

Mildura - Supplementary Airspace Review

December 2019



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1 Executive Summary

The Civil Aviation Safety Authority's (CASA) Office of Airspace Regulation (OAR) conducted a supplementary review of the airspace within 20 nautical miles (NM) of Mildura Airport. This supplementary review specifically examined changes to operations within the airspace since the new flying training academy commenced operations, post publication of the Mildura Airspace Review July 2018. The supplementary review examined the airspace architecture, classifications, procedures and infrastructure from the surface to flight level 180 (FL180).

The recommendation made in the Mildura Airspace Review (July 2018) has been finalised and is closed as part of this supplementary review. That recommendation related to Airservices Australia ensuring authorised agencies are involved in the amendment of promulgated aeronautical information. Airservices Australia has completed this process.

The current airspace classification is fit for purpose¹. The supplementary review has made six (6) recommendations that are directed at enhancing awareness and improving operations in non-controlled airspace in the review area.

The recommendations are made to enhance operations in the airspace.

The recommendations are based upon the reviewed incident data, analysis of aircraft and passenger movement statistics at Mildura and consultation with various stakeholders.

1.1 Recommendations

The following recommendations are made to enhance operations at Mildura:

<u>Recommendation 1</u> Airservices Australia should publish a Visual Terminal Chart for Mildura by May 2021.

<u>Recommendation 2</u> Flying training organisations based at Mildura and Wentworth aerodromes should consider the benefits of developing and submitting an Airspace Change Proposal (ACP) for the identification of flying training areas and where gliding or other activities are undertaken.

<u>Recommendation 3</u> CASA Flight Operations Inspectors should complete a Request for Change to change the Mildura Common Traffic Advisory Frequency (CTAF).

<u>Recommendation 4</u> CASA Aviation Safety Advisors should assist to establish an Aviation Safety Forum at Mildura.

Recommendation 5 CASA Aviation Safety Advisors should conduct a seminar at Mildura by March 2020 providing information targeted towards flying instructors, flying students and airspace users. Subjects such as ineffective or improper radio communication, standard phraseology and others matters identified be included. Mildura should be included as a location for the yearly AvSafety pilot seminar.

<u>Recommendation 6</u> Mildura Airport should amend the Mildura En Route Supplement Australia entry, to advise visiting aircraft are not to conduct circuit training at any time.

¹ 'fit for purpose' means that the product or service is satisfactory for the purpose it was designed for.

Table of Contents

1	Execut	tive summary	3
2	Introdu	iction	5
3	Aerodr	omes	7
4	Airspa	ce	10
5	Traffic		11
6	Aviatio	n incident reports	12
7	Consultation and feedback14		14
8	Overview of changes since the previous review16		
9	Recommendations17		
10	Conclusion17		17
Append	ix 1	References	18
Annex A	ι	Acronyms and abbreviations	19
Annex E	3	Australian Airspace Structure	21
Annex C	;	Stakeholder consultation list	22
Annex D Stakeholder feedback / Consultation register		Stakeholder feedback / Consultation register	23

2 Introduction

2.1 General

The Office of Airspace Regulation (OAR) within the Civil Aviation Safety Authority (CASA) has conducted a supplementary airspace review within 20 nautical miles (NM) radius of Mildura Airport (Mildura)². The supplementary review examined the airspace architecture, classifications, procedures and infrastructure from the surface to flight level 180 (FL180).

The OAR has carriage of the regulation to administer and regulate Australian-administered airspace, in accordance with section 11 of the *Airspace Act 2007* (Act). Section 12 of the Act requires CASA to foster both the efficient use of Australian-administered airspace and equitable access to that airspace for all users. It requires that CASA must consider the capacity of Australian-administered airspace to accommodate changes to its use and national security. In exercising its powers and performing its functions, CASA must regard the safety of air navigation as the most important consideration.³

2.2 Overview of Australian Airspace

Australian airspace classifications accord with Annex 11 – Air Traffic Services (Annex 11) of the International Civil Aviation Organization (ICAO), and are described in the Australian Airspace Policy Statement 2018 (AAPS). Airspace is classified as Class A, C, D, E and G depending on the level of Air Traffic Service (ATS) required to best manage the traffic safely and effectively. Government policy allows the use of Class B and Class F airspace however these are not currently utilised in Australia. The airspace classification determines the category of flights permitted, aircraft equipment requirements and the level of ATS provided. Annex B provides details of the classes of airspace used in Australia. Within this classification system airspace is either controlled airspace (CTA), i.e. Class C or Class D or non-controlled airspace, i.e. Class G.

2.3 Purpose and Scope

The purpose of this supplementary review was to ensure that the airspace architecture and classification remains appropriate for the operations within the area.

The scope of this supplementary review to the Mildura Airspace Review July 2018 includes:

- Assessment of risks to airspace users in the airspace within 20 NM of Mildura from the surface to 18,000 FT AMSL (FL180);
- Consultation with stakeholders to obtain information related to airspace issues around Mildura;
- Assessment of air routes and procedures to ensure they are efficient and fit for purpose⁴; and
- Analysis of any risks that may affect the safety of airspace users to determine the need for any changes to existing airspace architecture, services or procedures.

The scope of the supplementary review did not include aircraft operations above FL180, aerodrome facilities, developments and surrounding infrastructure, unless a significant safety issue related to the airspace is found. Airspace related matters that occur outside the review area may be included, if it impacts operations at Mildura.

² A full list of acronyms and abbreviations used in this report can be found in Annex A.

³ Civil Aviation Act 1988, section 9A – Performance of Functions

⁴ 'fit for purpose' means that the product or service is satisfactory for the purpose it was designed for.

2.4 Objective

The objective of this supplementary review was to examine:

- the nature of aviation activity around Mildura;
- feedback from airport operators and airspace users;
- risks to and the need to improve safety for passenger transport operations (PTO);
- equitable access to the airspace for all airspace users;
- appropriateness of the airspace architecture (includes classification);
- appropriateness of the services and facilities provided by the air navigation service provider (ANSP); and
- surveillance capabilities and communication coverage in the review area.

