



Australian Government

Department of Infrastructure, Transport,
Regional Development, Communications and the Arts

Infrastructure planning guidelines for drone delivery services

Public consultation draft

November 2022



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DOCUMENT CONTROL

Revision date	Version number	Changes made
September 2021	0.1	Initial consultation draft
March 2022	0.2	Second consultation draft (incorporation of stakeholder feedback, including from industry, states and territories, and Commonwealth agencies)
July 2022	0.3	Interim final draft (incorporation of feedback from states and territories)
November 2022	1.0	Public consultation draft (incorporation of feedback from industry stakeholders)

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Infrastructure Planning Framework

Background

The drones and newly emerging [Advanced Air Mobility](#) (AAM) sector will create new jobs, industries and markets, and can connect our cities and regions with comparatively less capital investment than competing transport modes. The sector is projected to deliver benefits to the Australian economy, including adding \$14.5 billion to Australia's Gross Domestic Product and creating and sustaining 10,000 jobs over the next 20 years. It is important that the sector continues to grow in a manner that is safe, secure and considerate of the community and the environment.

The Department of Infrastructure, Transport, Regional Development, Communications and the Arts (the department) is continuing its work with state, territory and local governments to develop an Infrastructure Planning Framework to support the integration of drones and electric vertical take-off and landing (eVTOL) vehicles in the community and broader transport networks.

Infrastructure Planning Framework

The [Infrastructure Planning Framework](#) (the Framework) provides a set of guidelines to support infrastructure and planning decisions relating to emerging aviation technologies.

The Framework aims to provide as consistent and seamless a process as possible for operators and infrastructure developers to navigate the required regulatory approvals and requirements across jurisdictions. The Framework will also provide guidance for planning authorities to understand the implications of emerging aviation technologies and make informed planning decisions for their communities.

The Framework will include two components:

1. The first component (this document) focuses specifically on drone delivery services using small to medium sized drones (<25kg).
2. The second component will apply to eVTOL, AAM and heavy lift drones (>25kg).

Noting the scope of infrastructure requirements for eVTOL, AAM and heavy lift drones (>25kg) will be much broader than those required for small to medium drone delivery operations, the department is aiming to work with stakeholders to develop guidelines over the next 12 months.

Drone delivery guidelines

The drone delivery guidelines (**Attachment A**) step through the regulatory requirements for drone operators and provide guidance for planning authorities to make informed decisions about drone delivery services in their local community.

For the purpose of this document, the department has adopted the definition of drone delivery services used by the Civil Aviation Safety Authority (CASA):

The use of drones to deliver on-demand supplies (such as food, drinks, medical supplies or small packages) to customers from a local base station.

As the market evolves, it is expected that drone delivery services will operate at greater scale and complexity with operations taking place from dedicated hubs over a sustained period. This definition may be reviewed in the future as the scale of drone operations increases.

Context

Drones, also known as remotely piloted aircraft systems (RPAS), are an emerging technology that have a wide variety of potential applications. Drone delivery services are already approved and operating in several locations across Australia, and these services are expected to become more common as technology, regulatory frameworks and the drone industry continues to mature.

