in Guideline A (refer Chapter 13).

12.5. Windshear and Turbulence

Guideline B – Managing the Risk of Building Generated Windshear and Turbulence at Airports

Building-induced windshear can be a problem for aviation operations in cases where structures are situated close to airport runways. When a significant obstacle is located in the path of a crosswind to an operational runway, the wind flow will be diverted around and over the building and can cause the crosswind speed to vary along the runway.

Guideline B presents a layered risk approach to the siting and design of buildings near airport runways to assist land-use planners and airport operators in reducing the risk of building-generated windshear and turbulence. It also provides options to modify existing buildings.

Guideline B Managing the Risk of Building Generated Windshear and Turbulence at Airports relates to building-induced windshear which can be a risk to aviation operations in cases where structures are situated close to airport runways. When a significant obstacle is located in the path of a crosswind to an operational runway, the wind flow could be diverted over or around the building and result in crosswind speeds varying along the runway.

The greatest risk from windshear and turbulence is on landing and take-off, when an aircraft's speed is low and the pilot's ability to respond is more limited.

Guideline B provides technical criteria to assess proposed buildings against the potential to generate windshear or turbulence and offers design techniques to mitigate these effects. AAL has undertaken windshear and turbulence assessments for key development areas at the airport, based on the Guideline B criteria as outlined on the next page.



12.5.1. Airport East Precinct

Any proposed buildings within the Airport East Precinct, and especially those close to the main runway (Runway 23) and the planned hangars, are recommended to be kept at a similar height to the existing buildings (generally single storey i.e. below about ten metres in height). The built form of any proposed buildings closest to the runways are recommended to be rounded in design to reduce the intensity of the wake effects that can occur from blunt, sharp-edged structures.

12.5.2. Terminals & Business Precinct

To limit potential wake effects, future developments within the Terminals & Business Precinct are recommended to maintain similar building heights to existing buildings. This is particularly important for the southern end of the area to the east of Sir Richard Williams Avenue. The proposed car park at the end of the main runway (Runway 23) is recommended to be ground level height.

The expansion of Terminal 1 should be maintained at the same height as the current terminal building. The proposed future western extension of the Terminal 1 building will place it closer to the cross runway (Runway 12) and will be assessed for wake effects, especially for east sector winds.

Within the Burbridge Business Park, the wake effects of the proposed buildings are anticipated to be below the path of approaching aircraft on the cross runway (Runway 12) and as such would not be expected to have a significant impact on flight operations. It is recommended to maintain the current proposed maximum building height of approximately 14 metres for any new development.

In unlikely crosswind conditions, it is likely (and recommended) that the main runway (Runway 05/23) will be used. The main runway is not susceptible to wake interference turbulence from the existing or proposed buildings within the Burbridge Business Park for north to north-east wind directions.

12.5.3. Morphett Precinct

The distance of any proposed buildings within the Morphett Precinct from the northern and southern ends of the main runway (Runway 05) and the cross runway (Runway 30) should be greater than 500 metres and allow for heights of proposed buildings being limited to typical warehouse heights of 10 to 14 metres. Any wake effects on aircraft operations would be expected to have diminished.

The distances of the Morphett Precinct from the eastern end of the cross runway (Runway 12) and northern end of the main runway (Runway 23) are sufficiently large to not be impacted by buildings in this precinct.

12.5.4. Tapleys Precinct

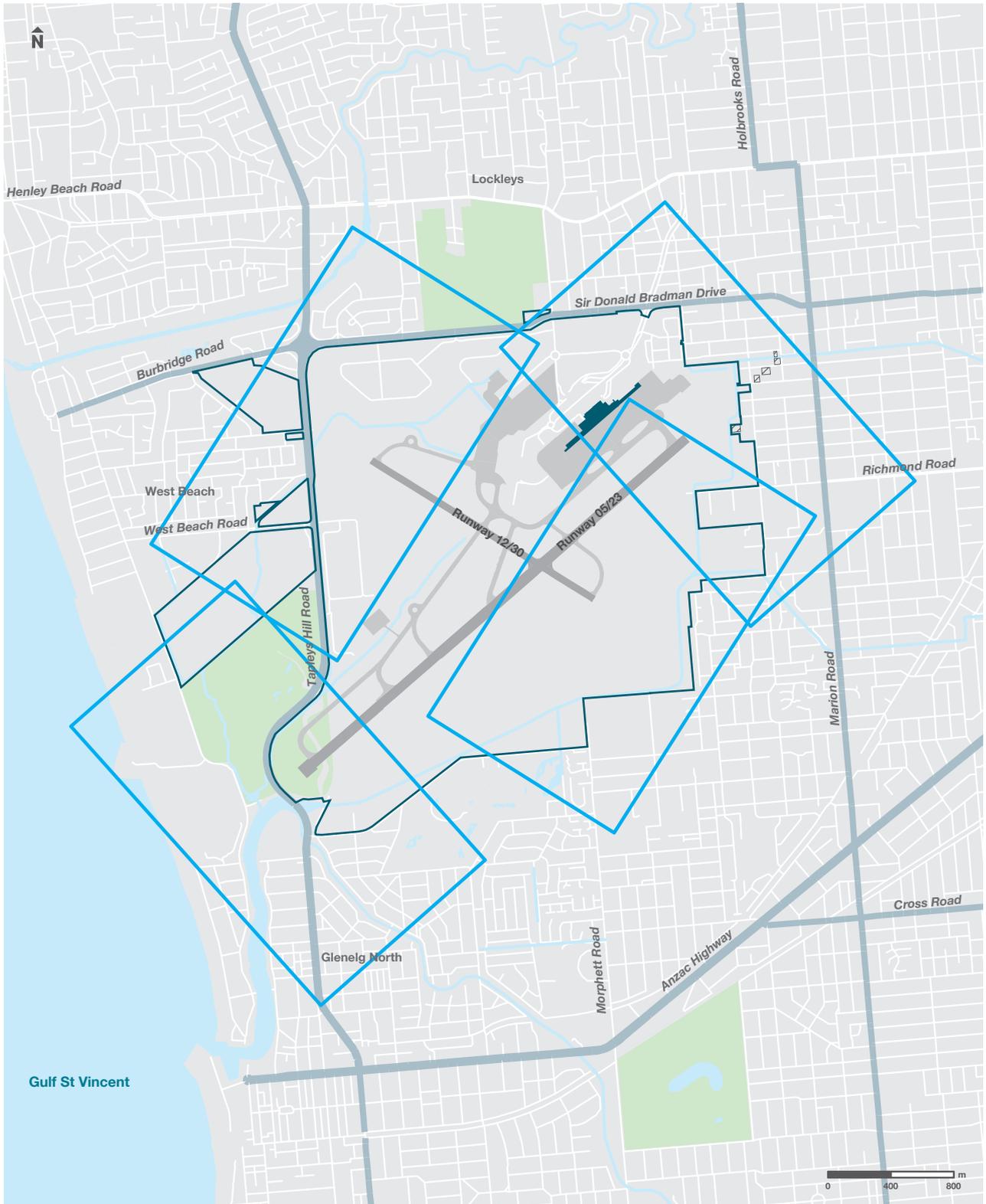
Future planning of structures and buildings should be carefully considered within this precinct, especially the southern end closest to the southern end of the main runway (Runway 05). Any development north of Sir Reginald Ansett Drive or any increase in height of development beyond existing building heights will need to be assessed for effects on aircraft operations from the cross runway (Runway 12).