2.5 Background

CASA published the Mildura Airspace Review in July 2018⁵ which included one recommendation that has been finalised and will be closed as part of this supplementary review. The recommendations made in this report supersede the recommendations and observations within the Mildura Airspace Review (July 2018).

The reviewed airspace has Class E airspace and Class G airspace. Class E airspace commences at differing levels being 12,500 FT (FL125) AMSL along the Mildura-Melbourne corridor and FL180 for the remaining area. Instrument flight rules (IFR) and visual flight rules (VFR) aircraft operate within the review area.

Air Traffic Control (ATC) surveillance is a mix of Automatic Dependent Surveillance – Broadcast (ADS-B) and radar. There is no reliable surveillance coverage around Mildura below 6,500 FT AMSL or on the Melbourne-Mildura corridor below 10,000 FT AMSL.



Figure 1:Airspace review area and identification of the Class E corridor⁶

 ⁵ Mildura Airspace Review July 2018, Civil Aviation Safety Authority, Canberra 2018
 ⁶ En-Route Chart Low (ERC-L) – L2 effective 23 May 2019 Airservices Australia

3 Aerodromes

There are no controlled aerodromes in the review area.

3.1 Mildura

Mildura airport (Mildura) is a certified aerodrome owned by the Mildura Rural City Council and operated by the Mildura Airport Pty Ltd. The Mildura Rural City Council is the single shareholder of this corporate entity.

The aerodrome is located approximately 8 kilometres (km) south-west from the central Mildura business area and 4 km south-west of residential developments. It is located 3 km north-east of the Sunraysia Gliding Club airfield and approximately 24 km south-east of Wentworth Airport.

Regional Express (Rex) has the highest number of PTO at Mildura and operates Saab 340 (SF340) aircraft. QantasLink (QLink) operations with Bombardier's de Havilland Canada Dash 8 (DHC8) aircraft follow and Virgin Australia (Virgin) operates a Boeing 737 (B737) which is the largest aircraft used for regular public transport (RPT) operations at Mildura.

3.1.1 Mildura aerodrome facilities and procedures.

Mildura has an aerodrome elevation of 167 FT AMSL and two (2) designated sealed runways: Runway 09/27 and runway 18/36 which have the following characteristics:

- Runway 09/27 threshold elevations of 166 FT AMSL and 160 FT AMSL respectively;
- Runway 09/27 length is 1,947 metres (m);
- Runway width of 45 m; and
- 300m runway strip width (RWS)
- Runway 18/36 threshold elevation 162 FT AMSL and 165 FT AMSL respectively;
- Runway 18/36 length is 1,139 m;
- Runway width of 30 m;
- 90 m RWS.

Neither runway has a full-length taxiway. This results in aircraft requiring to back-track after landing or before departing the aerodrome. Taxiways are planned in the future and survey work has been undertaken, marking out a suitable location within a currently grassed area.

Mildura navigation aids include Distance Measuring Equipment (DME), Very High Frequency Omnidirectional Range (VOR) which are located on the aerodrome and a Non-Directional Beacon (NDB) is located approximately 2.2 km south-south-west from the aerodrome reference point (ARP). A Government announcement has been made to finance the installation of an instrument landing system (ILS) at Mildura. The ILS is expected to be operational within two years.

The aerodrome is equipped with freight and passenger facilities and provides services for aerial fire-fighting and medical flights.

The En-Route Supplement Australia (ERSA) details local traffic procedures including right hand circuits to be flown for runway 27 and runway 36. This is to avoid conflict with winch launching operations at the Sunraysia gliding field aircraft landing area (ALA).

Mildura has several terminal instrument flight procedures (TIFPs):

- DME or GNSS Arrival Procedures;
- VOR-Y RWY 09
- VOR-Z RWY 09
- VOR-Y RWY 27
- VOR-Z RWY 27
- NDB-A
- RNAV-Z (GNSS) RWY 09
- RNAV-Z (GNSS) RWY 27
- RNAV-Z (GNSS) RWY 18
- RNAV-Z (GNSS) RWY 36

The following diagram identifies the layout of the airfield at Mildura.



Figure 2: Extract of Mildura Aerodrome Chart⁷

3.2 Wentworth

Wentworth Airport (Wentworth) is a registered aerodrome owned by the Wentworth Shire Council.

There are no PTO or navigation aids at Wentworth. The aerodrome is primarily used by sports or recreational aviation aircraft and is also used for flying training purposes.

Wentworth has an aerodrome elevation of 120 FT AMSL and two designated unsealed runways: Runway 08/26 and runway 17/35 which have the following characteristics:

- Runway 08/26 threshold elevations not recorded;
- Runway 08/26 length is 1,108 m;
- Runway width of 18 m; and
- 80 m RWS.
- Runway 17/35 threshold elevations are not recorded;
- Runway 17/35 length is 936 m;
- Runway width of 18 m;
- 90 m RWS.

Wentworth operates on the same CTAF as Mildura 118.8 MHz.

The aerodrome is closed periodically due soft wet runway surface following rain. However, the aerodrome has received funding which will be used to seal at least one runway. This project is expected to be completed during 2020 and the operator has advised that the aerodrome is likely to be closed or not available at times during that project.

The following diagram from ERSA indicates the runway layout at Wentworth.

⁷ Source: Departure and Approach Procedures (DAP) Amendment 159 effective 23 May 2019, Airservices Australia



Figure 3: Extract of Wentworth ERSA entry⁸

3.3 Koorlong Aircraft Landing Area

The Koorlong ALA is located approximately 2.2 NM to the south-west of Mildura airport. There are 3 unsealed runways that are used for gliding, ballooning and other flying activities. The elevation at this location is approximately 160 FT AMSL.

Gliding operations can be undertaken using winch launching. The winch uses a synthetic compound rope to launch a glider to a height of approximately 1,500 FT - 2,000 FT AMSL in less than a minute. The rope can be at that altitude before being disconnected from the glider.

Mildura ERSA entry indicates that wire launching is undertaken at this location but there is no vertical indication of this operation.



