



REVIEW PROGRESS AND OUTCOMES

RPAS and AAM Strategic Regulatory Roadmap Review

2024 review

December 2024



Acknowledgement of Country

The Civil Aviation Safety Authority (CASA) respectfully acknowledges the Traditional Custodians of the lands on which our offices are located and their continuing connection to land, water and community, and pays respect to Elders past, present and emerging.

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1. Background and purpose

We published the RPAS and AAM Strategic Regulatory Roadmap (the Roadmap) in 2022. We developed the Roadmap in response to the National Emerging Aviation Technologies (NEAT) Policy Statement and related government initiatives. The roadmap states that:

“CASA is committed to undertaking a review of the roadmap every 18 months in consultation with industry. This will include reporting on the activities already begun or completed along with proposed changes to the roadmap.”

Initiative 46 in the Aviation White Paper → Towards 2050 also requires that CASA updates the roadmap in 2024.

This document outlines the changes following the 2024 Roadmap review.

2. Process

Industry engagement during the Roadmap review included:

- industry sessions
- feedback refined through the establishment of a Technical Working Group (TWG) under the Aviation Safety Advisory Panel (ASAP).

At the same time, we reviewed Roadmap items to assess:

- progress
- alignment with
 - industry needs
 - our work programs.

We combined all feedback and input into a document. We shared this document with the TWG and used it as the basis for discussions. We also held joint workshops with the TWG and CASA subject matter experts. This helped form a collaborative view on the way forward for Roadmap activities.

We also needed to collaborate across government to coordinate relevant initiatives, strategies, and activities linked to the Roadmap. Industry feedback highlighted the need to clarify roles and responsibilities across government.

We worked with:

- the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA)
- Airservices Australia (Airservices)
- federal, state, and local government entities.

This collaboration focussed on industry sessions and cross-cutting initiatives to improve communication where possible.

3. Industry engagement and consultation

3.1 Industry engagement sessions

In May-June 2024, CASA held 7 industry sessions co-chaired by the Australian Association for Uncrewed Systems (AAUS) after consulting with the ASAP. Key themes raised across the sessions included:

- Overall, industry is satisfied with the Roadmap content but suggested timelines and dependencies be reviewed due to its aspirational nature and progress. Some items need clarification. Key priorities included:
 - **risk-based approach for test flights and R&D:** industry wants a focus on enabling test

- flights and research and development (R&D), with clearer distinctions between sandboxes and other concepts.
 - **airspace management:** a perceived lack of progress and clarity around airspace management for RPAS and Advanced Air Mobility (AAM) is a key risk. This includes, but is not limited to, AFAP, vertiport airspace, UTM, and electronic conspicuity policies. Industry acknowledges this requires government-wide efforts, broader than the Roadmap.
 - **guidance material:** industry requests better guidance material to improve efficiency of regulatory applications, particularly for JARUS/SORA processes.
 - **updated terminology:** clarity between small-medium RPAS (low risk) and large RPAS (higher-risk/complex) and AAM in the Roadmap. There's also a call to move away from weight-based systems to risk-based, where possible.
 - **AAM regulatory elements:** core regulatory elements, including licensing, are needed to support piloted AAM operations by 2027.
 - **definitions and external dependencies:** the Roadmap lacks content on broader ecosystem challenges like airspace management, UTM, land use planning, social licence, facilitating the next generation of aviation participants, and workforce training. Although CASA doesn't own these areas, industry wants them acknowledged in the Roadmap.
- New items raised by industry included:
 - **regulatory pathways for large RPAS:** development of pathways to enable commercial operations for large RPAS.
 - **international liaison on the 12 nm issue:** collaborating internationally to resolve the 12 nautical mile issue.
- Industry requested clearer deliverables, timeframes, and reporting mechanisms for the Roadmap. They suggested simplifying the Roadmap by including less activities and leveraging current regulations. They also want a way to flag items that need longer-term effort.
- The need for more efficient regulatory services was firmly and respectfully raised. Industry emphasised adopting a proportionate, risk-based approach, with suggestions including:
 - carving out lower-risk applications for more efficient processing
 - prioritising guidance that shows industry 'what good looks like'
 - considering self-administering organisation approaches.

3.2 Technical Working Group

The ASAP agreed to forming a TWG on 19 July 2024, with membership finalised on 2 August 2024. The TWG included 14 industry members representing:

- industry associations
- technical experts in airspace, airworthiness, and infrastructure
- RPAS operators from various categories
- original equipment manufacturers (OEMs).

The TWG met between August and October 2024 to review and discuss the Roadmap. This was the main way industry was consulted as the Roadmap review progressed.

4. Summary of review outcomes

4.1 Definitions

We have refined the terminology to better reflect higher-risk RPAS and complex operations. This followed industry input about the need for clarification as these operations increase, compared to the lower-risk RPAS operations that have dominated to date.

We aligned the definition of AAM with common usage, domestically and internationally, to reflect the broader AAM ecosystem. Where relevant, we have used AAM aircraft and AAM operations throughout the Roadmap content.

4.2 Time horizons

We have updated and deconflicted the time horizons to remove overlap. The new time horizons are:

- Immediate term – 2024-26
- Near term – 2027-29
- Medium Term – 2030-34
- Long term – beyond 2034.

The TWG provided feedback that the time-frames can detract from activities. While we have retained timeframes to help organise activities in the collated documents, we have omitted them from visualisations. Website presentation of activities will not include time horizons.

4.3 Roadmap challenges

The Roadmap review TWG identified an additional challenge for the roadmap - 'international alignment'.

This challenge includes:

- maintaining alignment with international efforts
- harmonising international policy before establishing a clear regulatory pathway for Australia
- addressing the needs of AAM manufacturers who want to export to multiple countries.

Cooperation and consistency across National Aviation Authorities (NAA) is important.

4.4 External dependencies

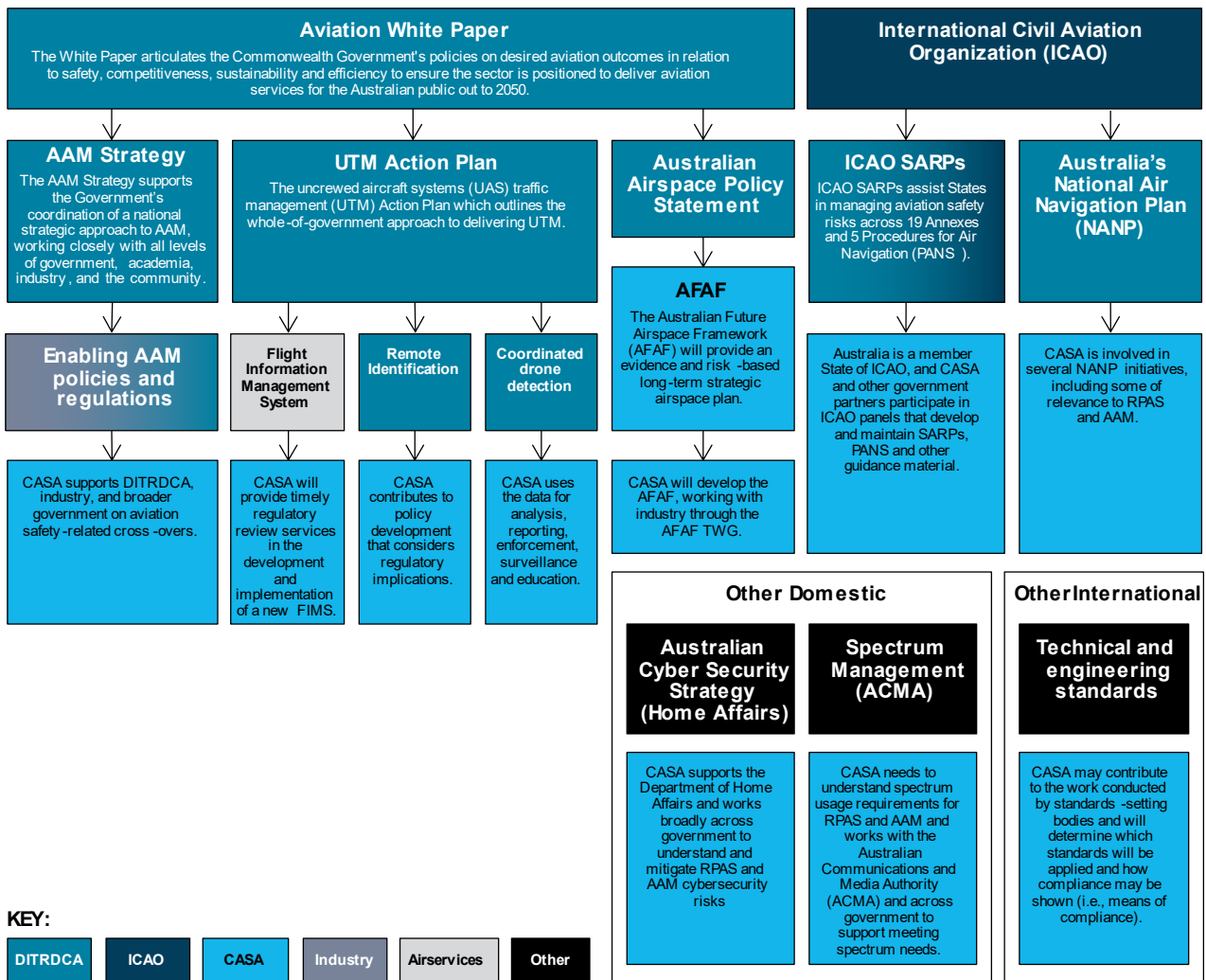
We added a new section to the Roadmap to:

- capture cross-government policies and initiatives
- clarify roles and responsibilities, domestically and internationally.

