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Dear David,

AUSALPA SUBMISSION TO AIRSERVICES PROPOSED LOWERING CLASS E ON THE EAST COAST TO 6500' AMSL

The Australian Airline Pilots' Association (AusALPA) is the Member Association for Australia and a key member of the International Federation of Airline Pilot Associations (IFALPA) which represents over 100,000 pilots in 100 countries. We represent more than 7,500 professional pilots within Australia on safety and technical matters. Our membership places a very strong expectation of rational, risk and evidence-based safety behaviour on our government agencies and processes and we regard our participation in the work of the Australia's safety-related agencies as essential to ensuring that our policy makers get the best of independent safety and technical advice.

AusALPA has been actively involved in stakeholder engagement with Airservices' airspace proposals, particularly those related to the "J-curve", for some time. We have been stridently critical of the way in which Airservices (AsA) has presented the various proposals to modify Australia's existing airspace architecture, especially in the absence of any semblance of Design and Implementation Safety Cases.

We therefore wish to acknowledge that the arguments for this proposal to provide a blanket lower level of 6500' AMSL for Class E in the "J-curve" represent a significant improvement in transparency. We also wish to acknowledge that generating risk profiles for collision potential in Class E and Class G airspace is an extremely difficult undertaking with little in the public arena to assist.

The latest proposal

This latest iteration of AsA's attempts to replicate the US NAS airspace architecture in the "J-curve", now referred to by AsA as LBE, involves the apparently simple reduction to the base of the relevant Class E airspace from 8500' to 6500' AMSL, While not obvious from the primary documents, the "Airspace Tour" video identifies a key design parameter – a minimum terrain clearance of 1360' – that highlights both the constraints in some areas on VFR traffic outside controlled airspace (OCTA) and the patches of airspace within the overall boundary that will remain as base 8500'.

The airspace is an enroute design. There appears to be no contemplation of the operational impact of the new airspace architecture on the practical aspects of IFR operations to and from uncontrolled aerodromes.

Economic appraisal report

Unfortunately, only the Executive Summary of the Pricewaterhouse Coopers (PwC) *Economic assessment of the proposed lowering of Class E airspace on the East Coast* dated 30 March 2022 is in the public domain. Clearly, the document is very simplistic and it is difficult to identify, let alone challenge or test, any of the underlying assumptions. Equally, it is impossible to identify what assumptions have been made by PwC or specified by AsA, notwithstanding the commentary in AsA's *Lowering Base Class E Airspace - The Case for Safety*.

The Evaluation Framework shown on page 4 seems quite reasonable, as far as it appears to go. While not emphasised, the framework makes it clear that the costs are borne by general and sports aviation while the benefits are said to accrue to "operators and passengers of IFR flights (predominantly Regular Passenger Transport (RPT) and general aviation) as well as government agencies. Of course, that imposition of costs on general (and to a lesser extent sport) aviation post-COVID is a political decision rather than an agency decision, but it seems to us that the benefits to RPT in particular may be overstated.

We are curious about the various upgrade and no-upgrade numbers chosen and by whom, as well as the variability in unit costs for upgrades. Arithmetically, it appears that the unit cost of upgrades changes from $14,667 for scenario 1 to $13,940 for scenario 2 to $9,445 for scenario 3 and thereafter, who knows.

It appears to us that the collision risk modelling undertaken by AsA is essentially an enroute assessment, which in most accident analysis represents the lowest risk part of any flight. Given that the PwC evaluation framework assesses benefits in terms of avoided costs of accidents and incidents, AusALPA is interested in how the reduction in enroute risk is weighted against the unchanged or possibly increased risk of the departure and arrival phases of a flight.

Scenarios 6, 7 and 8 are interesting in the context of broad scale lowering of the base of Class E. What is not clear is how many aircraft of the stated passenger capacity are cruising in the band 6500-8500' now or whether the scenario is based on the additional 6-10 nautical miles spent transiting that altitude band.

More generally, when we consider that scenario 8 understates the number of passengers at risk in high-capacity operations at an RPT destination such as Ballina and therefore the likely accident/incident costs, AusALPA is at a loss to understand AsA's reluctance to implement urgent airspace safety-based changes to protect the origin and terminal phases of flight.

LBE – the case for safety

Unsurprisingly, the *Lowering Base Class E Airspace - The Case for Safety* document is a sales pitch that risks understating the costs and overstating the benefits of the LBE project.

We are told that:

> The improved surveillance coverage, alongside increased data processing capability, has enabled Airservices to develop new Collision Risk Models (CRMs) to better identify airspace where increased risk of collision may occur.

Disappointingly, the attached figures in the Appendix that purport to illustrate those CRM outcomes do not provide any useful information, even with different manipulation to identify the displayed data. Even though we believe that the greatest risks are aerodrome-centric, there may be certain route intersections that also give rise to increased risk. Those outcomes are important in verifying the appropriateness of the quoted focus of the Australian Airspace Policy Statement 2021 to protect regional aerodromes served by passenger transport services. Unfortunately, those critical issues are not developed in any meaningful way in the document, thus missing a vital information opportunity.

In terms of economic impact, we are told that there will be no increase in ongoing costs to service the new airspace, presumably a signal related to IFR enroute charges, but general and sports aviation will bear an estimated cost of $16.2M over 20 years. It is difficult not to be cynical when the quoted cost to GA comes from one scenario in a range of costs from $7.5M to $50.5M while the potential benefit comes from the worst case scenario of potential benefits ranging from $2.2M to $290M from the PwC appraisal.

