



30 November 2023

## **AAUS SUBMISSION TO PUBLIC CONSULTATION ON THE AVIATION GREEN PAPER**

The Australian Association for Uncrewed Systems (AAUS) is pleased to provide this submission to the Department of Infrastructure, Transport, Regional Development, Communications and the Arts' (the Department) public consultation on the Aviation Green Paper.

### **ABOUT AAUS**

The Australian Association for Uncrewed Systems is Australia's oldest and largest industry advocacy group for drones and the emerging Advanced Air Mobility (AAM) sector. AAUS is a not-for-profit organisation which represents the drone and AAM industry across three domains: land, sea, and air. AAUS' objective is to promote a professional, safe and commercially viable uncrewed systems and AAM industry. AAUS achieves this through its industry advocacy and promotion, education and outreach, and networking activities.

AAUS provides a single representative voice for the full breadth of the drone and urban AAM industry. AAUS' 4,500 members spans small-to-large enterprise, manufacturers, licensed and unlicensed operators, training providers, academic institutions, Government, and other supporting technical and professional services in the Australian drone and AAM industry.

## INTRODUCTION

The views presented in this submission have been drawn from the broad AAUS membership including through a survey of members.

This submission is structured with an Executive Summary, with more detailed treatment of some specific issues in the second section. The second section specifically addresses CASA Resourcing, Airspace Integration, Advanced Air Mobility, Cybersecurity, Training and Licensing. Detail is added in parts via accompanying documentation.

# Executive Summary

AAUS welcomes the opportunity to contribute towards the development of a national aviation policy for aviation through this Green Paper consultation process.

**RPAS and AAM will continue to grow to eventually become the largest sector of aviation** not only in terms of scale but also in its economic, social and environmental contribution to the Australian Commonwealth.

RPAS and AAM applications will deliver immense benefits through enhancing connectivity and services to rural and regional communities, improving the sustainability and efficiency of our agricultural and mining sectors, managing and protecting our lands and waterways, effectiveness of our response to natural disasters and climate change, to protecting our borders and maritime resources – the scope of beneficial applications is broad.

In time, highly automated remotely piloted aircraft will one day be used to safely deliver passengers and freight domestically and internationally. While this will not happen overnight, the long-term direction is clear with strong economic, sustainability, and safety drivers.

**Australia, through its enduring efforts to address the tyranny of distance, has potentially far more to gain from the realisation of RPAS and AAM sectors than most other nations.**

RPAS and AAM **will revitalise general aviation in Australia**, act as a catalyst for the resurgence of aviation manufacturing, and create new export opportunities not only in aircraft, aviation products and value-chain technologies (e.g., sensors and software), but also in services such as training.

RPAS and AAM will also play an important role in helping the Commonwealth achieve its sustainability commitments – potentially offering greener alternatives to existing transport services.

**Realising this bright future must be a central pillar to Australia’s Strategic Vision in the Aviation White Paper.**

It starts with **Whole-of-Government recognition of the importance and opportunity the RPAS and AAM aviation sectors present** in terms of their triple bottom line benefits to the Commonwealth. The **White Paper must transcend Departmental boundaries**, connecting and driving priorities into broader policy and Government action. For example, aviation priorities must be reflected in policy areas such as spectrum, education and workforce planning, science and research priorities, privacy, biosecurity, and national security (to name but a few).

**While Australia had demonstrated global leadership in the advancement of the RPAS and AAM sector, this has been rapidly being eroded.**

Australia is not alone in recognising the immense potential RPAS and AAM offer, with many other countries seeking to capitalise on being an early mover and shaper of this emerging global industry.

**Government must accelerate its efforts** to address the critical impediments to safe and sustainable sector growth if it wishes for Australia to maintain leadership and continue to benefit from its first mover position.

Government has established an initial high-level policy for the RPAS industry, and established a cross-Government group within the DITRDCA to coordinate its implementation. Industry commends the whole-of-government and industry-collaborative approach being adopted, which is considered a potential global competitive advantage. However, **this activity must move faster** and deliver a clear roadmap for the implementation of policy. Moving forward, this existing activity must be part of the broader aviation policy and strategy implementation outcome from the White Paper.