This highlights broader drivers, enablers and dependencies for AAM and RPAS, many of which are beyond the remit of CASA.

Based on industry feedback, we developed a diagram to clarify roles and responsibilities. We have closed activities that we contribute to but do not control to avoid confusion about responsibilities. We will continue to contribute to relevant cross-government and international initiatives, as outlined in the diagram. This information is also available on the reviewed Roadmap website.

Figure 1. Figure 1 - CASA's role in cross-government initiatives related to the roadmap



4.5 Supporting activities

The 2022 Roadmap outlined 3 supporting activities:

- digital enablement
- regulatory sandboxes
- community.

The review added 2 more supporting activities:

- research, development, and testing
- systems assurance.

These changes reflect a common theme from the industry sessions, highlighting the need to enable R&D activities and flight testing. We added systems assurance based on feedback from TWG and CASA workshops, along with broader industry feedback.

4.6 Regulatory Areas

We retained the 6 regulatory areas in the 2022 Roadmap, with a slight change to the title of the 6th area from 'Safety and security' to 'Safety and resilience'.

This change reflects that CASA does not have a 'security' mandate under the *Civil Aviation Act 1988*. National security is the primary function of the Department for Home Affairs, which we support.

4.7 Priorities for the next review

During the review, we identified areas that will need further work in the next roadmap review, as they couldn't be addressed within the current timeframe and scope. These include:

- Estimation of timeframes and prioritisation of effort for highly automated AAM.
- Incorporation of emerging technologies beyond RPAS and AAM. This includes consideration of synthetic aviation fuels, aircraft sub-system technologies and their regulation, high altitude operations, and enabling capabilities, such as automation. This could include a re-scoping of the Roadmap to encompass other emerging aviation technologies.
- Identification of longer-term activities that will require additional effort resulting from emerging concepts and operations.

5. Roadmap activities

The focus of the Roadmap review was mainly the immediate and near term activities. We also considered medium and longer-term activities. They will undergo a more detailed review in the next Roadmap update as they become immediate and near term.

We used activity identifiers, based on the order of the 2022 Roadmap, to improve clarity and allow cross-referencing. We may simplify these identifiers post-review for future referencing.

In line with industry feedback and CASA needs, the review aimed to remove unnecessary activities or reflect them as ongoing efforts, especially where:

- the activity is core business (for example, ongoing stakeholder engagement, safety campaigns)
- there are no external deliverables
- CASA does not lead the activity.

This will help with prioritisation and reporting.

We have categorised some activities as RPAS or AAM-oriented and we may have separated them in time based on their expected delivery.

We've aimed to balance industry feedback about the description of aircraft activity in the text, shifting from weight-based groupings to risk-oriented descriptions.

- Risk-based descriptions remain generic to allow for flexibility and expected changes in the treatment of risk as operations and technology evolve. For example, we have used 'lower-risk', 'medium-risk' or 'higher-risk' instead of categories like SAIL I-II, SAIL III, or SAIL IV.
- The term 'advanced' operations refers to newer concepts outlined on the [Advanced operations page of the CASA website](#).

The sections below summarise:

- progress against each immediate-term activity from the 2022 Roadmap
- analysis of each immediate and near-term activity
- details to clarify descriptors or activity goal
- outcomes from each activity review e.g. retain, close, clarify activity.

We have only included medium and long-term activities that have been greatly revised and where the change needs explanation.

5.1 Safety and resilience

5.1.1 Immediate term

SR1: Publish SMS guidance materials for RPAS operations

Progress and analysis:

[Book 9 - Safety Management Systems for RPAS](#) was published in 2022.

Review outcome:

Close.

SR2: Set up RPAS focused safety education activities to promote CASA's 'just culture' philosophy

Progress and analysis:

We have conducted several RPAS-related safety education activities since the 2022 Roadmap. These include:

- 'Know Your Drone' recreational drone safety campaigns
- drone safety signage installation by local government authorities and airports – 'no drone zones' and 'drone rules apply'
- daily social media content, tips and regulatory updates from CASA
- event sponsorship and participation. For example, the AAUS RPAS annual conference
- work with Airservices and Defence on drone detection at airports and implementing targeted responses to unauthorised drones
- sharing drone detection reports with all 29 civil controlled airports to raise awareness regarding non-compliant drone activity
- webinars and guidance material for industry
- CASA's Just culture directive published in February 2023.

Review outcome:

Close. This will be covered under SR15, which is a follow-on activity.

SR3: Engage with law enforcement and other agencies to build understanding of their role in the enforcement of RPAS regulations

Progress and analysis:

We regularly engage with law enforcement agencies via the National Law Enforcement working group. Feedback shows that enforcement processes are working well, with no major issues. Our focus has been on education and supporting safe operations.

We have issued an approving instrument to law enforcement agencies for RPA operations in emergency situations under certain conditions.

We will continue to work with law enforcement agencies to provide alleviation where it is safe and appropriate. We have linked this activity to SR9 and SR14.

Review outcome:

Retain – Enduring activities.

Revised wording to: Coordinate the approach to enforcement between relevant authorities.

SR4: Consider data collection and uses to improve safety results

Progress and analysis:

We analyse data from the National Drone Detection System (NDDS). This data helps us assess drone user behaviour in relation to compliance and aviation safety. We use this data as evidence for enforcement matters. It also helps inform mitigation strategies like targeted safety education campaigns as reported under SR2

Review outcome:

Retain – Enduring activities.

SR5: Engage with other government agencies to understand and find RPAS and AAM cybersecurity risks

Progress and analysis:

We engage with the Department of Home Affairs (Home Affairs) on RPAS and AAM cybersecurity matters. We support Home Affairs as Australia's representative to the ICAO Cybersecurity Panel (CYSECP).

Review outcome:

Close consistent with Home Affairs leadership via the Australian cybersecurity strategy.

We will continue to work across government to understand and mitigate cybersecurity risks for RPAS and AAM. See the 'Drivers, enablers and dependencies' section of the roadmap.

SR6: Publish acceptable cybersecurity standards for RPAS and AAM

Progress and analysis:

We are developing guidance material for the cybersecurity airworthiness assessment of RPAS operations. We expect this guidance to be included in an Advisory Circular in the immediate term.

It's important to clarify that CASA does not publish industry standards for cybersecurity. For example, RCTA DO-326A.

Cybersecurity for AAM is addressed under the type certification process.

Review outcome:

Retain – Immediate.

Moved to 'Aircraft and aircraft systems' regulatory area. Revise wording to: 'Publish guidance on cybersecurity for RPAS (Q2, 2025).

5.1.2 Near term

SR7: Develop SMS and human factor policies that are proportionate to risk and complexity

Review analysis:

This activity follows SR1. We are waiting for the commencement of medium and higher-risk RPAS operations to inform future policy development.

We updated this activity description to clarify that its scope is limited to RPAS since passenger transport AAM aircraft will require an SMS.

Review outcome:

Retain – Immediate.

Moved to 'Operations' regulatory area. Revise wording to: Develop SMS and human factor policies for RPAS that are relative to risk and complexity (Q4, 2026).

SR8: Consider and implement a tiered requirement for SMS for RPAS and AAM operators

Review analysis:

We propose removing this item because it duplicates SR7, which outlines a tiered requirement for SMS. Passenger transport AAM aircraft will require an SMS.

Review outcome:

Remove, covered by SR7.

SR9: Coordinate with enforcement agencies and revise CASA's enforcement manual

Review analysis:

This activity follows SR3. We recognise the importance of maintaining liaison and regularly reviewing policies and procedures that support law enforcement operations.

