PDNSW

Aeronautical Impact Assessment — Coffs Harbour Jetty Foreshore State Assessed Planning Proposal

Report 1.2.2

28-Feb-2025

strategic airspace

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Property & Development NSW
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Document Title:	**Aeronautical Impact Assessment — Coffs Harbour Jetty Foreshore State Assessed Planning Proposal**		

Purpose / Abstract:

Property and Development NSW (PDNSW) is continuing to lead the revitalisation of the Coffs Harbour Jetty Foreshore Precinct (the Precinct) on behalf of the NSW Government. Strategic Airspace (StratAir) has been engaged by PDNSW to prepare this aeronautical impact assessment (AIA) report to assess and report on the potential impact (or lack thereof) of the Illustrative Masterplan on the current and future planned airspace, flight traffic and operational requirements of the nearby Coffs Harbour Airport (CHA / YCSF).

The Illustrative Masterplan supporting this State Assessed Planning Proposal was assessed to have no adverse impact on safeguarding factors.

It was also noted that airspace clearances are considered sufficient for cranes that may be required for construction of the proposed developments without infringing protected airspace.

There are no specific mitigation measures required. However, it is recommended that the Planning Justification Report or Design Guide include a provision that future developments in the Precinct be subject to External Lighting Control Zones that would be applicable if the main runway was extended to the north.

Given the above, this AIA supports the State Assessed Planning Proposal because it would not adversely affect the safety, regularity or efficiency of current and future air transport operations to/from Coffs Harbour Airport.

Contract:	-	*StratAir Ref:*	22.014

Change History

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1.0	08-Mar-2024	P. Haubourdin, C. Pak-Poy	C. Pak-Poy	Editorial amendments
1.1	12-Mar-2024	C. Pak-Poy	P. Haubourdin / C. Pak-Poy	Updated images of Precinct & Rezoning Boundaries, & Structure Plan
1.1.1	15-Mar-2024	P. Haubourdin	C. Pak-Poy	Updated precinct names
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1.1.3	04-Jun-2024	P. Haubourdin	C. Pak-Poy	Standard planning text update
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Distribution Control

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1.2.2	28-Feb-2025	Amended FINAL report	Uncont	StratAir Intranet, Client

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This AIA supports a Planning Justification Report that outlines proposed amendments to the Coffs Harbour Local Environmental Plan (CHLEP) 2013 and will be submitted to the Department of Planning, Housing and Infrastructure (DPHI) as part of a State Assessed Planning Proposal (planning proposal).

All airspace and airport safeguarding aspects raised in the currently published Coffs Harbour Airport Masterplan, Updated 2019 (CHA APT MP) were assessed for potential impact by or on the State Assessed Planning Proposal's Illustrative Masterplan. The assessment considered the existing runway configuration and potential future extensions of the main runway, RWY 03/21, based on the 2619m length proposed in the airport's masterplan and the full 2700m length previously approved by Council.

Figure 1-1 — Site Location in relation to Coffs Harbour Airport

The State Assessed Planning Proposal will have no adverse height impact on CHA's Prescribed Airspace. All proposed buildings in the Illustrative Masterplan will be below the OLS (for all runway options), and so none would require a prior airspace approval.

Further, the Illustrative Masterplan was assessed to have no impact on other safeguarding factors. The only exception to this is that the potential aircraft noise impact could not be assessed because the ANEF noise map in the CHA APT MP was so outdated that it could not be used as a valid benchmark for assessment. For more detail on this aspect, refer to the separate Acoustic (Aircraft Noise) report by Acoustic Logic.

It was also noted that airspace clearances are considered sufficient for cranes that may be required for construction of new properties as a result of the proposed rezoning without infringing protected airspace.

There are no specific mitigation measures required.

This AIA supports the planning proposal.

That said, it is recommended that the Planning Justification Report or Design Guide include a provision that future developments in the Precinct be subject to External Lighting Control Zones that would be applicable if the main runway was extended to the north. It is also recommended that any future Development Control Plan amendments resulting from approval of this State Assessed Planning Proposal include a custom External Lighting Control Zone map for guidance.

2. Introduction

Property and Development NSW (PDNSW) is continuing to lead the revitalisation of the Coffs Harbour Jetty Foreshore Precinct (the Precinct) on behalf of the NSW Government. Strategic Airspace (StratAir) has been engaged by PDNSW to prepare an aeronautical impact assessment (AIA) report to assess and report on the potential impact (or lack thereof) of the State Assessed Planning Proposal on the current and future planned airspace, flight traffic and operational requirements of the nearby Coffs Harbour Airport (Airport Codes: CHA / YCSF).

This AIA report supports a Planning Justification Report that outlines proposed amendments to the Coffs Harbour Local Environmental Plan (CHLEP) 2013 and will be submitted to the Department of Planning, Housing and Infrastructure (DPHI) as part of a State Assessed Planning Proposal (planning proposal).

As Coffs Harbour continues to grow as a Regional City, the NSW Government and Coffs Harbour City Council have, through various strategic planning exercises, identified four key strategic priorities to reimagine its direction and respond to current and future challenges and opportunities:

- Delivering a regional economy (CHCC LSPS, 2020; CH Economic Development Strategy, 2017) that is diverse, sophisticated and able to retain businesses and skills
- Evolving the tourism offering (CHCC LSPS, 2020) with improved attractions, activities and accommodation
- Providing more housing (CHCC LSPS, 2020) in accessible locations, including affordable housing
- Providing better connections between places with more sustainable movement choices (CHRCAP, 2021; CHCC, 2020)

As a large, strategically located and wholly government owned site, the Precinct represents a significant opportunity to deliver on each of these key regional priorities. In this planning proposal, PDNSW seeks to celebrate the unique location, history and culture of the Jetty Foreshore to deliver outcomes for the benefit of the Coffs Harbour community. The revitalisation will be staged and funded, over time, to deliver the shared community vision.

2.1 Our Shared Community Vision

Coffs' family playground, a precinct of parks and places, that connects community with Country. The community is and always has been at the heart of creating a thriving regional economy and destination for Coffs Harbour. Shaped with the community, our vision is to ensure The Jetty Foreshore will become a world-class oceanfront precinct through the principles shown in Figure 2-1.

Figure 2-1 — Vision for the Coffs Harbour Jetty Foreshore

2.2 The Precinct

The Precinct, wholly owned by the NSW Government, is strategically significant to the State and to the Coffs Harbour region. The Precinct is located on the traditional lands of the Gumbaynggirr people, in saltwater freshwater Country. It encompasses approximately 62 hectares of foreshore land, 5km east of the Coffs Harbour CBD, located on the Coffs Harbour coast with direct access to the Pacific Ocean. Access is provided on Marina Drive in the north, and Camperdown Street in the south, with Jordan Esplanade bisecting the site north to south. A Precinct map showing existing conditions is provided at Figure 2-2 below.