In addition to speed, **policy direction must be followed up by a meaningful commitment from Government**. Specifically, resources need to be made available to enable Government the means to follow-through on its policy commitments. **A meaningful demonstration of commitment from Commonwealth, State and Territory Governments has been lacking** - policy without the means to deliver it.

Every year Australian Government spends tens of billions of dollars on ground transport infrastructure. A fraction of that annual budget would establish the very foundational infrastructure needed to enable a new transport modality nationality for decades to come. There is an apparent lack of appreciation by Government that this is “a strategic infrastructure” matter, one that has a high return on investment.

**Government must make substantial investment** to lay the foundations for this sector to grow and flourish. This investment should be commensurate with the significant return on investment delivered compared to other transport investment areas.

A consistent shared vision, strategic plan, and commitment of resources must be complemented with **accountability** to deliver on the policy positions and required outcomes. Significant risks to industry arise through inconsistent policy and regulation across, and at different levels of, the Australian Government. **More needs to be done to assure industry of Government’s commitment to a national approach**.

**The number one immediate issue that is directly impacting industry is inadequate resourcing of the safety authority – the Civil Aviation Safety Authority (CASA).**

**CASA is critically under resourced**. It is not able to cope with the here-and-now demand for regulatory and safety oversight of the drone/RPAS sector, let alone start developing all the regulatory foundations (essential enabling infrastructure) for the AAM sector in a timely manner.

**The current “case-by-case” regulatory approach is no longer fit for purpose.** Reform of the regulatory framework for UAS / RPAS must be accelerated towards a permission-based system that enables safe integrated operations beyond visual line of sight (BVLOS).

While a foreign type-certified AAM may still be a few years away, **there is still significant work to be done in developing the operational concept and necessary regulatory framework for the future** (beyond initial AAM operations). CASA must be adequately resourced to enable this important longer-term work to begin and be in place in time for AAM operations. This includes working on longer term challenges like those associated with automated urban operations at scale.

**Resourcing must consider the entire pipeline for timely regulatory reform**, specifically, ensuring there is adequate resourcing for the Office of Parliamentary Counsel – Legislative Drafting to support the scale and tempo of legislative change required.

**Advancing the safe and sustainable growth of the RPAS and AAM sector in Australia must be part of a broader aviation ecosystem discussion.**

**A whole-of-aviation approach must be adopted** to leverage the many cross-sector opportunities and benefits the RPAS and emerging AAM sectors present. All sectors of aviation must be represented in discussion concerning the regulation and safe integration of RPAS and AAM into Australia’s airspace system. Ultimately, many of these sectors will become users and benefactors of the technology, and the systems supporting their integration (i.e., FIMS / UTM).

**Australia’s airspace operational concept will change** and subsequently the rules, airspace design, procedures and air traffic management system must change as well. In a similar way the advent of the automobile changed the millennium-old road system designed for horses - the increasing number of digital, connected and automated airspace users will drive change into airspace systems globally.

This evolution will have immense benefits to all users of Australia’s airspace system. Innovation will enhance the safety, efficiency, capacity and sustainability of Australia airspace system; a critical national resource.

Internationally, countries are reassessing their strategic vision for airspace systems –providing a common picture to drive and coordinate Government and industry investment. **Australia lacks a strategic vision and implementation roadmap. Australia also lacks a mechanism for industry to provide input to strategic airspace and air traffic management decision making.**

The innovation driven by these new sectors **must account for the perspectives and needs of incumbent aviation**, particularly when it comes to safety, efficiency and accessibility of airspace.

While we must always strive to balance the impacts of change, AAUS believes that **Government and industry must seek to raise the bar** and not be “held back” or reduced to the lowest common denominator at the expense of the safety or broader benefit of the majority – current or future.

**The UAS and emerging AAM sectors are not a disruptive force but an immense opportunity for Australia.**

UAS and AAM represent a positive catalyst for long overdue change that can drive all new levels of safety and prosperity for the entire aviation sector and, through their applications, deliver significant benefit to the Commonwealth. AAUS works transparently, collaboratively and professionally with all stakeholders in Australia’s aviation ecosystem, including community groups, towards realising the full potential of the UAS and AAM sector. AAUS welcomes further and ongoing engagement with Government and other aviation stakeholders.