Update activity description to reflect:

- enforcement procedures and outcomes are sound, with education and counselling key to promoting safe operations. This marks a change from 2021 expectations.
- current work priorities are driven by emergency services stakeholder needs and focus on supporting operations.

Review outcome:

Retain – Enduring activities.

Moved to 'Operations' regulatory area. Revise wording to: Work with first responder agencies to enable safe operations and improve safety education.

SR10: Work with DITRDCA to provide transparent reporting on RPAS enforcement actions to promote corrective actions and lessons learned

Review analysis:

We conducted minimal enforcement compared to safety education and awareness campaigns. The outcomes from the safety data analysis in SR4 drives this.

Review outcome:

Retain – Enduring activities.

SR11: Continue to work with industry associations to promote key safety lessons from available data

Review analysis:

We prioritise our safety education and awareness campaigns based on risk. As per SR2, we will continue to use safety data to inform campaign prioritisation and report on this activity.

Review outcome:

Retain – Enduring activities.

5.1.3 Medium term

SR13: Continue to promote an understanding of 'just culture' across the RPAS and AAM sectors

Review analysis:

We will combine this activity with SR15 and reflect it as an ongoing

Review outcome: Close. Combined with SR15.

5.1.4 Long term

SR15: Continue to carry out safety education and promotion activities to embed a positive safety culture

Review analysis:

Combined with SR13 and reflect as an ongoing activity.

Review outcome:

Retain – Enduring activities. Reflect on website that we continue to conduct safety and education activities.

5.2 Aircraft and aircraft systems

5.2.1 Immediate term

AA1: Publish acceptable industry consensus standards for piloted AAM

Progress and analysis:

We delayed this work while international airworthiness policy settled.

The recent publication of key National Aviation Authority (NAA) guidance will allow us to develop and publish:

- airworthiness criteria
- certification guidance for piloted Advanced Air Mobility (AAM).

We divided the deliverables to distinguish between:

- publication of a policy position
- airworthiness criteria
- means of compliance (MOC).

This division more accurately reflects the stages of the airworthiness certification process and CASA's role in it.

We will seek to align with like-minded countries for this work and accept international standards where appropriate in preference to developing unique Australian standards.

We may publish a list of industry consensus standards that we deem appropriate as means of compliance to specific airworthiness requirements.

Review outcome:

Retain – Immediate.

Three deliverables:

AA1a: Publish policy position for certifying piloted AAM (Q3, 2025)

AA1b: Publish airworthiness criteria and certification guidelines for piloted AAM (Q3, 2025)

AA1c: Publish acceptable means of compliance for certification of piloted AAM (Q4, 2026).

AA2: Review applicable maintenance policies for AAM

Progress and analysis:

We reviewed maintenance options for AAM and will consider using existing maintenance regulations for commercial air transport. This would require extending the applicability of CASR Part 145 to powered lift aircraft and electric engines.

We may also need to expand the licence scope for CASR Part 66 maintenance personnel to allow maintenance of AAM aircraft, including electric propulsion.

The goal is to develop policies proportional to risk that maintain safety and compliance with regulatory standards.

We updated the activity wording to reflect that it has transitioned to a follow-on activity and to encompass the broader scope of continuing airworthiness.

This work is contingent on ongoing work to complete the continuing airworthiness rules for the air transport sector. This includes:

- CAR to CASR transition for the non-scheduled air transport sector
- appropriate and necessary adjustments and improvements to the existing CASR Part 42 and Part 145.

We will seek to align with like-minded countries for this work, particularly in relation to maintenance licensing.

Review outcome:

Retain - Immediate.

Revise wording to: Progress the development of a fit for purpose continuing airworthiness policy for higher-risk AAM (Q3, 2026).

AA3: Review international frameworks, standards and methods for certification and assurance of RPAS. This includes consideration of adoption of FAA durability and reliability method for low risk RPAS

Progress and analysis:

We have reviewed the international frameworks for certification and assurance of RPAS and policy development is underway.

We will deliver the review outcomes as part of AA5.

Review outcome:

Close – we will deliver the output under AA5.

AA4: Review applicable maintenance policies for RPAS.

Progress and analysis:

Development of future policy for higher-risk RPAS has begun, which is needed to inform maintenance requirements. We acknowledge the importance of adopting a proportional, risk-based approach.

We will also continue developing policies for higher-risk RPAs, including continuing airworthiness needs (new activity and deliverable).

Review outcome:

Retain - Immediate

Revise wording to: Progress the development of a fit for purpose continuing airworthiness policy for higher risk RPAS (Q3, 2025).

AA5: Publish guidance on the evidence requirements from the original equipment manufacturer (OEM) verse the operator for RPAS operational approvals

Progress and analysis:

Initial work is underway on the development of procedures for declaration and verification of compliance by OEMs for airworthiness aspects of RPAS.

There is potential to work with OEMs to meet design verification and compliance operational safety objectives.

We need to develop a design verification methodology and work with operators on medium risk operational approvals. We will address this in guidance policy.

Review outcome:

Retain - Immediate.

Revise wording to: Publish guidance on the evidence required for RPAS airworthiness and operational safety goals (Q2, 2026).

5.2.2 Near term

AA6: Publish acceptable industry consensus standards for single aircraft single operator, and multiple aircraft single operator for AAM

Review analysis:

We will complete this activity following AA7a, which is required as a pre-cursor.

We repurposed this activity to make it clear that a policy position is required for the use of automation and autonomy in AAM and RPAS.

This policy position will also inform the progression for both AAM and RPAS towards highly automated and autonomous operations (including multiple aircraft single operator requirements).

We will seek to align with like-minded countries for this work and will accept international standards where appropriate in preference to developing unique Australian standards.

We may publish a list of industry consensus standards that we deem appropriate as means of compliance to specific airworthiness requirements.

Review outcome:

Retain – Near.

Revise wording to: Develop policy position for automation and autonomy in AAM and RPAS (Q1, 2027).

AA7: Publish acceptable industry consensus standards for remotely piloted AAM

Review analysis:

As per similar airworthiness activities, clarify deliverables and activity by changing wording to focus on airworthiness and means of compliance.

We need guidance for remotely piloted AAM prior to guidance for highly automated and autonomous (previously multiple aircraft, single operator). Therefore, this activity will precede AA6.

We will seek to align with like-minded countries for this work and will accept international standards where appropriate in preference to developing unique Australian standards.

We may publish a list of industry consensus standards that we deem appropriate as means of compliance to specific airworthiness requirements.

Review outcome:

Retain - three deliverables

Immediate

AA7a: Develop policy position for the airworthiness certification of remotely piloted AAM (Q4, 2026).

Near term:

AA7b: Publish airworthiness criteria and certification guidance for remotely piloted AAM (Q4, 2028).

Medium term:

AA7c: Publish acceptable means of compliance for remotely piloted AAM (Q2, 2030).

AA8: Publish acceptable industry consensus standards for multiple aircraft, single operator for RPAS

Review analysis:

This activity is dependent on the harmonisation and publication of a framework defining levels of autonomy, and demand from the Australian domestic industry.

We have clarified this activity descriptor to specify 'higher-risk' RPAS as well as adopting airworthiness language consistent with similar items.

We will seek to align with like-minded countries for this work and will accept international standards where appropriate in preference to developing unique Australian standards.

We may publish a list of industry consensus standards that we deem appropriate as means of compliance to specific airworthiness requirements.