Figure 4: Gliding ALA south west of Mildura⁹

⁸ Source: ERSA effective 23 May 2019, Wentworth; Airservices Australia

⁹ Google Earth V 7.3.2.5776 (15 May 2019) Mildura, Victoria. 34° 15'08.79" S 142° 04' 25.05" E, Eye Alt 13.35km. DigitalGlobe 2019. <u>http://www.earth.google.com</u> [25 July 2019]

4 Airspace

No change to the airspace classification is required and the airspace remains fit for purpose. Figure 1 includes the air routes to, from or overflying Mildura. The OAR did not identify any issues with the existing air routes.

Airspace around Mildura is used by passenger transport operations, freight and medical services, flying training, aerobatics, gliding and other recreational flying activities.

There are no Restricted Areas or Danger Areas within the review area. The commencement of the new flying training academy has increased the number of training flights conducted in the review area. The Mildura entry in ERSA identifies the aerodrome as a training location.

Proposed changes to Class E airspace across Australia is unlikely to impact the flying training activities at Mildura as the majority of aviation activity in the review area will be undertaken in Class G airspace.

The OAR did not identify any issues or risks to aviation safety regarding environmental issues associated with:

- Noise;
- Gaseous emissions;
- Interactions with birds and wildlife; and
- Environment Protections and Biodiversity Conservation Act 1999 (EPBC Act) items.

5 Traffic

Air traffic categories in the review area range from PTO, freight transportation, sports and recreational aviation, emergency services including aerial fire-fighting and medical transport aircraft, military aircraft and flight training.

Flight training represents the majority of total aircraft movements recorded at Mildura. This will increase during future flying training operations conducted at the aerodrome.

Figures for the 12 months ending					
Month/Year	Total Movements	Air Transport Movements	Passengers	VFR Movements	IFR Movements
March 2017	20,000	10,900	237,800	9,933	10,067
March 2018	19,800	10,100	244,500	9,984	9,816
March 2019	19,500	9,600	256,200	10,205	9,295

Table 1: Aircraft and Passenger Movements - Mildura¹⁰

5.1 Analysis of passenger numbers

The 12-months to March 2019 Mildura recorded a 4.78% increase in passenger movements from 244,500 to 256,200. The continued increase in passenger numbers with the decrease in air transport movements indicates that aircraft are carrying more passengers on each flight.

5.2 Analysis of aircraft movements

Aircraft data recorded for the same 12-month period, showed a decrease in air transport movements from 10,900 to 9,600 and a decrease in total aircraft movements from 20,000 to 19,500. However, recorded VFR movements increased from 9,933 to 10,205 with the commencement of flying training operations at Mildura in 2019.

The types aircraft operating at the Mildura has not changed. The B737 jets, medium size turbo-prop aircraft including DHC8, SF340 and Beechcraft King Air 200 (B200) represent the majority of aircraft for passenger transport. These types of aircraft and the number of services is not expected to alter in the immediate future.

Flying training operations are conducted in light aircraft such as Cessna 172 (C172). Aircraft movements using these types of aircraft will increase as the flying training operation progresses. The flying training also includes the use of twin-engine aircraft such as Diamond Aircraft - 42 (DA42). These aircraft are faster than the light aircraft and will be used as students progress their flying training.

Mildura is the base for a major flying training academy, as well as other flying training conducted by local operators at the airfield. Changes to the information previously received by the OAR is likely to result in competing time for circuit training by each flight training organisation leading to possible congestion and impact to PTO.

The proposed installation of an ILS may generate additional training flights with varying performance categories of aircraft using Mildura. The continued growth in total aircraft movements generated by flight training at Mildura and the differing aircraft performance issues including aircraft involved in PTO, may create an increased level of risk. This growth and impact of increased flight training will be monitored by the OAR and may trigger a further airspace and services review.

¹⁰ Source: Airservices Australia Passenger and Aircraft movement data Mildura Aerodrome March 2017 – March 2019

6 Aviation Incident Reports

All incidents and accidents involving Australian registered aircraft, or foreign aircraft in Australian airspace must be reported to the ATSB. The ATSB receives incident information via pilot reports, Airservices' Corporate Integrated Reporting and Risk Information System (CIRRIS) reports and the Australian Defence Forces' Aviation Safety Occurrence Reports.

The ATSB maintains its own database, the Safety Investigation Information Management System (SIIMS), in which all reported occurrences are logged, assessed, classified and recorded. The information contained within SIIMS is dynamic and subject to change based on additional and/or updated data. Each individual report is known as an Aviation Safety Incident Report (ASIR) and for identification purposes is allocated its own serial number. Each ASIR is detailed as an incident, serious incident or accident and assigned one of the following Level 1 descriptions:

- Airspace includes airspace infringements, loss of separation (LoS), loss of separation assurance, breakdown of coordination/information error, error by ANSP instruction or pilot actions, encounter with a remotely piloted aircraft system (RPAS);
- Consequential Events includes aircraft conducting missed approaches, fuel dumping, diverting or returning to aerodrome;
- Environment most common description for a bird strike, evidence of bird strike after landing or locating animals during runway inspections but also includes lightning strikes and turbulence issues;
- Infrastructure such as runway lighting, approach lighting and radio frequency failures;
- Operational considers pilot actions and runway incursions (resulting in events including LoS), ground proximity warnings, terrain collisions, crew and cabin safety, smoke or fumes events, avionics and equipment issues; and
- Technical includes airframe, systems such as landing gear indications and power plant matters e.g. engine running rough, engine failure.

The ATSB's primary focus is the safety of the travelling public. The ATSB prioritises its investigations based on accidents and the most serious incidents that are considered most likely to enhance aviation safety.¹¹

6.1 ATSB Aviation Safety Incident Reports

The following tables list the number of ATSB incident reports by the occurrence description recorded during the review period.

