QUEENSTOWN LAKES DISTRICT COUNCIL

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26 February 2024

[redacted]
Sent via email to [redacted]

Dear [redacted],

REQUEST FOR OFFICIAL INFORMATION – PARTIAL RELEASE OF INFORMATION

Thank you for your request for information held by the Queenstown Lakes District Council **(QLDC)**. On 26 February 2024 you requested the following information under the Local Government Official Information and Meetings Act 1987 (**LGOIMA**):

Wānaka Airport financials:

1. A full copy of the CAA Aeronautical Study (the "Wānaka Airport report") and any associate papers providing further context or information. [Please note that this has already been requested via the Deputy Mayor on 12 Jan 2024].

2. Fully disclosed and detailed financial information for the annual periods 2019- 2023 inclusive.

3. Disclosure of the QAC management fee paid by Wānaka Airport to QAC in 2020, 2021, 2022 and 2023 and budgeted for 2024 and beyond.

4. An explanation for the interest payments in the budget of $281,852 in 2025, increasing to $411,452 by 2030.

5. What income is derived annually from NASA - by Wānaka Airport, by QAC, by QLDC? And if the income is split, when and how was this decision made?

6. What is Council's explanation for the change in profitability for Wānaka Airport? At face value it appears that the airport's move from profitability to loss coincides with the introduction of QAC management and associated fees.

7. Page 28 the Aeronautical Study outlines recommendations for improving Wānaka Airport safety and operational performance. Are these CAA recommendations now being budgeted for by Council or are they being treated as contingent on a Master Planning process?

Wānaka Airport Master Plan progress and process:

1. The outline proposed for the scope of the Master Plan project.

2. Confirmation of timeline for the Master Plan process.

3. Who is conducting the Master Plan? We have been informally advised this is to be QAC. If so:
    a. what is the rationale for this, and
    b. what is the confirmed budget and payment to QAC for this process?

4. Who is overseeing the Master Plan process? QAC, while undoubtedly possessing expertise, has some clear conflicts of interest in regard to future planning for Wānaka Airport.

5. We assume that given its terms of reference the Wanka Airport Liaison Committee (WALC) will have a specific role in reviewing the Master Plan and will need additional meetings and budget in order to adequately fulfil this. Please confirm these details.

6. At what points and how will the community be given input into the Wānaka Airport Master Planning process, and how will that input be collated, shared and factored in?

QLDC response

Wānaka Airport financials:

1. *A full copy of the CAA Aeronautical Study (the "Wānaka Airport report") and any associate papers providing further context or information. [Please note that this has already been requested via the Deputy Mayor on 12 Jan 2024].*

    Please see the link below, it includes the reports and two supporting documents.

    CAA Aeronautical Study and associated papers

2. *Fully disclosed and detailed financial information for the annual periods 2019- 2023 inclusive.*

    Please see the link below.

    Financial information

3. *Disclosure of the QAC management fee paid by Wānaka Airport to QAC in 2020, 2021, 2022 and 2023 and budgeted for 2024 and beyond.*

    We are withholding this information pursuant to sections 7(2)(b)(ii), 7(2)(c)(ii) and 7(2)(h) of the LGOIMA. We provide our rationale later in this response.

4. *An explanation for the interest payments in the budget of $281,852 in 2025, increasing to $411,452 by 2030.*

    The interest payments in the budget reflect repayment of capital investment. Capex funding is acquired from loan funding and repaid over time. The change is due to the increased investment over time. The budget is currently draft and will be released to the required people once complete.

5. *What income is derived annually from NASA – by Wānaka Airport, by QAC, by QLDC? And if the income is split, when and how was this decision made?*

We are withholding this information pursuant to sections 7(2)(b)(ii), 7(2)(c)(ii) and 7(2)(h) of the LGOIMA. We provide our rationale later in this response.

6. *What is Council's explanation for the change in profitability for Wānaka Airport? At face value it appears that the airport's move from profitability to loss coincides with the introduction of QAC management and associated fees.*

   Profitability to loss should not be measured over individual years. Over the period of the long-term plan the intent of the budget is to break even.

7. *Page 28 the Aeronautical Study outlines recommendations for improving Wānaka Airport safety and operational performance. Are these CAA recommendations now being budgeted for by Council or are they being treated as contingent on a Master Planning process?*

   QLDC has 'placeholder' budgets based on the best current understanding that are used for planning purposes. Once CAA is clear about any new requirements, budgets will be amended to reflect the actual costs of those changes.

Wānaka Airport Master Plan progress and process:

1. *The outline proposed for the scope of the Master Plan project.*

   No Master Plan scope has been developed yet.

2. *Confirmation of timeline for the Master Plan process.*

   QLDC have not begun any Master Planning work for the Wānaka Airport.

3. *Who is conducting the Master Plan? We have been informally advised this is to be QAC. If so:*

   a. *what is the rationale for this, and*
   b. *what is the confirmed budget and payment to QAC for this process?*

   This has not been decided.

4. *Who is overseeing the Master Plan process? QAC, while undoubtedly possessing expertise, has some clear conflicts of interest in regard to future planning for Wānaka Airport.*

   This has not been decided.

5. *We assume that given its terms of reference the Wanka Airport Liaison Committee (WALC) will have a specific role in reviewing the Master Plan and will need additional meetings and budget in order to adequately fulfil this. Please confirm these details.*

   Terms of reference for the WALC have been agreed and will be followed.

6. *At what points and how will the community be given input into the Wānaka Airport Master Planning process, and how will that input be collated, shared and factored in?*

Any early step of any future Master Planning work will be to design community engagement opportunities. This has not been done as no Master Planning work has begun.

We trust the above information satisfactorily answers the relevant components of your request.

Decision to withhold remaining information requested

We have good grounds under the LGOIMA for withholding some of the information requested. We consider it is necessary to withhold certain information on the basis of the following grounds:

- s 7(2)((b)(ii) – to protect information where the making available of the information would be likely unreasonably to prejudice the commercial position of the person who supplied or who is the subject of the information.
- s 7(2)(c)(ii) – to protect information where the making available of the information would be likely otherwise to damage the public interest.
- s 7(2)(h) – to enable any local authority holding the information to carry out, without prejudice or disadvantage, commercial activities.

We consider the income derived annually from NASA, by Wānaka Airport and QAC, to be commercially sensitive information. Releasing the income could affect the future perceptions and actions of airport shareholders, customers, or suppliers. This would have negative commercial implications for the airports as future profits could be impacted.

Releasing the NASA income derived by QLDC would prejudice and disadvantage the commercial activities carried out by QLDC, in relation to the airports. Decisions surrounding the future funding of each airport and how the NASA income is split would be impaired by the release of current funding models. This would not be in the interests of the public because QLDC profits associated with the airports could be less favourable in the future and therefore a lesser benefit for ratepayers. Enabling QLDC to operate commercial activities without prejudice will benefit ratepayers in the long run.

Similarly, the release of the management fee paid by Wānaka Airport to QAC could prejudice the future commercial position of QAC. Any future negotiations between QAC and other airports surrounding management fees would be inhibited by the release of this information. QLDC's own commercial position could also be affected in future negotiations surrounding similar management fee discussions.

Public interest considerations

We consider the interests of the public when making decisions to withhold requested information, including considerations in favour of release, whether the disclosure of the information would promote those considerations, and whether those considerations outweighed the need to withhold the information.

Promoting the accountability and transparency of local authority members and officials is in the public interest, as is the general public interest in "good government". Where possible, we have favoured the release of information.

However, we do not believe that these public interest considerations mean we should release the information withheld. Enabling healthy commercial positions for Wānaka airport and QAC is of greater importance than the transparency of releasing the specifics of the NASA income. The long-term profitability of both airports will benefit ratepayers in the future.

Equally, the need to prevent prejudice to the commercial activities undertaken by QLDC in relation to the airports, is not outweighed by the need to be transparent with specific airport funding models. The future allocation of NASA funding would be inhibited by the release of the current figures, and this would not be in the financial interests of the public. The same applies for the release of airport management fees.

We conclude that the important section 7 withholding interests identified (commercial prejudice and public interest), which relate to a subset of the information within the scope of your request, are not outweighed by a countervailing public interest requiring release.

Right to review the above decision

Note that you have the right to seek an investigation and review by the Ombudsman of this decision. Information about this process is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

If you wish to discuss this decision with us, please contact Naell.Crosby-Roe@qldc.govt.nz (Governance & Stakeholder Services Manager).

We trust this response satisfactorily answers your request.

Ngā mihi,

[redacted]
Senior Official Information Advisor

CIVIL AVIATION AUTHORITY
OF NEW ZEALAND
Te Mana Rererangi Tūmatanui o Aotearoa

Mr Quintin Howard
Property Director
Queenstown Lakes District Council
Private Bag 50072
Queenstown 9348

8th April 2022

Dear Quintin

Requirement to conduct an aeronautical study to determine the requirement for a Qualifying Aerodrome Certificate at Wanaka aerodrome.

In March 2022 the CAA met with representatives from Queenstown Lakes District Council (QLDC), the management team at Wanaka aerodrome(NZWF) and the Chief Executive at Queenstown Airport Corporation (QAC) noting that QAC are the current provider of aerodrome management services at NZWF under a Management of Services Agreement (MSA).The meetings were held to; (1) to provide CAA with an understanding of current aerodrome operations which now include regular passenger transport (RPT), and (2) for CAA and QLDC to discuss the short and long term Part 139 certification status of the aerodrome which is currently non-certificated .

The Director Civil Aviation (DCA) considers the introduction of RPT at NZWF a significant change and accordingly as per CAR 139.21(a)(1) the DCA is requiring the QLDC to conduct an aeronautical study. The study must contain sufficient information to enable the DCA to identify and assess the risk to aviation safety of the operation of the aerodrome as per requirements of CAR 139.21(d)(1) & (2). The study scope should be inclusive of, but not limited to:

-an assessment of existing aerodrome infrastructure, and;

-an assessment of any proposed changes to existing aerodrome infrastructure ensuring any new aerodrome infrastructure provides a safe and efficient operational environment for aerodrome users, and;

- consideration of the requirement to provide RESA acceptable to the Director if regular passenger air transport service (RPT) with aircraft having a certificated seating capacity of more than 30 passengers commences, and;

-an assessment of all applicable Civil Aviation Rules to ensure operations at the aerodrome remain compliant throughout, and;

-meaningful consultation with Users and Stakeholders.

The completed study must be provided to the DCA no later than 24 December 2022. After submission of the study the DCA may require further information to be provided before considering if the risk to aviation safety is such that it must be managed under the authority of a qualifying aerodrome operator certificate.

I will be the point of contact for any further queries.