AusALPA notes with some interest that AsA asserts that the LBE design aligns with the proposed Australian Future Airspace Framework (AFAF), even though we understand that work on the AFAF has barely begun within CASA and to date there has been no public exposure or consultation on the proposed framework.

Non-towered aerodromes

We remain concerned by the early statement:

> Positioning the vertical boundary of Class E and Class G airspace at A065 minimises interruptions for pilots during the critical phase of flight, as they transition between operating on the Area Frequency and the aerodrome Common Traffic Advisory Frequency (CTAF).

On several occasions, we have reiterated our concerns about the Class E architecture failing to replicate the US NAS aerodrome-centric model that provides IFP containment and departure protection with an enroute separation benefit. The Australian implementation of Class E as enroute airspace often results in low exit altitudes from Class E into Class G/CTAFs on arrival and vice versa for departures, which we consider to be potentially dangerous due to greatly increased cockpit workloads, time compression and communications complexity.

A 6500' base of Class E will not minimise interruptions for pilots in any general or particular sense as claimed. The reality is that the combination at each aerodrome of instrument flight procedures, lowest safe altitudes and Class E/Class G frequency allocations will determine the extent to which a 6500' exit altitude increases the risks over those which currently exist. This is particularly pertinent given that much of the footprint of the proposed LBE overlies a significant proportion of the higher terrain of continental Australia. AusALPA is very much interested in the geographical and operational analysis conducted by AsA to support such grand presumption of safety benefit to pilots.

Safety risk and safety benefit sections

As we acknowledged at the outset, generating risk profiles for collision potential in Class E and Class G airspace is an extremely difficult undertaking with little in the public arena to assist. Nonetheless, we are a little uncomfortable with some of the underpinning assumptions and dependent outcomes due to a lack of access to the core working details that support the simplified consultation documents and to a level of cognitive dissonance with the operational conclusions.

The distinction between the safety risk and safety benefit sections of this consultation document is quite artificial since they both largely address parts of a continuous analysis. We therefore propose to address them together.

Risk analysis

It is not clear why AsA chose to use the particular data sets quoted or how they were modified to cater for any COVID-related changes in flight activity. Given that the LBE is a future design, we would like to be confident that the data was reflective of the extrapolated activity before the industry-wide restrictions took hold.

Similarly, it is not clear to us whether the CRM of intersecting aircraft trajectories was based on real time data or flight plan records and the extent to which any modelling was continued below 4500'. It is also not clear if the claimed residual risk reduction for IFR aircraft as they descend from 6500' to 4500' is only related to IFR-IFR, rather than our observations of the greater risk of IFR-VFR encounters.

Table 1 is pivotal to the eventual conclusions. We accept that the Class G gross error probabilities are estimates, but the estimation that IFR-IFR separation errors in Class G are 20 times more likely than in Class C or E requires further explanation. The difference in probability assessments of gross errors between IFR to VFR in Class E and Class G is presumably based on perceptions of VFR pilots' behavioural differences between operating in Class E or Class G more so than for IFR pilots, but a factor of 50 seems worthy of much more detail.

Using the ICAO definition of Target Level of Safety (TLS) for enroute controlled airspace is a reasonable starting point. We are curious if there is a different TLS for terminal airspace since that is by far the highest risk environment and our greatest concern.

While we accept that the introduction of positive separation of IFR from IFR and from known VFR traffic is a clear safety benefit in the enroute case, we do note that the magnitude of the safety benefit is directly proportional to the original estimates of airspace risk. Considerable care should be exercised in relying on the apparent precision of these numerical outcomes.

<u>Operational Behaviour Change</u>

AusALPA is very concerned about this element of the analysis and finds the conclusions counter-intuitive in all respects.

Of the 17,915 aircraft identified as operating under the VFR, more than half appear to operate within the LBE design area, based on the CASA VFR Equipment Survey Results document published in July 2021. If the fleet is uniformly representative, about 26% have no transponder and about 70% have no ADS-B. Conservatively, that suggests around 2500 aircraft needing upgrades to access Class E while PwC in scenario 3 for Estimated costs suggest a highest number of upgrades at 4574 aircraft. We have considerable difficulty in reconciling that range of fleet sizes requiring equipment upgrades with PwC's suggestions of upgrade vs no upgrade numbers in scenarios 1 and 2.

There has been some relaxation of equipment requirements for VFR operations in Class E and clearly there will be some take-up of the cheaper options, particularly with the government grants. However, none of the numbers are explained, despite the key significance of deciding that only 1.5% or fewer pilots will change their operations to below 6500' and thus not increase the VFR density and consequent risk in the lower levels.

More importantly, we expect the increase in VFR traffic density to be constrained to a number of channels determined either by terrain, local training areas, urban development or known VFR routes. In some case, those channels may reduce the probability of IFR to VFR conflicts while in others quite the opposite.

Conclusions

This round of consultations has provided greater exposure of the safety basis underpinning the proposal and we welcome the greater transparency.

Unfortunately, the public exposure of summary documents without access to the full safety or economic analyses raises more questions than it answers.

AusALPA is uncomfortable with many aspects of this difficult task. Many of the assumptions lack validation or explanation yet are relied upon for justifying the proposal.

We are concerned that some of the identified risk reductions are operationally counter-intuitive and we do not have confidence that they are entirely realistic.

This third iteration of the proposed LBE does not address most of our concerns raised in response to the first two versions of the project. This submission should therefore be read in conjunction with our previous feedback on the LBE proposals.

Yours sincerely,

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President AFAP

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