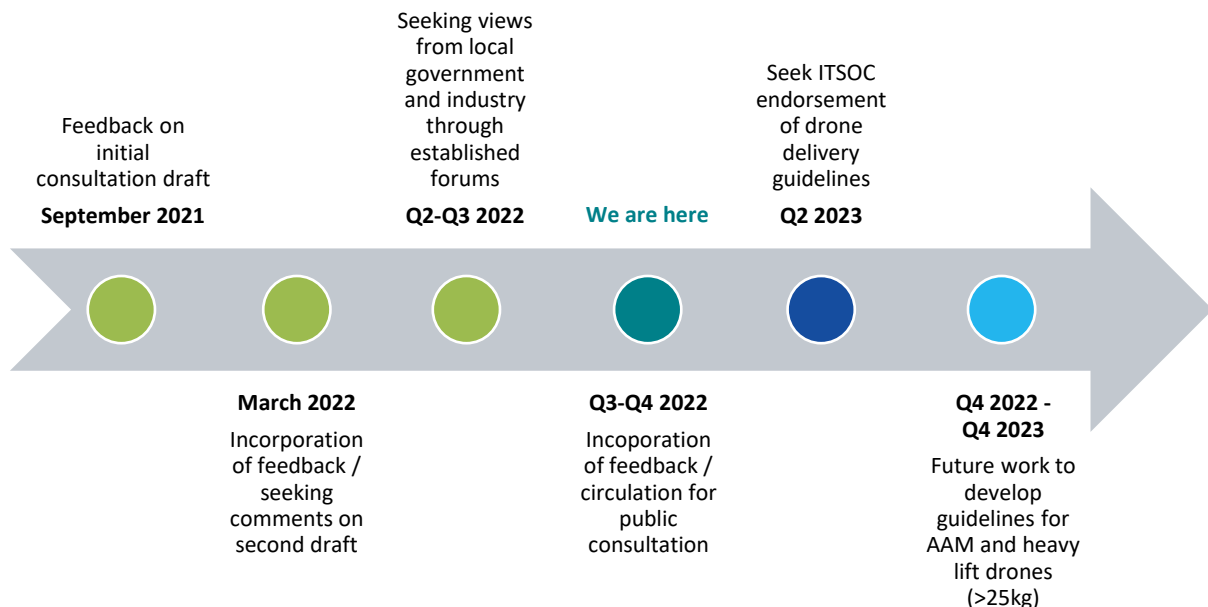
Drone delivery services currently operate out of both dedicated depots and existing commercial sites, such as shopping centres. These services typically do not require extensive infrastructure to support operations, and can be relatively easily accommodated within existing planning structures.

Infrastructure that may be required specific to drone deliveries include dedicated pads for loading, take-off and landing of aircraft, and charging facilities. Control facilities for drone operations do not need to be co-located with other drone delivery infrastructure.

Consultation timeline

The drone delivery guidelines have been drafted in consultation with the drone industry, through the National Emerging Aviation Technologies Consultative Committee, as well as with state and territory governments, through the Commonwealth, State and Territory Drones Working Group. The department will engage with local government stakeholders and seek input from planning authorities to ensure the Framework is useful and provides practical guidance.

Following feedback on the last draft of the drone delivery guidelines, the department is seeking review of the attached public consultation draft in order to form a finalised document for noting between Commonwealth, state and territory governments.



Key consultation milestones for the drone delivery guidelines include:

1. September 2021 – Feedback received from stakeholders on initial consultation draft.
2. March 2022 – Feedback incorporated into second consultation draft and provided to consultation forums for further comments.

3. Q2-Q3 2022 – Seeking views on drone delivery guidelines from local government and industry through established forums.
4. Q3-Q4 2022 – Feedback incorporated into final draft and circulated for public consultation.
5. Q2 2023 – Final drone delivery guidelines provided to the Infrastructure and Transport Senior Officials' Committee (ITSOC) for endorsement.

Implementation and review

The department will take the following steps to help manage the implementation of the drone delivery guidelines and review existing guidance:

- Circulation of the drone delivery guidelines to local governments in Q2 2023 following endorsement by ITSOC;
- Provision of online resources centrally located on the drones.gov.au portal to assist local governments make planning decisions;
- Evaluation of local, state and territory government implementation of the drone delivery guidelines after 12 months; and
- Regular review of the drone delivery guidelines following endorsement by ITSOC to accommodate changing circumstances and technologies.

Linkages with other emerging aviation technology initiatives

Drone Rule Management System (DRMS)

- The DRMS will provide a nationally consistent approach to managing and coordinating the rules that govern the operation of drones near different sites, such as prisons and national parks.
- The drone delivery guidelines will provide guidance for local, state and territory governments in relation to land use planning and infrastructure requirements for drone delivery services.
- DRMS and the Framework will work in tandem to ensure the emerging aviation sector develops in a safe and consistent manner.

National Drone Detection Network (NDDN)

- The NDDN will use a coordinated system of infrastructure to detect drone activity and feedback relevant data to users.
- The system will initially focus on priority security risks, but will also support enforcement of other rules as it grows, including safety regulations and drone operating rules in DRMS.
- Future components of the Framework may include guidance on integrating NDDN infrastructure on new and existing buildings to support drone delivery operations and AAM passenger services.