Kind Regards,

Nick Jackson

Nick Jackson
Technical Specialist (Aerodromes) Aeronautical Services Unit

QUALITY AVIATION CONSULTING

SAFETY BY DESIGN

AERONAUTICAL STUDY

WANAKA AIRPORT – AERODROME DESIGN AND CERTIFICATION REQUIREMENTS

PRIVATE AND CONFIDENTIAL

Final Report

Dated: 20th December 2022

Contents

Appendices

Glossary and Abbreviations

ACAS	Airborne Collision Avoidance System (also known as TCAS)
ADS-B	Automatic dependent surveillance broadcast
AFIS	Aerodrome Flight Information Service
AGL	Above Ground Level
AIP / AIPNZ	Aeronautical Information Publication (of New Zealand)
Airways	Airways Corporation of New Zealand
ALARP	As low as reasonably practicable
AMSL	Above Mean Sea Level
ARC	Aviation Related Concern
ATC	Air Traffic Control
ATS	Air Traffic Services
AWIB	Aerodrome and weather information broadcast
CAA	Civil Aviation Authority (of New Zealand)
CAR	Civil Aviation Rule
CFZ	Common Frequency Zone
CTA	Control Area
CTAF	Common traffic advisory frequency
CTR	Control Zone
DME	Distance measuring equipment
EMS	Emergency medical service
ESL	English as a second language
FIR	Flight Information Region
FIS	Flight Information Service
FISCOM	Flight Information Service Communications
FL	Flight level (hundreds of feet)
GAA	General Aviation Area
GAP	Good Aviation Practice (booklet)
GNSS	Global Navigation Satellite System
GPS	Global Positioning System H24 Hours: (i.e., permanent)
GPWS	Ground Proximity Warning System
HSWA	Health and Safety at Work Act 2015
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
LFZ	Low Flying Zone
MBZ	Mandatory Broadcast Zone
NDB	Non-Directional Beacon
NOTAM	Notice to Airmen
NZALPA	NZ Airline Pilots Association
NZWK/ WKA	Wanaka Airport

PCBU	Person conducting a business or undertaking (HSWA)
PLA	Parachute Landing Area
PLZ	Parachute Landing Zone
PSR	Primary Surveillance Radar
QAC	Queenstown Airport Corporation
QLDC	Queenstown Lakes District Council
QNH	Altimeter sub-scale setting
RESA	Runway End Safety Area
RFS	Rescue Fire Service
RNAV	Area navigation
RNZAF	Royal New Zealand Air Force
RWY	Runway
SFARP	So far as is reasonably practicable
SFC	Surface
SSR	Secondary Surveillance Radar
TM	Transponder Mandatory Airspace
TWR	Aerodrome control tower
UNICOM	Universal Communication service
VFR	Visual Flight Rules
VMC	Visual meteorological conditions
VNC	Visual Navigation Chart
WFAEP	Wanaka Airport Aerodrome Emergency Plan
WFAOM	Wanaka Airport Operations Manual

EXECUTIVE SUMMARY

This Aeronautical Study was conducted, at the request of Wanaka Aerodrome and Queenstown Lakes District Council, to predominantly assess aerodrome layout and design, requirements for certification under Part 139, airspace issues in the areas surrounding Wanaka Aerodrome and whether any form of Air Traffic Management was warranted at Wanaka Aerodrome.

Due to the broad scope of the study, it was decided to produce two reports, that could target key issues more effectively. This report pertains to aerodrome design and aerodrome certification issues. The second report deals with airspace designation and consideration of any Air Traffic Management that may be deemed necessary. Both reports should be read in conjunction.

The outcome of this report was that we recommend that Wanaka Aerodrome apply for certification under Part 139 as a Qualifying Aerodrome. We have also raised 14 additional recommendations that would enhance safety and efficiency at Wanaka Aerodrome regarding aerodrome layout and design. These are detailed in Appendix 1.

Future development of Wanaka Aerodrome, in line with the last master plan, was also considered during this study.

1 OBJECTIVE

Wanaka Airport is owned by the Queenstown Lakes District Council (QLDC) and has been managed by Queenstown Airport Corporation (QAC) via a Management Service Agreement since April 2021. For the 3-year period prior to this, the aerodrome was leased by QAC from QLDC on a long-term lease.

It is designated as a non-certificated, unattended aerodrome within uncontrolled Class G airspace and a Common Frequency Zone (CFZ).

Prior to the 2020 Covid-19 global pandemic, annual aircraft movements were approximately 62,000 p.a., with a reduction in movements over the winter months. Current aircraft movements are approximately 34,000 p.a.

Due to the large traffic movements and complexity of aviation types, based on an operational safety and risk assessment and in consultation with airport users, in 2019 QAC applied to the CAA to change the airspace designation to an MBZ. This application was declined by the CAA noting that further consideration to a change in designation would not be undertaken until 'the proposal is developed to a more mature state in line with future airport strategies'.

Further discussions with the CAA, have indicated that an Aeronautical Study would be beneficial in providing a development plan for airspace management at Wanaka Airport and further consideration for a change in designation. However, it appears that any decisions by QLDC/QAC on future airport strategies are some way off.

In November 2020, Sounds Air began a daily scheduled passenger service between Wanaka and Christchurch utilising a Pilatus PC12 with 9 passenger seats. Over the last 18 months the schedule has increased from 20 movements per week to 28 movements per week at its peak. Sounds Air continue to adjust their schedule to manage the impacts of Covid-19 and the annual 'inversion' weather patterns that can cause disrupts during May and June but are looking to increase their schedule further for the summer months.

With the introduction of the regular passenger service, along with the current and pre-Covid traffic density, the CAA have reviewed the certification status of Wanaka Airport and determined that an Aeronautical Study needs to be completed as per CAR Part 139.21 (b)(1)(i).

With the risk factors around aircraft movement density and frequency influencing both airspace and aerodrome management, the QLDC wish to undertake an Aeronautical Study that reviews both aspects and considers the holistic view of aeronautical and operational safety and risk management at Wanaka Airport.

Due to the broad scope of the study, it was decided to produce two reports, that could target key issues more effectively. This report pertains to aerodrome design and aerodrome certification issues. The second report deals with airspace designation and consideration of any Air Traffic Management that may be deemed necessary.

2 CONTEXT

It should be noted that the 2008 Wanaka Airport Master Plan is the most recent master plan available for Wanaka Airport. In 2018 QAC conducted various discussions with the Wanaka community to gain feedback on the community's wishes for airport development to inform a master planning project starting in 2019.

This process was put on hold by QLDC in 2021. The Queenstown Airport 10-year strategic plan, released on 22 Sep 2022, contains no references to Wanaka Airport or its development. At that time QAC's Chief Executive is quoted as saying:[1]

"… the extensions and modifications to Wanaka airport to handle ATR aircraft would include a runway some 200 metres longer and slightly wider, plus terminal and security facilities.

"If there is the appetite from council and elected representatives to make that investment in Wanaka I think there's a reasonable probability that we could attract Air New Zealand to operate ATRs there."

Based on the proximity of Queenstown Airport and strongly held community views we consider it highly unlikely scheduled jet aircraft services will eventuate at Wanaka Airport in the foreseeable future. However, it is possible operations by larger turboprop aircraft such as the ATR72 may eventuate. Consequently, this Aeronautical Study is limited to aerodrome design requirements pertaining to the scheduled operation of turboprop aircraft (Code 3C) with a seating capacity of up to 90 seats. The airport development

[1] https://protectwanaka.nz/2022/09/22/qtown-airport-bets-on-growth-offers-smaller-airport-plan-to-wanaka-crux-22-09-22/

required to accommodate larger turbo-prop aircraft would include runway extensions, provision of RESA and construction of a terminal building. Due to the many significant steps needed to reach that point, together with the likely time before a decision is made on any such development, the focus of this report is on the certification level appropriate to scheduled operation of the Pilatus PC12 aircraft (or similar) with a modest increase in daily flights.

3 PRELIMINARIES

3.1 SFARP APPROACH

This study has been conducted following the "So Far As is Reasonably Practicable" (SFARP) approach, as is prescribed in the Health and Safety at Work Act (HSWA) and referred to in the Advisory Circular (AC) relating to Safety Management (AC 100-1, Section 2.3.3). This differs from the "As Low As is Reasonably Practicable" (ALARP) approach that is detailed in the AC "Aeronautical Studies for Aerodrome Operators". However, recent Aeronautical Studies approved by the CAA have accepted this approach, and we believe that this better covers PCBU obligations for safety under the Health and Safety at Work Act (HSWA) as well as CAA requirements under Part 139.

The methodology included consultation with aircraft operators, Wanaka Airport operations personnel and other interested parties ("aviation stakeholders"). Generative interviews were conducted with the key aviation stakeholders to identify credible critical risks and any practical precautions that could be introduced.

The outcomes of the generative interviews are described in section 5.

3.2 REFERENCE DOCUMENTS

- Proposal for Aeronautical Study dated 1st June 2022
- CAR Part 91, Amendment 34, 1st December 2021
- CAR Part 139, Amendment 14, 1st December 2020
- CAR Part 172, Amendment 15, 8th February 2021
- CAA AC139-6
- AIPNZ
- NZWF Safety and Operations Meetings minutes
- NZWF website.
- Wanaka Airport Master Plan, version 2.41, dated 11 September 2008
- Wanaka Aerodrome Operations Manual (draft)

3.3 SCOPE

The following scope for the aeronautical study has been defined in accordance with the Proposal for Aeronautical Study Document dated 10th May 2022.

3.3.1 SCOPE

We would be gathering information that would be the basis for which a long-term aerodrome design and certification plan for the aerodrome could be developed. This would include but not be limited to:

- An assessment of existing aerodrome infrastructure,
- A gap analysis between the current operating conditions and the requirements for certification as a qualifying aerodrome operator as per CAR Part 139 including certification requirements, operating requirements, and aerodrome security,
- An assessment of any proposed changes to existing aerodrome infrastructure ensuring any new aerodrome infrastructure provides a safe and efficient operational environment for aerodrome users,
- Consideration of the requirement to provide RESA acceptable to the Director if regular passenger air transport services (RPT) with aircraft having a certificated seating capacity of more than 30 passengers commences,
- An assessment of the applicable Civil Aviation Rules to ensure operations at the aerodrome remain compliant throughout,
- Meaningful consultation with Users and Stakeholders.

4 BACKGROUND

4.1 WANAKA AIRPORT OVERVIEW

Wanaka Airport (NZWF, or WKA) is a non-certificated aerodrome. It is managed on a day-to-day basis by the Airport Operations Manager, assisted by an Operations Coordinator. However, due to organisational changes within QAC, we understand that this will be changing, with the current Airport Operations Manager taking up a role in QAC. The Operations Coordinator will become a Duty Manager, with a second one to be employed, both effectively employed by QAC.

The airport is approximately 5nm east-southeast of the Wanaka township at 1142ft AMSL. Its main runway is bounded by a road at the south-eastern end, but there is sufficient available land to the north-west for the runway to be extended to potentially 1700m in length allowing for 240m RESA at each end.[2]

Operations in and around NZWF include:

- Scheduled turboprop air transport operations (Sounds Air),
- Commercial parachuting operations,
- Commercial fixed wing tourism, general charter activity and flight training,
- Commercial helicopter activity including tourism, EMS flights, agricultural activity, flight training and general charter and commercial activity,
- Extensive paragliding activity nearby,
- Commercial Corporate jets,
- Military activity,
- Private flying, both fixed wing (including microlight) and helicopter,
- Infrequent visiting business jets,
- Infrequent training aircraft from other aerodromes, both VFR and IFR.
- Infrequent hot air balloon activity, but they are radio equipped.
- Airspace transiting glider activity
- On field maintenance facilities.