Level 1 Occurrence Description	May 2017 – May 2018	June 2018 – May 2019
Airspace	3	3
Consequential Events	0	0
Environment	3	6
Infrastructure	0	0
Operational	5	5
Technical	2	4
Number of occurrences	13	18

Table 2: ASIR Occurrences Mildura Supplementary Review Area May 2017 to May 2019

¹¹ Source: Australian Transport Safety Bureau website <u>http://www.atsb.gov.au/publications/2014/aviation-investigations-in-aust/</u> 26 June 2019

Airspace Occurrence	May 2017 – May 2018	June 2018 – May 2019	
Aircraft Separation	3	3	
Total Aircraft Movements ¹²	19,800	19,500	

Table 3: ATSB ASIR Airspace Occurrence Description Mildura Supplementary Review

The ATSB's summary of the six airspace occurrence are detailed below:

- 15 July 2017 Serious Incident During approach, the crew of the Grob Twin Astir glider detected a Piper PA-28 that had just departed Mildura in close proximity and manoeuvred to maintain separation.
- 18 October 2017 Incident Passing 5,500 FT AMSL on descent, the crew received a Traffic Collision Avoidance System Resolution Advisory (TCAS RA) on an aircraft. The crew increased descent and sighted the conflicting aircraft to maintain separation. No broadcasts had been heard from the aircraft.
- 25 April 2018 Incident During approach, the crew of the Piper PA-31 used the incorrect radio frequency resulting in the Mustang II adjusting its track to maintain separation.
- 3 January 2019 Incident During approach, the crew of the Bombardier DHC-8 observed an aircraft cross in front of the aircraft approximately 200 m away.
- 1 February 2019 Incident During approach, the crew of the Bombardier DHC-8 received a TCAS RA on the Cessna 210 flying through the circuit area at 1,000 FT AMSL. The crew conducted a climb to maintain separation.
- 16 May 2019 Serious Incident During approach, the crew of the Cessna 172 observed an aircraft converging at the same level in close proximity and conducted a missed approach. No radio calls were heard from the crew of the inbound aircraft.

Ineffective communication between aircraft was a primary causal factor in a number of these incidents because it reduced situational awareness of pilots.

6.2 Airservices CIRRIS data

No incidents were recorded within Airservices CIRRIS data relating to airspace that occurred in the supplementary review area.

6.3 Aviation Incident Summary

When comparing the number of airspace incidents against total movements, the number of airspace incidents at Mildura is considered low.

There have been three (3) airspace occurrences recorded in the review area each year, during the previous two years. These occurrences were due to insufficient or ineffective radio communication which impacted the pilot's situational awareness.

The increase in flying training activities at Mildura and the students who operate with English as a second language, increases the risk of insufficient or ineffective communication. The issue of frequency congestion on the Mildura CTAF is discussed in the following chapter.

¹² Data based on recorded information for the tabled period. Movement data includes up to March 2019 and incident data recorded up to May 2019.

7 Consultation and Feedback

Stakeholders were contacted and invited to provide comment or identify their issues relating to Mildura airspace. Various on-site meetings were conducted with stakeholders during the consultation process and while issues outside the scope of the supplementary review were discussed, these matters have been included for completeness.

A list of stakeholders invited to contribute to this supplementary review can be found in Annex C.

7.1 CASA

Input was provided by CASA staff members from the Flight Operations Inspectors, Aerodromes, Aviation Safety and within the OAR.

7.1.1 Aerodromes

Aerodromes Branch advised that the Deputy Prime Minister, Mr Michael McCormack MP, announced a proposal to install an ILS at Mildura by the end of 2020. An onsite visit was conducted by Aerodromes Inspectors to examine the aerodrome and identify initial potential issues.

The installation of the ILS at Mildura will result in additional aircraft operating in the area for flying training purposes.

7.1.2 Aviation Safety

An Aviation Safety Advisor and a Safety Systems Inspector attended Mildura and recorded observations of activities within the Mildura circuit. Issues regarding situational awareness through radio transmissions, and noting other users' experiences with the training organisation using intersection departures that inhibited with other aircraft surface movements.

From these observations and comments, it is suggested that a Mildura Safety Forum, like that at Moorabbin, be established. This would include local stakeholders including the Sunraysia Gliding Club, Ramair, Sunraysia Flying School, International Aviation Alliance and other local safety managers.

CASA will provide support to facilitate the inaugural meetings with subsequent gatherings facilitated by the forum.

7.1.3 OAR

Airspace Project Specialists travelled to Mildura and held meetings with Mildura and Wentworth aerodrome operators, ADFA and the Mildura Sports Aviation Club (MSA). The MSA meeting included people from Ramair, Sunraysia Flying School, Sunraysia Gliding Club and other airspace users. Points made at these meetings are discussed below.

7.2 Airservices Australia

ATC was satisfied with the current airspace arrangements.

The suggested benefit of a new a Visual Navigation Chart (VNC)/Visual Terminal Chart (VTC) was recognised but the production of a new chart could take 18 to 24 months to publish. The OAR considered a new chart would enhance the level of awareness and safety for all operators.

7.3 Wentworth Aerodrome

Wentworth aerodrome operates on the same CTAF as Mildura. This has been an ongoing issue that has been identified by CASA. There are no objections to operating on a different CTAF to Mildura, however the process must be undertaken to ensure the risk to airspace users is minimised, particularly for aircraft transiting between the two locations.

Wentworth aerodrome has received funding and will be sealing at least one runway and developing a taxiway system. The aerodrome is likely to be closed during this operation which is expected to commence early 2020.

The aerodrome has two demountable units onsite that have Pearson Aviation signs displayed, however there was no power to either unit. Wentworth is being used for flying training purposes by aircraft at Mildura.

Anecdotal information was provided about trainees incorrectly nominating runway 27 at Wentworth.

The provision of a VNC/VTC for Mildura would be beneficial for airspace users.

7.4 Mildura Aerodrome

There are significant changes to the airport infrastructure at Mildura. The ILS is anticipated to be operational in 2020 however, the decision the position of the ILS is yet to be determined.

The development and operation of the flying academy has changed since the previous review which indicated that flying training would occur away from Mildura. Mildura airport is experiencing increased total aircraft movements due to flying training activities. A second intake of students commenced in July 2019 and additional aircraft arrived during August 2019.