Any future car parks north of Sir Reginald Ansett Drive are recommended to be at ground level.

12.5.5. Summary

Adelaide Airport will continue to assess proposed developments on the airport for potential to cause windshear or turbulence which could result in any safety issue to airport operations. Based on the Guideline B criteria, a number of windshear assessment envelopes have been defined around runway ends (Figure 12-1). Any proposed developments on the airport that are located in these envelopes will be assessed for windshear and turbulence.

AAL will work with relevant State and Local Governments to ensure that windshear and turbulence are incorporated into the assessment processes for off-airport developments in any areas which could potentially affect runways or flight paths.



LEGEND

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|------------------|--|----------------|-----------------------------|
| Airport Boundary | Taxiways/Aprons | Arterial Roads | Parks, Forests and Reserves |
| Freehold Land | Airport Terminal | Local Roads | Watercourses |
| Runways | Potential Windshear Assessment Envelopes | | |

Figure 12-1: Potential Windshear Assessment Envelopes

12.6. Wildlife Strike

Guideline C – Managing the Risk of Wildlife Strikes in the Vicinity of Airports

Wildlife strikes and/or avoidance can cause major damage to aircraft and/or compromise aircraft safety. While the Civil Aviation Safety Authority has well-established safety requirements for wildlife management plans on-airport, wildlife hazards also occur outside the airport fence.

Guideline C provides advice to help protect against wildlife hazards originating off-airport. Many existing airports are surrounded by areas that are attractive to wildlife, especially birds, but appropriate land use planning decisions and the way in which existing land use is managed in the vicinity of airports can significantly reduce the risk of wildlife hazards.

As the airport operator, AAL is required to manage the risk of wildlife strikes to airport operations in accordance with the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations 1998. AAL's Wildlife Hazard Management Strategy and Wildlife Hazard Management Plan detail the monitoring, assessment, reporting and control measures for managing the risk of wildlife strike. Vegetation mapping, aimed at identifying potential risks, and landscaping guidance, directed at minimising potential risks, are currently focused principally on development activities on-airport.

Guideline C Managing the Risk of Wildlife Strikes in the Vicinity of Airports highlights the importance of reducing the risk of wildlife strikes by appropriately managing the surrounding land uses; particularly as there are often areas surrounding airports that are attractive to wildlife, as is the situation at Adelaide Airport. The main risks are that wildlife could cross the flight path of aircraft or migrate onto the airport.

Figure 12-2 identifies the buffer zones as outlined in Guideline C. Buffer zones are split into three categories: Area A (three-kilometre radius), Area B (eight-kilometre radius) and Area C (13-kilometre radius). The radius is taken from each runway end for the long-term development concept.

Guideline C reiterates the need for airports to prepare a Wildlife Hazard Management Plan and for land-use zoning within 13 kilometres of airports to be appropriately monitored. Airport managers and operators are to work with Local Government