Review outcome:

Retain – three deliverables

Immediate

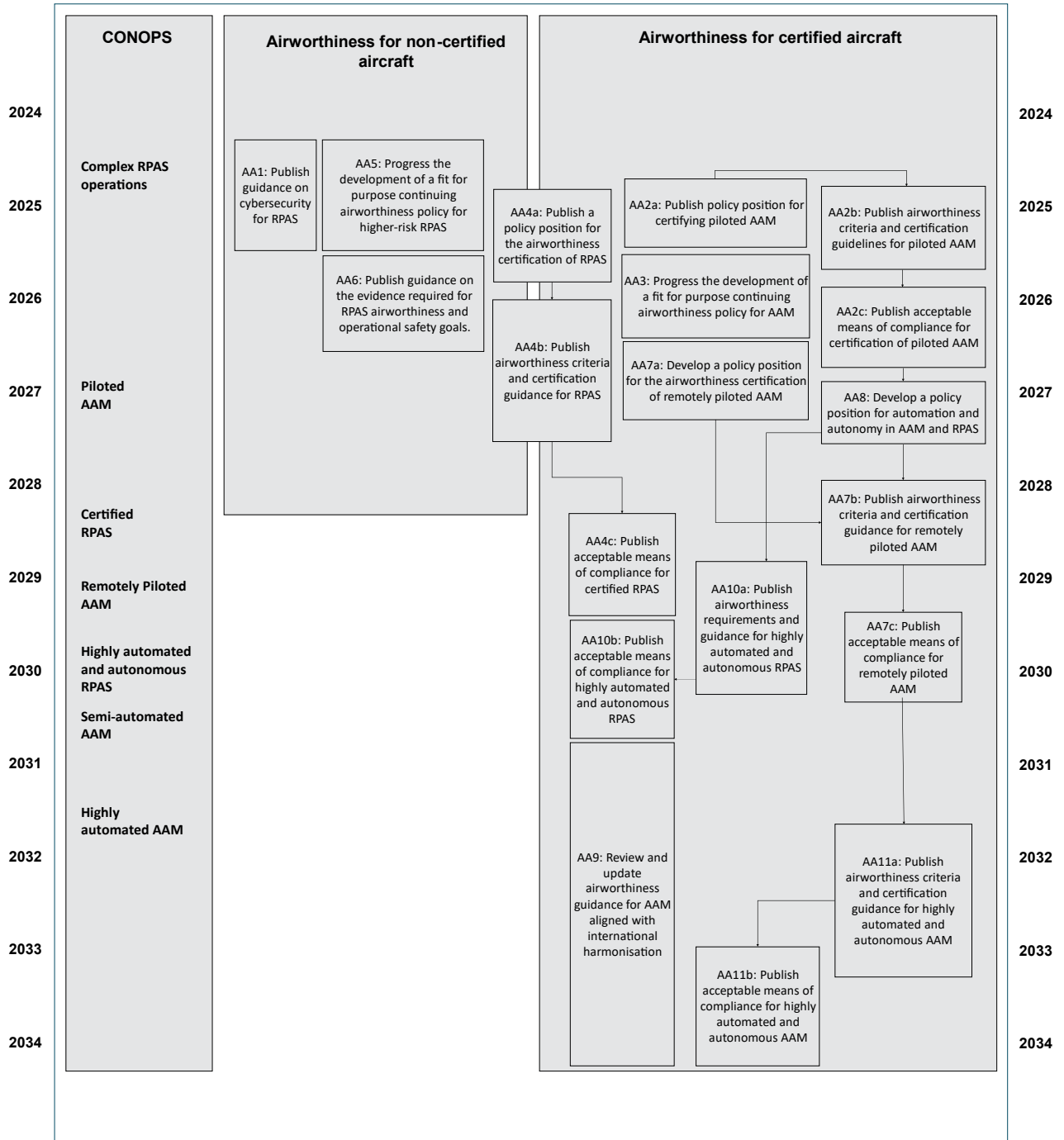
AA8a: Develop policy position for airworthiness certification of RPAS (Q4, 2025).

Near term

AA8b: Publish airworthiness criteria and certification guidance for RPAS (Q2, 2027).

AA8c: Publish acceptable means of compliance for certified RPAS (Q3 2029).

5.2.3 Aircraft and aircraft systems revised activities



5.3 Airspace and Traffic Management

5.3.1 Immediate term

AM1: Through the AFAF, develop a transparent, consistent, and scalable method to manage Australian airspace that supports RPAS and AAM integration

Progress and analysis:

Progress has been limited due to resourcing, but planning work is now underway.

This will be a long-term effort that develops over time. The Aviation White paper requires the framework to be prepared in 2026 under initiative 42.

Review outcome:

Retain – clearly link to related activities (see visualisation).

Deliverable: Determine AFAF sub-activities, clarify sequencing and dependencies over time (Q4, 2026).

AM2: Research how existing separation standards may apply to RPAS and AAM. Identify future changes required including conspicuity and equipage considerations

Progress and analysis:

We undertook an internal review to understand the operating environment and consider the way in which segregation might be applied in uncontrolled airspace.

We are closely monitoring the cost-benefit of electronic conspicuity and the technology to enable it. We will use the accuracy of this navigation technology to determine separation standards that may apply.

We have prioritised the development of an air collision risk model (ARMS) for RPAS and AAM aircraft. We will use this model for relative risk assessments to inform decision-making (see also AM7).

Review outcome:

Retain and reflect likely long timeframes of this activity. Combine with AM3.

Revise wording to: Research and review how existing flight rules may apply to RPAS(a) and AAM(b). Identify future changes required including conspicuity and equipage considerations.

See AM3 - Review existing flight rules against the future needs for RPAS (Q2, 2026).

Note Initiative 43 of the White paper → Towards 2050.

AM3: Review existing flight rules against the future needs for RPAS and AAM

Progress and analysis:

As per AM2, we undertook an initial review that compares what we currently have versus future needs.

As per AM2, this activity will require effort and develop over time. We have split assessments for RPAS and AAM across 2 timeframes. We combined AM2 with AM3 (AM2a and AM2b – see visualisation).

Review outcome:

AM2a: Review existing flight rules against the future needs for RPAS - Immediate (Q2, 2026).

AM2b: Review existing flight rules against the future needs for AAM - Near (Q2, 2029).

AM4: Work with DITRDCA and Airservices Australia to develop a regulatory oversight framework for UTM

Progress and analysis:

We attend regular cross-government and industry meetings providing input into, and monitoring the development of, UTM. We provided feedback into Departmental policy, noting that DITRDCA leads policy for this initiative.

We are planning the transition of airspace approvals for RPAS operators within 3 nm of Airservices-controlled aerodromes. Work is underway to document international approaches and standards of relevance to UTM.

Review outcome:

Close – DITRDCA lead this activity.

5.3.2 Near term

AM5: Develop an implementation plan for airspace modernisation that is flexible, scalable and supports all airspace users

Review analysis:

We will support AFAF implementation with a long-term strategic airspace plan, which is reliant on both higher-level policy and operational technology.

We also require industry input to inform requirements e.g. detailed information on proposed operational locations driving the need to change from current airspace structure.

This activity is dependent on outcomes from AM1.

Review outcome:

Retain and link to AM1 – Immediate (Q4, 2026).

AM6: Begin initial implementation to ease identified risks and support RPAS and AAM airspace integration

Review analysis:

Separate efforts for RPAS and AAM into sub-activities (AM6a and AM6b) to reflect that RPAS activity is underway.

App-based authorisation trials are underway for the implementation of RPAS within 3nm of selected controlled aerodromes.

This activity will inform AM11a via AM7, AM8, and AM9.

Review outcome:

Retain.

AM6a: Initial implementation to ease identified risks and support RPAS airspace integration (Q4, 2025) – Immediate.

AM6b: Initial implementation to ease identified risks and support AAM airspace integration (Q4, 2027) – Near.

AM7: Carry out an analysis to understand the crossover point from self-separation to a 'managed' environment

Review analysis:

We have developed an RPAS module within the Air Risk Modelling System (ARMS), which assist with assessing airspace risk to determine appropriate risk controls.

This activity will need to align with AFAF, which international developments will drive. There is currently no significant progress at the ICAO level. Activity is also dependent on the accuracy and employment of technology.

Modify language to reflect that activity will only 'commence' in the Immediate term. We have grouped this with AM8 and AM9 in the immediate term but will be a long-term activity.

Review outcome:

Retain – Immediate.

Revise wording to: Conduct an analysis to understand the crossover point from self-separation to a 'managed' environment (See AM8 and AM9) (Q4, 2025).

AM8: Consider new separation standards, that use new technologies, for RPAS to RPAS and RPAS to AAM**Review analysis:**

We focussed this item on RPAS needs, so it assumes primarily uncontrolled airspace – the language of 'separation' is technically problematic since it generally refers to controlled airspace.

Combine with AM9 since these activities are highly overlapping.

Review outcome:

Retain and combine – Immediate.

AM8 and AM9 combined: Consider standardised airspace requirements for RPAS – RPAS and RPAS – AAM (Q4, 2025).

AM9: Consider standardised requirements for RPAS in controlled airspace**Review analysis:**

Industry is leading exploratory work with Airservices with proposed operational trials in controlled airspace. We are actively observing progress and supporting these initiatives as required.

Continue active watch as the BVLOS in controlled airspace approvals develop and progress.

Review outcome:

Retain and combine – Immediate.

AM8 and AM9 combined: Consider standardised airspace requirements for RPAS – RPAS and RPAS – AAM (Q4, 2025).

AM10: Consult with all airspace users on the appropriateness of proposed rules for RPAS and AAM**Review analysis:**

Remove. We will consult on any changes to proposed rules as per normal procedures and legislative requirements.

Review outcome:

Remove.