Additional intakes of multiple students will continue to follow at regular periods

Mildura Airport had no changes to their input made during the previous review. However, risks associated regarding changing of frequencies when operating on the CTAF would need to be adequately mitigated.

There was support for the establishment of a Safety Forum at Mildura and the development of a VNC/VTC.

The airport provided favourable comment regarding support provided by CASA Aviation Safety Advisors prior to the commencement of training operations. There is industry support for future interactions such as Aviation Safety Seminars that could involve local issues (it was noted that these local issues are common throughout Australia i.e. radio communication, phraseology etc.).

7.5 ADFA

No airspace issues were reported. It was noted by ADFA that operations are being conducted in Class G airspace and ADFA will use what is available to the fullest extent.

ADFA Operations try to limit training when RPT aircraft are scheduled.

7.6 Mildura Sports Aviation

The training academy has commenced and there have been some issues. The group was advised that CASA Flight Operations Inspectors (FOIs) had attended the previous week and advised they were satisfied with the operation.

There was a general view by some operators about a lack of awareness about who operates at the airfield.

There has been confusion caused when trainees conducting circuits at Wentworth are calling the incorrect runway number i.e. using Mildura's runway numbers instead. In that instance, there are no separation issues, however it does impact situational awareness.

Not all aircraft in the circuit have ADS-B.

Training aircraft are conducting intersection departures. Also, aircraft conducting circuits have landed short so other training aircraft can depart using an intersection departure. This creates a block for other users who require a full-length runway take-off.

MSA members are concerned that with continued growing operations, there will be an increase in airspace incidents and risks to users at Mildura. Users provided their personal experience at Ballarat and in their experienced opinion, see the same issues being developed at Mildura.

Discussions regarding the development of a VNC/VTC for Mildura, identification of known flying training areas, common VFR routes, establishment of VFR lanes of entry and changing the CTAF at Mildura were supported.

7.7 RPT operators

The following points were made by the RPT operators:

QLink had commenced engagement with stakeholders and were seeking feedback on changing the CTAF at Mildura due to the same frequency being used at Horsham and Shepparton. Pilots on descent from flight levels into Mildura require heightened situational awareness due to broadcasts being made on the frequency at different locations. The commencement of flying training at Mildura has further increased this awareness. The current workload has meant this CTAF issue has not progressed and it is requested that it be handed to another agency to complete.

QLink and Virgin Australia provided examples of occurrences when their aircraft experiences issued with a number of aircraft operating in the circuit at Mildura at the time of their arrival. These included an instructor on the ground, providing direction to a training solo pilot over the CTAF, aircraft not responding to radio calls, numerous aircraft in the circuit resulting in an unstable approach and over transmissions from users at Horsham and Shepparton.

8 Overview of changes since the previous review

The following provides a summary of the changes that have occurred since the previous review.

- Between March 2018-19, total aircraft movements decreased by 1.51%, air transport movements decreased 4.95% and passenger movements increased 4.78%.
- QLink commenced enquiries in regard to changing the CTAF at Mildura. However, workload has resulted in delays and now requests others to continue the task.
- Flying training academy has commenced operations. The four AOC providers are operating individually but are sharing resources regarding training rooms and total aircraft.
- Additional aircraft for flying training purposes has been delivered.
- Flying training operations have changed significantly to what was previously briefed to the OAR. Previous indications of operations expanding to Swan Hill have not progressed. Additional accommodation for the growing number of students has been established in Mildura.
- RPT have experienced a number of aircraft in the circuit during their operations. This has increased the workload in the aircraft. RPT operators assess the risk to their operation at Mildura through their safety management system.
- Local users who have experienced similar issues at Ballarat involving international flying training students are seeing the same issues develop at Mildura. Support for a proactive approach to deal with these similar issues developing at Mildura has been acknowledged.

8.1 Recommendation update

There was one recommendation made in the previous review.

Airservices has undertaken a process where relevant and appropriately authorised persons are involved in the amendment of published aeronautical information. This recommendation is closed.

9 Recommendations

The supplementary review does not recommend a change to the airspace classification or architecture. To enhance and improve the level of service operating in the review area the following recommendations have been made:

Recommendation 1 Airservices Australia should publish a Visual Terminal Chart for Mildura by May 2021.

Recommendation 2 Flying training organisations based at Mildura and Wentworth aerodromes should consider the benefits of developing and submitting an Airspace Change Proposal (ACP) for the identification of flying training areas and where gliding or other activities are undertaken.

Recommendation 3 CASA Flight Operations Inspectors should complete a Request for Change to change the Mildura Common Traffic Advisory Frequency (CTAF).

Recommendation 4 CASA Aviation Safety Advisors should assist to establish an Aviation Safety Forum at Mildura.

Recommendation 5 CASA Aviation Safety Advisors should conduct a seminar at Mildura by March 2020 providing information targeted towards flying instructors, flying students and airspace users. Subjects such as ineffective or improper radio communication, standard phraseology and others matters identified be included. Mildura should be included as a location for the yearly AvSafety pilot seminar.

Recommendation 6 Mildura Airport should amend the Mildura En Route Supplement Australia entry, to advise visiting aircraft are not to conduct circuit training at any time.

10 Conclusion

The OAR has conducted a supplementary airspace review of Mildura.

The airspace review ensured that the airspace complied with the requirements of the *Airspace Act (2007)*, Airspace Regulations (2007), the Australian Airspace Policy Statement (2018), the Minister's Statement of Expectation (2017) and CASA's Regulatory Philosophy.

The recommendation from the Mildura Airspace Review 2018 is closed. The supplementary review has made six recommendations.

The OAR will continue to monitor aircraft and passenger movement data, reported incidents and assess information to determine the appropriateness of conducting the next review.

