United Firefighters Union of Australia (UFUA) Aviation Branch Submission

Australia's general aviation industry inquiry

Under Standing Order 25 (2) (a), the Senate Rural and Regional Affairs and Transport Legislation Committee will inquire into and report on the current state of Australia's general aviation industry, with particular reference to aviation in rural, regional and remote Australia.

The committee will consider the operation and effectiveness of the Civil Aviation Safety Authority (CASA) and other relevant aviation agencies, with particular reference to:

a. the legislative and regulatory framework underpinning CASA's aviation safety management functions, including:
    i. the application of the *Civil Aviation Act 1988* and the *Civil Aviation Safety Regulations 1998* to Australia's aviation sector, and whether the legislation is fit for purpose;
    ii. the safety and economic impacts, and relative risks, of CASA's aviation safety frameworks; and
    iii. the engagement of CASA with other relevant Australian Government agencies;
b. the immediate and long-term social and economic impacts of CASA decisions on small businesses, agricultural operations and individuals across regional, rural and remote Australia;
c. CASA's processes and functions, including:
    i. its maintenance of an efficient and sustainable Australian aviation industry, including viable general aviation and training sectors;
    ii. the efficacy of its engagement with the aviation sector, including via public consultation; and
    iii. its ability to broaden accessibility to regional aviation across Australia, considering the associated benefits of an expanded aviation sector; and
d. any related matters.

The committee will present its interim report on or before the final sitting day of **December 2020** and will present its final report on or before the final sitting day of **November 2021**.

Committee Secretariat contact:

Committee Secretary
Senate Standing Committees on Rural and Regional Affairs and Transport
PO Box 6100
Parliament House
Canberra ACT 2600

Phone: +61 2 6277 3511
Fax: +61 2 6277 5811
rrat.sen@aph.gov.au

Executive Summary:

Australia's general Aviation (Secondary) airports were protected by a dedicated ARFFS right up to the 1990's. Under the banner of affordable safety, a concerted high level, lobbying by influential members of the aviation community occurred and the ARFFS was withdrawn from some of our busiest and highest risk airports in Australia. Bankstown, Moorabbin, Jandakot, Archerfield and Parafield all had their ARFFS services withdrawn. It was stated at the time that incidence of survivable air crashes would be reviewed at these airports to validate this decision. However, despite many accidents including many fatal accidents at these locations this decision to withdraw ARFFS has never been properly Risk Assessed to the current Australian Risk Assessment standards or reviewed by a properly constituted committee with ARFFS expertise.

In Australia the establishment criteria for Aviation Rescue and Fire Fighting (ARFF) determines whether or not an airport gets a dedicated airport fire and rescue service. So, in terms of ARFFS providers it is the single most important regulation regarding ARFFS provision. The current establishment criterion is based on whether an airport accepts international flights or for domestic airports the number of passengers travelling through that airport per annum. An airport that has regular international flights or a domestic airport that meets a benchmark number of passengers (350,000pa) gets a dedicated ARFFS. Those airports that do not meet this criterion get no dedicated ARFFS protection and rely on state fire services for their fire protection and crash rescue. MOS 139H defines the ATO as: Air transport operation - An aircraft operation involving the transport of passengers, for hire or reward. This includes Charter and Medical flights and given the broad nature of the manual of standards definition, it could be argued that all training flights are also performed for reward or hire.

The five secondary airports above are among the busiest and highest risk profile airports in Australia. In 2019 the Airservices Movements at Australian airports data shows that Bankstown, Parafield and Moorabbin exceeded Melbourne airport Australia's second busiest commercial airport for the number of aircraft movements that year. Australia's Emergency services authorities apply a risk management standard approach which is required to ensure that resources are being targeted effectively. The problem with setting a benchmark figure like 350,000 is that it does not take into account any of a multitude of risk factors involved at specific airport locations. It simply targets airports where more persons are being exposed to these risks. The hazards created by operating a Boeing 737 or an Airbus A320 out of an airport with no ARFFS are unchanged to operating these aircraft into an airport with ARFFS protection. However, the risks to persons involved from the untreated risks of an aircraft crash at these unprotected airports is far higher than when a dedicated ARFFS is established.