The west boundary is generally defined by the railway line and Coffs Harbour Railway Station. To the north the Precinct borders a culturally significant site known as “Happy Valley”, which has been returned as freehold land to the Coffs Harbour and District Local Aboriginal Land Council. Gallows and Boambee Beaches are located to the south of the Precinct, where Littoral Rainforest occurs. Coffs Harbour itself, the Pacific Ocean, Muttonbird Island and South Coffs Island (Corambirra Point) form the eastern boundary.

The Precinct is a popular destination for both locals and tourists offering a variety of attractions and amenities. These include Jetty Beach and extensive parklands with biodiversity value, as well as items of heritage significance such as the Coffs Harbour Jetty and Ferguson’s Cottage, owned by the Coffs Harbour District Local Aboriginal Land Council (LALC). Further, the Coffs Harbour Fisherman’s Co-op, the Coffs Harbour Yacht Club, weekly Sunday markets, and community hub building (recently delivered by PDNSW) are located within the Precinct. Various public works including breakwater and boat ramp upgrades have been undertaken over recent years to support the marina function.

There are redeveloped and well-maintained parts in the area however, much can be done to enhance the Coffs Harbour Jetty Foreshore Precinct. A large portion of the Precinct is currently gravelled, and a large area of residual railway land is fenced off and inaccessible to the public, as shown in Figure 2-3. While gravelled areas provide informal overflow parking, they do not reflect the potential of this foreshore.

Source: SJB

Figure 2-2 — Coffs Harbour Jetty Foreshore Precinct

Source: PDNSW

Figure 2-3 — Existing state of the Precinct rail lands and gravelled areas

2.3 The Illustrative Masterplan

The planning proposal is supported by an Illustrative Masterplan (Figure 2-4) that presents a potential development outcome that could be realised at the Coffs Harbour Jetty Foreshore Precinct – it is not prescriptive nor is it determined. The Illustrative Masterplan builds on the shared vision created via extensive community and stakeholder consultation and provides further detail in relation to land use and development outcomes sought for the Precinct.

The Place Principles shown in Figure 2-5, agreed with the community, guided the formation of the Illustrative Masterplan.

The Illustrative Masterplan is broadly organised across six sub-precincts that will each have a distinct character and function. These are identified as:

1. Foreshore Parklands – with improved amenities, proposed new board walk and nature-based playground.
2. The Marina – An active marina revitalised to accommodate local marine based businesses that reflect their regional importance.
3. North Park – Functional open space with recreational courts and formalised parking.
4. Jetty Hub – A hub of residential and tourist accommodation supporting activation, tourism and regional attraction located adjacent to the current Jetty Walkway, with massing capped at 6 storeys stepping down in scale when closer to public areas.
5. Activity Hub and Village Green – An active village green that delivers increased public open space connected to the existing foreshore parklands and may include family-friendly food and beverage, community uses and club houses or facilities to support events. A local business activity zone connected to the rail station.
6. Corambirra Point – A new regional tourist destination on the site of the former Deep Sea Fishing Club site including publicly accessible cafes and restaurants, a function space, activity centre and tourist accommodation.

A precinct map showing the Illustrative Masterplan and the six distinct zones is provided at Figure 2-6.

Source: SJB

Figure 2-4 — Illustrative Masterplan

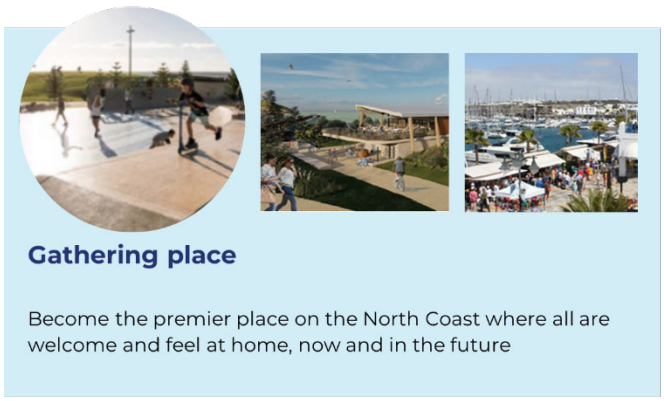
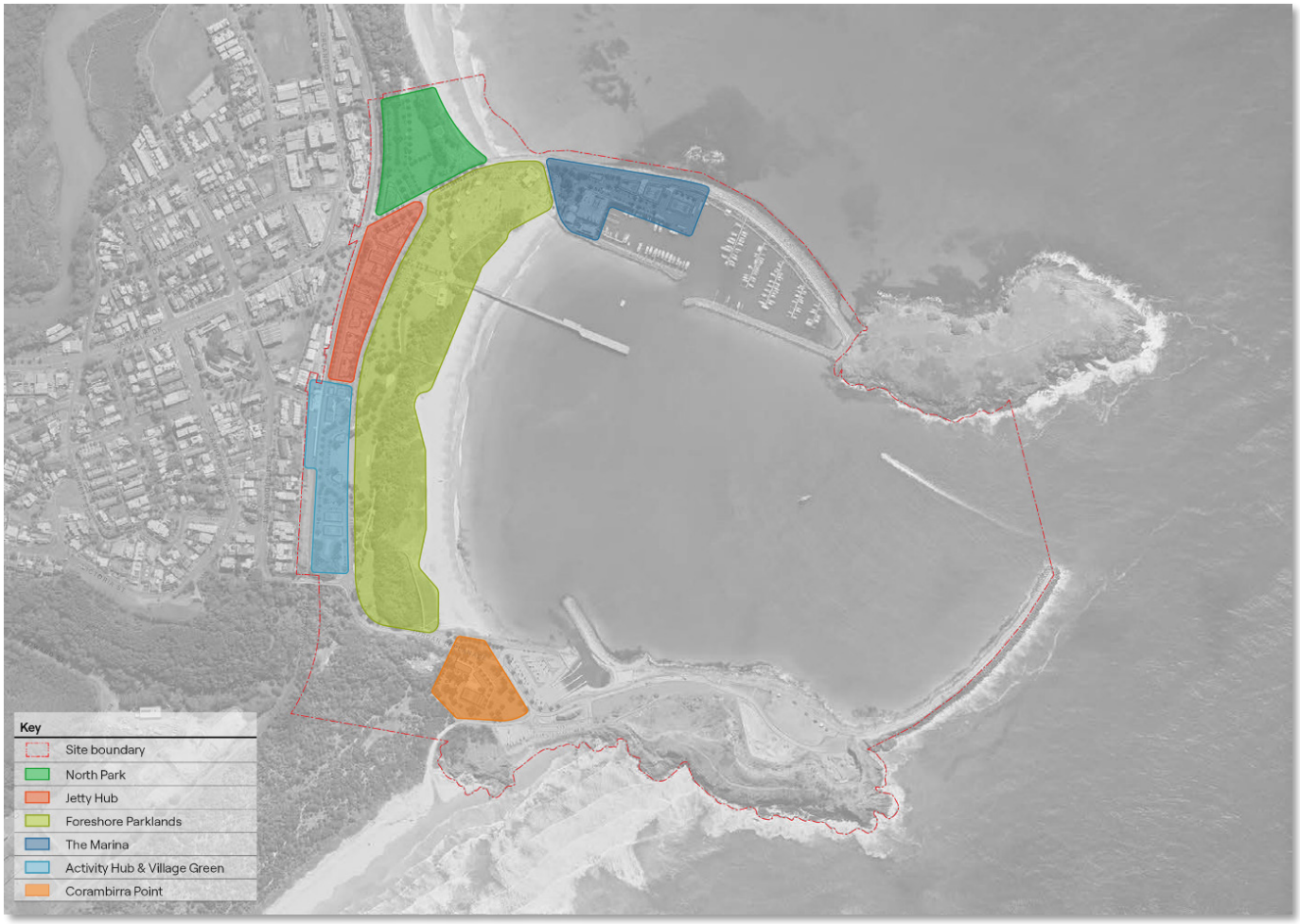