AM11: Develop standards and capabilities to support the implementation of low-level traffic management systems for RPAS**Review analysis:**

Airservices is developing and implementing FIMS within DITRDCA's policy lead. We are undertaking exploratory work around existing standards, international developments and the needs for Australian airspace. We are working with DITRDCA and Airservices to support a staged approach to implementing initial UTM services.

We propose an accompanying equivalent activity in the medium term for AAM (see visualisations).

Review outcome:

Retain – Near term.

AM11a [RPAS]: Develop standards and capabilities to support the implementation of low-level traffic management systems for RPAS (Q4, 2027).

AM11b [AAM]: Develop standards and capabilities to support the implementation of low-level traffic management systems for AAM (Q4, 2029).

AM12: Consider regulatory requirements for integrating air traffic management systems**Review analysis:**

DITRDCA is leading policy development on UTM, from which we will consider regulatory needs.

Timing is uncertain, dependent on architecture adopted. There is also a dependency on the civil military air traffic management system implementation.

Review outcome:

Retain – Near term (Q4, 2029).

AM13: Develop airspace requirements for vertiport operations**Review analysis:**

There are both internal and external factors that impact this item commencing.

Some considerations include social licence, noise, and community concerns for which CASA does not make decisions. There are also dependencies on the progression of flightpath management and automation (Airservices and related roadmap items).

Review outcome:

Retain – Near term (Q2, 2028).

Revise wording to: Consider airspace requirements for vertiport operations.

5.3.3 Medium term

AM15: Develop new separation requirements to support and use improving technologies such as high levels of automation**Review analysis:**

We have split this activity to enable the focus on RPAS and AAM to be separated over time.

Review outcome:

Retain – Near term, revise wording to:

AM15a: Develop new RPAS segregation requirements to support and use improving technologies such as high levels of automation (Q2, 2028).

AM15b: Develop new AAM segregation requirements to support and use improving technologies such as high levels of automation (Q4, 2029).

AM16: Review and update rulesets with respect to integration, global approaches, and requirements for increasing levels of autonomy**Review analysis:**

We have changed the wording to remove the term 'approaches' due to alternate meaning in aviation.

Review outcome:

Revise wording to: Review and update rulesets with respect to integration, global mechanisms, and requirements for increasing levels of automation (Q4, 2032).

AM17: Develop an integrated traffic management framework to support all airspace users

Review analysis:

Consistent with other review outcomes to clarify roles and responsibilities, we have removed this activity since it is beyond CASA's remit.

Review outcome:

Remove.

5.3.4 Long term

AM19: Develop standards and capabilities to support cooperative participation and levels of self-separation between all airspace users

Review analysis:

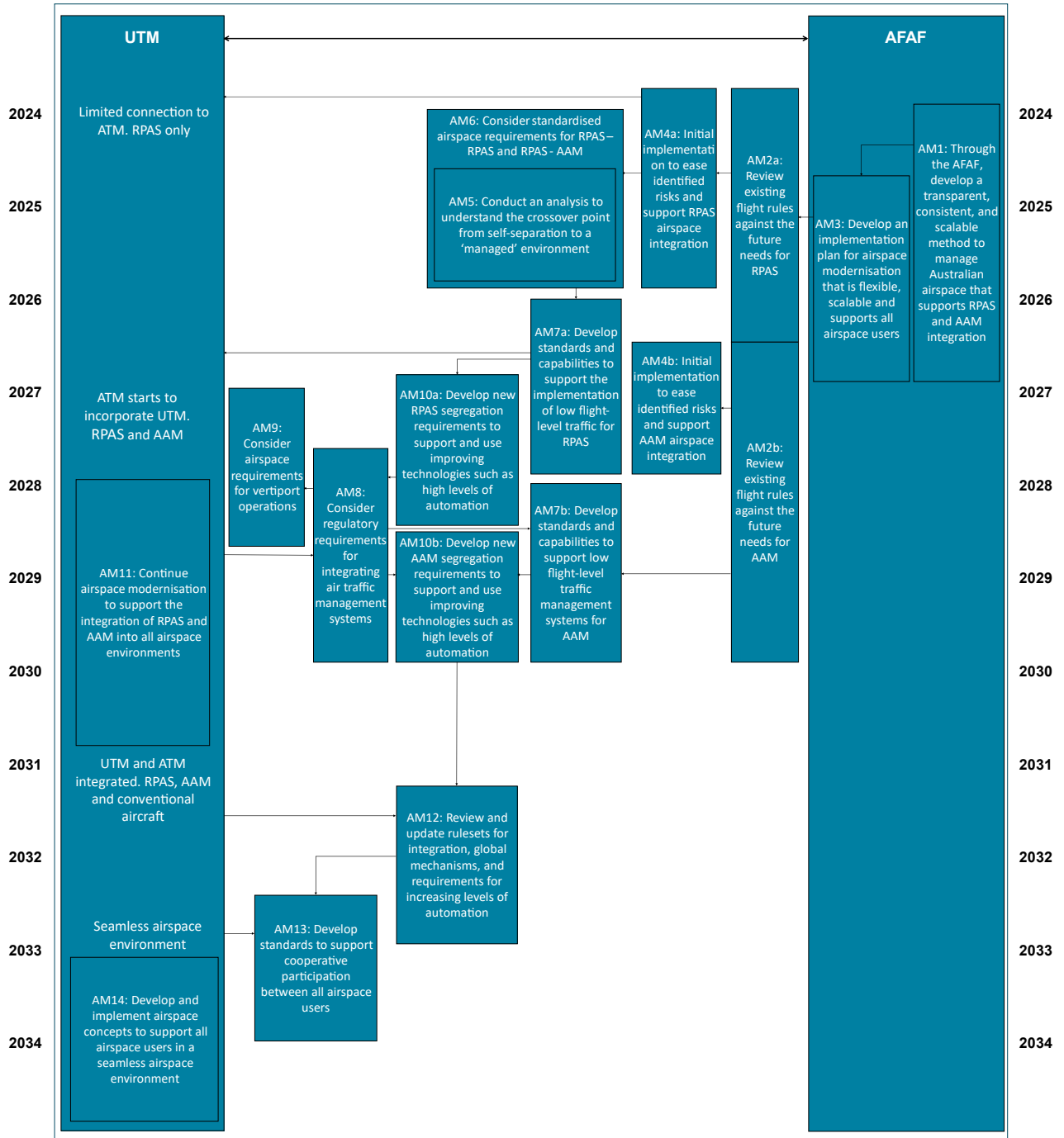
We have changed the wording to reflect that that more than levels of self-separation are required to create a seamless airspace environment.

Review outcome:

Retain- Long term.

Revise wording to: Develop standards to support cooperative participation between all airspace users (Q4, 2033).

5.3.5 Airspace and traffic management reviewed activities



5.4 Operations

5.4.1 Immediate term

OP1: Develop and publish further guidance material for RPAS operations already enabled in existing regulation including acceptable means of compliance

Progress and analysis:

We have developed, published and revised:

- TMI RPA Operations over or near people - 2024-01
- AC 101-01, which included:
 - Annex A CASA Guidance - RePL Training course
 - Annex B Applying for approval to conduct one-to-many RPA operations
- Standard Scenario Applications and Documents - Guidance Material
- Micro and Excluded RPA Guide.

We are refining our regulatory processes to assist consistent and efficient processing of RPA applications. This includes development of sample manuals and templated procedures such as EVLOS among other initiatives.

We continually review RPAS policy to apply a risk-based approach to enabling safe operations and improving efficiency. This work will continue to be ongoing and is dynamic in response to industry needs. OP6 is a follow-on activity.

Review outcome:

Retain – Enduring activities.

OP2: Develop and publish guidance material for approval of research and development operations

Progress and analysis:

We recognise this as a high industry priority. We are reviewing the regulatory structure to improve and clarify operational pathways across medium and large RPAS, proportionate to the operational risk profile. We have clarified the scope to include consideration of system testing and test-flight enablement

Review outcome:

Retain – Immediate.

Wording revised to: Review and develop pathways to support research and development operations.

Deliverable - Discussion paper (Q4, 2024).

OP3: Guidance material for the carriage of dangerous goods (DG)

Progress and analysis:

Guidance material for carriage of DG and non-DG cargo in RPAS is under development. We closely monitor international developments via ICAO.

We seek to include guidance in an Advisory Circular for RPAS carriage of dangerous goods. This work competes with inspections, so is done on a 'best efforts' basis. Clarify activity wording to refer to RPAS.

Review outcome:

Retain – Immediate.

Wording revised to: Guidance material for the carriage of dangerous goods for RPAS.

Deliverable - Publish guidance for the carriage of dangerous goods on RPAS (Q4, 2025).