Attachment A – Infrastructure planning guidelines for drone delivery services

The Department of Infrastructure, Transport, Regional Development, Communications and the Arts (the department) has developed draft infrastructure planning guidelines for drone delivery services.

Purpose

1. This document provides guidance to Commonwealth, state, territory and local government authorities on the aviation regulatory framework as it applies to drone delivery services, and makes recommendations regarding the infrastructure and land use planning considerations required to support drone delivery operations using small to medium sized drones (<25kg).

How this document should be used

2. This document is intended to be used when planning officials are considering a development application for drone delivery services.
3. Whilst the guidance in this document is based on current experiences with drone delivery services, it may also be relevant for infrastructure required to support other types of drone services using small to medium sized drones.

Regulatory framework

4. The Australian Government is primarily responsible for aviation regulation, particularly as it relates to safety and noise.
5. State, territory and local governments are primarily responsible for land use planning.

Safety

6. The Civil Aviation Safety Authority (CASA) regulates the safety aspects of civil aviation, including drone flights.
7. CASA is responsible for regulating the safe operation of drones used for delivery services. This includes the aircraft, pilot licensing and operator certification.
8. Safety regulations for drone operations may be different from those which apply to traditional aviation. This includes the risks associated with the actual operation of the drone, risks to people and property on the ground, risks from building generated windshear and turbulence, and other physical obstacles that may impact on safe navigation outcomes. These risks are managed through CASA's commercial drone operation regulatory approval processes.
9. Planning authorities may contact CASA through the CASA regulatory services portal email address, regservices@casa.gov.au, to confirm that potential service providers have the appropriate safety approvals for their operation.

Noise

10. The noise created by drones in all phases of flight, such as take-off and hover, is regulated by the department under the *Air Navigation (Aircraft Noise) Regulations 2018* (the Noise Regulations).
11. The Noise Regulations were amended in December 2021 to streamline drone noise management. As of 1 July 2022, most commercial drone operators are required to complete a [self-assessment form](#) as the first step to obtaining a noise approval. Drone delivery services will typically require a full assessment process to gain a noise approval.
12. The department considers a range of matters relating to noise impacts, including from the frequent take-off and landing of drones at infrastructure sites, as part of the operational approval process. Should you have any questions, please email dronenoise@infrastructure.gov.au.
13. In some limited circumstances, the regulation of drone noise may be the responsibility of a state government¹.
14. Local governments generally have responsibility for developing and implementing land use plans at the local level, with local plans expected to be consistent with regional plans and applicable state planning policies.
15. The department will consult with local governments as part of the noise approval process for drone delivery services to ensure community feedback is managed appropriately.
16. The department will typically require drone operators to undertake noise measurement of their aircraft in operation as part of the noise approval process, unless existing measurements for the type of aircraft being used are available.
17. Commercial drone delivery aircraft for which measurements are available typically produce noise that is between 50dB and 70dB at a distance of 25-30m during take-off and landing.
18. This noise profile is not substantially different from what is commonly experienced in commercial and light industrial areas, such as normal conversations (60db), loud conversation (70dB), kerbside heavy traffic (75dB) and construction vehicles (80dB)².
19. Sound is reduced by about 6dB for each doubling of its distance from the source³. The generally accepted noise limit in Australia for residential areas during the day is between 40dB and 50dB.
20. A range of factors can influence the noise impacts experienced in different locations, including local topography, cumulative noise impacts, and the effectiveness of drone noise abatement measures.

¹ State regulations may apply if a drone operator operates exclusively in Queensland or Victoria and is not a constitutional corporation. If you are unsure of the applicability of Commonwealth noise regulations on a drone delivery service, please contact the department.

² Reference – Safe Work Australia

³ Reference – Safe Work Australia

21. It is not recommended that planning authorities require an independent noise measurement of drone operations where the planned infrastructure is within commercial or industrial areas.
22. If planning authorities are concerned about the potential noise impacts on nearby noise-sensitive receivers from drone operations associated with drone delivery infrastructure, it is recommended that they contact the department at dronenoise@infrastructure.gov.au.
23. The department is responsible for managing complaints and enquiries about drone noise. [Community feedback](#) can help identify issues of concern and possible opportunities for improvement. The department works with local authorities to ensure community feedback received from different sources is recorded.
24. As an emerging industry, there may be significant variation in the noise emissions from drone delivery operators in the future. If drone delivery operations in the future are found to be causing a significant noise impact, this advice may be reviewed.