Figure 2-5 — Community-led place principles



Source: SJB

Figure 2-6 — Sub-precinct Map

2.4 The Planning Proposal

The master planning of large-scale precincts follows a highly consultative and stepped approach. The current step, which paves the way for the revitalisation of the Coffs Harbour Jetty Foreshore Precinct, is the application for a State Assessed Planning Proposal, which is a legislated process.

PDNSW is lodging a planning proposal with the Department of Planning, Housing and Infrastructure that seeks approval for:

- Changes to permissible land uses
- Changes to permissible maximum building heights
- Planning controls for future State Significant Development Applications including design guidelines and design excellence processes

This AIA supports this planning proposal.

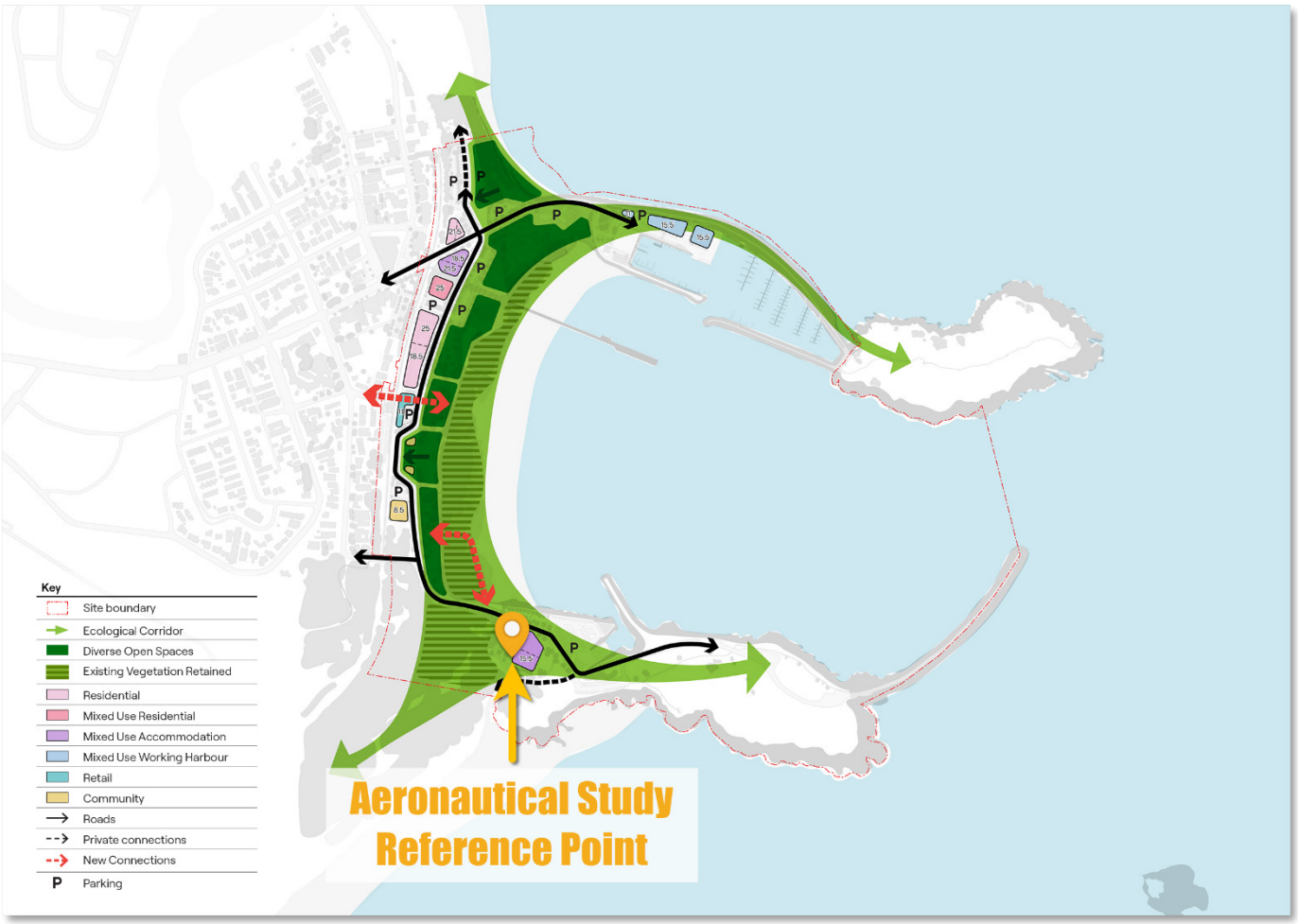
3. Aeronautical Impact Context

The aeronautical assessment takes into consideration the following:

- Heights of the buildings proposed in the Illustrative Masterplan, as well as the airspace available for cranes that may be required for construction.
- Other airport safeguarding factors, as listed in Table 3-3 below (p12).

3.1 Key Reference Points used for Analysis

A single reference point (Pt.Ref) was used for the aeronautical impact assessment – the south-western point of the main building on the new regional tourist destination on the site of the former Deep Sea Fishing Club at the southern end of the Precinct. This point was selected because not only was it the closest point of the proposed development to the main runway, but it was also the tallest of the proposed buildings. The height assigned to this building in this assessment is conservative: it is based on the tallest of the proposed building heights, which is also located closest to the airport (refer Table 3-1 below). Any final height lower than the assessed maximum height will result in larger airspace clearances and reduced risk of impact on aviation safety.



Source: SJB Architects (Structure Plan), Annotated by StratAir

Figure 3-1 — Coffs Harbour Structure Plan & the Aeronautical Study Reference Point

Table 3-1 — Assessment Reference Points & Coordinates

Key Reference Points	*Point*	*Assessment Height (m AHD*)*	*WGS84 Geographic Coordinates*	*GDA94 Coordinates (Zone 56)*
New Regional Tourist Destination *on the site of the former Deep Sea Fishing Club*	**Pt.Ref**	**29.30**	30° 18' 41.00" S 153° 08' 26.55" E	513528.43 E 6646701.03 N

***** *Assessment Heights — Indicative Max RLs for of the Proposed Tower Building*
m AHD = RL Heights expressed in Metres Australian Height Datum (AHD)

3.1.1 Note about Heights: Australian Height Datum (AHD) vs Above Ground Level (AGL)

All "heights" provided in this document (unless expressly signified otherwise) are elevations expressed in metres in the Australian Height Datum (AHD) — and thus they are true elevations, and NOT heights above ground level (AGL).