OP4: Implementation of regulatory changes from the PIR of CASR Part 101

Progress and analysis:

The CASR Part 101 PIR project delivers regular updates to the MOS. OPC drafting resources limit regulatory changes. Since the Roadmap publication, seven MOS updates reflect this ongoing work.

The MOS updates are available in the Federal Register of Legislation. You can select previous versions and view the Explanatory Statements for each, which details the purpose and amendments for each update.

This work is ongoing.

Review outcome:

Retain – Immediate.

Wording revised to: Implementation of rule changes from the PIR of CASR Part 101.

This work is ongoing.

OP5: Conduct a gap analysis of CASR Parts to identify regulatory changes required to support RPAS and AAM operations

Progress and analysis:

There has been limited progress due to resourcing, and in the case of AAM, detailed operational concepts. We have identified RPAS gaps in line with the regulatory maturity model and policy developed as required for example, OP5a[new] on large RPAS, and OP5b [new – see below].

We are aware that this is a core activity that will continue over time. There are also linkages to the development of international SARPS via ICAO, for which similar analysis will be required. Work beyond high-priority domestic policy development is often covered under other activities conducted in line with ICAO needs.

This item may not have external deliverables other than those managed under standard policy, guidance, and regulatory update processes.

Review outcome:

Retain – Enduring activities.

OP5a[new]: Develop industry guidance to support large RPAS operations

Progress and analysis:

We've identified regulatory pathway challengers due to the emergence of larger RPAS operations that we didn't envision when the RPAS regulations were written.

This activity relates to new activity AA8a [new].

Review outcome:

New activity – Immediate.

Deliverable - Publish guidance for large RPAS operational pathways (Q4, 2025).

OP6: Publish more standard scenarios and SORA guidance for low risk RPAS operations and emergency services

Progress and analysis:

OP1 is a pre-cursor of this activity. We are reviewing the use of standard scenarios and their value.

The OONP TMI published goes some way towards providing SORA guidance. We are working with Emergency Services to extend policy development to meet their needs.

Update activity description to reflect need for complex RPAS operations pathways. Remove emergency services from the description, which SR9 now covers.

Review outcome:

Retain – Immediate.

Wording revised to: Continue to develop policy and pathways for the assessment of complex RPAS operations.

This work is ongoing.

OP7: Talk with model aircraft, drone sport and recreation flyers to find opportunities for improved collaboration and consultation**Progress and analysis:**

We have reviewed and republished AC 101-03 - 'Flying a model aircraft or drone for recreation or education' in May 2024.

Further discussions with the MAAA are underway to consider streamlining approvals for model aircraft associations. Follow-on activities can be captured in separate actions or tracked under OP1.

Review outcome:

Close.

5.4.2 Near term

OP8: Develop guidance on the operational approval requirements for AAM operations, including operations which are remotely piloted and pilot-on-board**Review analysis:**

Separate into two milestones, piloted (8a, Immediate term), and remotely piloted (8b, medium term). This activity is dependent on international harmonisation across airworthiness, training and licensing, and CONOPs.

Review outcome:

Retain – split into two activities.

OP8a: Develop guidance on the operational approval requirements for AAM operations (pilot-on-board) – Immediate (Q3, 2026).

OP8b: Develop guidance on the operational approval requirements for AAM operations (remotely piloted) – Medium term (Q2, 2030).

OP9: Develop standards for international RPAS and AAM operations**Review analysis:**

For RPAS, this will be driven by the development of ICAO SARPS, due for implementation in 2026 under current timelines.

We don't require new standards for AAM. We expect they will adhere to extant standards for piloted aircraft and that existing standards for international operations will be utilised.

Accordingly, reduce activity scope to RPAS only. This is a lower-priority activity for Australian operators given geography.

Review outcome:

Retain – Immediate.

Wording revised to: Develop standards for international RPAS operations (Q2, 2026).

OP10: Review existing approval and oversight processes to make sure they are proportionate to the risk and complexity of operational activities

Review analysis:

We recognise the high priority of this activity from industry feedback. The timeliness of application assessments is a key issue.

We regularly review pain points and procedures under quality assurance and continuous improvement practices. We streamline procedures for high volume, low complexity, low risk applications where it is safe to do so.

Separate to reflect the different timeframes and focus of activity for RPAS (OP10a) and AAM (OP10b) and reflect the ongoing nature of the activity.

Review outcome:

Wording revised to:

OP10a: Review RPAS approval and oversight processes to make sure they are proportionate to the risk and complexity of operational activities – Enduring activities.

OP10b: Review AAM approval and oversight processes to make sure they are proportionate to the risk and complexity of operational activities – Near term (timing will be dependent on AAM operations).

OP4b[new]: Engage internationally to assist the development of regulatory pathways to resolve the 12 nm issue

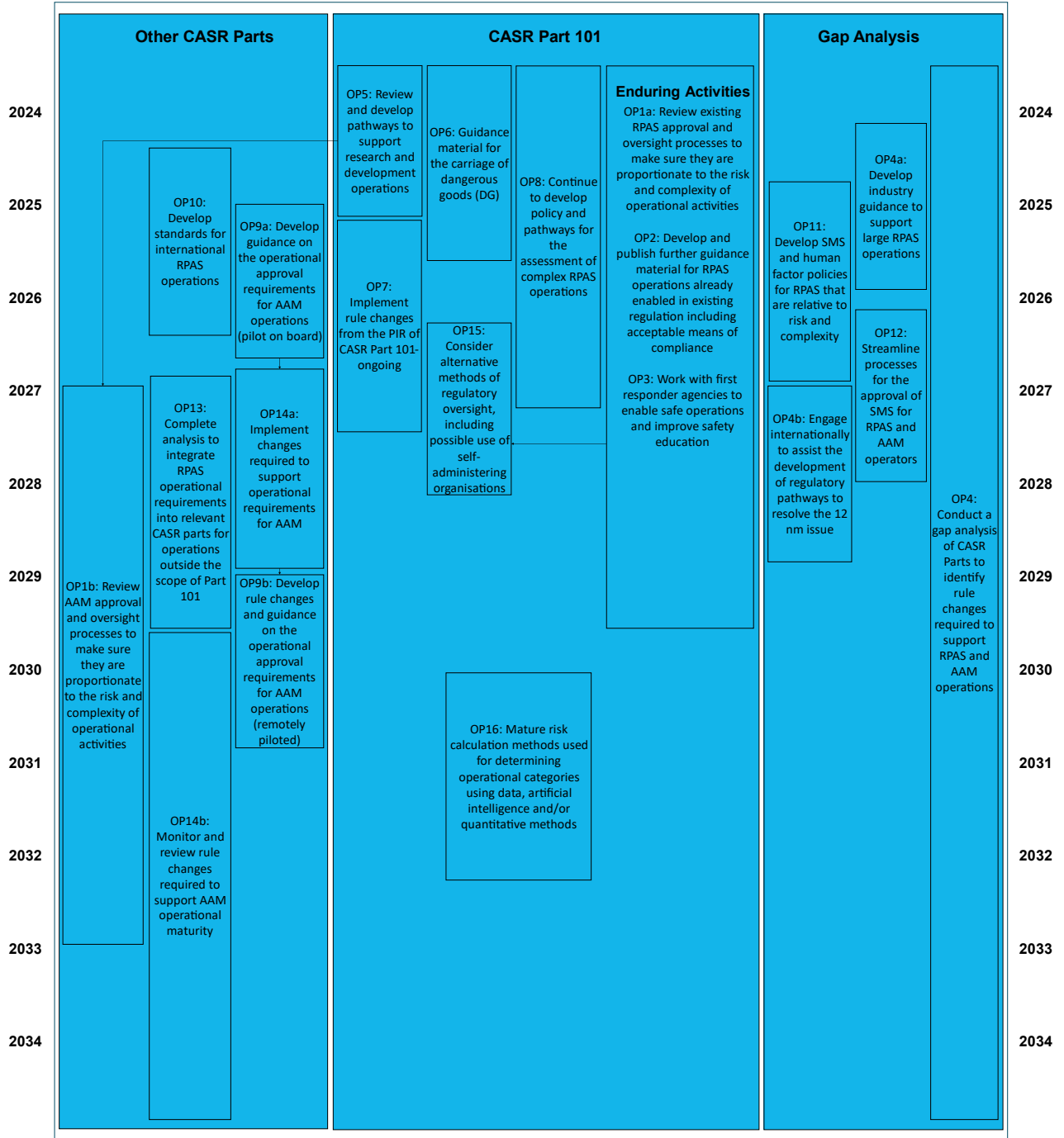
Review analysis:

Article 31 of the Chicago Convention requires aircraft engaged in international navigation to have a certificate of airworthiness. This is problematic for RPAS and been raised at ICAO since the 2022 publication of the roadmap. This is also an emerging industry priority based on industry session feedback. We have raised a new activity.