Most other leading aviation nations provide a much more stringent criterion to establishing ARFF services at their airports. At present only Canada and Australia use passenger figures as a benchmark. However, the benchmark figure used in Canada is currently only half that of Australia's. Calls from inside the aviation industry are for Australia to implement an even higher ARFFS benchmark figure. The user pays system used in Australia appears to be having the undesired effect of promoting profits before safety. Like every other emergency service in Australia the customer must be recognised as the persons, communities and assets being

rescued and protected not just the airline operators/airport stakeholders who are trying to make and maximise a profit.

Providing evidentiary based criteria in an accepted risk management format will provide the best possible formula for identifying how to more effectively deploy our finite ARFFS assets across Australia. Basing these finite resources at the most appropriate locations will ensure the best coverage possible, to reduce the risks to life, property and environment. This will optimise the level of specialised aviation fire and rescue fighting services (ARFFS) available at Australia's airports, and ensure that Australia once again provides a world class ARFF service to ICAO Standards. All of these five secondary airports are assets that generate up to a billion plus in revenue and value for their owners and their States. As well as significant employment and secondary employment opportunities. It is also where the next generation of Australia's young aviators learn their trade and the skills required and this should always be protected.

Introduction:

Context: Aviation in Australia has a significant and well-earned reputation for safety. But this exceptional record of no major RPT aircraft losses can also have an insidious side effect. Airlines and the aviation industry in Australia, unlike those in Europe and America tend to see services like the ARFF as an unnecessary cost to their operation. After all nothing ever crashes in Australia. To illustrate how this mind set has permeated the industry it is simple to note that the current regulation allows for any Australian airport to provide a service at their location for any airports with fewer than 350,000 passengers. Few airports in Australia other than some large mine sites, though have taken advantage of this option to mitigate their risks, even those with regular large passenger jet aircraft movements. This provides a strong indication of their views towards these risks and the requirements for dedicated ARFF services.

ARFFS in Australia is provided by the Commonwealth Government through the government business corporation known as Airservices Australia. ARFFS is a national, highly specialised airport fire service at 27 locations and with over 900 uniformed firefighters. ARFFS must meet the International Civil Aviation Organisation (ICAO) standards and recommended practices. ARFFS also operates within the strictly regulated and controlled environment of the major and regional Australian Airports. This requires a consistency of standards and co-ordination of intent which is best provided under the existing sole, government provider concept of a National Aviation Fire Service.

Risk Management Approach:

There are compelling reasons for using the Risk Management Standard to revise the current ARFFS establishment criteria and assess the secondary airports risks.

1. ARFFS provides an emergency services function. The application of risk management is acknowledged and supported by the peak organisation responsible for emergency

management in Australia; Australian Emergency Management (EM Manual 1, 2004, p. 7).

2. It is accepted policy and practice in Australian fire services including the largest fire service in Australia (FRNSW, 2009, p. 11)

3. It is an internationally recognised standard for best business practices (AS/NZS ISO 31000, 2009, p. IV).

4. The Department and CASA as the responsible government agencies for aviation, including the ARFFS establishment criteria, acknowledge that they should adhere to the Australian risk management standards in their oversight of the Australian aviation industry (Australia's State Aviation Safety Program, 2011, p. 27)

These are four very compelling reasons to adopt a risk-based criterion for the establishment of ARFF services at Australia's busy Secondary airports.

AS/NZS ISO 31000:2009 Risk management—Principles and guidelines, defines risk as the effect of uncertainty on objectives. It is expressed in terms of the consequences of an event and the associated likelihood of its occurrence. Some researchers of ARFF services target these two areas of consequences and likelihood with broad statements and carefully selected statistics to show that large passenger aircraft rarely crash and that when they do, the ARFF services generally play no effective role in saving the lives of the passengers (ERS Risk Reduction Report, 2011; David, Castellano & Francis, 2009 & 2011). However, Australia's secondary airports have all the highest risk factors for aviation in one location:

1. Charter flights operate regularly from the secondary airports, as do some of the smaller regional airlines and commercial, ATSB records show these aircraft types are far more likely to crash by factors of four to nine times more likely to crash.
2. Pilot training schools conduct continuous circuit training which means that the aircraft are constantly engaged in what is well known as the highest risk phases of flight, landing and taking off, approach and departure and ascent and descent flight phases.
3. These aircraft are light construction and, in most cases, the supplementary restraint systems, reinforced passenger compartments or crumple zones, available in modern motor vehicles do not exist in these aircraft. This increases the risks of entrapment or traumatic injuries of crew and passengers negating possible self-evacuation.
4. These aircraft given their light construction and power to weight ratios are more adversely affected by sudden or unexpected weather events that can cause loss of control accidents.
5. There is a high proportion of trainee pilots operating these aircraft under instruction or taking solo flights without an instructor present in the aircraft, and this increases the likelihood of pilot error being a factor.
6. These aircraft operate on very volatile fuel (Av Gas) which is more easily ignited, more easily vaporised and more likely to have explosive vapour ignition.
7. These airports are in close proximity of residential areas so the chances of a crash occurring in a residential area is also very high.
8. The sale of the airports has resulted in significant construction and industrial park areas in these locations with millions of dollars of structural assets at risk.