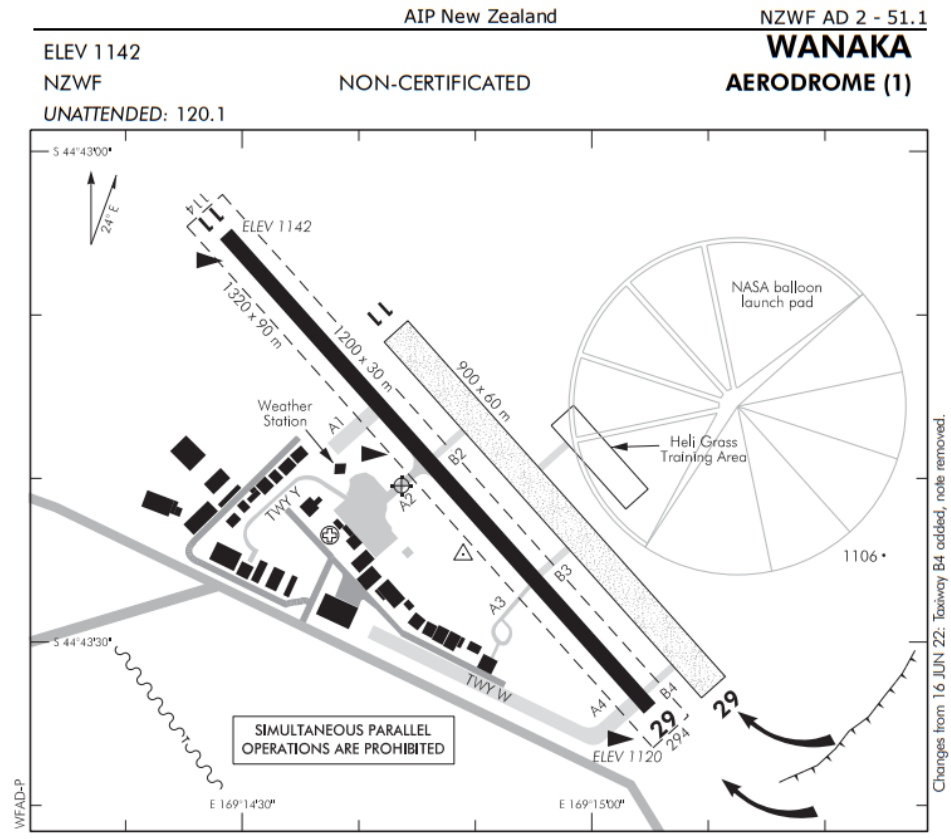
[2] Refer Wanaka Airport Master Plan 2008 Appendix B which shows a runway extension of approximately 500m north-west. An extension to 1700m on the current runway alignment is provided for in the QLDC Operative District Plan Designations 64 and 65.

It also hosts a biennial Warbirds Air show, and an annual NASA Space Balloon launch programme.

4.2 AERODROME CONFIGURATION

Diagram 1 below shows the aerodrome layout.

Diagram 1: Aerodrome Layout



1. **CAUTION:** Commercial skydiving operations (from altitudes up to 17,000 ft) are in regular operation NE of the aerodrome circuit. Skydiving activity is broadcast on 120.1 MHz.
2. Simultaneous parallel operations are prohibited. Aircraft are not to land or take-off on paved RWY 11/29 or grass RWY 11/29, FATO or the helicopter grass training area while aircraft are landing or taking off on a parallel runway/FATO or the helicopter grass training area.
3. Circuit: RWY 11 and Grass RWY 11 — Left hand
   RWY 29 and Grass RWY 29 — Right hand
4. Approaches, landings, take-offs and departures for all aircraft **including helicopters** must be via the runways and normal circuit patterns. Helicopters must enter or exit the runway via a taxiway or the helicopter FATO.
5. Intensive helicopter training operations on and adjacent to aerodrome.

D 6. Grass RWY 11/29 has non-prepared surface suitable for light aircraft only.

7. **CAUTION:** Light aircraft on opposite THR are not always visible to each other due to hump in RWY.

(continued)

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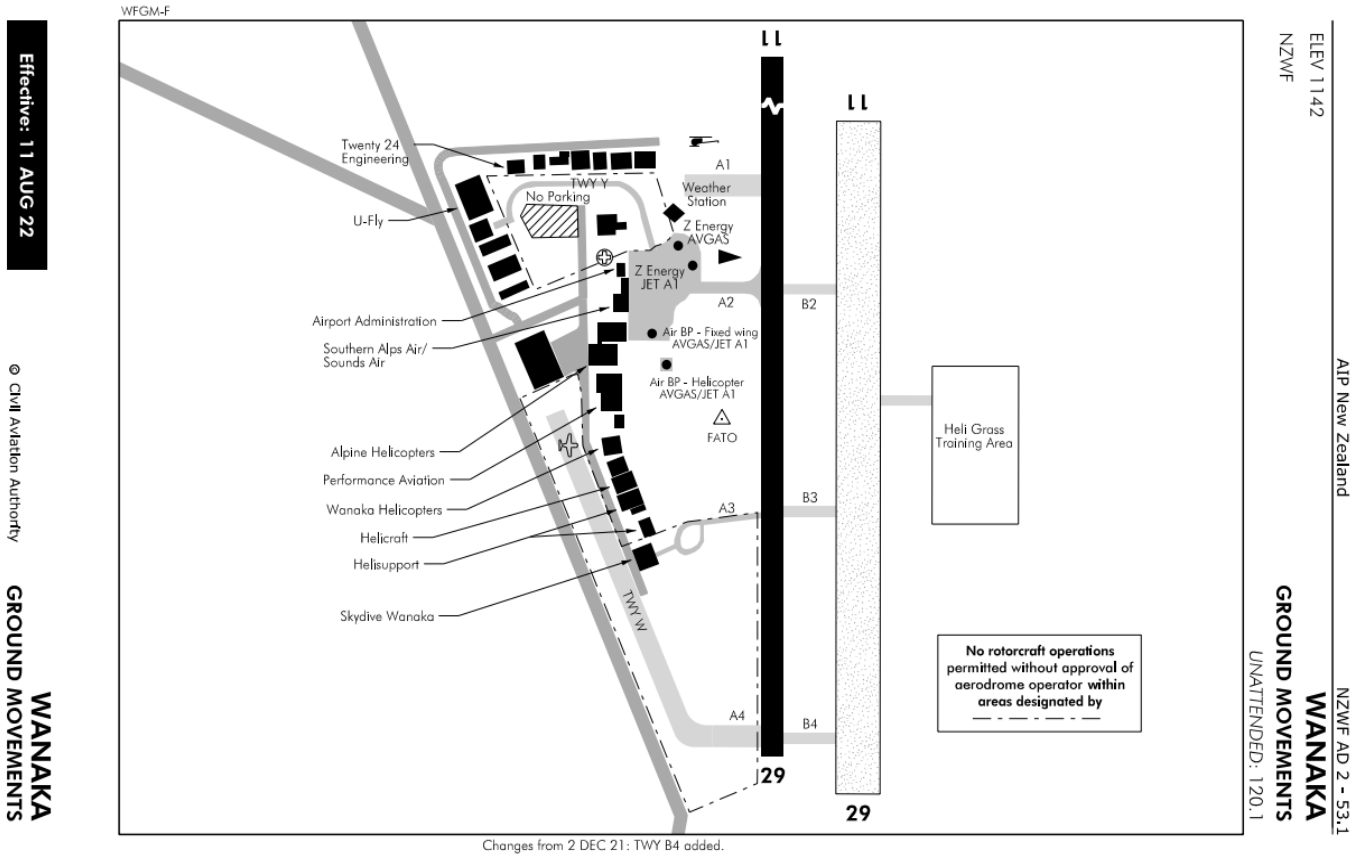
WANAKA
AERODROME (1)

The sealed main runway, RWY 11/29, is 1,200m long by 30m wide. The runway strip extends to the dimensions of 1,320m long by 90m wide, centred on the runway centreline. A parallel grass runway, Grass RWY 11/29, lies on the north-eastern side of the main runway and is 900m long by 60m wide. There is also a grass training area used by rotorcraft, parallel to and north-east of Grass 11/29. The training area, known as “Heli Grass,” extends over a portion of the NASA balloon launch pad.

Circuits on Seal RWY 11 and Grass RWY 11 are flown in the default left-hand direction, while circuits on Seal RWY 29 and Grass RWY 29 are flown in the right-hand direction. This results in circuit traffic remaining on the north-eastern side of the runways, regardless of which runway direction is in use.

Simultaneous operations with any combination of the parallel sealed and grass runways, the Heli Grass training area, and the FATO are not permitted.

Diagram 2: Apron and Taxiway Detail



The sealed main apron is located on the southern side of Seal RWY 11/29. A sealed taxiway with Hold Point A2 connects the apron to the main runway. Z Energy AVGAS and JET A1 pumps are located on the western end of the apron, and Air BP AVGAS and Jet A1 pumps are located at and near the eastern end.

Taxiway Y allows access to the hangars west of the main apron, where no rotorcraft operations are permitted without prior approval from QAC. Hangars east of the main apron are accessed via taxiing across the grass, although the Skydive Wanaka hangar is connected to the main runway via a sealed taxiway with Hold Point A3.

Taxiway W, a grass taxiway, runs between State Highway 6 and the hangars east of the main apron and joins the main runway at the RWY 29 threshold. No rotorcraft operations are permitted on Taxiway W, the taxiway to the Skydive Wanaka hangar, and all of the grass areas in between without prior approval from the aerodrome operator.

4.3 REVIEW OF RUNWAY EXTENSION OPTION FROM WANAKA AIRPORT MASTER PLAN 2008.

The 2008 master plan forecasted:[3]

- A gradual increase in Christchurch scheduled services using the Beech 1900D aircraft.
- Further increase in scheduled services capacity from about Yr.2013 – 2017 to/from Christchurch and (perhaps) Wellington with the use of larger Dash 8 (50 pax) and ATR (66 pax).
- The introduction in about Yr.2020 of domestic jet aircraft scheduled flights to/from Christchurch (and possibly Wellington and Auckland) using the B737-300 or similar aircraft.
- The possible replacement of ATR 72 with Dash 8 Q400 aircraft in Yr.2026.

In the event, Air NZ withdrew its B1900 services and operations by larger aircraft never eventuated as air services from Queenstown airport expanded rapidly to include more frequent and reliable jet services.

[3] 2008 Master Plan para 6.5

In 2008 total annual movements were projected to be 57,000 by 2026 including 2,400 scheduled services by B737 and ATR72 aircraft in approximately equal numbers.[4] Given that the current annual movements, reduced by Covid 19 restrictions, are 34,000 and movements have been as high as 62,000 pre-Covid, the 2008 57,000 movements projection for 2026 may prove to be reasonably accurate.[5]

The 2008 plan went on to project 70,500 annual movements by 2036, including 6,000 737 and ATR movements. This projection still appears viable being only 7% more than that achieved pre-Covid, but again without jet services. In that timeframe services by a turbo-prop aircraft larger than the PC12 are possible and should at least be provided for with regards to runway and associated operational area development.

It is outside the scope of this Aeronautical Study to develop a runway extension plan. We consider the 2008 Master Plan "Table 3 Baseline extension" of 480m north-west, shown in Diagram 3, to be the maximum likely to be required to accommodate larger turboprops.[6] However, under Part 139, 240m RESA would be required at both runway ends, the 2008 proposal only having 90m for landing undershoot at the 29 end.