### **Attachments**

The following attachments provide further detail to AAUS’ response to specific matters identified in the Green Paper consultation document:

- 1. CASA Resourcing and Cost Recovery**
- 2. Airspace Integration**
- 3. Cybersecurity**
- 4. AAM Vision and Action Plan**
- 5. Workforce Training and Licensing**

# Specific Issues

## CASA Resourcing and Cost Recovery

CASA is critically under resourced. It is not able to cope with the here-and-now demand for regulatory and safety oversight of the drone/RPAS sector.

Through NEAT policy initiatives, an additional requirement has been placed on CASA to develop safety regulations that will enable the more complex RPAS operations as well as adding AAM.

There is significant work here, and from the AAUS perspective, the Government has not provided CASA with sufficient resources to deliver these goals.

AAUS believes that safety of the aviation sector including the use of emerging aviation technologies is a fundamental requirement. It should not be compromisingly scaled based on available funding. AAUS has previously written to the Department about issues with respect to the Government's cost recovery policy for CASA via the levy for drone registration.

Some thought is needed around cost recovery policy for CASA.

While we might expect industry to bear full cost recovery at some time in the future, **AAUS believes that in the next decade, the Government will need to increase budget appropriation to ensure a better resourced CASA and a safer aviation sector.**

Accompanied References:

[AAUS Submission – CASA Consultation on Proposed RPA Charges 20200914.pdf](#)

[AAUS Letter to DITRDC on Drone Registration Costs and Recovery 20211130.pdf](#)

## Airspace Integration

Australia's airspace is expected to get busier and more complex with continued growth in conventional air traffic and the introduction of new airspace uses like RPAS and AAM.

To enable this future, RPAS and AAM must be able to seamlessly integrate into the existing airspace system and safely operate alongside existing air traffic. A holistic review of airspace design, technologies, and associated rules is necessary to maintain the high standard of safety and efficiency of Australia's airspace system that we enjoy today.

Airservices Australia is in the implementation phase of its modernised air traffic management system (CMATS / OneSky) in addition to FIMS / UTM. AAUS remains supportive for the implementation of FIMS / UTM as it will unlock safe and efficient access to airspace for RPAS and AAM.

All sectors of aviation must be represented in discussion concerning the regulation and safe integration of RPAS and AAM into Australia's airspace system.

Australia's airspace operational concept will change and subsequently the rules, airspace design, procedures and air traffic management system must change as well.

**Australia lacks a strategic vision and implementation roadmap. Australia also lacks a mechanism for industry to provide input to strategic airspace and air traffic management decision making.** The innovation driven by these new sectors **must account for the perspectives and needs of incumbent aviation**, particularly when it comes to safety, efficiency and accessibility of airspace.

Recently, industry was asked to comment on Remote ID without a strategic vision on its relevance to FIMS/UTM.

While we must always strive to balance the impacts of change, AAUS believes that **Government and industry must seek to raise the bar** and not be "held back" or reduced to the lowest common denominator at the expense of the safety or broader benefit of the majority – current or future.

An example of this is the lack of requirement for VFR aircraft operating in Class G airspace to carry ADS-B Out or similar. AAUS has previously advocated for a mandate for electronic conspicuity (EC) devices to be carried by all aircraft (and some RPAS) operating in Class G airspace.

ADS-B is essential to enhancing the safety and efficiency of Australian airspace for all airspace users, now and into the future.

ADS-B also enables Remote Pilots to develop and maintain comprehensive awareness of air traffic in the vicinity of RPAS operations. This traffic awareness provides an additional layer in the safety case that is needed to enable the safe and routine operation of RPAS in a widening array of beneficial applications.



The challenge, however, is that equipage of ADS-B and other EC devices is voluntary for much of the aviation fleet operating under Visual Flight Rules (VFR). Equipage rates of Australia's VFR fleet are low. Anecdotally, we understand that many crewed aircraft pilots operating aircraft that are ADS-B equipped operate with them turned off at low levels in Class G airspace. Consequently, the significant safety and efficiency benefits to the whole community are not being fully realised.

Stronger measures are needed to increase equipage of ADS-B and EC devices to unlock safety, efficiency and economic benefits for all airspace users.

Accompanied References:

[AAUS Position Paper – Improving Airspace Safety and Accessibility in Class G Airspace through Electronic Conspicuity 20230428](#)

[AAUS Submission – Remote ID Discussion Paper Consultation 20230728](#)

## Cybersecurity in the Drone/AAM Sector

AAUS acknowledges there are cybersecurity concerns specific to foreign manufactured drones, particularly those manufactured in countries of strategic concern to Australia's national interest.