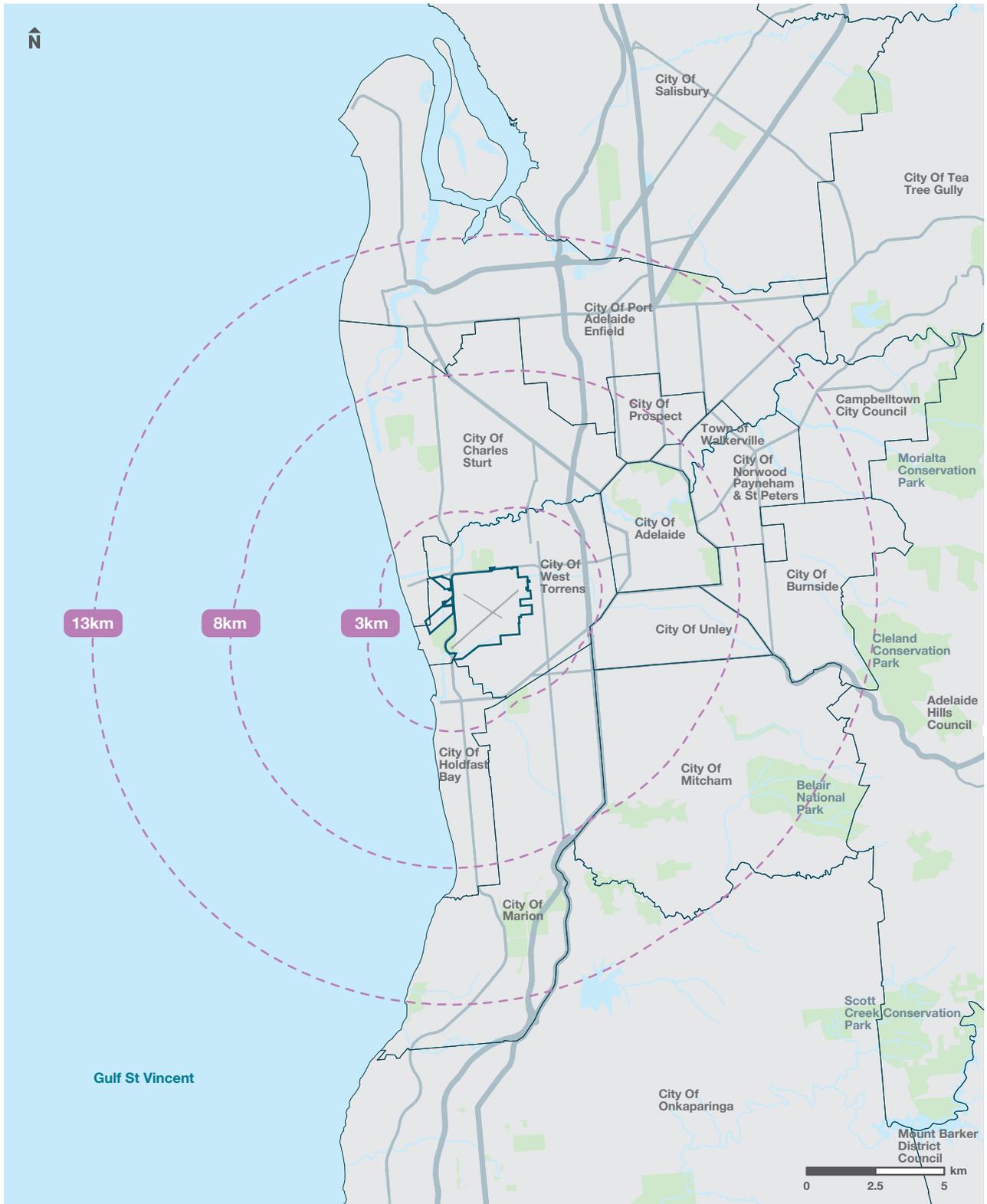
authorities to ensure that land is appropriately used and developed within the vicinity of the airport. An inclusion with this guideline identifies the level of risk for a number of land uses with respect to both new and existing airports, and the suitable distance of any high-risk proposed development from the airport site.

There are currently no established mechanisms within the South Australian planning system to facilitate Adelaide Airport's assessment of off-airport developments with potential implications in relation to Guideline C.

Adelaide Airport has established an Wildlife Hazard Management Group involving surrounding Local Government authorities, golf-course operators and other stakeholders with potential influence on wildlife hazard management.

Adelaide Airport has also instituted off-airport monitoring of wildlife to better understand potential aviation risks. The results of this monitoring are provided to the members of the Wildlife Hazard Management Group to assist in identifying and managing potential aviation risk associated with wildlife hazards.

Any new development and ongoing operational arrangements on the airport must seek to minimise the risk of wildlife strikes through minimising birdlife attraction. Such measures include building design (to minimise nesting opportunities), landscaping species selection, water-detention strategies and waste-management practices.



LEGEND

- Airport Boundary
- Runways
- Wildlife Buffer Zones
- Local Government Authority
- Major Transport Routes
- Parks, Forests and Reserves
- Watercourses

Figure 12-2: Wildlife Buffer Zone

C12

12.7. Wind Turbines

Guideline D – Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation

Wind turbines can constitute a risk to low-flying aviation operations such as agricultural pilots. Additionally, temporary and permanent wind monitoring towers can be erected in anticipation of, or in association with, wind farms and can also be hazardous to aviation, particularly given their low visibility. These structures can also affect the performance of communications, navigation and surveillance equipment operated by Airservices Australia.

Wind turbine farms can be expected to continue to develop as a renewable energy option. Guideline D provides advice on the location and safety management of these and similar structures.

The risk of wind turbines as physical obstacles to air navigation around Adelaide Airport is controlled under the Airports (Protection of Airspace) Regulations 1996 (see Chapter 12.9).

Wind turbine farms are not considered a significant risk to the operations of Adelaide Airport given the highly urbanised nature of the surrounding areas around the airport.

12.8. Lighting at the Airport and Surrounding Areas

Guideline E – Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports

Pilots are reliant on the specific patterns of aeronautical ground lights during inclement weather and outside daylight hours. These aeronautical ground lights, such as runway lights and approach lights, play a vital role in enabling pilots to align their aircraft with the runway in use. They also enable the pilot to land the aircraft at the appropriate part of the runway.

It is therefore important that lighting in the vicinity of airports is not configured or is of such a pattern that pilots could either be distracted or mistake such lighting as being ground lighting from the airport. Guideline E provides advice on the risks of lighting distractions and how these can be minimised or avoided.

Guideline E Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports recognises the potential hazard of inappropriate lighting by specifying appropriate performance standards for lighting installations on and in proximity to airports.

Developers and designers of lighting within a six-kilometre radius of Adelaide Airport are required to comply with lighting guidelines to ensure ground lighting does not interfere with pilot vision on approach to the runways for landing. Advice is available in the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations 1998, Chapter 9 which is available from AAL. CASA has authority under Regulation 94 of the Civil Aviation Regulations 1988 to request interfering lights to be extinguished or modified. The lighting requirements also apply to on-airport developments including aeronautical infrastructure and facilities. Figure 12-3 shows a plan of the lighting control zones around the airport.