9. The airside areas of these airports are also secured areas which means delays of non-airport based and non-aviation qualified emergency services assets is highly likely.
10. hazardsataccidentssites_2017__lowres.pdf (atsb.gov.au) The risks and hazards at aircraft crash sites is described in detail on pages 14-30 of the ATSB guide. Not having on airport ARFFS exposes airport/air operators' staff to these uncontrolled hazards if they try to assist prior to the arrival of trained off airport emergency services.

Australia has an excellent aviation safety record. This record has been achieved and maintained through hard work, innovation and the dedication of the entire aviation community. However past performance is no guarantee of a safe future. Australia's great performance in aviation safety is not a failsafe safety blanket that guarantees there will be no fatal aircraft crashes in this country. Worldwide statistics demonstrate that for the past decade there have been 404 large passenger aircraft crashes over 40 every year. These include crashes by major airlines with world respected safety records and crashes at modern aerodromes operated by other leading aviation nations (Boeing, 2012).

In Australia a review of the Airservices ARFFS operational reporting system shows that over the decade ending 2012 the ARFFS have responded to over 6425 aircraft related incidents at Australian airports. This is more than 640 aircraft related incidents every year for a decade, or 53 incidents a month. An ARFFS incident can be defined as any departure from normal aircraft operations that requires an ARFFS intervention. The senate can request more up to date reports from Airservices but unfortunately, they have removed firefighter access to this report data making it impossible for the UFUA to obtain up to date statistics.

The 2018-2019 Annual report though states: Our aviation rescue firefighters responded to more than 6,700 events (468 aviation related) and saved 21 lives. 2019 -2020 annual report states 5491 incidents, 336 Aircraft related, 11 lives saved and 119 community mutual aid responses. ARFFS also responded 17 ARFFS fire vehicles and over 200 firefighters to support the national bushfire emergency.

What the ATSB found in 2019. ATSB – AR-2020-047

- 222 aircraft were involved in accidents in Australia according to the ATSB Summary.
- 431 Accident occurrences however are recorded in the ATSB interactive charts.
- 155 aircraft involved in serious incidents were noted in the ATSB summary (an incident with a high probability of becoming an accident).
- Although there were 280 occurrences of serious incidents recorded in the ATSB interactive chart for 2019
- There were 35 fatalities from 22 fatal accidents, 17 of these in GA.
- The number of fatalities was consistent with the average of the previous nine years (32.3 fatalities per year), and the number of fatal accidents was also consistent with its average (23.1 fatal accidents per year).
- There have been no fatalities in scheduled commercial air transport in Australia since 2005.

2010 to 2019 accidents and incidents

- 362 Fatalities 205 in GA

- Over 90 per cent of accidents and fatal accidents, and over 80 per cent of serious incidents, involved aircraft operating within the general aviation and recreational aviation sectors.
- There were 16 fatal, 30 serious, and 44 minor injuries resulting from an occurrence involving a helicopter.
- 4157 Accident occurrences were recorded in the ATSB interactive chart 2010-2019
- 2974 Serious Incident occurrences were recorded in the ATSB interactive chart 2010-2019 (an incident with a high probability of becoming an accident).
- 73,881 Incident occurrences were recorded in the ATSB interactive chart 2010-2019

These facts need to be properly considered in any risk assessment process. With occurrences of up to 416 accidents, 297 serious incidents and 7,388 incidents a year here in Australia it is important to properly consider the risks. Too many times in Australia the likelihood of an aircraft crashing is seriously underestimated. Placing an aircraft crash into a rare or unlikely event in a risk matrix fails to take into account the ATSB data and the worldwide data that shows there is nearly one major aircraft crash every week, and that here in Australia there are over 59 accidents and serious incidents every month.