We note the current Wanaka Airport Designation in the Operative District Plan provides for a 550m extension at the 11 (north-west) runway end.[7]

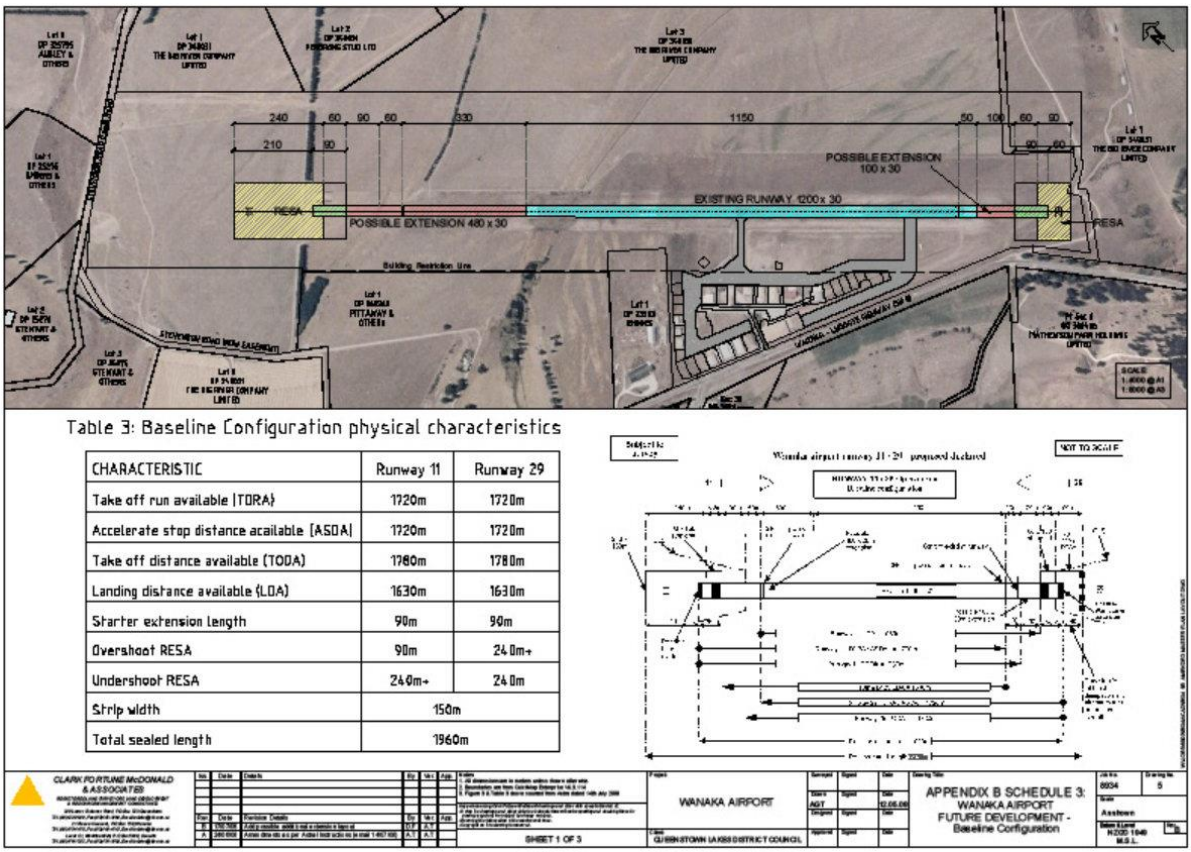
[4] 2008 Master Plan Table 6-4

[5] Albeit with circa 2,000 Pilatus PC12 schedule movements instead of the 2,400 scheduled 737/ATR movements

[6] 2008 Master Plan Appendix B Schedule 3

[7] Operative District Plan as at Sep 2022, Appendix A section E.1(c)

Diagram 3: 2008 Master Plan Baseline Extended Runway Layout



CHARACTERISTIC	Runway 11	Runway 29
Take off run available (TORA)	1720m	1720m
Accelerate stop distance available (ASDA)	1720m	1720m
Take off distance available (TODA)	1780m	1780m
Landing distance available (LDA)	1630m	1630m
Starter extension length	90m	90m
Overshoot RESA	90m	240m+
Undershoot RESA	240m+	240m
Strip width	150m	
Total sealed length	1960m	

4.4 RULE PART 139 QUALIFYING AERODROME

The intent of Qualifying Aerodrome certification is to provide a basic regulatory structure for the safe operation of an airport.

It is essential to note that a Qualifying Aerodrome certification only permits scheduled operations of aircraft with 30 or fewer passenger seats.

This includes the existing PC12 services and, runway length permitting, aircraft up to the size of the 19-seat Metroliner operated by Air Chathams.[8] As such it focuses on the airport having:

a) Competent management and staff and adequate resources, including financial authority

[8] The runway length requirements for the Metro have not been established as part of this study, but we note that its current operations are mainly from Whakatane Airport which has a 1280m long runway (compared to NZWF's 1200m) and is at sea level (compared to 1130ft at NZWF).

b) Documented processes and systems including safety management that are effective and adhered to
c) Operational infrastructure that meets a suitable standard
d) Effective monitoring and reporting systems.

The following are requirements for a Qualifying Aerodrome specified under Part 139:

4.4.1 Subpart AA – Determination for Qualifying Aerodrome

This deals with the requirements for an Aeronautical Study to identify and assess aviation risks that exist at the aerodrome. The subpart lists various trigger points for the study to be done, or the Director can simply require it to be done. After reviewing the Aeronautical Study, the Director can require the aerodrome operator to apply to certificate the aerodrome either as a Qualifying Aerodrome or a fully certificated aerodrome.

The risks identified in the Aeronautical Study will form the basis of changes required to the aerodrome's "physical characteristics", its operations and its policies and procedures required to achieve certification.[9]

4.4.2 Subpart F -UNICOM and AWIB

This subpart sets out the standards required for Universal Communications (UNICOM) and Aviation Weather Information Broadcast (AWIB) if provided at the airport. Any requirement for these services would arise out of the Aeronautical Study specified in Subpart AA.

4.4.3 Subpart G

This subpart sets out the entry requirements for a Qualifying Aerodrome to become certificated, as set out below:

a) Personnel requirements

Rule 139.401 requires the aerodrome to have a competent "senior persons" nominated as the Chief Executive (CE) and Airport Manager. The CE must have the authority to ensure all activities required to achieve and maintain certification can be financed and is ultimately responsible for regulatory compliance. The Airport Manager must be responsible to the CE

[9] "Physical characteristics" refers to the design of the aerodromes runways, runway strips, RESA, aprons, lighting systems, markings and signage, obstacle limitation surfaces etc.

and have day to day responsibility for compliance and the airport's safety management system (SMS).

The CE and Airport Manager can be the same person.

Sufficient additional staff as may be required to support compliance must also be engaged. Procedures for assessing and maintaining the competence of all required staff must be established.

b) Limitations

Rule 139.403 requires any limitations on the use of the aerodrome necessary for the safety of aircraft operations to be established by the aerodrome operator. This could include for example, the maximum size and weight of aircraft able to use the facility, restrictions on hours of operations and any types of operation specifically excluded due to incompatibility with established operations.[10]

c) Public protection

Rule 139.405 requires the aerodrome to have appropriate safeguards to; prevent animals interfering with aircraft operations, deter unauthorised persons and vehicles from accessing operational areas and to reasonably protect people and property from aircraft operations.

At non-security designated airports, it is generally adequate to ensure secure fencing around the operational area perimeter, being 1300mm high robust mesh or paling fencing in areas where the general public have access and 5 wire stock proof fencing on rural boundaries. Liberal use of CAA "No Trespassing" signage is required.

Airside access points should be kept to a minimum and be secured e.g., by passcode or swipe card. Barrier arms without vertical palings are problematic as they do not prevent access by animals or small children or deter adults.

d) Notification of data and information

Rule 139.407 requires procedures to be established to notify the Aeronautical Information service, provided by Airways Corporation via the "Aeronautical Information Publication" (AIP)

[10] Typically this could be ballooning, gliding and parachute landings on busy fixed wing and helicopter aerodromes.

and “Notices to Airmen” (NOTAM), of any changes to aerodrome operational data which need to be advised to pilots. These would arise out of daily inspections, pilot reports and routine surveys of, for example, vegetation growth.

e) Safety management

Rule 139.409 requires the airport to have an SMS, appropriate to the size of its operations, that meets the requirements of CAR100.3. which includes:

- A safety policy acceptable to the CAA
- A process which identifies hazards and evaluates and manages associated risks
- A hazard, incident and accident reporting and follow-up corrective action system
- Goals for aviation safety improvement are set and measured
- A quality assurance system that performs internal audits and reviews of the SMS
- Training staff for competency in safety management
- Documentation of all policies and processes
-

f) Movements data

Rule 139.411 requires the airport to collect its movements and report them to the Director of CAA every three months

g) Work on aerodromes

Rule 139.413 requires the aerodrome to have procedures for ensuring any works on the aerodrome to not endanger aircraft operations. This could include standard procedures when, for example, grass cutting is occurring in operational areas or “one-off” Method of Works Plans (MOWP) for airside construction projects.

h) Documentation

Rule 139.415 requires the aerodrome to hold copies of relevant documentation (e.g. operating manuals) and ensure they are kept up to date and obsolete documents are removed.

i) Exposition

Rule 139.417 requires the aerodrome to provide the Director a copy of its “Exposition” being the collection of manuals that define the organisation and its methods of compliance with

aviation regulatory requirements. This includes a statement signed by the CE confirming that the Exposition does this and that it will be complied with at all times.

This rule lists specific areas for which the Exposition, which must be acceptable to the Director, must include compliance processes, namely:

- All SMS documentation
- Names, titles, duties and responsibilities of the senior persons (CE and Airport Manager), and an organisational chart. Rule 139.455 requires the Director to approve any proposed changes to senior persons prior to the change.
- Aerodrome limitations
- Public protection safeguards
- Information identifying the lines of safety responsibility
- Procedures for notification of aerodrome data, movements reporting, works on the aerodrome, management and control of documentation including the Exposition

- The rule also lists a number of areas in which risks requiring management may have been identified in the Aeronautical Study. These include, but are not limited to any shortfalls in the aerodrome's:
  - Physical characteristics
  - Emergency plan
  - Rescue and firefighting
  - Wildlife management (primarily bird control)
  - Maintenance, including visual navigation aids and their checking and protection of navigation aids
  - Air traffic services (Air Traffic Control (ATC) or Aerodrome Flight Information Service (AFIS)
  - Apron management services and control of ground vehicles
  - Aerodrome condition inspection and reporting
-

4.4.4 Subpart H - Operating requirements for qualifying aerodromes

This subpart sets out the on-going requirements after Qualifying Aerodrome certification is obtained, as listed below:

a) Continued compliance

Rule 139.451 specifies requirements for availability of the Exposition to airport staff, and compliance with its procedures. It also specifies that the Director must be notified of any changes to the Airport's contact details.

b) Unsafe conditions

Rule 139.453 requires the airport to have procedures in place to ensure aircraft operations are restricted or stopped completely in the event of any unsafe condition. This could include for example runway flooding or significant damage, drone operations or essential construction activity.

c) Aeronautical study

Rule 139.457 requires the airport operator to monitor operations and conduct a further aeronautical study for any significant change that may affect airport operations including; significant increases in airport traffic volumes (for example the establishment of a new flight school), a change in the type of operations, for example ex-military jets regularly using the traffic circuit, significant changes to the airports' physical characteristics (for example opening a new runway or taxiway), a significant increase in the number of accidents or incidents in the airport's area.