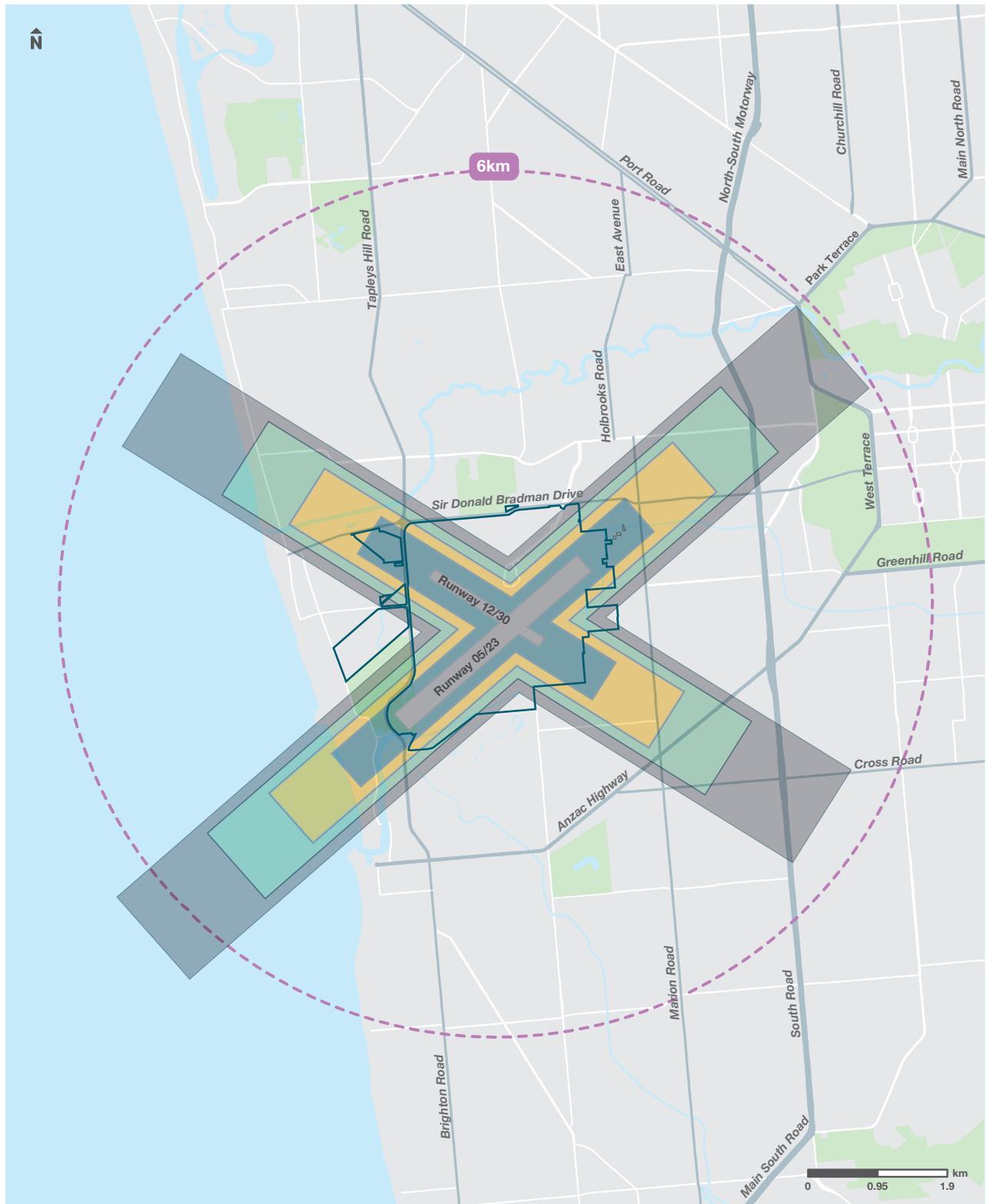


Figure 12-3: Lighting Control Zones

12.9. Protected Airspace

Guideline F – Managing the Risk of Intrusions into the Protected Airspace of Airports

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 Organization. These surfaces are established with the aim of protecting aircraft from obstacles or activities that could be a threat to safety—in particular, high-rise buildings.

Guideline F provides advice for planners and decision makers about working within and around protected airspace, including OLS (Obstacle Limitation Surfaces) and PANS-OPS (Procedures for Air Navigational Services – Aircraft Operation) intrusions, and how these can be better integrated into local planning processes.

Guideline F Managing the Risk of Intrusions into the Protected Airspace of Airports considers the critical nature of obstacles in the vicinity of an airport, whether they are natural or constructed, may seriously limit the scope of an airport's operations.

While it is generally appreciated that tall structures can impact upon airport operations, this is often only considered within the immediate approach and take-off areas, and of structures that are located a short distance away from the airport. While this is of primary concern, it is equally true that objects up to 15 kilometres from the airport and apparently unrelated to the runway alignment can impact upon aircraft approaching or departing an airport – particularly in poor weather conditions or in instances of engine failure.

12.9.1. Airports Act and Airports (Protection of Airspace) Regulations

The Commonwealth Minister for Infrastructure, Transport and Regional Development protects the airspace surrounding an airport in accordance with the directions provided in the Airports Act and Airports (Protection of Airspace) Regulations 1996 (APA Regulations).

The Airports Act defines protected airspace surrounding the airport. Under the Airports Act, any activity which results in an intrusion into protected airspace is prohibited. However, the APA Regulations provide a framework for the assessment and approval of applications to carry out controlled activities (which include buildings, construction cranes, and activities that cause glare, air turbulence or the emission of smoke, dust or other particulate matter) with conditions if certain criteria are satisfied.

Details of proposed controlled activities are required to be provided to AAL for assessment. Any proposed activity that would result in an infringement of the prescribed airspace is referred to Airservices and CASA for assessment before being submitted to the DITRDC for approval. Infringements of the obstacle limitation surfaces (OLS) that are short-term (typically up to three months), such as cranes, can be approved by AAL following an assessment by Airservices and CASA.

Controlled activities within the airport site are identified through the building activity approvals described in Chapter 4. Local Government authorities are required to refer applications for developments or structures that may constitute a controlled activity to AAL for assessment.