International statistics show that 50% of accidents are caused by pilot error, 7% human error, 12% weather events, 22% mechanical failure, 9% sabotage and 1% other causes (Plane Crash Info, 2011) website accessed 01/10/2012. An ATSB research article states: 'Human error is a threat to virtually all advanced technological systems. It has been estimated that human error is involved in 70 per cent of aircraft accidents, as well as 80 per cent of shipping accidents, and at least 58 per cent of medical misadventures' (Hobbs, 2008, p.9). Any system that relies on human interaction is subject to human error. Secondary safety systems like the ARFFS are designed to minimise the consequences when these errors are realised.

Statistics also show that 42% of aircraft accidents occur during taxi take off and climb phases of flight and 50% of accidents occur during the descent and landing phases of a flight (1001Crash.com). Boeing publishes this information in a PowerPoint format each year which is available on their website. The Boeing presentation gives these figures as 33% and 54% for the same flight phases (Boeing, 2012). Given the close proximity to the ground and to the airport during these flight phases, the vast majority, of these are survivable accidents and occur at or near the airports. Docherty states that 74% of aircraft accidents occur on the airfield premises (Docherty, 1999). The European Transport Safety Council states that this survivability figure can be as high as 90% (ETSC, 1996). It is statistics like these that support the provision of a specialist airport-based emergency service.

The argument that the likelihood of aircraft crashes are now so low, that they no longer need to be treated with an ARFF service, does not appear to be a valid one in light of the available data.

A risk management approach will ensure that ARFFS resources are effectively targeted. The limitation with the current benchmark figure of 350,000 passengers per annum is that it does not take into account any of a multitude of risk factors involved at specific airport locations. It just considers the number of persons being exposed to those risks via aircraft operations.

It is also an all or nothing concept where you can have 349,999 passengers per year and not have an ARFFS established but if you get one more passenger you will get a full service ARFFS. The disestablishment criteria also allow for airports to fall below the establishment figure and keep their ARFFS even when other airports not quite at the 350,000-establishment threshold have more passengers per annum. The risk profile of an airport does not suddenly change with the addition of a single passenger every year, but it is significantly higher for airports when the have the number of aircraft movements that our secondary airports receive. Three of our secondary airports are in 2nd 3rd and 4th place for aircraft movements in front of Melbourne, Brisbane and Perth. So, the benchmark concept becomes simply an arbitrary measure as it is not based on an assessment of the actual risks encountered by these individual airports.

The other airport that the UFUA has serious safety concerns about is Newcastle Airport. There are now over 1.2 million civilian passengers using this busy airport and there are International flights growing at this airport as well. However, there is no Airservices ARFFS only the RAAF Fire Service which is not obligated to comply with CASA or able to be audited and regulated by CASA. This is not appropriate for such a busy airport. Any RAAF or Defence bases that take international or exceed 350,000 civilian passengers should automatically be handed over Airservices.

Airport Specific Risks:

Airservices Movements at Australian Airports 2019	
ARCHERFIELD 176,276 (No 8)	ADELAIDE 97,510 (No 10)
JANDAKOT 209,234 (No 6)	PERTH 123,056 (No 9)
PARAFIELD 239,238 (No 4)	BRISBANE 197,760 (No7)
BANKSTOWN 253,990 (No 3)	MELBOURNE 225,698 (No 5)
MOORABBIN 259,056 (No 2)	SYDNEY 319,500 (No 1)

Data was taken from the 2019 report to avoid the COVID interruptions and it clearly shows some of the busiest and highest risk airports in Australia do not have a dedicated fire and rescue service, simply because they cater for a customer base other than primarily commercial passengers. These high-risk ports are Australia's secondary airports: Archerfield, Moorabbin, Bankstown, Jandakot, and Parafield. Even Camden had over 98,000 movements far more than some of largest regional airports. These are all extremely busy airports that cater for a high volume of aircraft, flown mainly by trainee pilots. 'General aviation operations continue to have an accident rate higher than for commercial air transport operations: in 2011, about four times higher for accidents, and nine times higher for fatal accidents' (ATSB, 2011).

There is also a concentration of these training flights around circuits. Circuit training includes the practicing of the landing and take-off phases of flight. Statistically the Boeing

Crash data tells us that these are also the highest risk phases of any flight. These light aircraft also do not provide the same robust crash protection now found in most modern motor vehicles, like supplemental restraint systems, multiple airbags, side impact curtain airbags, seat belt pre-tensioners, reinforced high tensile passenger compartments and crumple zones. They operate on a more easily ignited fuel source (AvGas) and their construction can offer the toxic hazard of carbon fibres or the alloy construction which offers very little in fire protection against post-crash fire involvement. While some newer aircraft have seatbelt airbag systems these are not as effective as modern motor vehicle systems.