Note also for aviation-related airspace height limits, any building height approval under the Airports (Protection of Airspace) Regulations is regarded as inclusive of the building itself, plus all rooftop furniture, overruns (plant buildings, lift risers, antennae, etc) and even rooftop vegetation).

3.2 Site Location relative to Coffs Harbour Airport

Table 3-2 below details the distances of Pt.Ref. to the airport and the northern end of the runway, as it currently is, and with the planned and potential future runway extension.

The Airport Master Plan (APT MP) specifies that with any plans for extension of the main runway to the north, the landing threshold (RWY21 THR) will remain in the same location (for noise abatement reasons). Whilst Council approved an extension of the runway to a full length of 2700m, the APT MP currently caters for a full extended runway length of 2619m – with the planned extension to the north of the Departure End of Runway (DER) of 395m being limited due to regulatory technical specifications.

The reasons for this limitation related to the width of the OLS Runway Strip, which at the time had to be 300m wide. As current regulations now permit the Runway Strip to be reduced to 280m wide, this potentially allows to the runway to be extended further. For this reason, the assessment also considers a potential further extension of 81m of the DER for RWY03 take-offs to the north.

Table 3-2 — Project Reference Point Pt.Ref Location in Relation to Coffs Harbour Airport

Airport Feature	*Distance (km)*	*Distance Type*	*Bearing*
Aerodrome Reference Point (ARP)	2.513	Direct	066.9°T (055°M)
RWY21 Threshold	2.392	Direct	053.7°T (042°M)
RWY21 Threshold (Existing & Future)	2.331	Along RWY CL	
RWY03 DER (North Take-Off) (EXISTING)	2.270	Along RWY CL	
RWY03 DER Extension (APT MP LEN 2619m)	1.876	Along RWY CL	
RWY03 DER Extension (Council LEN 2700m)	1.795	Along RWY CL	

3.3 Methodology

The report considers the airspace of the nearest airport, Coffs Harbour Airport.

The airspace protection and airport safeguarding factors listed in Table 3-3 below are considered in this report. These include all relevant items noted in the APT MP are considered in this study. Other references that the APT MP refers to, such as National Airport Safety Framework (NASF) guidelines are also listed.

Table 3-3 — Protection & Safeguarding Factors Considered

Item	*CHA MP References*	*Other References*
Prescribed Airspace (OLS)	S10, 10.1, Figures 10.1 & 10.2 (*Current Runway Layout*), Figures 10.3 & 10.4 (*RWY 03/21 extended*)	NASF Guideline F
Prescribed Airspace (PANS-OPS)	S10, 10.2	NASF Guideline F
Communications Navigation & Surveillance (CNS) Facilities	S10, 10.3	NASF Guideline G
Lighting External to the Airport	S10, 10.4, Figure 10.12	NASF Guideline E Civil Aviation Regulations (Reg 94) & Civil Aviation Safety Regulations 1998 Part 139 (Aerodromes) Manual of Standards 2019 (as amended)
Risk of Building Generated Windshear & Turbulence	S9 (*Airport Enterprise Park etc*) Windshear mentioned in 9.4.4 (*Aviation Operational Requirements*)	NASF Guideline B
Other Airspace Considerations - ATC & ARFF	S10, 10.5 10.5.1 & 10.5.2	—
Environmental Considerations - Aircraft Noise - Hazard & Risk (RESA & PSA)	S12 12.1 12.4	 NASF Guideline A NASF Guideline I (PSA)

With regard to the influence on the proposed rezoning, the following elements of the airport's prescribed airspace have been considered.

3.3.1 Prescribed Airspace

- **Obstacle Limitation Surfaces (OLS)**
  - The OLS are used to identify buildings and other structures that may have an impact upon the safety or regularity of aircraft operations at an airport. This impact depends upon both the type of operations at the aerodrome and which OLS surfaces are penetrated by a (proposed) building or structure.
  - The OLS are flat and rising (invisible) surfaces around the airport. They are based on the geometry of the airport and its runways and therefore they rarely change.
  - If a permanent building development (or temporary crane) that is proposed at a height that will penetrate (exceed) the height limit of an OLS, then an application must be made to the Commonwealth Department of Infrastructure, Transport, Regional Development, Communications & the Arts (DITRDCA) — via the closest airport, and with copies to any other potentially affected airport — for an airspace height approval prior to construction of the permanent development &/or erection of the temporary crane obstacle. Such applications should demonstrate the proposed building does not penetrate or adversely affect surfaces protecting the instrument flight procedures (PANS-OPS surfaces); radar vectoring; navigation

infrastructure; or anything else that might affect the safety or regularity of operations at the airport.

- **PANS-OPS Surfaces**
  - PANS-OPS (Procedures for Air Navigation Services – Aircraft Operations) surfaces represent the protection surfaces for published instrument flight procedures to and from the airport. These surfaces comprise flat, sloping and complex surface components.
  - PANS-OPS surfaces must not be penetrated by permanent buildings or structures. However, for a variety of reasons, PANS-OPS surfaces can and do change over time. Approval may be granted, under certain conditions, for temporary obstacles (such as cranes) which at their maximum height would infringe the limiting PANS-OPS surface, and in such cases operation at such heights would most likely be capped by the RTCC surface constraint (see below) and limited to 3 months duration.
  - As flight procedures are changed from time to time (usually by Airservices), the PANS-OPS Surface Plan published by an airport may not reflect the current situation — which is why we not only reference the airport's plans but also review the published charts for current (or pending) instrument flight procedures and evaluate the associated PANS-OPS height limits. The regulations also make a provision for any factor which may be deemed to adversely affect the safety, regularity or efficiency of aircraft operations at an airport. In light of this, it is necessary to consider the following factors.

3.3.2 Other Considerations

- **Visual Flight – General Aviation**
  - General aviation doesn't fly in accordance with pre-determined flight paths. General aviation pilots are required to visually remain separation from terrain and obstacles, hence consideration of general aviation flight safety is limited to ensuring such pilots have the required manoeuvring space to land/take-off on/from the relevant runways.
- **Type A Impact (for Aircraft Performance Calculations)**
  - Type A surfaces are assessment surfaces where all obstacles penetrating the surface are published to allow commercial operators to establish non-standard procedures for engine out operations. Obstacles penetrating these surfaces might have an impact on aircraft load capacity as they will be required to maintain a steeper climb gradient in the unlikely event of an engine failing during take-off.
- **Communications, Navigation & Surveillance / Air Traffic Management Factors (CNS/ATM) Impact**
  - Equipment used for communications, navigation & surveillance may be impacted by objects erected in their vicinity. Air traffic management may also impose further restrictions to ensure the safety of the services they provide (ie to safeguard minimum vectoring altitudes etc).
- **External Lighting Constraints**
  - Aviation lights are critical for the safe operation of aircraft in close proximity to the runway, where such lights are used by pilots to verify the location of the runway in the dark and poor visibility conditions. To ensure non-aviation lights do not distract from the necessary aviation lights lighting control zones are established in the vicinity of runways used for instrument flight operations.
- **Windshear**
  - Buildings and other constructions may generate wind turbulence as the wind blows around them. To prevent any buildings to generate undesired turbulence in the area of final approach to a runway, windshear assessment surfaces are established around the threshold of runways used for commercial transport operations.
- **Other Airspace Considerations — ATC / ARFF Operations**
  - Air Traffic Control (ATC) and Airport Rescue and Fire Fighting (ARFF) services have certain requirements with regards to visibility and access to ensure they can perform their duties: ATC requires unobstructed view of the approach and departure areas, ARFF requires unobstructed access to areas under the final approach paths.