In addition, the Civil Aviation Safety Regulations 1998 Part 139 also apply. These regulations set the standards for the establishment of OLS at an airport and regulate the development of instrument procedure designs by CASA and approved entities, including Airservices.

12.9.2. Airservices Australia – Air Traffic Services

Airservices is responsible for the airspace surrounding Adelaide Airport. Within this airspace, Airservice provides aerodrome and approach control services to arriving and departing aircraft, as well as ground control for taxiways and runways. Airservices also provides services to aircraft transiting the designated control zone in which Adelaide Airport is situated.

These operations are conducted in accordance with published procedures, requirements and air traffic control clearances and instructions.



12.9.3. Protected Airspace

International standards have been adopted which define two sets of invisible surfaces above the ground around Adelaide Airport. The airspace above these surfaces forms the airport's protected airspace. These two surfaces are the:

- Obstacle Limitation Surface (OLS)
- Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surfaces

12.9.3.1. Obstacle Limitation Surface

The OLS is a series of surfaces, which determine when an object may become an obstacle to aircraft manoeuvring in the vicinity of an airport, during approach or departure or during circuit flying. The OLS defines protection requirements for the initial and final stages of a flight. During these manoeuvres, appropriate visibility must be maintained for the pilot to see and maintain visual reference to the airport and take responsibility for obstacle avoidance and separation from other aircraft.

The objective of the OLS is to define a volume of airspace, in proximity to an airport, which is to be kept free of obstacles that may endanger aircraft in visual operations or during the visual stages of an instrument flight. The intention is not to restrict or prohibit all obstacles but to ensure that either existing or potential obstacles are examined for their impact on aircraft operations and that their presence is properly considered.

As the OLS is relevant only to visual operations, in exceptional instances it may be sufficient to ensure that the obstacle is conspicuous to pilots by appropriate obstacle marking and lighting as nominated by CASA.

If an obstacle is located in the approach and take-off areas, pilots will be forced to make adjustments to their normal take-off and landing to ensure obstacle clearance. This may restrict the operation of a runway by reducing the available length and impose operational penalties as the aircraft must be lighter to use the remaining runway available. The aircraft may therefore have fewer passengers, less cargo and fuel uplift.

The most stringent requirements apply on the extended centre line of a runway in the approach and take-off areas that extend to 15 kilometres from the runway strip end.

At either side of the runway strip and the approach surface are two OLS components called the transitional surfaces. These are intended to protect an aircraft that encounters severe cross winds during the final phase of the approach to land and may then drift sideways as the pilot decides to 'go around' for another approach to landing.

The OLS surfaces extend to a 15 kilometre radius surrounding the airport. Figure 12-4 displays the OLS Plan for Adelaide Airport under the current runway configuration. An OLS plan representing the reservation of a third runway will eventually be developed.





12.9.3.2. Procedures for Air Navigational Services - Aircraft Operations

A second group of criteria is used to determine the volumes and dimensions of airspace required to protect the safety of aircraft operating under instrument flight rules (IFR). Under IFR operations, pilots are reliant on aircraft instruments for navigation. Airspace protection for IFR operations cannot allow for any long-term penetrations.

The relevant criteria are established by the International Civil Aviation Organization (ICAO) and are published in a document titled Procedures for Air Navigation Services – Operations (PANS-OPS). The surfaces determined in accordance with the criteria in the PANS-OPS publication are called PANS-OPS surfaces.

The PANS-OPS surfaces are used in the construction of take-off, landing and approach procedures which are based on navigation solely reliant on aircraft instruments. They are designed to protect aircraft from colliding with obstacles when flying on navigation instruments. Minimum safe altitudes are established for each segment of an instrument procedure.

The minimum obstacle clearance requirement is simply added to the height of the tallest object under the PANS-OPS surface to determine the minimum or lowest safe altitude to which a pilot may descend in attempting to establish visual reference to the airport. The landing cannot be made unless the pilot 'is visual' at or before reaching this minimum descent altitude.

If the minimum for an instrument procedure has to be raised to account for new buildings or other structures, there may be direct impact on airport usability. The higher this altitude needs to be, the less likely it becomes that a pilot will be able to land during low visibility conditions.

Figure 12-5 and Figure 12-6 display the PANS-OPS chart for Adelaide Airport. There are no changes to PANS-OPS surfaces attributable to this Master Plan timing horizon.

12.9.4. Development Assessments

As noted in Chapter 12.9, Protected Airspace is administered in accordance with the Airports Act and Airports (Protection of Airspace) Regulations.

The airport will endeavour to work with development proponents to ensure buildings are below the obstacle limitation surfaces (OLS) by providing the applicable height limitations.