Other Australian airports have different but just as serious risk profiles such as:

- Remoteness
- Lack of any support services or infrastructure.
- Complex approach or departure paths
- Simultaneous runway operations
- Difficult terrain or over water operations.
- Predisposition to severe weather events
- Terrain features that intrude into approach or departure paths
- Poor airport facilities such as short or sloping runways.
- Limited runway end safety areas, and
- Security issues and other hazards that impact on aircraft safety.
- Large residential or industrial areas surrounding the approach, departure and training circuit areas.
- ARFFS not compliant with Civil Aviation Standards (RAAF/Defence ARFFS)

Consultation:

The Standards Handbook HB 158-2010 states: 'All key stakeholders have been consulted and involved as appropriate and that stakeholder perceptions of risk have been addressed' (HB 158, 2010 p. 13). The fact that passengers and society at large are stakeholders in aviation safety is also made evident in another Standards Handbook HB 327-2010 which defines stakeholders as: 'A stakeholder is a person or organisation that can affect or be affected by or perceive themselves to be affected by a decision or activity'. Within the list of examples included in HB 327 is: customers, local communities and society as a whole (HB 327, 2010, p. 8).

The Health and Safety Executive (HSE) tolerability document goes further to state: 'when risks are regulated by society, the relevant judgements cease to be in the hands of the

individuals who bear the risk'. The Australian Government has chosen an ARFFS establishment criterion which only provides services at 27 of the 193 certified airports in this country. There are currently 164 certified airports in Australia without ARFF services. The HSE argues that: 'since individuals do not bear these risks of their own free will, it is important that we should all be satisfied that they are being properly controlled' (HSE, 1992, p. 3).

Australian Standard 31000 confirms this reasoning in its discussion on risk evaluation: 'Decisions should take account of the wider context of the risk and include consideration of the tolerance of the risks borne by parties other than the organisations that benefit from the risk' (AS/NZS ISO 3100, 2009, p. 18). It is evident that the Government should be taking into account more than just the opinions of airlines and airport operators who benefit from the risks when deciding on matters of such crucial importance as public safety.

ALARP and Duty of Care:

The ALARP principle or 'as low as reasonably practicable' is discussed in HB 436-2004, which states: 'When risk is close to the intolerable level the expectation is that risk will be reduced unless the cost of reducing the risk is grossly disproportionate to the benefits gained'. It suggests answering two questions: Can something be done, and is it worth doing something in the circumstances? (HB 436-2004, p 65).

It also cautions that these considerations need to be carefully balanced if there is an expressed or implied duty of care owed to the persons being put at risk. In Australia the Airlines and airports have a duty of care to their passengers. The Government aviation regulator also has a duty of care to ensure safe aviation services are maintained for the Australian citizens and visitors that chose to fly in our airspace.

In an examination of whether or not it is reasonable or beneficial to treat the risk of air transport operations by providing an ARFF service, Australia can also look to what other countries are doing. It is clear that even the developing nations have mainly chosen to treat these risks rather than to just ignore them.

Finally, Australia should also consider whether or not there is a valid internationally accepted standard that applies to the management of this hazard. This standard exists and is found in the ICAO Airport Services Manual vol 1 annexe 14. Not only is there is a valid and internationally recognised standard, Australia as a world leading aviation nation is a signatory to a convention that recognises these ICAO standards. Australia has even enshrined these standards in its own laws through the *Air Navigation Act 1920.*

Has the risk been reduced to as low as reasonably practicable? Is the cost of a small ARFFS fire levy to individuals, grossly disproportionate to the risk of death or injury? Is there a duty of care expressed or implied? What do other nations do to address the same risk? Is there an internationally accepted standard that applies. These are all lines of reasoning that may be raised in a civil law class action, a coroner's court or even a Royal Commission by the survivors or the families of any victims that die at one of Australia's unprotected aerodromes.

What does reasonably practicable mean? Lord Justice Asquith provided the following legal definition in 1949. 'Reasonably practicable is a narrower term than physically possible and it

seems to me to imply that a computation must be made by the owner, in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) is placed in the other and that if it be shown that there is a gross disproportion between them – the risk being insignificant in relation to the sacrifice – the defendants discharge the onus on them' (HB 436-2004, p 65-66).