A list of "trigger points" in terms of numbers and types of movements for which an Aeronautical Study must be prepared are included in this rule. For NZWF the next trigger points would be:

- When total annual movements are forecast to exceed 40,000 for three consecutive years (currently at 34,000); or
- Annual IFR movements are forecast to exceed 7,500 for three consecutive years (currently estimated to be 2000).

It is important to note that where practicable the Aeronautical Study needs to be prepared and any changes arising out of it be implemented before the anticipated significant change occurs i.e., the airport operator must be proactive. A copy of the study must be provided to the Director and after reviewing it, the Director may impose conditions or limitations on the airport in relation to the proposed change.

An example of a significant change could be the temporary operation of an RNZAF tented camp at the airport which significantly increases ground movements and circuit traffic.

d) Physical characteristics and design standards

Appendices A to E of CAR 139 list a number of items that, if required at an aerodrome, must be of a certain standard. For example, if the airport has lighting for night operations, then it must meet the requirements of Appendix E for lights and beacons and Appendix F for electrical systems. Other relevant standards are contained in AC139-6.

This is to ensure that optional items, such as night lighting, if provided, must meet an acceptable aviation standard. Essential items such as runways, strips, taxiways, obstacle limitation surfaces, runway, apron and taxiway paint marking and signage, and identification of restricted areas must conform with the standards in the Appendices or AC139-6.[11]

4.5 RULE PART 139 CERTIFICATION REQUIREMENTS

In addition to the above requirements, the following additional requirements are required for a Certificated Aerodrome under Part 139. Certification would be required to allow scheduled air services with aircraft of greater than 30 passenger seats.

The certification, operation, and security requirements for fully certificated aerodromes, which usually have operations by much larger aircraft with an associated higher level of public risk, are more stringent than for Qualifying Aerodromes. One of the main differences in regulatory approach between the two certification levels is that under the Qualifying Aerodrome certification there is reliance on the aeronautical study to identify areas of risk that need to be addressed whereas under full certification the requirements are much more prescriptive and apply irrespective of the level of risk that may exist.

This makes a Qualifying Aerodrome certification far more “light handed” for smaller aerodromes with limited resources and only small capacity scheduled aircraft operating. In that regard it is, in our opinion, much better suited to an aerodrome with the type of operations NZWF has, that is over 95% GA movements and with a low number of scheduled movements by aircraft with 9 passenger seats.[12]

[11] There is provision for an alternative mean of compliance from a specific Rule requirement if it clearly provides an equivalent level of safety. This would be through a formal “exemption” granted by the Director which would be for a maximum of five years.

[12] Analysis of the 2021 movements showed approximately 97% were non-scheduled.

Other trigger points as detailed in Rule Part 139.131 (e.g., more than 7,500 IFR movements for more than 100,000 total movements) would require further aeronautical studies, which may prompt full certification.

That said, QAC as the nominated aerodrome operator, has the additional full certification systems and resources in place at NZQN to be able to cover the full certification at NZWF at a marginal cost.

The requirements for full certification are not described in detail as that is outside the scope of this study, but the following provides a summary.

4.5.1 Subpart B – Certification requirements

a) Aerodrome design

Rule 139.51 sets out specific requirements for aerodrome design for physical characteristics (including a requirement for RESA), obstacle limitation surfaces, visual aids, equipment and installations, that require compliance with the relevant Part 139 appendices. However, under 139.51(e)(2) these (including RESA) only apply if the aerodrome has regular operations of aircraft with more than 30 seats.

b) Emergency planning requirements

Rule 139.57 requires the aerodrome to have an emergency plan which must, to the extent practicable, be developed in conjunction with all relevant agencies and personnel.

c) Aerodrome rescue and firefighting

Rules 139.59 to 139.67(A) prescribe the requirements for ARFF. As the PC12 aircraft has less than 30 passenger seats, under Rules 139.5(aa)(2) and 139.59(c)(3) it does not require provision of ARFF. Operations of ATR72 aircraft, if more than 700 movements in the busiest consecutive three months of any 12 month period, would require ARFF at Category 4.

d) Public protection

Rule 139.69 prescribes specific requirements for fencing of operational areas, especially adjacent to areas where the public has vehicle or pedestrian access.

j) Wildlife hazard management

If any wildlife presents a hazard to aircraft operations, Rule 139.71 requires an environmental management programme for minimising or eliminating the wildlife hazard to be established. This appears to be a fairly low threshold, whereas a Qualifying Aerodrome only needs to included wildlife risk management requirements and procedures in its exposition if the aeronautical study identifies wildlife as a particular hazard.

k) Aerodrome certification exposition

Rule 139.77 requires a fully certificated aerodrome to have a much more comprehensive exposition detailing how it will comply with the additional requirements it has to meet. For example, this includes; specific requirements for aerodrome maintenance including visual navigation aids, including an inspection programme and monitoring of its achievement, security and control of ground vehicle requirements.

4.5.2 Subpart C – Operating requirements for aerodrome

a) Aerodrome maintenance

Rule 139.103 requires specific maintenance of the aerodrome operating surfaces and facilities. In particular, there is a requirement for real-time surface condition reporting when a runway is contaminated.

Rule 139.105 requires visual aids for navigation to be maintained, checked for accuracy and, if unserviceable, returned to service without undue delay.

b) Emergency Plan

Rule 139.109 requires the emergency plan to be tested at least every two years, including co-ordination with all the agencies involved.

c) ARFF

Rule 139.111 requires ARFF to be available for regular air transport operations of an aircraft with more than 30 passenger seats. The rule also prescribes requirements for ARFF equipment maintenance and personnel training and availability.

d) Apron management service

Rule 139.115 requires an apron management service to be provided if it is warranted due to traffic volume or other operating conditions, and for this to be co-ordinated with the aerodrome control service provider (if there is aerodrome control).

e) Aerodrome inspections

Rule 139.117 has specific requirements for aerodrome inspections to be conducted to ensure the required maintenance is being done, staff to be suitably trained and to alert to any unsafe condition.

f) Ground vehicles

Rule 139.119 requires control of ground vehicles on operating areas, and for such vehicles to be limited to those that are necessary for aerodrome or aircraft operations. It also requires a system of communication with vehicles to be established and for all airport tenants or users who operate vehicles in operational areas to comply with the requirements. Effectively this means an airside vehicle and driving permit system must be implemented.

4.5.3 Subpart D – Aerodrome security

a) Security

Rule 139.203 has extensive requirements for security designated aerodromes, but designation is not currently required for operation of aircraft with fewer than 90 passenger seats.

b) Non-security designated aerodromes

Rule 139.205 prescribes requirements for non-security designated aerodromes. While actual screening is not required, the aerodrome operator is required to have contingency procedures in place for its activation if regular operations by aircraft with more than 30 seats are occurring. If the aerodrome has operations of aircraft with 19 or more passenger seats, it must maintain a security awareness group and ensure security training is provide for all relevant staff.

Some other lesser requirements also apply for regular operations of aircraft with 19 or more passenger seats.

There are no specific security requirements for regular operations of aircraft with fewer than 19 passenger seats.

5 GENERATIVE INTERVIEWS

5.1 ATTENDANCE

The following people attended generative interviews, either in person or via Zoom. These were conducted by Dean Clisby, Dave Park and Steve Ackland, with the assistance of Dan Allen. Some interviews were conducted in person, and some via Zoom.

NAME	REPRESENTING
Antony Sproull	Air Milford
Chris Pond	NZALPA
Mark Deaker	Alpine Heli
Megan George	Glenorchy Air
Sue Kronfeld	Independent/ AOPA
Peter Hendricks	NZ Flying Adventures
Andrew Wilton	Private Owner
Jeremy Booth Aviation	Skydive Wanaka/Performance Aviation
Jason Eteveneaux	Sounds Air
Taylor Rhind	Sounds Air
Paul Cooper	Southern Alps Air
Ryan Cooper	Southern Alps Air
Callum Smith	Twenty24
Fox Lee	U-Fly Wanaka
Hamish McGill	U-Fly Wanaka
Don Grant	Wanaka Airport Users Group
Jason Lush	Wanaka Helicopters/Learn to Fly
Pete Spencer-Bower	Wanaka Helicopters/Learn to Fly
Ed Taylor	Warbirds over Wanaka
Jo Learmonth	Wanaka Aerodrome
Jeff Hair	Wanaka Aerodrome
Jamie Waaka	Wanaka Aerodrome
Daniel Dodd	Wanaka Aerodrome

The following people or organisations were contacted but did not choose, or were unable, to attend an interview.

NAME	REPRESENTING
Scott Calder	Air NZ
Steve Kelly	Air NZ
Steve Scott	Air NZ
Tim Rayward	Air Safaris
Frances Dowdle	Airways Corp
James Evans	Airways Corp
Tim Bradding	Airways Corp
Todd Kendall	Airways Corp
Hugh Faris	ALPA
Jonathan Wallis	Alpine Group Ltd
Toby Wallis	Alpine Group Ltd
Tracey Bean	Alpine Group Ltd
James Stokes	Glenorchy Air
Kevin Gale	Heli Otago
Andrew Dennyson	Helicraft
Rod Price	Helicraft
Grant Stewart	HeliSupport NZ
Kelly Buick	HeliSupport NZ
Austin Jones	Learn To Fly
Andy Pye	Milford Sounds Flights
Rhys Akers	NZ Hang Gliding and Paragliding
Alex Turnball	Queenstown Milford Users Group
Na'ama Gueta	Sounds Air
Elliot Kensington	True South
Gareth Allen	True South
Peter Daniell	True South

5.2 RISK ASSESSMENT

Assessment of credible critical risks was performed utilising information gathered in the generative interviews, using the SFARP approach.

The key credible critical risks relating to aerodrome layout are detailed below:

a. Conflict between aircraft taking off or landing and aircraft taxiing on the RWYs.
b. Aircraft taxiing between the apron and taxiway W passing through the FATO area.
c. Taxiway W and associated aircraft parking area/s layout congestion risking damage to aircraft and injuries to persons.
d. A lack of parking space for fixed wing aircraft, leading to congestion and parking in inappropriate locations (e.g. blocking taxiway W or on privately leased land in the taxiway Y area).
e. Aircraft doing engine run-up in unsuitable areas damaging parked aircraft or people nearby.
f. Aircraft landing on grass runway 11 being damaged due to its reportedly rough condition.
g. Aircraft excursions laterally from the runway ending outside the 90m wide strip.
h. Aircraft overrunning the runway end or undershooting the runway end outside the 60m long strip ends.
i. Providing adequate separation between fixed wing and helicopters bases.
j. Security and airside vehicle concerns due to inadequate or no fencing between hangars and keypad entry to barrier arms at vehicle access points.

These credible critical risks are discussed in the following section, including current mitigating procedures and practises (as published in the AIP and other sources of information), as well as recommendations that could further reduce the risk So Far As is Reasonably Practicable.