Appendix 1 References

Airservices Australia, 2019. Australia ERC Low L2 Effective 23 May 2019: Airservices Australia;

Airservices Australia, 2019. Departure and Approach Procedures (DAP) East Amendment 159 Effective 23 May 2019: Airservices Australia

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Google Earth V 7.3.2.5776. 2019. Mildura, Victoria http://www.earth.google.com

Annex A Acronyms and Abbreviations

Acronym/abbreviation	Explanation
AAPS	Australian Airspace Policy Statement 2018
ACAS	Airborne Collision Avoidance System
ACP	Airspace Change Proposal
Act	Airspace Act 2007
ADS-B	Automatic Dependent Surveillance - Broadcast
Airservices	Airservices Australia
ALA	Aircraft landing area
ALARP	As Low as Reasonably Practicable
AMSI	Above Mean Sea Level
	Air Navigation Service Provider
	Air Operator's Certificate
	Aerodrome reference point
	Aviation Safaty Advisor
	Aviation Safety Incident Bonart
	Aviation Salety incluent Report
ATC	
ATOD	
AISB	Australian Transport Safety Bureau
CASA	Civil Aviation Safety Authority
CIRRIS	Corporate Integrated Reporting and Risk Information System
CTAF	Common Traffic Advisory Frequency
DA	Danger Area
Defence	Department of Defence
DME	Distance Measuring Equipment
EPBC Act	Environment Protections and Biodiversity Act 1999
ERC	En Route Chart
ERSA	En Route Supplement Australia
FT	Feet
FL	Flight Level
FOI	Flying Operations Inspector
GA	General Aviation
IAL	Instrument Approach and Landing
ICAO	International Civil Aviation Organization
IFP	Instrument Flight Procedure
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
km	Kilometre
kt	Knot
LL	Lower Level
NDB	Non-Directional Beacon
NOTAM	Notice to air men
NM	Nautical Miles
OAR	Office of Airspace Regulation
PT	Passenger transport
	Public Transport Operations
Olink	Nantael ink
	VallasLIIK Destricted Area
	Regional Aircaand Broodures Advisory Committee
Rex	Regional Express

Acronym/abbreviation	Explanation
RFC	Request for Change
RNAV	Area Navigation
RPAS	Remotely Piloted Aircraft Systems
RPT	Regular Public Transport
RWS	Runway strip width
RWY	Runway
SFC	Surface
TCAS	Traffic collision avoidance system
TCAS RA	TCAS Resolution Advisory
TCAS TA	TCAS Traffic Advisory
TIFP	Terminal Instrument Flight Procedures
VFR	Visual Flight Rules
Virgin	Virgin Australia
VMC	Visual Meteorological Conditions
VNC	Visual Navigation Chart
VOR	Very high frequency omnidirectional range
VTC	Visual Terminal Chart

Australian Airspace Structure Annex B

Class	Description	Summary of Services/Procedures/Rules
А	All airspace above Flight Level (FL) 180 (east coast) or	Instrument Flight Rules (IFR) only. All aircraft require a clearance from Air Traffic Control (ATC) and are separated by ATC. Continuous two-way radio and transponder required. No speed limitation.
В	IFR and Visual Flight are separated from ea	Rules (VFR) flights are permitted. All flights are provided with ATS and ach other. Not currently used in Australia.
с	In control zones (CTRs) of defined dimensions and control area steps generally associated with controlled aerodromes	 All aircraft require a clearance from ATC to enter airspace. All aircraft require continuous two-way radio and transponder. IFR separated from IFR, VFR and Special VFR (SVFR) by ATC with no speed limitation for IFR operations. VFR receives traffic information on other VFR but are not separated from each other by ATC. SVFR are separated from SVFR when visibility (VIS) is less than Visual Meteorological Conditions (VMC). VFR and SVFR speed limited to 250 knots (kt) Indicated Air Speed (IAS) below 10,000 feet (FT) Above Mean Sea Level (AMSL)*.
D	Towered locations such as Bankstown, Jandakot, Archerfield, Parafield and Alice Springs.	 All aircraft require a clearance from ATC to enter airspace. For VFR flights this may be in an abbreviated form. As in Class C airspace all aircraft are separated on take-off and landing. All aircraft require continuous two-way radio and are speed limited to 200 kt IAS at or below 2,500 ft within 4 NM of the primary Class D aerodrome and 250 kt IAS in the remaining Class D airspace**. IFR are separated from IFR, SVFR, and provided with traffic information on all VFR. VFR receives traffic on all other aircraft but is not separated by ATC. SVFR are separated from SVFR when VIS is less than VMC.
E	Controlled airspace not covered in classifications above	 All aircraft require continuous two-way radio and transponder. All aircraft are speed limited to 250 kt IAS below 10,000 FT AMSL*, IFR require a clearance from ATC to enter airspace and are separated from IFR by ATC and provided with traffic information as far as practicable on VFR. VFR do not require a clearance from ATC to enter airspace and are provided with a Flight Information Service (FIS). On request and ATC workload permitting, a Surveillance Information Service (SIS) is available within surveillance coverage.
F	IFR and VFR flights a flights receive a flight Not currently used in .	re permitted. All IFR flights receive an air traffic advisory service and all information service if requested. Australia.
G	Non-controlled	 Clearance from ATC to enter airspace not required. All aircraft are speed limited to 250 kt IAS below 10,000 FT AMSL*. IFR require continuous two-way radio and receive a FIS, including traffic information on other IFR. VFR receive a FIS. On request and ATC workload permitting, a SIS is available within surveillance coverage. VHF radio required above 5,000 FT AMSL and at aerodromes where carriage and use of radio is required.

Not applicable to military aircraft
 If traffic conditions permit, ATC may approve a pilot's request to exceed the 200 kt speed limit to a maximum limit of 250 kt unless the pilot informs ATC a higher minimum speed is required.

Annex C Stakeholder consultation list

The following stakeholders were contacted to contribute to this review/study.

Organisation
CASA
Airservices Australia
QantasLink
Virgin Australia
Regional Express
Mildura Airport
Wentworth Shire Council
Sunraysia Sport Aircraft Club
Sunraysia Gliding Club
Ramair Flying Services
Mildura Sport Aviation
Aero Dynamic Flight Academy

Annex D Stakeholder feedback / consultation register

The following sections are the consolidation of comments or responses received from the draft document, the OAR's response and disposition to actions to the Mildura Supplementary Airspace Review.