- **Environmental Considerations — Aircraft Noise**
  - Properties in the vicinity of the approach and departure paths of aircraft may be affected by the noise from aircraft operations. Areas expected to be subject to high levels of noise pollution from aircraft would not be suitable for certain types of development (eg residential properties).
- **Environmental Considerations — Hazard & Risk (RESA & PSA)**
  - Properties in the area defined for the Runway End Safety Area (RESA) would be considered unacceptable; however, properties in the area defined for a Public Safety Area (PSA) may not be considered as unacceptable hazards. This is discussed further in sections 4.3.8 (p21).

3.3.3 Mitigations

Mitigations, including the potential need for obstacle lighting, are also considered where relevant.

4. Analysis

4.1 OLS Analysis

Figure 4-1 — OLS Impact over the Precinct

There are no infringements of the OLS. All proposed developments will be below the limiting height of relevant OLS surfaces — both for the existing runway configuration and the proposed 395m extension to the north.

The new aeronautical assessment reference point is under the OLS Inner Horizontal Surface (IHS) only. All other proposed buildings in the Precinct are also under the Inner Horizontal Surface, as well as the OLS Approach and Take-Off Climb surfaces where they slope above the height of the Inner Horizontal Surface.

These surfaces are depicted above in Figure 4-1. The OLS RWY21 Approach Surface shown is based on the now permissible 280m Strip Width. OLS RWY03 Take-Off Climb Surfaces for take-offs to the north are shown for the existing situation, and for the proposed 395m extension of the RWY03 DER to the north (shaded). The same surface as it would be for potential future additional extension of 81m (allowing the full runway to be extended to the Council-approved length of 2700m) is also shown.

Table 4-1 — Current & Potential Future OLS Impact

Main Runway Status	*Building(s)*	*Limiting OLS Surface*	*Surface Height*,***	*Clearance (m)***
RWY 03/21 Existing	Reference Building (PtRef)	Inner Horizontal Surface (IHS) ¶	47.50	18.20

Main Runway Status	*Building(s)*	*Limiting OLS Surface*	*Surface Height*,***	*Clearance (m)***
	All other proposed buildings in the Precinct**	Inner Horizontal Surface (IHS)	47.50	> 20.40
APT MP 395m Extension Runway Length 2619m	Reference Building (Pt.Ref)	Inner Horizontal Surface¶	47.50	18.20
	Buildings in the Activity Hub and Village Green	RWY03 Take-Off Climb (Revised)	> 43.02	> 29.02
	All other proposed buildings in the Precinct	Inner Horizontal Surface¶	47.50	> 20.40
476m Extension to the North (Council-approved Runway Length 2700)	Pt.Ref – New Regional Tourist Destination Office	Inner Horizontal Surface¶	47.50	18.20
	Buildings in the Activity Hub and Village Green	RWY03 Take-Off Climb (Revised v2)	> 41.40	> 27.40
	All other proposed buildings in the Precinct	Inner Horizontal Surface¶	47.50	> 20.40

¶ *Buildings and cranes may infringe the OLS Inner Horizontal Surface, if the maximum height does not exceed the limiting height of the PANS-OPS surface overhead and subject to risk assessment.*

Note also that cranes that would penetrate the OLS Approach and Take-Off Climb Surfaces are not normally considered acceptable by the Civil Aviation Safety Authority (CASA), in accordance with relevant clauses in the Manual of Standards Airports (Part 139) As Amended[1], pursuant to the Civil Aviation Safety Regulations 1988.

* *All heights are in Metres Australian Height Datum (AHD), equivalent to RL*

** *The limiting Surface Heights and Clearance values for all buildings, other than the New Regional Tourist Destination building are conservative and higher than indicated.*
The Surface Height indicated for these buildings is taken at the location where Pt.Ref is along the Runway Centreline, which means the sloping RWY03 Take-Off Climb Surfaces will be higher than depicted as they continue to rise across the site. Clearances reported are based on the height of the tallest building in each area.

The clearances between the limiting surfaces and the tops of the proposed buildings, as indicated in Table 4-1 above, are estimated to be sufficient for cranes and any other facilities (eg, hoists, etc) that may be required for construction.

Note also that the proposed development would not have any impact at all on the OLS Approach and Take-Off Surfaces for the short cross runway, Runway 10/28.

Obstacle lighting will not be required for any of the proposed buildings because they will not infringe the limiting OLS surfaces.

4.2 PANS-OPS Analysis

As the proposed built development is below the limiting OLS surfaces, they would not require prior airspace approvals — and therefore technically there is no need to assess the PANS-OPS surfaces overhead.

However, impact on the PANS-OPS surfaces has been assessed for completeness, and also to provide an indication of available airspace for cranes required for construction of the proposed new regional tourist destination building.

As it is improbable that cranes would be permitted to exceed the OLS Approach & Take-Off Climb surfaces, the PANS-OPS surface height is only applicable as a maximum potential

1 https://www.legislation.gov.au/Details/F2020C00797

height for cranes that may be required to construct the building on the new regional tourist destination on the site of the former Deep Sea Fishing Club site at Pt.Ref (which lies outside those OLS approach and take-off surfaces).

The PANS-OPS procedures included in the CHA MP may not accurately represent the procedures currently flown, as they have been updated since the Airport's MP was last updated. This is why for this AIA we have assessed impact against the PANS-OPS flight procedures currently published by Airservices Australia[2], as listed in Table 4-2 below.