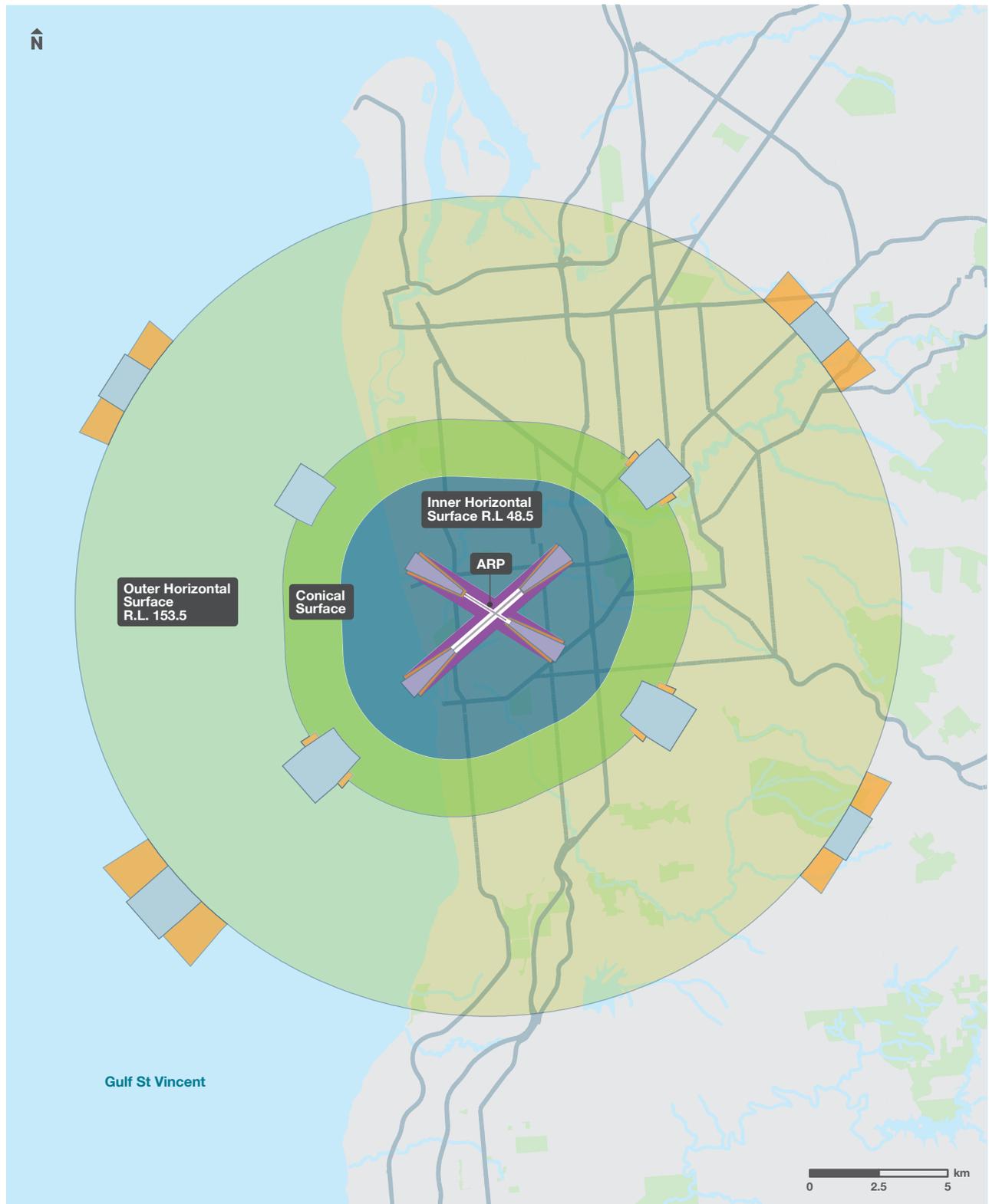
There are areas of the Adelaide metropolitan area where developments are likely to infringe the obstacle limitation surface, requiring assessment in accordance with the Regulations. In the Adelaide CBD generally buildings greater than five stories will, and have, infringed the OLS due to proximity to the airport and elevation of the ground level.

Adelaide Airport will generally support proposed CBD developments that may infringe the OLS but are shielded by surrounding tall buildings in accordance with the CASA Manual of Standards Part 139 Chapter 7.4.1 or supported by an Aeronautical Impact Study.

However, Adelaide Airport will not support developments which potentially infringe the PANS-OPS protected airspace that may diminish aviation safety, prevent optimal procedure design or cause operational limitations.

Adelaide Airport will not support any development that may impact safe operations or limit growth of the airport now or into the future.

All Airservices-designed procedures must be protected against future infrastructure developments. Airservices must be notified about any building developments (and the use of associated construction equipment), to ensure that they will not pose a hazard to aircraft operations, and that all Airservices-designed procedures are safe for aircraft operations. Visual Segment Surfaces (VSS) corresponding to approaches to the runways must be protected from building heights. The height of buildings, or the other developments, must not penetrate the VSS.