Review outcome:

Add – Near (Q4 2028).

5.4.3 Reviewed operational activities



5.5 Infrastructure

5.5.1 Immediate term

IN1: Develop guidance material, design requirements and regulations for vertiports and other infrastructure required to support AAM operations

Progress and analysis:

AC 139.V-01 v1.0 Guidance for Vertiport Design published in July 2023. An accompanying 'Guide to Vertiport Design' published in May 2024.

We have created a TWG to further develop the AC into future areas (operations and detailed design standards).

We have undertaken significant engagement with DITRDCA, and industry (operators, vertiport designers) on guidance material and the way ahead.

We have identified the need for further guidance material, in addition to the regulatory component of the activity.

Review outcome:

Retain – Immediate.

Deliverable: Develop operations and detailed design standards guidance (Q4, 2026).

IN2: Develop guidance for infrastructure required to support research and development activities

Progress and analysis:

Current work is starting to look at this. We focussed available effort on IN1 above. We require further information from operators and OEMs to progress.

Move activity to the Near term – we need more detailed concepts of operation, OEM requirements, and airspace management policy development to inform efforts.

Review outcome:

Retain – Near (Q2, 2027).

IN3: Work collaboratively across government to understand and establish spectrum requirements for RPAS and AAM

Progress and analysis:

CASA, together with DITRDCA, participated in a workshop with ACMA in 2022. There were limited outcomes noting ACMA defined spectrum consultation processes.

As a resource within ACMA's remit, reflect our support in the section on cross-government initiatives and responsibilities.

Review outcome:

Retain – Enduring activities.

Moved to 'Safety and resilience' regulatory area.

IN4: Work with DITRDCA to set up the National drone detection network and support all safety aspects of the infrastructure planning framework

Progress and analysis:

Since publication of the Roadmap, DITRDCA now refer to the 'Drone Detection Network' as 'Coordinated Drone Detection'. We support this network, and as per SS4, uses data to support safety analysis.

As a Department-led activity, move to reflected support in the section on cross-government activity and initiatives.

Review outcome:

Close. Reflected on the website that CASA supports this activity but does not lead.

5.5.2 Near term

IN5: Implement a regulatory framework to support RPAS and AAM infrastructure (for example vertiports, vertipads)

Review analysis:

We are working on this activity together with the vertiport TWG. Work has focussed on AAM-vehicles rather than RPAS, which will pend the maturity of larger RPAS that may need such facilities.

Update activity wording to reflect that work is at the 'consideration' stage – implementation is some time away.

Review outcome:

Retain - Immediate (Q2, 2026).

Revise wording to: Consider a regulatory framework to support RPAS and AAM infrastructure (for example vertiports, vertipads).

IN6: Develop certification requirements for infrastructure and infrastructure related equipment

Review analysis:

Our assessment is that operations are not yet mature enough to require this yet. Subsequently, we are directing effort towards higher-priority infrastructure activities until there are stronger demand signals from industry.

Review outcome:

Retain – Near (Q2, 2028).

IN7: Develop a regulatory framework for the operation of research and development infrastructure

Review analysis:

This is both a follow-on activity to IN2 and OP2. In line with IN2 being moved out, move this activity to the medium term.

This activity is dependent on OEM requirements and operator concepts of operation.

Review outcome:

Retain – Medium (Q2, 2031).

5.5.3 Medium term

IN8: Regulate operator training and requirements for infrastructure operators

Review analysis:

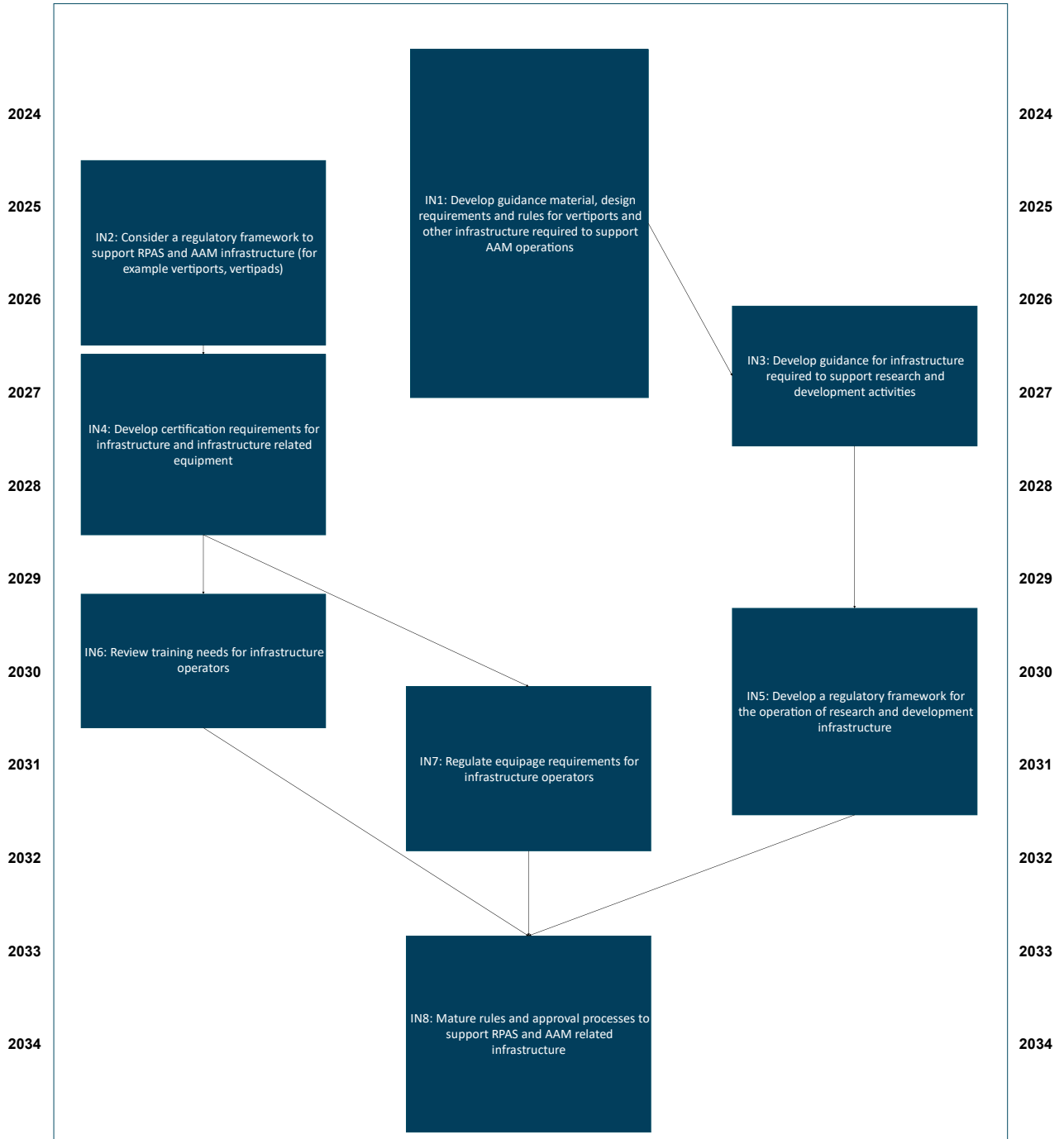
Wording changed to more accurately reflect CASA's role to provide competency objectives.

Review outcome:

Retain – Medium.

Revised wording to: Review training needs for infrastructure operators (Q2, 2030).

5.5.4 Reviewed infrastructure activities



5.6 People

5.6.1 Immediate term

PE1: Review current RePL requirements and consider renewal or currency requirements, class and type ratings, and endorsements

Progress and analysis:

We are conducted an initial internal review, and we are progressing a subsequent wholistic review of the RePL framework. This will also assist consideration of ICAO SARPS.

The follow-on item, PE7 covers subsequent implementation actions from the review.

Review outcome:

Close – review complete.

PE2: Engage with international aviation safety regulators to identify options for aligning RPAS training and licensing requirements

Progress and analysis:

We regularly liaise with partner NAAs on licensing and closely follow their approaches. The NZ CAA has officially recognised the CASA RePL for operations within 4 km of controlled aerodromes.

We will continue to review and research international RePL frameworks and progress alignment with ICAO SARPs due to be in place from 2026.

PE8 captures follow-on alignment work, which is dependent on ICAO progress.

Review outcome:

Close – see PE8.