Table 4-2 — Coffs Harbour (YCFS): Current PANS-OPS Procedures

Chart	*Chart Effective Date (Amendment No)*	
AERODROME CHART PAGE 1	21-Mar-2024	(Am 178)
AERODROME CHART PAGE 2	8-Sep-2022	(Am 172)
APRON CHART - RPT	21-Mar-2024	(Am 178)
NOISE ABATEMENT PROCEDURES	8-Mar-2012	(Am 130)
DME OR GNSS ARRIVAL PAGE 1	28-Feb-2019	(Am 158)
DME OR GNSS ARRIVAL PAGE 2	28-Feb-2019	(Am 158)
VOR RWY 03	27-Feb-2020	(Am 162)
VOR-Y RWY 21	27-Feb-2020	(Am 162)
VOR-Z RWY 21	27-Feb-2020	(Am 162)
RNP RWY 03	2-Dec-2021	(Am 169)
RNP RWY 21	2-Dec-2021	(Am 169)

Table 4-3 — Current & Potential Future PANS-OPS Impact

Main Runway Status	*Building(s)*	*RWY21 PANS-OPS Approach Surfaces*	*Surface Height**	*Clearance (m)**
RWY 03/21 Existing & Future APT MP Configurations	All proposed buildings in the Precinct Measurement at Pt.Ref	RNP VNAV Approach	≥ 103.40	≥ 74.70
	All proposed buildings in the Precinct *Note: the building at Pt.Ref is outside the VSS for the RWY 21 RNP LNAV approach procedure.*	VOR Non-Precision Approach VSS	≥ 80.25	≥ 51.55

* *All heights are in Metres Australian Height Datum (AHD), equivalent to RL*

There are no published PANS-OPS Departure procedure for Coffs Harbour Airport. Thus, airspace protection for departing aircraft is assured through the assessment of the OLS Take-Off Surface (see section 4.1 above) and the additional evaluation of the potential impact on the Type A surface (see section 4.3.2 below).

4.3 Other Assessment Considerations

4.3.1 Visual Flight – General Aviation

In effect the OLS is intended to protect visual manoeuvring around, and flights to/from the airport, including approaches to and take-offs from the short cross runway, RWY 10/28.

2 Refer the Australian Aeronautical Information Publication (AIP) Departure & Approach Procedures (DAP) Amendment 179, Effective 13-Jun-2024 – 04-Sep-2024
Source: https://www.airservicesaustralia.com/aip/pending/dap/AeroProcChartsTOC.htm

The OLS assessment shows that the proposed development will have no impact on general aviation flights to//from and around the airport.

4.3.2 Type A Impact (for Aircraft Performance Calculations)

The Type A surfaces represent the basic area that is used for identifying obstacles that must be assessed for obstacle clearance on take-off — by certain types of aircraft[3] (generally regular public transport aircraft) — for determining aircraft performance calculations under different operating scenario (eg, one engine inoperative).

The Type A surface is not a restrictive surface and is not a regulatory restriction. As noted above, only obstacles which infringe (penetrate) this surface are identified by the various aircraft operators for their own assessment. The purpose of including this in this report is purely to examine the potential impact of the Illustrative Masterplan against the existing main runway and future runway extension options.

A Existing Runway

- The building at Pt.Ref is outside the Type A splay and could therefore be regarded as having no impact.
- However if it was to be included, the minimum climb gradient to climb over it from the DER of the existing main runway is only 1.075% (the subtended angle). This means that it would be below the standard 1.2% Type A gradient for RWY03 take-offs to the north from the existing runway.
- All other of the proposed buildings in the Precinct fall within the area of the Type A surface, but with lower heights than the building at Pt.Ref they would not impact the Type A surface.

B Runway Extension Options

- Building Pt.Ref is outside the Type A splay for both runway extension options and could therefore be regarded as having no impact.
- However, if it was to be included:
  - If the runway was extended to the north by 395m (as per the APT MP), the subtended angle would be 1.30%.
  - If the runway was to be extended to the north by 467m to allow for a full runway length of 2700m as previously approved by Council, the subtended angle would be 1.36%.
- For both runway extension options, it is anticipated that none of the other buildings in the Precinct would be high enough that they would exceed the 1.2% Type A gradients relevant to the different extensions to the north.

In any case, since the minimum climb gradient for take-offs to the north using the full length of the existing runway is currently published[4] as 3.08%, none of the proposed buildings in the Precinct would adversely affect minimum climb gradients required for RWY03 take-off operations to the north.

3 Civil Aviation Order 20.7.1B – Aeroplane Weight and Performance Limitations – specified aeroplanes above 5700 kg, or 2722 kg if driven by 2 or more jet engines – All Operations

4 AIP Enroute Supplement Australia (ERSA) Runway Distance Supplement (RDS) for YCFS, Effective 13-Jun-2024

4.3.3 Communications Navigation & Surveillance / Air Traffic Management Factors (CNS/ATM) Impact

No impact.

- The site is outside the 1.5km radial protection area for the VOR/DME navigation aid located on the airport.
- The proposed development is too far and too low to have any impact on other navigation aids (including the Precision Approach Path Indicator (PAPI) lighting and runway lighting) or to have any impact on air traffic management.

4.3.4 External Lighting Constraints

The rezoning application's Illustrative Masterplan does not necessarily adversely impact the safety of flight operations around or to/from the airport in terms of external lighting. However, this is a factor that will need to be considered at the time of development designs and approvals.

Figure 4-2 — External Lighting Control Zones over the Precinct

The Precinct spans several of the Lighting Control Zones designated in the aviation regulations for controlling the maximum intensity of external lighting (when measured at 3° above the horizontal), as depicted in Figure 4-2 above. The four Lighting Control Zones are A (0 candela (cd)), B (50 cd), C (150 cd) and D (450 cd).

As information for future design and approval purposes, Table 4-4 below documents which of the proposed developments in the Illustrative Masterplan fall into which zone, depending on the main runway status. Note that the Precinct lies entirely outside the most restrictive zone, Zone A.

Table 4-4 — Impact of the External Lighting Constraints on the Precinct

Main Runway Status	*Zone*	*Proposed Building(s)*
Existing	B — 50 cd	N/A
	C — 150 cd	The majority of the Precinct — excluding building and open space developments near and north and east of the Esplanade roundabout (ie, recreational courts, yacht club & the marina)
	D — 450 cd	The northern and north-eastern parts of the MP excluded from Zone C as noted above
Proposed 395m Extension as per the APT MP	B — 50 cd	Possibly open-space developments near/south of the proposed boardwalk connection to/from Jetty Beach
Same for Potential Future Extension for Council-approved 2700m Runway	C — 150 cd	All other parts of the planning proposal, including those previously subject to Zone D constraints
	D — 450 cd	N/A

Note: Given that parts of the proposed developments in the Illustrative Masterplan could be subject to stricter external lighting constraints if/when the main runway is extended to the north, it would be wise to include a provision in the final Masterplan that various areas, including building, recreational and open-space developments be subject to the lighting control zones that would be applicable if the runway was to be extended as per the APT MP, or more conservatively if the runway was to be extended in the longer-term future to the maximum length already approved by Council.

4.3.5 Risk of Windshear

No Impact. The entire precinct is outside the Windshear Assessment Zone defined in NASF Guideline B.

4.3.6 Other Airport Considerations (ATC & ARFF)

Air Traffic Control) ATC and/or Airport Rescue and Fire Fighting (ARFF) Considerations — Not Applicable.

The Precinct is too distant from the airport to affect sighting by Air Traffic Controllers (ATC) or the operations of the on-airport rescue fire-fighting service.

4.3.7 Environmental Considerations – Aircraft Noise

It was not possible to make an assessment of potential noise impact on the Precinct — because the APT MP (2019 Update) does not have sufficient information on noise profiles related to either the current operations[5] or projected future air traffic operations in the event that the runway is extended to allow an assessment.