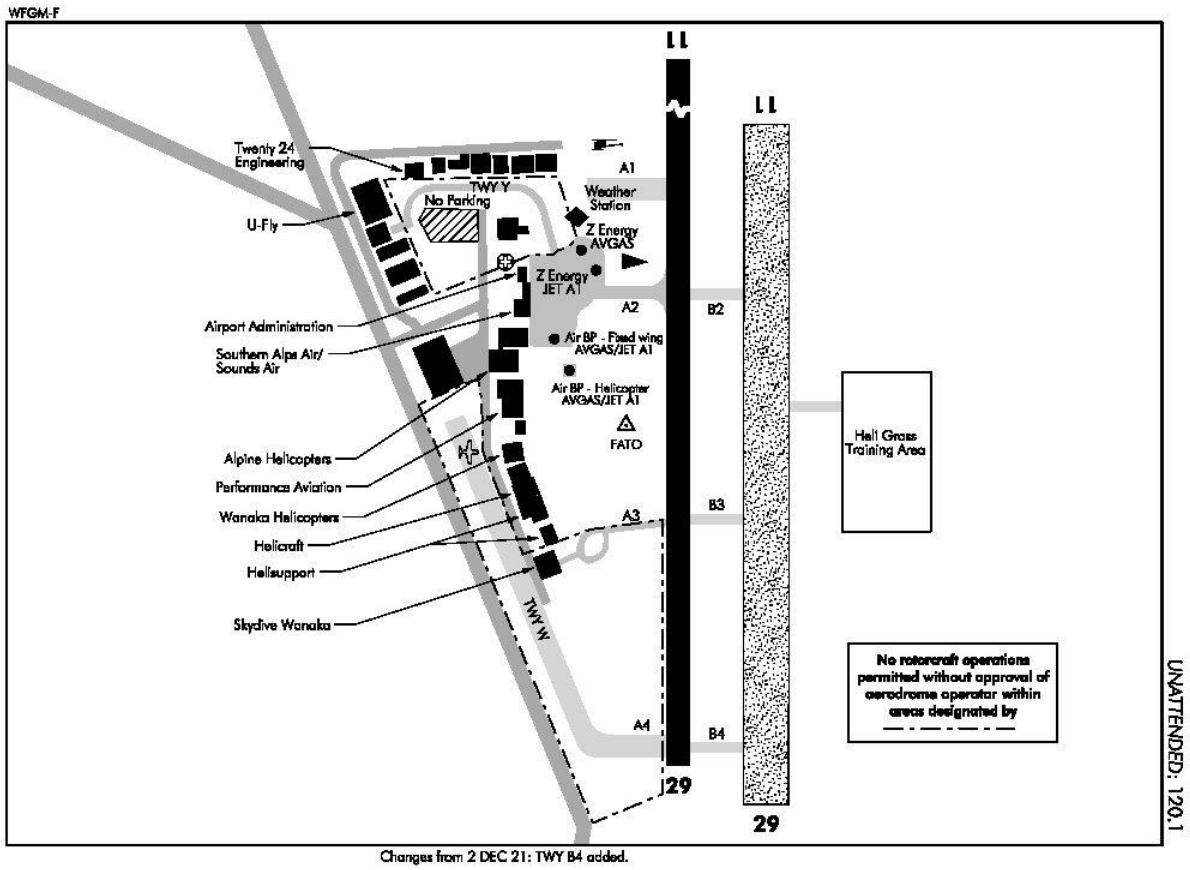
6 KEY OUTCOMES

6.1 CURRENT AERODROME DESIGN AND RECOMMENDED ENHANCEMENTS

6.1.1 GRASS TAXIWAY

The diagram below shows the existing taxiway layout as published in the AIP.

Diagram4: NZWF ground movements chart



Reproduced from NZAIP as at 11 Aug 22

The sealed runway 11-29 has four entry points, stub taxiways A1 to A4. If taking off on 29, the prevailing take-off direction, entry from A1 to A3 requires backtracking on the runway to use full length of runway 29. Whilst some fixed-wing operators can accept less than full runway length, Part 135 certificated operators advised the study team that it is their policy to use full length. The table below shows the runway 29 take-off run available from each stubway position and the backtrack distance required to use full runway length.

For a Part 135 operator entering the runway from the apron (stubway A2), the prevailing runway direction requires backtracking (more than half the runway length for RWY 29) for every take-off if full length is required. This not only increases the risk of a runway incursion, but it also slows down operations reducing the efficiency of the runways, given that simultaneous parallel operations are prohibited. Slowing down operations reduces runway capacity and, as movement numbers grow, increases risk as the time gap between potentially conflicting movements reduces.

Table1: Runway 29 take-off and backtrack distances[13]

Runway entry point	Take Off Run Available (TORA) on RWY 29 from entry point	Backtrack required to use full length of RWY 29
A1	425m	775m
A2	570m	630m
A3	870m	330m
A4	1200m	0m

Taxiway W's isolation from the rest of the taxiway system also increases taxiing on the runway as the only way of reaching W using published taxiways is from the 29 end of the runway. Consequently, an aircraft landing on 29 wishing to use W to reach the aircraft parking area at its NW end has to backtrack from the end of its landing roll to the start of runway 29 then turn off onto taxiway W. This is especially hazardous if an aircraft landing on 29 is not aware of an aircraft close behind on approach and turns 180 degrees on the runway to taxi back to W. The reverse applies to an aircraft leaving taxiway W and taking off on runway 11, possibly backtracking the complete length of the runway.

Both situations arise as there is no marked taxiway between the apron and A4. The majority of operators we interviewed considered a taxiway parallel to the runway through this area would be a major improvement to safety and operational efficiency.

Diagram 5 shows the indicative location of the recommended parallel taxiway and the clearances from the wingtip of a taxiing aircraft to a fixed object (such as a parked aircraft) on the south side of the taxiway. This taxiway layout assumes:

[13] For take-off on runway 11 the distances are reversed e.g. entry at A2 provides 630m TOR on 11 from that point, or 570m backtrack to the start of runway 11.

- A 150m wide runway strip
- Taxiway sized for use by Code A and B aircraft (maximum wing span 24m)
- 87m runway centreline to taxiway centreline separation
- 20m clearance from taxiway centreline to taxiway clearance line (provides 8m wingtip to object clearance for 24m wingspan aircraft on the taxiway)
- The FATO is moved north from its current location to the south edge of the sealed runway.
- An air taxiway is established between the FATO and the parallel taxiway.
- That a note be added to the Aerodrome Chart in the AIP that all helicopter arrivals/departures must be via the FATO and air taxiway.

Diagram 5: Indicative parallel taxiway layout

On the opposing side, one helicopter operator expressed concern over the resulting reduction in the area available for helicopter parking and the taxiway proximity to the FATO. We consider this can be addressed by moving the FATO to the edge of the runway, as shown in the diagram. This will also encourage helicopter pilots to track on runway centreline to the FATO rather than offset.

Also, the Skydive operator expressed concern over having to move its jumper loading closer to its base because the taxiway would pass through the circular taxiway area it currently

uses for loading. However, as shown in the diagram, the southern half of the circular loading area is outside the taxiway clearance line and can still be used for emplaning jumpers.

From a comment received, hold points on the taxiway, clear of the crossing air taxiway for FW aircraft using the taxiway, should be established. There should be a requirement added to the Aerodrome Chart in the AIP that fixed wing traffic on the taxiway give way to helicopters using the air taxiway to and from the FATO.

Recommendation A1: A parallel Code B taxiway is developed between stubs A2 and A4 with its centreline 87m south of the runway centreline, and an equipment/parked aircraft clearance line a further 20m south. This can be a grass taxiway so long as drainage permits its use in all but the wettest weather.

Recommendation A2: The FATO is moved to the south side of the sealed runway as shown in diagram 5, with an air taxiway connection to the parallel taxiway.

6.1.2 Review of taxiway W and aircraft parking

The strip of land where W runs, between the airport's State Highway (SH) 6 boundary and the fence beside the access road to Skydive Wanaka and other hangars, is quite constrained at only 40m wide behind Skydive Wanaka increasing to 50m behind Wanaka Helicopters. Vegetation on the SH6 boundary and relocatable buildings and parked aircraft on the access road boundary reduce the width to just 26-28m in places. The photographs below show the situation.

Diagram 6: Taxiway W looking west to Twenty-24 (L) and east (R). Note parked aircraft and vegetation on SH6 side

Code A taxiways require a clear width of 31m and Code B requires 40m.[14] This can be reduced to 24m and 33m respectively if the taxiway is classed as a taxi lane to an aircraft parking position for which wingtip clearances are reduced to 4.5m on the assumption that taxiing speeds will be lower.

We understand aircraft larger than Code A are required to access Twenty-24 occasionally. Within reason this would be possible provided special procedures are developed and used, such as the use of "wing walkers" and clearance of parked aircraft as required.

The ground movements chart does not show specific parking area/s accessed from W, the parking symbol is on the taxiway itself which is clearly not what is intended as it blocks access. If classified as a taxi lane there is sufficient room for aircraft with span up to 10m to "parallel park" adjacent to the access road fence as is currently done by Wanaka Helicopters fixed wing aircraft. A larger parking area, which could be accessed from the parallel taxiway or W, could be developed east of Skydive Wanaka as shown in diagram 5.

In summary the recommended actions below will reduce risks (a) to (d) identified in section 5.2 SFARP.

Recommendation A3: Taxiway W is connected to the rest of the airport via the proposed parallel taxiway and is restricted to Code A aircraft unless accessing Twenty-24 for which special procedures should be developed.

Recommendation A4: An aircraft parking area east of Skydive Wanaka, as shown in diagram 5 should be marked out and shown in the AIP. If required additional "parallel parking" for aircraft with wingspan 10m or less can be along the access road fence line. Fixed tie down positions should be provided here to ensure parking is parallel and as close to the fence as practicable.

6.1.3 ENGINE RUN-UP LOACTION

The lack of a designated area for pilots and engineers to conduct extended pre-flight or post maintenance engine run-ups has resulted in these being done in a variety of areas which adds to congestion and may result in damage to adjacent aircraft, or injuries to persons in the vicinity.

[14] For Code A 15m max wingspan plus 8m wingtip clearance each side, for Code B 25m maximum span plus 8m each side.

Diagram 5 – [the parallel taxiway diagram in 6.1.1] identifies an area approximately 40m in diameter south of the runway 29 end and clear of the runway strip that would be suitable for short duration run-ups for Code A aircraft.

As aircraft in this position may infringe the runway's 1:7 transitional OLS surfaces (acceptable for aircraft holding for take-off) the run-ups should not be prolonged and aircraft should not be parked there unless a run-up is being conducted.

A run-up area for larger aircraft is best identified as part of the airport's next Master Planning process. Meanwhile short duration run-ups can be done on the sealed runway 29 end between movements.

Recommendation A5: The area identified in diagram 5 for runups should be designated as such on the AIP ground movements chart, suitable for short duration runs by Code A aircraft only.

6.1.4 GRASS RUNWAY SURFACE CONDITION

The 11 end of the grass is reportedly very rough, discouraging pilots from using it and possibly contributing to aircraft damage and accidents.

Recommendation A6: The grass runway is restored to a smooth condition at the 11 end. Meanwhile its rough condition should be NOTAM'd.