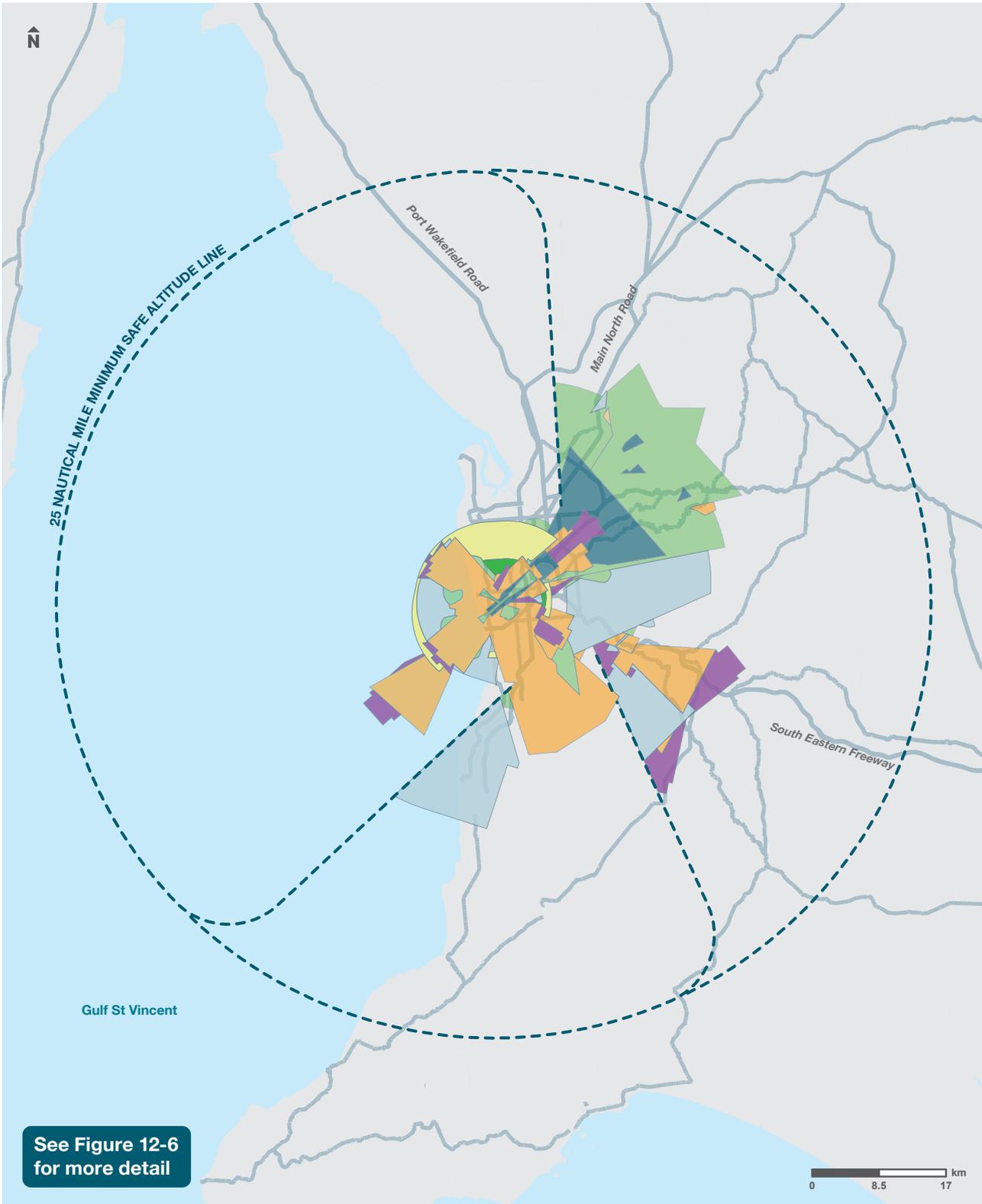


LEGEND

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|-----------------------------|---------------------------------|--------------------------|
| Runways | Aerodrome Reporting Point (ARP) | Outer Horizontal Surface |
| Major Transport Routes | Inner Horizontal Surface | Approach Surface |
| Watercourses | Conical Surface | Take Off Surface |
| Parks, Forests and Reserves | | Transitional Surface |

Figure 12-4: Obstacle Limitation Surfaces (OLS) Plan





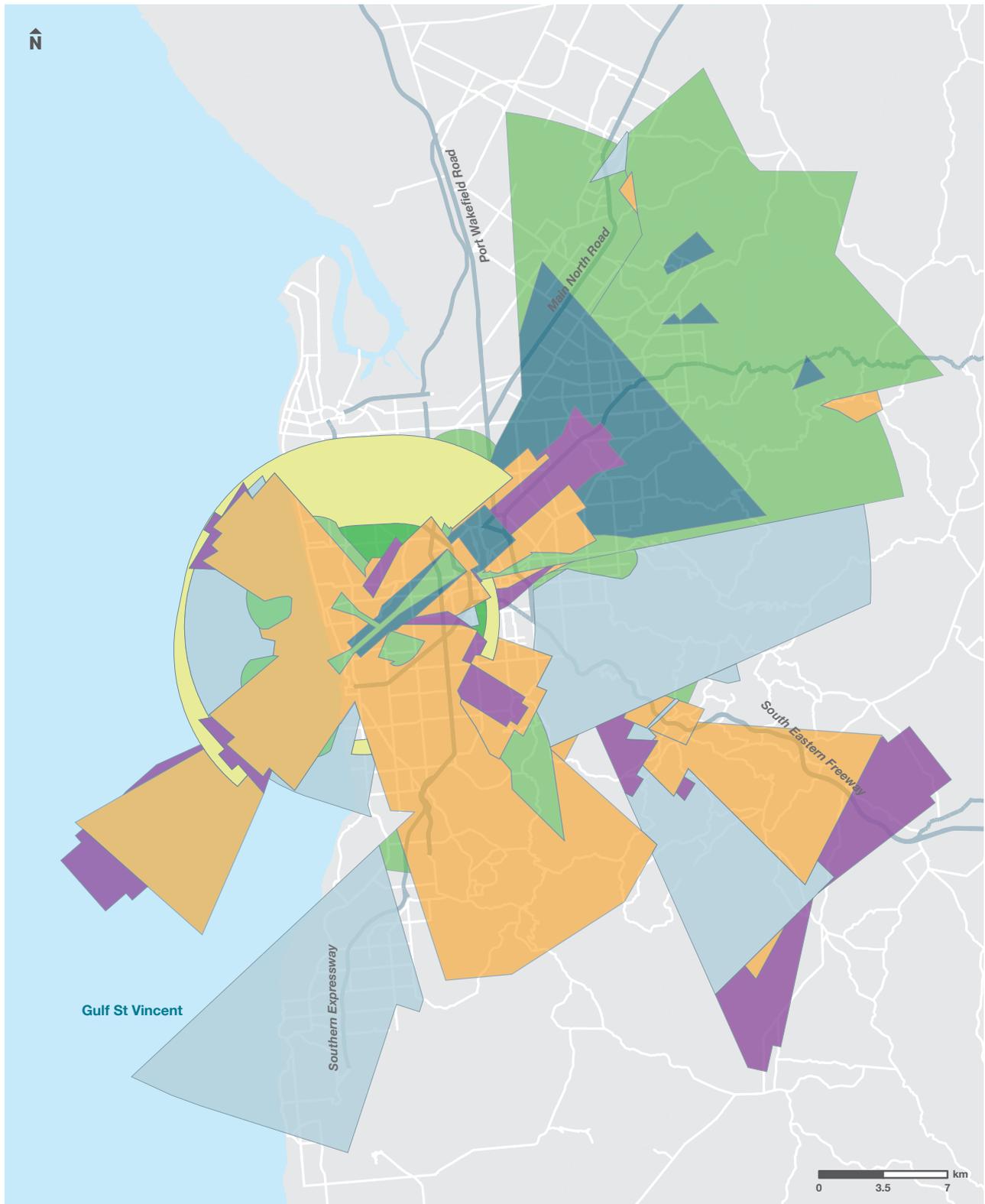
LEGEND

- Runways
- Major Transport Routes
- Local Roads

PANS-OPS

- | | | |
|--|---|--|
| Standard Instrument Departure (SID) Surface | Circling Radii C+D Approach Surface | DME/GPS Arrival Surface |
| Instrument Landing System (ILS) Precision Approach Surface | RNAV (GPS) Approach Surface | VOR Non-Precision Approach Surface |
| Circling Radii A+B Approach Surface | | |