Ultimately the design and development of buildings and facilities will have to rely on information to be provided by the airport and ensure compliance with

5 The CHA APT MP itself notes that a new ANEF chart would need to be prepared based on updated modelling. Figure 12.2 in their MP represents the projected ANEF contours down to ANEF 20 for the year 2014, based on work completed in 2004 (20 years ago). Since that time the air traffic to/from CHA has changed, and there are now newer and probably quieter aircraft than were probably modelled at that time.

Australian Acoustic standards, and State and local environmental planning policies, etc.

For additional detail, refer to the separate Acoustic Assessment (Aircraft Noise) report by Acoustic Logic.

4.3.8 Environmental Considerations — Hazard & Risk (RESA & PSA)

This section is concerned with the Runway End Safety Area (RESA) and a Public Safety Area (PSA) at the northern end of RWY 03/21 only.

A Hazard & Risk (RESA)

Risk to the existing RESA or a future RESA for the proposed runway extension — None / not applicable.

The Precinct is too far from the airport to have any impact.

B Hazard & Risk (PSA)

Risk to a potential future Public Safety Area (PSA) at the northern end of the existing or a proposed runway extension — assessed as No Risk for the following reasons:

- The APT MP has not defined an actual PSA, although it refers to the precedent example PSA developed for Queensland and based on work conducted for Brisbane Airport.
  - At the time of publication of the APT MP, this was the only mandated PSA for an Australian airport.
  - The Queensland PSA is only 1000m long, finishing at a 250m width It is also noted that main runway at CHA is ~61% of the average length of the Brisbane Airport (BNE) runways and has significantly less heavy passenger and cargo air traffic than BNE has (therefore the risk to people in any future PSA at Coffs Harbour is significantly smaller).
  - If the Queensland PSA standard was applied to CHA, the Foreshore Precinct would be outside such a PSA — based on the existing and potential future runway extensions.
- Since the APT MP was published, a PSA has since been mandated for the Western Sydney International Airport (WSI).
  - The main runway at CHA is ~58% the length of the WSI runways, and has significantly less heavy cargo, air traffic than is projected for WSI airport.
  - The PSAs for the WSI runways are defined as ~2.36km, finishing at a 75m width.
  - It is highly likely that any future PSA for CHA would be shorter than that of WSI. However, that said:
    - If a PSA of the same dimensions as that of WSI was to be applied to CHA, the Jetty Foreshore Precinct would be clear for the existing runway configuration.
    - If a WSI PSA was applied to the runway extension to the north, a small part of the south-western corner of the Precinct would fall under the PSA.
      But, in this case, existing residential buildings at the southern end of the block between Camperdown Street and Jordan Esplanade would also be in that PSA and they would be closer to the airport than any new buildings in the Illustrative Masterplan.
      Hence, the risk to public by new buildings and open space

developments at the southern end of the Esplanade as proposed in the Illustrative Masterplan is estimated to be statistically insignificant.

Given the above, it is our opinion that the State-led rezoning of the Coffs Harbour Jetty Foreshore Precinct would not present an unacceptable risk to persons and there would be no (or statistically negligible) impact on a yet-to-be-designated PSA.

4.4 Summary

The proposed development will have no adverse impact on the safety, regularity or efficiency of air transport operations, or general aviation.

Table 4-5 — Protection & Safeguarding Factors — Impact Assessment Summary

Item	*Actual or Potential Impact*	*Comment*
Prescribed Airspace (OLS)	N	No infringements of the OLS for the current and extended runway options. Airspace between the top of the proposed developments and limiting surfaces estimated to be sufficient for any cranes required for construction for the current and extended runway options.
Prescribed Airspace (PANS-OPS)	N	—
Communications Navigation & Surveillance (CNS) Facilities	N	—
Lighting External to the Airport	Y	External lighting in the precinct (on buildings or for public domain spaces) will be subject to the constraints of the External Lighting Control Zones B, C and D. Zone A is not applicable. NB: It is strongly recommended that the planning proposal include a provision that the Precinct be subject to external lighting controls that would be in effect if the main runway was extended to the north.
Risk of Building Generated Windshear & Turbulence	N	—
Other Airspace Considerations - ATC & ARFF	N	—
Environmental Considerations - Aircraft Noise - Hazard & Risk (RESA & PSA)	Cannot assess N	Obsolete noise modelling info in the APT MP. —
Mitigations	N/A	No safety mitigations required.

5. Crane Considerations

The assessment indicates that any cranes required for construction of even the tallest of the developments could be deployed without infringing the Prescribed Airspace.

The clearance values in Table 4-1 (p15) show the minimum airspace margins between the top of the proposed buildings and the limiting OLS surfaces for the existing runway, the extension as per the APT MP and the maximum extension permitted by Council range from 18.20m, 29.02m and 27.40m respectively. In all cases, we anticipate that these OLS clearances are sufficient for any cranes required for construction of the buildings to their full heights. An in such cases, the cranes would not require prior airspace approvals.

In the unlikely event that the construction of the any building that requires a crane with a height that would exceed the OLS Inner Horizontal Surface height limit of 47.50m AHD, it would be approvable as long as it does not infringe on the limiting PANS-OPS procedure protection surface at that location (at that time). Considering the ample clearance between the proposed building heights and the PANS-OPS protection (≥ 51.55m AHD) this should not be an issue.

6. Conclusion

The State Assessed Planning Proposal's Illustrative Masterplan was assessed to have no impact on any of the factors listed in the Coffs Harbour APT MP, nor other regulatory aviation safeguarding factors. The only exception to this is that the potential aircraft noise impact could not be assessed because the ANEF noise map in the APT MP was so outdated that it could not be used as a valid benchmark for assessment. For more detail on this aspect, refer to the separate Acoustic (Aircraft Noise) report by Acoustic Logic.

None of the proposed buildings adversely impact the airport's OLS, and thus none would require prior airspace approvals.

It was also noted that airspace clearances are considered sufficient for cranes that may be required for construction of the proposed developments without infringing protected airspace. This demonstrates that construction of proposed buildings is feasible — ie, it is anticipated that in most if not all cases, airspace approvals would not be required for cranes. In the unlikely event that a crane would infringe the OLS and therefore require a prior airspace approval, there is sufficient clearance from the limiting PANS-OPS surfaces to enable approvals.

Thus, this AIA supports the planning proposal, without any specific safety mitigation measures being required.

However, it is strongly recommended that the Planning Justification Report or Design Guide associated with the Masterplan include a development control provision that external lighting comply with the NASF Guideline E and the related Civil Aviation Safety Regulations and the Lighting Control Zone areas that cater for the future extension of the main runway, RWY 03/21 (say, for the Council-approved length of 2700m). For further information, refer to section 4.3.4 (p19), Figure 4-2 and Table 4-4. We recommend that this is achieved by publishing a custom External Lighting Control Zone map.