Stakeholder and Reference

Airservices Australia: Recommendation 1

Comment

AIM have been advised of Recommendation 1 and will be provided the final report when released.

CASA Response and disposition

Noted.

Stakeholder and Reference

Mildura Airport: Recommendations

Comment

My team and I have read through the airspace review for Mildura and we are comfortable with the outcome and recommendations made. I am in full agreement that an aviation safety forum should be established here at Mildura and we will be working on that asap.

CASA Response and disposition

Noted.

Stakeholder and Reference

Regional Express: Annex C, Recommendations

Comment

Regional Express is not listed in the Annex.

Recommendation 1: Rex agree that a visual terminal chart would be of benefit to all operators at Mildura airport. Additionally, the introduction of VFR entry/exit points may assist with the organisation of the local airspace in addition to enhancing the situational awareness of all airspace users.

Recommendation 2: Rex believes a defined training and gliding areas would, as per recommendation 1, enhance the situational awareness and safety for operations at Mildura.

Recommendation 3: Rex agree with recommendation 3 that a discrete Common Traffic Advisory Frequency (CTAF) for Mildura, Wentworth and associated training areas would reduce the risk of confusion for users of from other airports that share the common frequency 118.8MHz such as Horsham, Shepparton and Bacchus March.

Recommendation 4: Rex would be a more than willing participant in any Aviation Safety Forum focused on enhancing the safety of operations at Mildura.

Recommendation 5: As per Recommendation 4, Rex will be willing to participate in such educational seminars.

Recommendation 6: Rex believes that due to the significant volume of traffic that utilise Mildura (particularly during peak periods) Rex agree that circuit training should be restricted to locally based training operations. Rex also strongly believes local organisations should agree to restricting the number of local aircraft conducting circuit operations. The number should take into account weather and anticipated inbound / outbound traffic.

CASA Response and disposition

Noted. Annex C has been updated to include Regional Express.

Stakeholder and Reference

QantasLink: General review reference

Comment

The review accurately details the challenges facing airspace users within the Mildura CTAF environment, in particular the varying traffic mix and densities that can be encountered. As an operator of Public Transport (PT) services to and from the airport, QantasLink has observed a notable increase in flight training activity and heightened flight crew reporting of traffic related events whilst operating in the surrounding airspace.

The six recommendations that have been made reflect the increase in flying activities at Mildura. Since February 2019, QantasLink flight crew have reported seven separate air traffic related occurrences or hazards at Mildura, two of which resulted in a TCAS Resolution Advisory. Common safety themes include poor or mis-communication on CTAF frequency from airspace users, and an apparent deficiency in knowledge with respect to the performance of Transport category aircraft such as the De Havilland Dash 8 Q400. Specifically, in terms of the increased flight training activity and associated inherent risk this presents, Mildura is evolving into a significant and challenging CTAF environment for QantasLink flight crew.

It is recognised that aircraft movements at Mildura do not meet regulatory triggers for establishment of Air Traffic Services. Given the unique challenges and threats present at the location however, and especially in light of forecast increase in flight training activity as described in the review, QantasLink would keenly support further examination of the environment and challenges at Mildura which could include options for enhanced Air Traffic Services.

CASA Response and disposition

Noted.

Stakeholder and Reference

Virgin Australia: General review reference and Recommendations

Comment

It is not the intent of Virgin Australia to in anyway inhibit the operations of general aviation organisations, the risk to Passenger Transport Operations (PTO) is our primary concern.

The report states that *"there are no restricted or danger areas within the review area"*. Virgin Australia requests that Recommendation 1 be amended to include the need to promulgate a danger area to reflect the training area.

The report states "The increase in flying training activities at Mildura and the students who operate with English as a second language, increase the risk of insufficient or ineffective communication". This risk is not addressed by any of the recommendations contained within the report.

The report states that "an Aviation Safety Advisor and a Safety Systems Inspector attended Mildura and raised issues regarding situational awareness through the radio, instructors providing additional information to a transmission and noting other users experience with the training organisation using intersection departures that inhibited with other aircraft surface movements". The recommendations contained within the report call for a seminar at Mildura and an Aviation Safety Forum. However, both should be considered weak controls as they will likely fail to keep pace with the turnover of students. It is noted that Mildura Sports Aviation have reaffirmed the concerns of Virgin Australia.

Recommendation 1: Supported; Recommendation 2: Supported – the effectiveness will be dependent on the commitment from the ATO); Recommendation 3: Supported; Recommendation 4: Considered a weak control; Recommendation 5: Considered a weak control; Recommendation 6: Supported.

The report states the "All aircraft movements and passenger numbers are below the AAPS threshold for the OAR to undertake a risk review of the airspace". Given the evidence provided by Industry and accepted by the OAR in its report, the AAPS threshold should be considered an irrelevant metric for the purpose of determining whether intervention is required or not. Furthermore, the report acknowledges that a "revised estimate of 120-200 students" will be undertaking training by December 2019. This equates to a 200-330% increase in training activities over a 12-month period.

Based on the evidence supplied by industry, the infrastructure can't support this increase in traffic without a reduction in safety margins.

CASA Response and disposition

The OAR appreciates the feedback provided. The recommendations are expected to enhance operations within the review area for all airspace users while supporting the increase in flying training and PTO. The OAR acknowledges that operators such as Virgin Australia conducts their own risk assessment for operations at various locations services by their aircraft.

Recommendation 1 to remain unchanged. The Visual Terminal Chart (VTC) can include the identification of flying training area/danger area however these are separate processes. Combining the two can result in delays to the publication. This does not prevent a proponent from undertaking the ACP process to establish a flying training/danger area in conjunction with the development of the VTC.

The establishment of an Aviation Safety Forum is expected to reduce incidents from occurring. This type of forum has been established at a major training airfield, which has significantly higher aircraft movements compared to Mildura and has resulted in the decrease of reported incidents.

The criteria provided in the AAPS does not preclude the examination for airspace changes at an aerodrome location for example based on risk or safety grounds. The AAPS threshold criteria was not used to establish the supplementary review however the aircraft movement and PTO passengers are identified to establish trends in the area. As such these elements are considered relevant by the OAR. The OAR will continue to monitor movement and incident data and stakeholder feedback from operators at Mildura to determine if further examining of the airspace is required.