It would take a considerable amount of money, time, and trouble, to make 'not' providing effective rescue measures to persons on board a survivable airliner crash to appear insignificant to the Australian community. The current ARFFS establishment figure of 350,000 does not show evidence of an effective consideration or treatment of the risks at Australia's unprotected airports, and therefore is not aligned with Australia's current risk management standards.

350,000 Passenger Criterion:

The existing 350,000 passenger criterion was implemented as part of the Civil Aviation Safety Regulations in 1998. However, it does not appear to be founded on any strong scientific evidence. It is said to have been decided on because it was, at one historical moment in time, correlated to the old benchmark criterion of 90% of passengers on regular passenger transport. But there did not appear to be any real scientific reasons given why Australia had chosen to only protect 90% of its airline passengers from a known risk in the first place. This reasoning would indicate that the government was aware of the risks involved in airline operations, agreed that the hazard was serious enough and should be treated, but then chose to stop short of applying effective risk treatments at all locations.

There are other significant flaws in our legislation as well. In Australia we do not consider freight aircraft, or airports declared as alternates worthy of protection by ARFFS either. We still allow for the use of remission factors even though the Task Resource Analysis methodology proves quite clearly that it is a fatally flawed concept especially in Australia when the ARFFS is down to bare minimums in agent, vehicles and staffing. This is despite it being well established in the ICAO SARPs which recommend no ARFFS remission be applied. While CASA and Airservices hang their hat on compliance with the Australian Regulations should this absolve them from their duty of care under the WHS Act? If you know for a fact that something is dangerous but still do it anyway because it is legal will that absolve you from your duty of care? Airservices and CASA appear to believe so.

It is also interesting to look at the political environment and the state of Australian aviation during the period when the decision was made to adopt the 350,000 passenger per annum criterion. It was during the era of 'Affordable Safety', when a very powerful individual was afforded high level access to our Air Navigation Service Provider and our Aviation Safety regulator. As part of this programme an aviation consultant, Russel V Smith from New Zealand was engaged by the CASA Board to conduct a review into Australia's Rescue and Fire Fighting Service. Smith's brief was to report and recommend: 'These include an accident risk assessment, a cost-benefit analysis of the RFFS, current international practice, harmonisation requirements, and restructuring options' (CASA, 1998, p. 5).

The report that followed was so seriously biased in favour of the discontinuation of ARFF services it was widely discredited, alarming even the staunchest critics of the ARFF services.

It was an amazing state of affairs for the supposedly neutral, unbiased referee of Australian aviation safety to commission such a report and this speaks volumes of the influence of politics and the interference of powerful individuals in those days of 'affordable safety'.

The Russell Smith report was a sad reflection on the political and safety environment that fostered the 350,000 passenger establishment criteria. It would now be very appropriate for CASA to go back to the underlying concepts and supporting analysis for this criterion and review it for the objectivity and veracity that was so lacking in the original Smith report.

It is also interesting to note just how long CASA has been supposedly rewriting the regulations and the MOS for ARFFS in Australia. The Technical Working Group was called for applications over two nearly three years ago and has not met once. The previous so called ARFFS expert inspector was supposed to re write it as part of his job statement and this did not occur, he has been replaced and a new ARFFS expert (with no actual operational expertise is supposedly now rewriting the MOS and Regs without any input from the technical working group or the operational experts and stakeholders that will be expected to apply those regulations on the firegrounds.

As the Senate is aware this Union presented significant evidence of CASA's complicit behaviour in avoiding regulations, reinterpreting their meaning or just plain exempting the service provider from any regulations they find bothersome. After the Senate inquiry on the TRA they met with the union promised to be more open and listen to our concerns right up until the election where they went back to ignoring all the safety concerns, we raise. The drop in safety standards over the COVID period with CASA's blessing is very concerning with regular category drops created by deliberate under staffing being excused or covered up by Airservices and CASA.

The results of the first Task Resource Analysis conducted showed clearly what this union has long been asking for help with. Dangerous levels of understaffing, so now we have valid evidence that minimum Category 5 ARFFS staffing should be 7 staff when it is currently only 3 staff. What does CASA then do? Allows Airservices to continue running with 3 staff for Category 5 until they complete the entire TRA process in about two years' time? So our members at risk for another two years, passengers at risk for another two years and based on what kind of safety assessment by CASA?