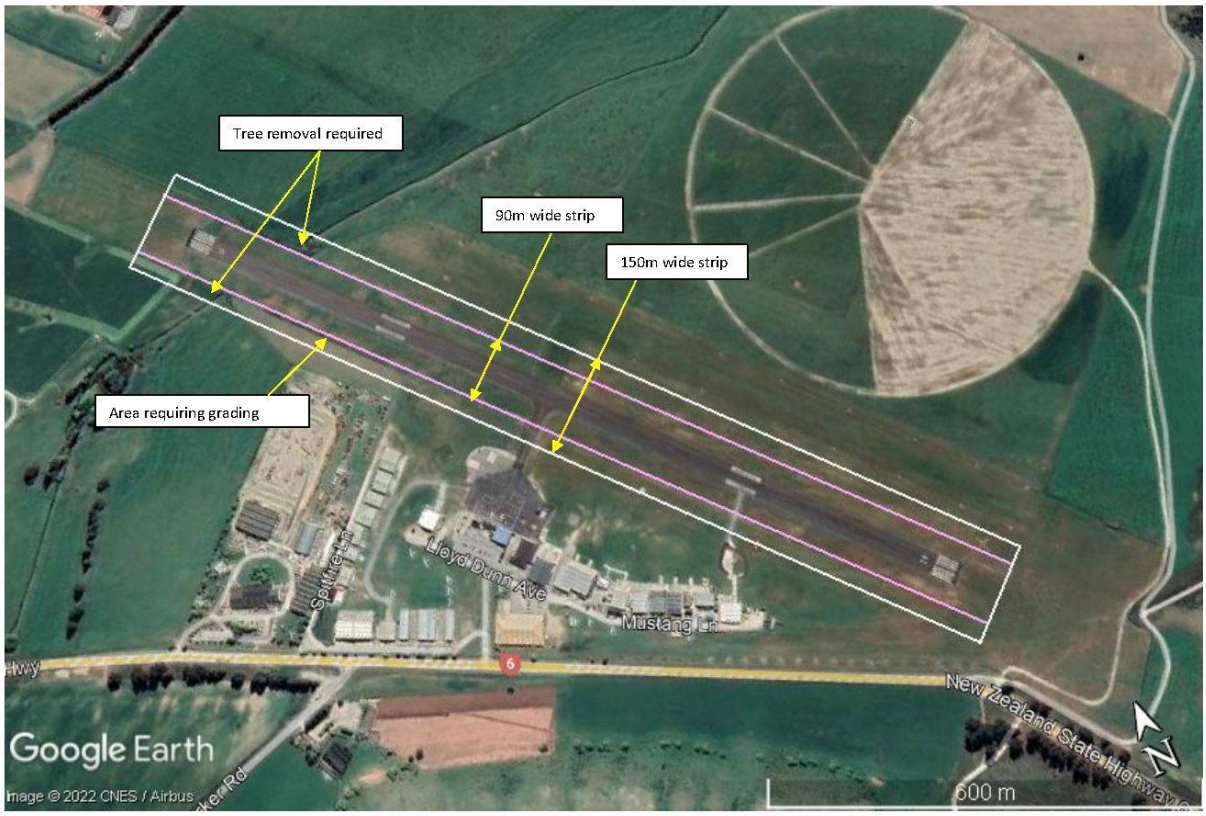
6.1.5 RUNWAY STRIP WIDTH

The current runway strip width is 90m. Per CAR139 C.2.2, 90m strip width is only suitable for a Code 2 runway having non-instrument operations. As runway 29 has a RNAV(GNSS) procedure published it is reasonable to assume the runway is, or should be, classed as an instrument non-precision runway. Instrument non-precision runways for air transport operations for any aeroplane reference field length require a 150m wide strip. This applies whether the aerodrome is certificated or not as the applicable AC139-6 refers to the strip width standards in CAR139 and also the Part 125 air operator requirements applicable to the PC12 require the aircraft operators to comply with Part 139 standards for strip width.[15]

[15] Refer CAR125.77(d)(3)

The outline of the existing 90m wide strip and a 150m wide strip are shown in Diagram 7 below.

Diagram7: Comparison of 90m and 150m wide runway strips



There is physical room for within the airport boundary for a 150m wide strip, however on the south side behind the Toy and Transport Museum the area between the 90m and 150m widths is not graded for several hundred meters of its length resulting in a sharp difference in levels, i.e., an embankment. This is acceptable under AC139-6 for a Code 2 instrument runway, but a Code 3 runway requires the full 150m width to be graded.

Additionally, a water race runs transversely across the strip towards the 11 end. The race is piped under the existing 90m strip width but is open outside 90m. It would require covering for compliance with a fully graded 150m wide strip but can remain open if it is in an ungraded section.

Within the non-graded area of a 150m wide strip vegetation near the 11 end that should be removed and the embankment area on the south side of the 90m wide strip levelled.

Increasing the strip width to 150m, even with an ungraded section, will reduce the potential hazard in the event of a runway excursion. Given the additional land required for the 150m

wide strip is already owned by QLDC and it is comparatively low cost to remove vegetation and level the embankment, we recommend this is done benefit both the existing PC12 and business jet operations.

Grading the strip to its full 150m width will further reduce risk of aircraft damage and harm to occupants in a runway excursion but will be more costly due to the need to culvert the water race. Accordingly, we believe full grading could be delayed until regular air transport operations by aircraft with more than 30 passenger seats occur.[16]

Recommendation A7: Increase the width of the runway strip to 150m by removing the trees and any other significant obstructions within it and grading the embankment.

Recommendation A8: Grade the full 150m strip width, including culverting the water race, to remove the level transitions.

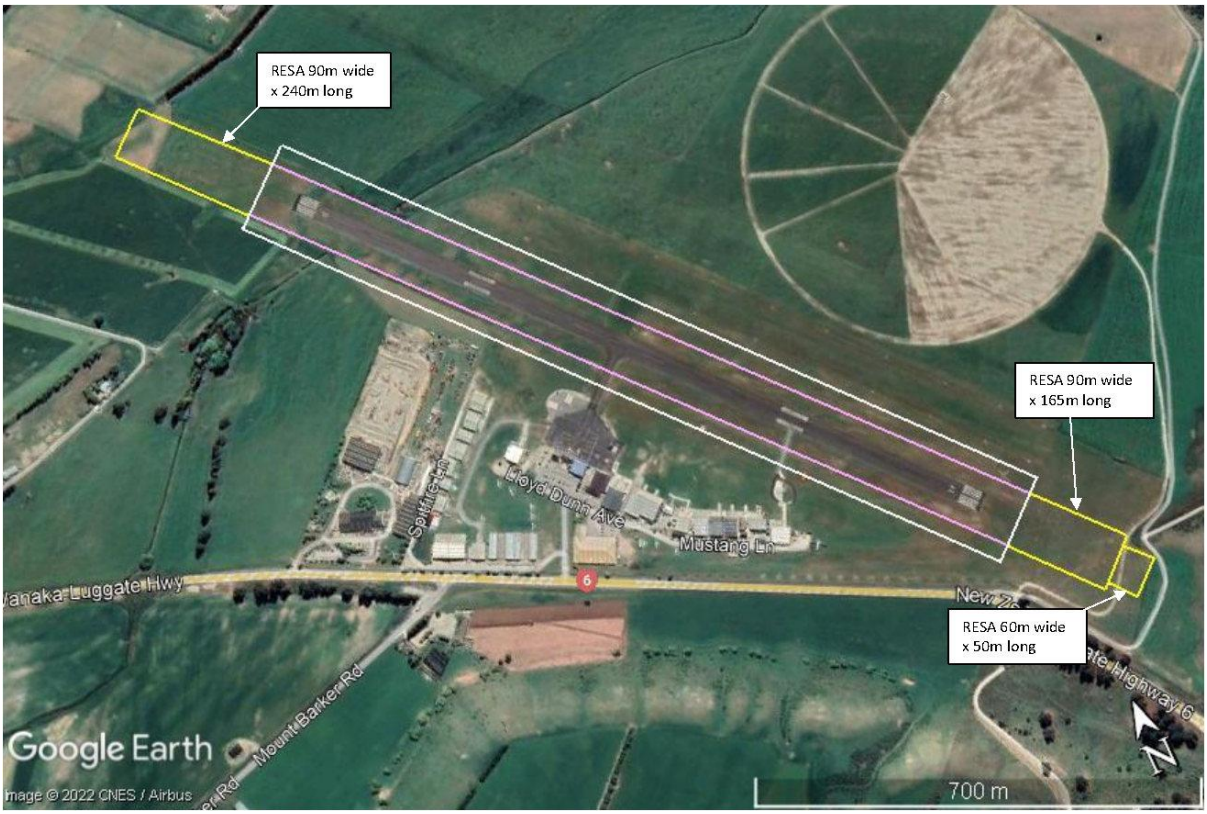
6.1.6 RUNWAY END SAFETY AREAS

Under CAR139, runway end safety areas (RESA) are only required for the regular operation of aircraft with more than 30 passenger seats. Consequently, as the only current scheduled services are by aircraft with 9 passenger seats, there is no regulatory requirement for RESA. If required, RESA must extend 240m (if practicable) beyond the strip end of each sealed runway direction with a minimum width of 30m each side of the runway centreline.

Diagram 8 shows the areas available for RESA at the runway ends assuming the RESA runs across the paper road at the 29 end.

[16] Regular air transport operations are defined in CAR1 as being four or more air transport operations for the carriage of passengers between two or more aerodromes within any consecutive 28 day period.

Diagram 8: The Area Available for RESA at each Runway End.



At the 11 end, 240m long by 90m wide RESA is available. At the 29 end a total of 215m of RESA is available 165m of which is at 90m width and the remaining 50m is at the minimum 60m width (being twice the runway width).

To qualify as RESAs these areas should be graded and be cleared of any objects that may damage any aircraft overrunning or undershooting the runway. The 29 end already meets this standard. At the 11 end some fencing may need to be removed and the surface graded, but these works are expected to be minor.

In any event the RESA areas should be protected from any development which does not meet the RESA standards.

Should aircraft with more than 30 passenger seats commence scheduled services then the RESA would need to be approved by the CAA. It is possible CAA will not accept the 29 end RESA as it is less than the 240m required under CAR139 if it is practicable to provide that length. As it is likely the runway would need to be extended at the 11 end to accommodate larger aircraft that would provide the opportunity to move the 29 threshold NW by 25m to provide the required 240m RESA at that end.

Recommendation A9: Protect the overrun areas at each sealed runway end, including allowance for a future 550m runway extension at the 11 end, for future RESA.

Recommendation A10: Should regular operations of aircraft with 30 or more seats be planned then prepare RESAs at each sealed runway end in compliance with CAR139 Appendix A.1. and obtain CAA's approval for it.

6.1.7 Providing adequate separation between fixed wing and helicopters bases.

It is well established in airport planning that fixed wing and helicopter operations should be kept separate as far as possible, primarily due to the rotor wash and propellor wash each can inflict on the other.

At NZWF separation has largely been achieved by basing helicopters at the east of the apron and fixed wing (aside from Skydive Wanaka) west and south of the apron at taxiway Y. However, recently two private helicopters have been permitted to be hangared in the fixed wing area. This was identified as a potential hazard by several operators interviewed.

The risk is mitigated to some extent as, we are advised, the helicopter movements are infrequent and their operators are aware of the hazard they can create. But if more helicopters are permitted in this area, it will become a safety issue.

Recommendation 10: QLDC reviews the leases on the hangars in the taxiway Y area and, if possible, prohibit the hangaring of helicopters in that area.