Land use planning considerations

25. Drone delivery services currently do not require new or complex infrastructure for consideration in land-use planning processes.
26. It is recommended that planning processes should treat drone delivery infrastructure as an ancillary use to the primary purpose of the development where the drone delivery infrastructure is located.
27. Local governments should consider accommodating drone delivery operations within existing land use zones where they are unlikely to cause a significant noise impact.
 - a. Depending on the local environment, ambient noise and proposed drone technologies or operations, a separation distance of 100-400m between drone delivery hubs and residential areas is a reasonable starting point for planning and/or consultation purposes.
 - b. Planning authorities should also consider cases put forward by operators which demonstrate how impacting noise can be mitigated to acceptable levels.
28. Planning controls for other forms of aviation infrastructure such as airports or helipads are not appropriate for considering approvals of drone delivery infrastructure, as drones are significantly less complex than traditional aircraft such as helicopters or passenger planes.
29. Approvals for drone delivery services should also consider the impact of future developments and changes to neighbouring land uses, including providing appropriate protections to ensure the continuity of operations.
30. It is not recommended that planning authorities develop or require specific land-use categories or planning controls for small to medium drone delivery infrastructure.
31. For dedicated drone delivery facilities, warehouse or depot use categories may be an appropriate dominant use. For drone delivery services operating from commercial sites, the existing commercial land use category can remain the dominant use.

32. This approach has been sufficient to manage the relevant land use planning implications of current drone delivery services, including considerations such as parking, loading access and traffic.

Further information

33. For further information and advice regarding drone delivery services, please contact the department at drones@infrastructure.gov.au.

Attachment B – Regulatory approvals process flowchart for drone delivery services

This flowchart outlines the recommended order of regulatory approvals for establishing drone delivery services in Australia and provides guidance to assist drone operators and planning authorities understand their role at each stage of the process.

Safety

Drone operators are required to apply for a [remotely piloted aircraft operator's certificate \(ReOC\)](#) and [beyond visual line-of-sight \(BVLOS\) approval](#) from the Civil Aviation Safety Authority (CASA).

- A specific operations risk assessment (SORA) will be required for operations that don't meet the characteristics of a standard scenario.
- Such assessments will typically be required to: fly over a specific geographic area, fly over people, operate BVLOS and allow operators to oversee one to many aircraft.

Planning authorities may contact CASA through their regulatory services portal email address (regservices@casa.gov.au) to confirm that potential service providers have the appropriate safety approvals for their operation.



Land use planning

Drone operators should approach local governments early to begin the planning and development approval (DA) process.

- The guidelines can help educate local governments about the Commonwealth regulatory environment in which they will operate, including the role of CASA and the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (the department).
- Where relevant, operators can share previous experience with how other local governments have overseen operations, provided DA or related land use permissions, or coordinated with the department in relation to community feedback and noise permissions.

Planning authorities should consider accommodating drone delivery services within existing warehouse, depot or commercial land use zones where operations are unlikely to cause a significant noise impact.

- DAs granted for drone delivery operations to date are typically related to the site itself and do not specifically focus on drone activity or drone related infrastructure.
- Similarly, local governments have not required noise approvals to be in place before providing DA, but are aware of the department's role and what its noise approvals permit.

If **planning authorities** are concerned about the potential noise impacts on nearby noise-sensitive receivers from drone operations associated with drone delivery infrastructure, they may contact the department (dronenoise@infrastructure.gov.au).



Noise

Most commercial **drone operators** are required to complete a [self-assessment form](#) as the first step to obtaining a noise approval.

- Drone delivery services will typically require a full assessment process to gain a noise approval.

Planning authorities can contact the department (dronenoise@infrastructure.gov.au) to confirm that potential service providers have the appropriate noise approvals for their operations.



Ongoing operations

Drone operators may commence operations once all required approvals have been granted by the responsible authority.

CASA and the department will continue to work with operators and local authorities to ensure operations adhere to safety and noise approvals and make sure any community feedback received is recorded and addressed appropriately.

Note: *The approvals process outlined above is intended as a guide only, with the sequence of steps based on experience from current drone delivery services in Australia.*