Capability Gap:

Civil Aviation Safety Regulations Part 139 3.1.1.1 currently requires all airports that accept aircraft 30 seat and above to be certified. All certified aerodromes must provide and test an Airport Emergency Plan (AEP). Civil Aviation Safety Regulations Part 139 10.7.1.3 states that: 'Emergency exercises must be carried out at least once every two years, commensurate with the size and scale of operations at the airport'.

Having a plan in place and testing it regularly is a start in reducing what the EMA call community vulnerability. Prevent, Prepare, Respond and Recover (PPRR) form the core of the comprehensive approach to emergency management. However, this Airport Emergency Planning will always be constrained by the capabilities of the local emergency responders. There are several critical factors to consider in relying on state fire services to provide the ARFFS response to the airport's risks.

Response Times: Response times are a critical factor in mounting a successful intervention at an aircraft incident. Studies demonstrate that the protection afforded to crash survivors by the aircraft structure rapidly degrades in the intense heat generated by post-crash fuel fires. It is for these reasons that ICAO mandates 2 minutes to a maximum of 3 minutes for ARFFS responses (ICAO, 2004, p. 9-5). In some circumstances the state fire services will be given pre warning. A check of the Airservices ARFFS ORS database shows that this pre-warning occurs for about one third of all aircraft incidents attended by ARFFS.

On-board water supplies: Urban fire pumpers usually carry around 2,000 litres of on-board water. They can also carry around 120 litres of foam in tanks or around 60 litres of foam concentrate in 20 litre containers. This is variable from location to location and is more indicative than definite. Most urban fire vehicles carry a foam branch to apply the agent once mixed, this can be a simple air induction attachment to convert a water branch or a dedicated foam making branch. They can also rely on hose reels to apply the foam. Some brigades will carry a ground monitor, or a few may even have a vehicle that is fitted with a fixed monitor. ICAO again tells us that we require a critical application rate of 5.5 litres per second per square metre to overcome and control an aviation fuel fire (ICAO, 2004, p. 9-3). Most state fire services cannot supply the critical discharge rates required and those that can do not have sufficient on-board supplies to maintain it long enough to establish full control of the fire.

Once high-capacity regular passenger transport aircraft - i.e. with greater than 38 seats - are operating out of an airport, the chances of the local fire services being able to successfully control an aircraft incident decline. Statistics show that our secondary's regularly take passenger flights up to category 5 (ATR 42, Dash 8 300 and SAAB). There is also evidence of freight aircraft larger such as BAE 146 and Fokker F100 types operating. There is little realistic chance of a successful outcome when they are expected to control a Boeing 737, Airbus A320 or even a Boeing 767 operating at an airport not protected by an ARFF service.

Benchmarking:

Benchmarking is an accepted practice across all industries. It allows for the fact that no one country, organisation or individual knows all the answers, and that there is no one right way of doing things. Benchmarking across the nation states of the world is likely to either provide Australia with many good ideas which can be adopted, or to reinforce that Australia's existing standards are the best-known practices available in the world today. Either way there are real benefits apparent to government and organisations in a properly conducted benchmarking exercise.

Summary of current ARFFS regulations across the world:

- 9 seats: ARFFS provided by private, airport or State Fire Services (USA), remission factor of one index (2 categories) allowed.
- 20 seats + other rules: ARFFS provided by the Airport or Gov't. (Canada, PNG)
- 30 seats plus other rules: ARFFS provided by Airport or private contractor (NZ, Maldives)
- Below Category 4: ARFFS provided by private contractors to ICAO standards (Italy)

- Above Category 4: ARFFS provided by State Fire services to ICAO standards (Italy)
- 180,000 on and off aircraft and 90% of the airports scheduled flights (Canada) remission factor of one category allowed.
- 350,000 passenger per annum on regular public transport flights only, not freight, National ARFF fire service through an Air Navigation Service Provider (ANSP) (Australia) remission factor of one category allowed.
- Full ICAO compliance no remission factor (Iraq, RSA, India, PNG, UK & Singapore)
- ICAO with one remission factor (Egypt, Fiji, EASA (EU) proposed rules), and
- ICAO with two remission factors (NZ).

Conclusion:

The United Firefighters Union of Australia Aviation Branch believes that the removal of ARFFS services from some of the busiest airports in Australia was a fatally flawed decision and we also believe that several people have paid for this decision with their lives in crashes that have occurred at these secondary airports since ARFFS was withdrawn. These critical secondary airports generating billions in revenue and employment are worth protecting properly as are our next generation of Australian aviators.