APPENDICES

Appendix 1 — Abbreviations

Abbreviations used in this report and/or associated reference documents, and the meanings assigned to them for the purposes of this report are detailed in the following table:

Abbreviation	*Meaning*
AC	Advisory Circular (document supporting CAR 1998)
ACFT	Aircraft
AD	Aerodrome
AGL	Above Ground Level (Height)
AHD	Australian Height Datum
AHT	Aircraft Height
AIP	Aeronautical Information Publication
Airports Act	Airports Act 1996, as amended
AIS	Aeronautical Information Services
ALARP	As Low As Reasonably Practicable
ALC	Airport Lease Company
Alt	Altitude
AMAC	Australian Mayoral Aviation Council
AMSL	Above Minimum Sea Level
ANEF	Australian Noise Exposure Forecast
ANSP	Airspace and Navigation Service Provider
APARs, or A(PofA)R	Airports (Protection of Airspace) Regulations, 1996 as amended
APCH	Approach
APT	Airport
APT MP	Airport Masterplan
ARFF	Airport Rescue and Fire Fighting
ARP	Aerodrome Reference Point
AS	Australian Standard
AsA, Airservices	Airservices Australia
ASDA	Accelerated Stop Distance Available
ATC	Air Traffic Control(ler)
ATM	Air Traffic Management
BA (Planning)	Building Application or Building Approval (Planning)
CAAP	Civil Aviation Advisory Publication
CAO	Civil Aviation Order
CAR	Civil Aviation Regulation
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulation
Cat	Category
CBD	Central Business District
CG	Climb Gradient
CHA	Coffs Harbour Airport
CHLEP	Coffs Harbour Local Environmental Plan
CMP	Construction Management Plan
CNS	Communications, Navigation, Surveillance
CNS/ATM	Communications, Navigation, Surveillance / Air Traffic Management
CoS	City of Sydney (Council)
DA (Aviation)	Decision Altitude (Aviation)
DA (Planning)	Development Application or Development Approval (Planning)
DAH	Designated Airspace Handbook

Abbreviation	*Meaning*
DAP	Departure and Approach Procedures (published by AsA)
DEP	Departure
DER	Departure End of Runway
DEVELMT	Development
DH	Decision Height
DITRDCA	Department of Infrastructure, Transport, Regional Development, Communications & the Arts(Commonwealth) (former abbreviations include DIRD, DIRDC, DITCRD, DITRDC)
DME	Distance Measuring Equipment
Doc nn	ICAO Document Number nn
DoD	Department of Defence
DODPROPS	Dependent Opposite Direction Parallel Runway OPerations
DPHI	Department of Planning, Housing and Infrastructure (NSW)
EIS	Environmental Impact Study
ELEV	Elevation (above mean sea level)
ENE	East North East
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
ERSA	EnRoute Supplement Australia
ESE	East South East
FAF	Final Approach Fix
FAP	Final Approach Point
Ft	Feet
GDA2020	Geocentric Datum of Australia 2020
GDA94	Geocentric Datum of Australia 1994
GLS	GNSS Landing System – a precision landing system like ILS but based on augmented GNSS using ground and satellite systems.
GNSS	Global Navigation Satellite System
GP	Glide Path
HIAL	High Intensity Approach Light
HLS	Helicopter Landing Site
IAS	Indicated Air Speed
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
IHS	Inner Horizontal Surface, an Obstacle Limitation Surface
ILS	Instrument Landing System, a precision approach landing system
IMC	Instrument Meteorological Conditions
IPA	Integrated Planning Act 1997, Queensland State Government
ISA	International Standard Atmosphere
IVA	Independent Visual Approach
Km	Kilometres
Kt	Knot (one nautical mile per hour)
LAT	Latitude
LDA	Landing Distance Available
LEP	Local Environment Plan (Planning
LGA	Local Government Ara
LLZ	Localizer
LNAV	Lateral Navigation
LONG	Longitude
LSALT	Lowest Safe ALTitude
M	Metres
MAPt	Missed Approach Point
MDA	Minimum Descent Altitude
MDH	Minimum Descent Height
MDP	Major Development Plan
MGA2020	Map Grid Australia 2020, based on GDA2020

Abbreviation	*Meaning*
MGA94	Map Grid Australia 1994, based on GDA94
MOC	Minimum Obstacle Clearance
MOCA	Minimum Obstacle Clearance Altitude
MOS	Manual Of Standards, published by CASA
MP	Master Plan
MSA	Minimum Sector Altitude
MVA	Minimum Vector Altitude
NASF	National Airports Safeguarding Framework
NDB	Non-Directional Beacon
NE	North East
NM	Nautical Mile (= 1.852 km)
nnDME	Distance from the DME (in Nautical Miles)
NNE	North North East
NNW	North North West
NOTAM	NOTice to AirMen
OAR	Office of Airspace Regulation
OCA	Obstacle Clearance Altitude (in this case, in AMSL)
OCH	Obstacle Clearance Height
ODPROPS	Opposite Direction Parallel Runway OPerations
OHS	Outer Horizontal Surface, an Obstacle Limitation Surface
OLS	Obstacle Limitation Surface, defined by ICAO Annex 14; refer also CASA MOS Part 139
PANS-OPS	Procedures for Air Navigation – Operations, ICAO Doc 8168; refer also CASA MOS Part 173
PAPI	Precision Approach Path Indicator (a form of VGSI)
PBN	Performance Based Navigation
PDNSW	Property and Development NSW
PRM	Precision Runway Monitor
PSA	Public Safety Area
RAAF	Royal Australian Air Force
REF	Reference
RESA	Runway End Safety Area
RL	Relative Level
RNAV	aRea NAVigation
RNP	Required Navigation Performance
RNP AR	Required Navigation Performance – Authorisation Required
RPT	Regular Public Transport
RTCC	Radar Terrain Clearance Chart (refer also MVA)
RWY	Runway
SACL	Sydney Airport Corporation Limited
SEPP	State Environmental Planning Policy
SHLS	Strategic Helicopter Landing Site
SID	Standard Instrument Departure
SODPROPS	(Independent) Simultaneous Opposite Direction Parallel Runway OPerations
SSD	State Significant Development
SSDA	State Significant Development Application
SSP	State Significant Precinct
SSR	Secondary Surveillance Radar
STAR	STandard Arrival
TAR	Terminal Approach Radar
TAS	True Airspeed
TfNSW	Transport for NSW
THR	THReshold (of Runway)
TMA	TerMinal Area
TNA	Turn Altitude
TODA	Take-off Distance Available

Abbreviation	*Meaning*
TORA	Take-Off Runway Available
VFR	Visual Flight Rules
VIS	Visual
VMC	Visual Meteorological Conditions
V_n	Aircraft critical velocity reference
VNAV	Vertical Navigation
VNC	Visual Navigation Chart
VOR	Very high frequency Omni-directional Range
VSS	Visual Segment Surface
VTC	Visual Terminal Chart
WAM	Wide-Area Multilateration
WNW	West North West
WSW	West South West
WGS84	World Geodetic System 1984
WSA / WSI	Western Sydney Airport / Western Sydney International Airport