PE3: Review the competency and training requirements of operationally critical people involved in RPAS and AAM operations to identify future regulatory change needs

Progress and analysis:

We are reviewing and continue to review competency and training.

We will continue to review competency and training requirements domestically, and in line with international NAAs and ICAO under PE8.

Review outcome:

Close – see PE8.

PE4: Consider medical standards for RPAS and AAM operators

Progress and analysis:

We conducted a review to capture approaches and current work underway. Resourcing and prioritisation within ICAO have limited progress to date.

We are working with the ICAO Medical Provisions SG, Defence, and seeking to harmonise the approach to medical standards with the CAA NZ.

Review outcome:

Retain - Immediate (Q4, 2026).

PE5: Review and implement an alternative training and examination pathway for remote pilots conducting beyond visual line of sight operations

Progress and analysis:

We have launched the [BVLOS outside of controlled airspace exam](#) as an alternate pathway for remote pilots sitting the Instrument Rating Exam.

Review outcome:

Close – activity complete.

PE5a[new]: Review training requirements for remote pilots conducting BVLOS operations in controlled airspace

Progress and analysis:

Included as a new activity in response to TWG feedback. This activity is in alignment with CASA work programs.

Review outcome:

New item – Immediate term (Q4, 2026).

PE6: Implement accreditation requirements for model aircraft users

Progress and analysis:

We have halted the continuation of the Roadmap item after Government [repealed the model aircraft registration and accreditation scheme](#) on 25 May 2023. It is pending further consideration and potential future re-enactment.

Review outcome:

Close.

5.6.2 Near term

PE7: Begin implementation of regulatory and system changes following the review of RePL requirements

Review analysis:

Follow-on activity from PE1 and on track. We may stage implementation over time.

Review outcome:

Retain – Immediate (from Q2, 2025).

PE8: Align RPAS training and licensing requirements with international standards

Review analysis:

This activity follows PE2.

International NAAs are progressing training and licensing, but we require further work for international harmonisation. Also dependent on ICAO-level activity.

A desired industry outcome is to make the process more efficient.

PE2 and PE3 will continue under this activity. Efforts will likely extend beyond the Immediate term.

Review outcome:

Retain – Immediate term.

This work has commenced and is ongoing.

PE9: Update regulations to support new licensing requirements

Review analysis:

This activity is reliant on PE7 and PE8. It is unlikely there will be either clarity on the way ahead or the opportunity to update regulations in the immediate term.

Update to clarify that this activity is in relation to RePL, and to reflect that we require monitoring to identify any changes needed.

Review outcome:

Retain – Near.

Revised wording to: Monitor and update rules to support new RePL licensing requirements. (Q2, 2027).

PE10: Implement standard training and licensing requirements for personnel involved in piloted passenger carrying AAM

Review analysis:

International NAA policy is maturing to enable us to progress this.

Wording updated to reflect that it will commence, with further implementation required as AAM operations mature.

Review outcome:

Retain – Immediate.

Wording revised to: Commence implementation of standard training and licensing requirements for personnel involved in piloted passenger carrying AAM (Q4, 2025).

PE11: Review radio operator competency requirements for remote pilots

Review analysis:

There is an identified need to up-skill remote pilots' radio competencies to reflect aviation flight requirements.

Review outcome:

Retain – Immediate (Q1, 2026).

New: Review training requirements for remote pilots conducting BVLOS operations in controlled airspace

Review analysis:

The TWG identified the need for this activity, which aligns with our analysis of industry needs.

Review outcome:

New activity – Immediate term (Q4, 2026).

5.6.3 Medium term

PE12: Develop a specific set of outcome-based standards for RePL training on large type RPAS

Review analysis:

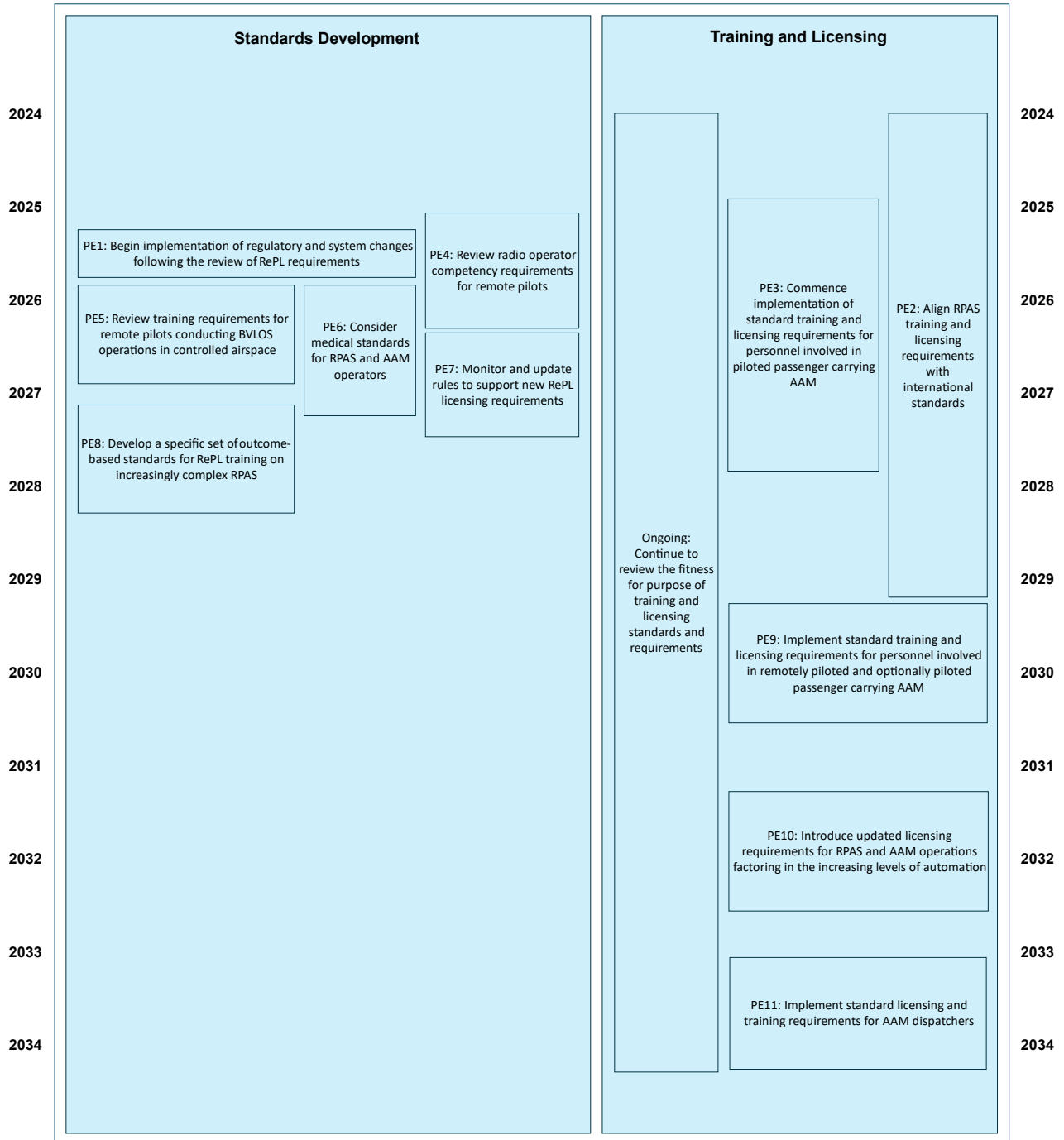
We changed this activity to clarify that this applies to complex RPAS.

Review outcome:

Retain – Near.

Revised wording to: Develop a specific set of outcome-based standards for RePL training on complex RPAS. (Q4, 2028).

5.6.4 Reviewed people activities



List of Acronyms

Abbreviation	Definition
AAM	Advanced Air Mobility
AFAF	Australian Future Airspace Framework
ARMS	Air Risk Modelling System
ASTM	ASTM International (standards body formerly known as the American Society for Testing and Materials)
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulation
DITRDCA	The Department of Infrastructure, Transport, Regional Development, communication and the Arts
FAA	Federal Aviation Administration (USA)
JARUS	Joint Authorities on Rulemaking on Unmanned Systems
MOC	Means of Compliance
NAA	National Aviation Authority
NEAT	National Emerging Aviation Technologies
OEM	Original Equipment Manufacturer
OSO	Operational Safety Objective
PIR	Post Implementation Review
RePL	Remote Pilot Licence
RPA	Remotely Piloted Aircraft
RPAS	Remotely Piloted Aircraft System
SMS	Safety Management System
SORA	Specific Operations Risk Assessment
TWG	Technical Working Group
UTM	Unmanned Aircraft System Traffic Management