We also believe that airports that meet the criteria for an ARFFS regardless of whether it is primarily a Defence base should be automatically provided by Airservices or a standalone Federal Government ARFFS National Aviation Fire Service removed from Airservices.

The risk assessment standard should be properly conducted and applied using ARFFS experts and recognising Australian and International expertise and standards such as the ARFFS Working Group, the NFPA and ICAO Standards and Recommended Practices.

The Task Resource Analysis findings should be implemented asap on completion of each category not drawn out for two years. As soon as a safety risk is identified it should be treated. This also applies to establishment of services. A situation like the establishment of ARFFS services at Proserpine should never be repeated and the persons responsible should be properly sanctioned.

ARFFS at Australian territories such as Norfolk, Cocos and Christmas Islands should be properly provided by Airservices or a National Aviation Fire Service. Not left up to regional councils that have no way to support that kind of infrastructure and expenditure.

The UFUA is happy to discuss any of these issues at the senate committee hearings in any State or Territory. Noting that our office is in QLD and there is a hearing in Brisbane planned.

Recommendations:

1. Australia needs to change its method of cost recovery for ARFF services to properly identify the customer of ARFFS.

Adopting a cost recovery method that identifies and charges the true customer of ARFF services will remove the pressure from airlines and airport operators to reduce or remove ARFF services altogether. The Airservices Annual report states that Australia had more than 160 million passengers in 2018/19. This would allow for a very cost effective ARFFS levy system that will easily fund ARFFS as a standalone National Fire Services and return a dividend to Government.

A Fire Levy on all passenger tickets would provide a fair and equitable system that recovers enough costs to provide a professional ARFF service wherever it is needed. This levy system, or passenger facilitation charge would be inexpensive enough not to be a burden on passengers and would apply at all locations deemed to require an ARFF service by a valid risk assessment. There is reason to believe that there is a willingness to pay on the part of the passenger to reduce their risk of fatality or injury. It would also be very hard to argue that a one to two dollar per ticket ARFFS levy was grossly disproportionate to the risk being mitigated. It would also pose no burden on airports airlines or small operators.

2. Conduct a risk assessment of Australia's 193 certified aerodromes and apply appropriate risk treatments. Implement a risk based ARFF establishment criterion.

In collaboration between CASA, Australia's state fire services, UFUA ARFFS experts and Airservices a wide-ranging risk assessment of Australia's airports should be undertaken. Ideally this would begin with a bench top exercise to identify and determine the various aircraft risk factors. Aircraft size is a common factor used by other countries in determining risk. Movement numbers also indicate the level of exposure to that risk. The assessment should include whether state fire services can manage an incident involving smaller aircraft or whether supplementary equipment, training or a dedicated ARFF service is required. Upon compilation of the list of airports requiring risk treatment a location-specific risk assessment to determine the required resources should be conducted.

3. Reinstate the ARFFS at all secondary airports at Category 2 and manage the risks of these very busy airports properly.

Moorabbin, Bankstown, Parafield, Jandakot and Archerfield should have Category 2 ARFFS services re-established as a priority. Consideration of Camden being ARFFS protected should also be determined. Norfolk Island, the Cocos Christmas Islands (Keeling) and Newcastle ARFFS should all be provided by Airservices or a National Standalone Aviation Fire Service.

4. Remove ARFFS services from Airservices and make it a standalone National Fire Service.

This would separate the Air Navigation Service Provider (ANSP) parts of the business which are more suited to private providers or business models. The National Aviation Fire service part of the business is larger than the fire services of ACT, NT and Tasmanian Fire services. It should be established as a standalone aviation fire service protecting Australia's Airports and even Defence bases. The use of ARFFS during the bushfire crisis in 2019 shows that it

can and has formed a useful surge capacity to support State fire services during major disasters and emergencies.

5.Ensure CASA enforces proper compliance with the ICAO Standards and Recommended Practices for ARFFS.

Provide ICAO standard ARFFS coverage to all freight and nominated alternate ports and remove the remission factor allowance completely, as recommended in the ICAO SARPs.

6. Form a National Aviation Fire Service Inspectorate either within CASA or external to CASA to ensure proper compliance with ICAO and ARFFS Regs are achieved and maintained.

Ensure the ARFFS is inspected and regulated properly by professional current fire officers that have vast operational experience and can intervene effectively and understand what a genuine risk mitigation strategy is, and what is just spin and not unworkable in a real life ARFFS application.