Figure 12-5: Procedures for Air Navigation Services Aircraft Operations (PANS-OPS)



LEGEND

- Runways
- Major Transport Routes
- Local Roads

PANS-OPS

- Standard Instrument Departure (SID) Surface
- Instrument Landing System (ILS) Precision Approach Surface
- Circling Radii A+B Approach Surface
- Circling Radii C+D Approach Surface
- RNAV (GPS) Approach Surface
- DME/GPS Arrival Surface
- VOR Non-Precision Approach Surface

Figure 12-6: Procedures for Air Navigation Services Aircraft Operations (PANS-OPS) inset

12.10. Protecting Communications, Navigation and Surveillance Facilities

Guideline G – Protecting Aviation Facilities – Communication, Navigation and Surveillance (CNS)

Communications, navigation and surveillance (CNS) facilities are crucial to the safe and efficient operation of aircraft. They enable pilots to navigate while between airports, conduct instrument approaches, and to communicate and confirm their position with air traffic control. While such facilities are generally associated with airports, some are offsite and at significant distances from airports. Inappropriate development in the vicinity of these facilities can compromise their effectiveness.

Guideline G is intended to assist land-use planners at all levels in their consideration of these facilities when assessing development proposals and rezoning requests, and when developing strategic land-use plans. It will also guide interactions with Airservices and the Department of Defence on when to consult on development proposals and in gaining up-to-date geographical locations for these facilities.

There are many communications, navigation and surveillance systems operating both on and off airports.

Airservices use radar, radio and satellite communications for the safe and efficient management of aircraft movements on and around airports.

There are additional systems for monitoring wind and other weather parameters by the Bureau of Meteorology to provide up-to-the minute data for pilots and air traffic controllers to safely make decisions about runway selections and landing procedures.

Off-airport, there are navigational aids that assist pilots to navigate en route between airports.

Building restricted areas generally surround the communications, navigation and surveillance systems to ensure development and associated activities do not adversely affect the facility or cause interference to air traffic controllers or aircraft in transit.

The purpose of Building Restricted Areas is to trigger an assessment of potential impacts on such facilities from proposed developments by Airservices. They are not intended to prohibit development except where it would lead to an adverse impact on a communications, navigation or surveillance facility.

CASA is responsible for enforcing safety requirements under the *Civil Aviation Act 1988* (Civil Aviation Act) and the *Air Navigation Act 1920* (Air Navigation Act). Section 21 of the Civil Aviation Act enables CASA to take enforcement action if it believes on reasonable grounds that a development is or may be causing active or passive interference to a communications, navigation or surveillance facility.

When developing near CNS facilities on the airport site, AAL considers Guideline G and works with Airservices to understand and minimise any impacts when necessary.

12.11. Strategic Helicopter Facilities

Guideline H – Protecting Strategically Important Helicopter Landing Sites (HLSs)

The protection of strategically important helicopter landing sites (HLSs) (such as those associated with hospitals) from the adverse impacts of development has become a critical issue in recent years. There have been times where hospital emergency helipads have been closed due to safety concerns arising from the nearby operation of construction cranes.

Guideline H seeks to provide a consistent national approach for land-use planning in the vicinity of these facilities. State and Territory Governments are responsible for identifying HLSs that are considered to be of strategic importance, or those that are to be protected in the interest of public safety.

Guideline H Protecting Strategically Important Helicopter Landing Sites (HLSs) applies to the protection of strategically important helicopter sites located off airport.

Even so, helicopter landing sites away from Adelaide Airport are linked to the on-airport helicopter landing sites and so are of interest to the airport. For instance, one of the more frequently flown helicopter routes in Adelaide is between the medical retrieval and transfer helicopter base in the Tapleys Precinct and the helicopter landing site at the Royal Adelaide Hospital. Thus, the interaction of the two sites is important, particularly the safety of the helicopter flight paths between the two sites and any interaction with fixed-wing flight paths.

12.12. Public Safety Areas

Guideline I – Managing the Risk in Public Safety Areas at the Ends of Runways

Public safety areas (PSAs) are designated areas of land at the end of airport runways within which certain planning restrictions may apply. While air crashes are rare events, the majority occur in the vicinity of airports during take-off and landing. The PSAs Guideline was developed to mitigate the risk of on-ground fatalities from an aircraft incident by informing a consistent approach to land use at the end of Australian airport runways.

Guideline I Managing the Risk in Public Safety Areas at the Ends of Runways was formally adopted by the Standing Committee on Transport and Infrastructure in 2018 to guide the State and Territory governments in the implementation of Public Safety Areas at the ends of runways at major airports.

Public Safety Areas are defined areas of land on and off-airport at the end of an airport runway within which certain planning restrictions may apply. Public Safety Areas are defined using risk-assessment models to determine acceptable levels of risk for given land uses. The risk considered is the risk of an aircraft crash which affects public safety.

The purpose of these areas is to restrict, through the introduction of future land-use planning controls, over time; to decrease the number of people living, working or congregating in the zone; and limit or remove the storage of hazardous materials in the defined areas.

The introduction of the Guideline is the responsibility of South Australian Government following the State Government signing an agreement with the Commonwealth Government. Adelaide Airport has engaged with the Department of Planning, Transport and Infrastructure in assessing the best way of introducing the Public Safety Areas.

For developments on the airport site, public safety areas are considered by AAL in the approval process when assessing any proposed developments on the airport.