Stakeholder and Reference

Aviation Safety Specialist Investigator and Auditor; name held on file. Section 7, Section 9.

Comment

I took an interest in the review of the Mildura airspace, having flown RPT from there for many years prior to my retirement and in doing so sent a copy to some of my comrades who fly there.

The QantasLink Captain that I sent it to, did not know anything about it, so maybe whoever represented QL may not have consulted with the pilots based there. Can you provide a name? I also note that the Mildura Aero Club is not included in the list on the last page. They represent private flyers and owners based there and in the area and should have been included.

The recommendation to the airport to include in ERSA a statement that non-Mildura operators cannot do circuit training. This needs to be worded carefully as the intent is to preclude basic circuit training but not those that come from elsewhere do an approach followed by some circuits.

The proposed ILS. (late next year maybe?): The preferred runway would have to be 27, however there is no airport land at the west end for the aerials etc. Installing the ILS on 09 would be nuts as in the 15 years I was there I would guess that 80% of landings were conducted on 27. Someone conducting an ILS with a downwind would not achieve proper training and would disrupt other operations on 27. The prevailing wind favours the W or SW

so in my view 09 would be a very poor decision. Maybe the airport should acquire some land at the west end. It may mean that the aerial would have to be elevated as I think the land at the west end drops away.

Make sure that all the local operators are aware of the proposals. My communications with some friends there did not know about it. Maybe internal communications are not as good as they should be.

CASA Response and disposition

The OAR consulted with appropriate representatives from various organisations. This included QantasLink staff based at Mildura and their Regulatory and Fleet Safety Operations Manager.

The OAR met with various flying organisations at the Mildura Aero Club that represented various sports aviation, private flyers and owners based at Mildura.

The ERSA entry comment is noted. A similar ERSA entry exists for Ballarat. The intent is to decrease the number of visiting aircraft from conducting circuit training at Mildura. There is no change for visiting aircraft joining the circuit at Mildura and landing. There is no change to the recommendation.

The ILS comment is noted. There are a number of factors for consideration and the aerodrome is aware of all the issues. The aerodrome will make the determination on the positioning of the ILS.

The OAR had consulted with airline representative, aerodrome operators and various airspace users and aircraft owners throughout the review. The OAR can not be held accountable to the internal communications of these organisations however sufficient representations were made and continue to be appreciated by the OAR.

Stakeholder and Reference

Training and Check Pilot, name held on file: Section 7, Recommendations

Comment

I note that there is a recommendation for the Aerodrome operator to instigate a ban on visiting aircraft carrying out training circuits.

If an ILS is installed at YMIA, then there will be a demand for ILS training to be carried out by visiting aircraft, no doubt due to the limitations on obtaining ILS training time in the Melbourne and Adelaide Terminal areas.

At Victorian RAPAC I represent both Shortstop Jet Charter and GAMAIR Pty Ltd.

GAMAIR is an IFR user of Mildura Airport on a daily basis, 5 days a week (arrive in the late morning and depart in the late afternoon) and has done for at least the last 30 years to my personal knowledge. The operation is freight charter for TOLL regional.

GAMAIR SHOULD HAVE BEEN INCLUDED AS STAKEHOLDERS in this review.

I can envisage the company carrying out ILS training and reviews for Instrument Rating renewals in the future if an ILS is installed, so a limitation on training will disadvantage legitimate operators if the circuit training ban is pursued.

We already have a problem in Sydney of being able to carry out practice ILS approaches and have been forced to travel to Wagga Wagga to pursue the necessary training and testing required by Part 61 of the CASR's.

I recommend that the ban proposed to the Aerodrome operator be removed.

CASA Response and disposition

GAM Air was not directly contacted as no issues at Mildura were observed. CASA Flight Operations Inspectors, Aviation Safety Advisors, Safety Systems Inspectors and members from the Office of Airspace Regulation attended Mildura over a 10-day period. Observations of circuit traffic and the monitoring the CTAF determined that GAM Air operations had not been impacted by the additional flight training being undertaken. GAM Air aircraft were observed landing and departing over a number of days by CASA staff. If issues had been observed or identified with consultations through other stakeholders, GAM Air would have been contacted.

The draft supplementary review release has not prevented GAM Air from making a submission and the feedback is appreciated.

Comment regarding the ILS and demand for ILS training is noted.

Your recommendation that the ban proposed to the aerodrome operator be removed is noted. The recommendation is to remove visiting aircraft from conducting circuiting training at Mildura. This does not prevent visiting aircraft joining the circuit and landing. A similar ERSA entry currently exists for Ballarat and there is no change to the recommendation.

Stakeholder and Reference

Sunraysia Gliding Club: Recommendations

Comment

Generally happy with the document. Following are some points:

Recommendation 2: That the Sunraysia Gliding Club be invited to have input to any Airspace Change Proposal for the identification of flying training areas.

Recommendation 3: We back the proposal to change the CTAF however it should be kept the same for Mildura and Wentworth.

Recommendation 4: Any Aviation Safety Forum for Mildura needs to have Sunraysia Gliding Club directly at the table. Any issues arising would also be transmitted to Gliding Federation of Australia.

Recommendation 6: Delete this point. YMIA is a public airport owned and funded by the public.

Other general comments: ERSA reports 'Wire Launching' Should read 'Winch Launching to 2000 feet'.

CASA Response and disposition

The comments are noted.

Stakeholders will need to be consulted during the development of a VTC, establishing the identification of flying training areas and changes to the CTAF frequency.

The OAR has been advised that various stakeholders have already been contacted by Aviation Safety Advisors for the establishment of an Aviation Safety Forum at Mildura.

There is no change to the recommendation restricting visiting aircraft from conducting circuit training at Mildura. A similar ERSA entry currently exists for Ballarat.

Regarding the current wording in ERSA regarding wire launching, CASA suggests that information be documented and forwarded to Mildura Airport to have that amendment made in ERSA.