AAUS supports a risk-based approach to the analysis and management of cybersecurity threats posed by foreign manufactured drones. Such an approach must objectively assess the nature and magnitude of the security threat specific to the drone type and its use.

We should learn from international experience but not assume it is fit-for-purpose in the Australian context.

Please refer to accompanying documentation for further detail.

[AAUS Position Paper – Drone Cybersecurity Risk Approach 20231123](#)

## Advanced Air Mobility (AAM)

The emerging AAM sector represents a unique opportunity for Australia.

AAM will enhance the connectivity of all Australians through the realisation of a new, safe, sustainable and accessible air transportation system. Together with Government, Industry's mission is to foster the safe deployment and growth of an AAM sector – a new mode of transport – to the social, economic and environmental benefit of all Australians.

Our strategy should be to position Australia as a world leader in the development of a fit-for-purpose ecosystem that supports the early implementation and evolution of AAM. This would enable Australia to capitalise on the benefits of being a first mover.

- Australia has the opportunity to be world leading in the realisation of regional air mobility.
- Australia will support a sovereign AAM design and manufacturing capability.
- Australia will be an early exporter of Australian AAM services.

There are significant challenges that need to be addressed in-order to realise this vision. Recognising the broader social, environmental and economic benefits to the nation – the Government must do more to accelerate the growth of this important sector. To support this, AAUS in conjunction with L.E.K Consulting have developed an all-of-industry AAM Vision and Roadmap to guide the Government with policy development and investment initiatives in this emerging aviation sector.

Please refer to the attached paper for detail:

[AAM Industry Vision and Roadmap 20231122](#)

## Workforce Training and Licensing

AAUS believes that the Aviation White Paper offers the ability to establish revised policy and frameworks for workforce/training/licensing which will better suit the future aviation industry. The current system is assessed to suffer from overly prescriptive training and licensing requirements, rather than competency-based arrangements. Further, CASA training and licensing requirements for remote pilots are very prescriptive, in some cases very out-of-touch with how these systems are operated, and are more suited to traditional aviation use. And training and licensing requirements for other aviation roles in the RPAS sector are not clearly defined. Safety and workforce opportunities for LAME for emerging aviation sectors like drones and advanced air mobility / electric aviation need to be specifically addressed. Finally, achieving alignment between licensing requirements (regulator) and the qualification framework (ASQA) is necessary. Currently these are not aligned, with graduates of Certificate programs not meeting regulatory requirements for remote pilot licensing, despite active CASA engagement in the development.

For the drone/AAM industry, Training and Licensing settings need to be optimized to ensure the full potential of this sector is realized. The White Paper presents an ideal opportunity to correct these deficiencies as many of the requirements and solutions have not been determined. There are opportunities for the broader Aviation Industry to benefit from the excitement and interest these new sectors are generating and, in turn, the potential to attract a greater talent pool to the broader aviation sector. Key imperatives to be addressed include:

- Promoting flexible Training and Licensing pathways that promote aviation workforce resilience and adaptability
- An opportunity to foster greater Diversity and Inclusion across aviation
- Emerging Skills Shortage - New entrant opportunities
- Potentially very large numbers of light / small electric aircraft operations requiring skilled workforce – new demand / competition on already strained workforce pool
- Changing skills required in this industry
- Require creation of career pathways – e.g., to enable a holder of a remote pilot license to move into a pilot training program
- Modular approach to T&L in aviation that provides flexibility
- Break down the 'silo' approach that exists, which forces a single pathway, with limited opportunities for recognition in other T&L programs
- Allow a phased approach to T&L that enables trainees to enter the workforce earlier, with limited duties, earn an income and develop practical knowledge
- Generate workforce resilience by providing the T&L and recognition pathways that allow skilled personnel to quickly attain certifications in complementary areas
- Greater exposure of aviation careers in early schooling

## Contact

AAUS would be pleased to provide additional information to the Department on the matters contained in this submission. Please do hesitate to contact Reece Clothier, President ([president@aaus.org.au](mailto:president@aaus.org.au)) or Greg Tyrrell, the Executive Director, on [greg.tyrrell@aaus.org.au](mailto:greg.tyrrell@aaus.org.au).