Ongoing separation is best addressed through a robust airport Master Plan that provides separated areas for both types of aircraft and allows for expansion of hangars and associated facilities in an orderly and well-planned way.

It's outside the scope of this aeronautical study to suggest where the respective areas should be. We note the last NZWF Master Plan was prepared in 2008 and is likely to need reviewing to reflect the current mix of operations and QLDC's aspirations for the airport.

Recommendation A11: QLDC urgently reviews and updates the 2008 Master Plan to reflect the expected future mix of operations and its aspirations for the airport, ensuring that fixed wing and helicopter operations and basing are separated as far as practicable.

6.1.8 Security and airside vehicles

QAC airport staff when interviewed expressed concern over airside vehicle access and, to a lesser extent, unauthorised people going airside. Several operators commented on farm animals escaping onto the runway, clearly a hazard to aircraft operations.

The Wanaka Airport Operations Manual at Section 15 sets out policy, responsibilities and procedures relating to security based on compliance with Part 139 Certificated Aerodrome requirements.

Our visual inspection of the fences and pedestrian and vehicle access gates revealed several security weak points:

- Inadequate fencing between hangars in the taxiway Y area
- Gates left open
- Vehicle barrier arms that pedestrians can walk under or around
- Inadequate fencing between the airport and its rural neighbours on the north side of the runway

The photos following, taken on 22 Oct 2022, illustrate these weak points. Diagram 10 shows the correct type of fencing for areas the public can easily access and between hangars.

Additionally, we were advised during interviews that the barrier arms intended to prevent unauthorised vehicle access are ineffective as the passcodes are well known and access is effectively uncontrolled. As an example, we were advised that it is not uncommon to see boats on trailers being taken airside to refuel at aircraft fuel pumps. We were also advised that there is no airside drivers permit system in place.

On the positive side we did note a number of CAA" Operational Area No Trespassing" signs on fencing, including some in Mandarin installed pre-Covid when the airport had a large number of Chinese visitors.

Diagram 9: Examples of weak airside security found at NZWF

(clockwise from top left; unsecured gate, no fencing between hangars, inadequate fencing, barrier arm pedestrians and animals can get under or around)

Diagram10: Suitable security fencing in public areas

Whilst NZWF is a general aviation airfield with relatively few scheduled aircraft movements, it is still important to maintain a basic level of security for the safety of airside operations. The PCBU requirements under the Health and Safety at Work legislation are especially relevant to members of the public going airside.

Recommendation A12: Review all fencing and upgrade to the standard in diagram 10 in areas that the public can easily access and between hangars, and robust 5 wire stock fencing on rural boundaries.

Recommendation A13: Change all vehicle access to swipe card and upgrade barrier arms airside to barrier gates, to prevent pedestrians and animals gaining airside access around or beneath the barrier.

Recommendation A14: Implement an airside vehicle permit system to only permit vehicles and drivers airside for bonafide purposes relating to aircraft or airside operations.

6.2 REQUIREMENTS FOR QUALIFYING AERODROME

Section 6.1 presented the findings of the aeronautical study on airport layout and infrastructure and recommendations to address risks identified SFARP. The Qualifying Aerodrome certification requires these items to be addressed, either as recommended or in another way that gives the same or better outcome.

Section 4.4 lists the various sub-parts of CAR139 that relate to Qualifying Aerodrome certification and operations, together with specific items that need to be addressed such as requirements for personnel, policy, and procedures (exposition), establishing aerodrome limitations. The CAR139 areas we see Wanaka Airport needing to address to meet these requirements are discussed below.

6.2.1 Subpart AA – Determination for Qualifying Aerodrome

The required Aeronautical Studies have been prepared in the form of this Part A report and the companion Part B report on airspace risk. Risks have been identified and recommendations for risk removal or reduction SFARP have been made. Subject to CAA review of the studies, these would need to be implemented.

CAA will then decide whether Qualifying Aerodrome certification is appropriate or whether full certification is required.

6.2.2 Subpart F – UNICOM and AWIB

This is discussed in the Part B airspace risk Aeronautical Study with the recommendation that:

- Aerodrome and weather information broadcast (AWIB) should be implemented at NZWF
- Universal air-ground communications (UNICOM) aerodrome information or aerodrome flight information service (AFIS) is not required at this time, but we have recommended that NZWF consider introducing a UNICOM at NZWF once sustained movements indicate more than 50,000 movements per annum.

Consequently, for the existing level of service using PC12 aircraft AWIB alone is sufficient.

6.2.3 Subpart G – Certification requirements for a Qualifying Aerodrome

a) Personnel requirements

As discussed in Section 4.4.3, Rule 139.401 requires certain competent "senior persons" to be nominated as the Airport's Chief Executive Officer and Airport Manager. Currently we understand the Airport safety oversight the responsibility of QAC's Airport Operations Manager under a delegation from QAC's Chief Operating Officer, with day-to-day airport management functions being allocated to two Duty Operations Managers based at NZWF.

The Wanaka Airport Aerodrome Operations Manual (WFAOM) states at Section 5.0 that this manual details how QAC ensures safe and efficient management of Wanaka Airport. However, we note that the manual is still in draft form with an expiry date of 31 Dec 2020 and was last amended on 1 Jul 2021.

Qualifying Aerodrome certification would require a CEO to be nominated. This person must be accepted as a "senior person" by the CAA and must have the financial authority to ensure the airport can fund its safety obligations, including any infrastructure required. If QAC continues as the designated Aerodrome Operator, we believe the QAC CEO would also need to be the CEO for Wanaka Airport as any lower position is unlikely to have the financial authority required.

The Management Agreement between QLDC and QAC under which QAC operates NZWF would also need to be reviewed to ensure the QAC CEO has the necessary financial authority from QLDC as the airport owner.[17]

For the Airport Manager role, either one of the two duty managers would need to be accepted by the CAA as the senior person and would need to take responsibility for safety management, or QAC's Head of Operations and Safety could be designated as the Wanaka Airport Manager. To adequately perform this role, we believe the QAC Head of Operations and Safety would need to spend at least one day per week based at NZWF alongside the Duty Managers.

b) Limitations

Rule 139.403 requires a Qualifying Aerodrome operator to establish and publish any limitations on the use of the airport arising from design or facilities and services. The WFAOM at Section 13 contains only the operating hours from the QLDC Wanaka Airport Designation. Other limitations recommended include:

[17] Review of the management agreement is outside the scope of this Aeronautical Study.

- Limiting scheduled operations to aircraft with 30 or fewer passenger seats. (Qualifying aerodrome limitation)
- Limiting non-scheduled operations by aircraft with more than 30 passenger seats to those with prior written approval of the airport operator, except in emergencies or for unplanned diversion. (Runway loading, ARFFS coverage, apron management)
- Prohibiting parachute, glider and hot air balloon landings, except in emergencies. glider and hot air balloon take-offs also to be prohibited. (Avoiding mix of aircraft types and types of operation increasing airspace risk)
- Except in an emergency, fixed wing aircraft operations to be between morning and evening civil twilight only. (Lack of aerodrome ground lighting)
-

c) Public protection

Rule 139.405 requires appropriate safeguards as described in Section 4.4.3(c) of this report. As described in Section 6.1.8 the current security fencing is inadequate and the security culture among some of the airport community appears to need improvement. Our recommended improvements in security fencing and barrier arms would need to be implemented and we also recommend the establishment of a security awareness group at the airport to improve security culture.

d) Notification of data and information

Rule 139.407 requires procedures for notification of changes to aerodrome condition and operational data. This in turn requires a system of daily inspections, processing of pilot reports and regular surveys.

The WFAOM at Sections 14 and 16 contains policy and procedures intended to comply with these requirements to a fully certificated aerodrome standard. These procedures should be reviewed for both appropriateness and the existing level of conformance, i.e. the extent to which they are actually being done at NZWF. Then they should be formalised as part of the NZWF aerodrome exposition.

e) Safety management

Rule 139.409 requires the airport to have an SMS appropriate to the size of its operations. The WFAOM at Section 4 contains a health, safety and security commitment policy signed by the (then) QAC CEO. Section 12 titled “System for Safety Management” refers to the QAC SMS Framework documents for policy and procedure for safety management at QAC.

This implies, but does not clearly state, that NZWF comes under the same SMS policy and procedure as approved for Queenstown Airport i.e. the CAR139 standard for a fully certificated aerodrome. While of course this meets the requirement for a Qualifying Aerodrome we expect there is will be a lot in it that is not relevant at NZWF, e.g. enhanced security, screening requirements, biosecurity, aerodrome lighting and visual aids, provision of air traffic control etc.

Accordingly, it may provide more focus to provide an SMS tailored to NZWF as is permitted under the Qualifying Aerodrome SMS requirement.

f) Movements data

Rule 139.411 requires movements data to be reported quarterly to CAA. The WFAOM at Section 28 specifies that this will be done by the Wanaka Airport operations Manager annually. This needs to be increased to quarterly.

g) Work on aerodromes

Rule 139.413 requires procedures to ensure works on the airport do not endanger aircraft operations. This is comprehensively covered in Section 19 of the WFAOM, including the requirement to prepare and manage Method of Works Plans.

h) Documentation

Rule 139.415 requires relevant documentation such as operating manuals to be kept up to date. We understand the only relevant documents for NZWF are the WFAOM and the Wanaka Airport Emergency Plan (WFAEP). As previously mentioned, the WFAOM document is still in draft form and is not up to date, each page showing an expiry date of 31 Dec 2020. The WFAEM is in the same state.

Irrespective of Qualifying Aerodrome certification, the documents need to be updated urgently. This may be quite simple, only requiring to remove “draft”, remove the expiry date, insert new CEO and COO/ Head of Operations and Safety signed statements and update the organisational structure. However, we recommend taking the opportunity to review the material in the documents for accuracy and where possible incorporate the more easily addressed recommendations from this report.

i) Exposition

Rule 139.417 requires NZWF to have an exposition defining the organisation and its methods of compliance with aviation regulatory requirements. We believe the WFAOM and WFAEM can form the basis for the exposition with expansion to cover the shortfalls identified in this report. In particular we believe the SMS should not simply refer to QAC's SMS which the Wanaka airport community will not be aware of and will consequently not be able to perform their obligations under e.g. for occurrence reporting.

The WFAOM covers most areas required under the exposition with the exception of:

- **Emergency plan** - the policy for emergency management should be included in the WFAOM with the actual procedures being in the WFAEM. At the moment the WFAOM is does not appear to mention the emergency plan.
- **Rescue and fire-fighting** – policy should be included in the WFAOM with the procedures in the WFAEM (as they are currently). This aeronautical study does not contain a recommendation that ARFF be provided at NZWF as it is not a requirement under the Qualifying Aerodrome rules, nor was it flagged as a safety risk in the aeronautical study process.
- **Airside security and vehicle access control**. Although the policies and procedures to control airside security and vehicles are included in the WFAOM at sections 15 and 22, it appears these are not effective. They should be reviewed and made effective by creating a security awareness culture at the airport in line with CAR139.205(b)(i), and constant monitoring by airport personnel.

For Qualifying Aerodrome certification, the airport operator would need to prepare an SMS that included appropriate policy and procedures for these requirements, and ensure they are implemented effectively.

6.2.4 Subpart H – Operating requirements for a Qualifying Aerodrome

Once the aerodrome is certificated by CAA as a Qualifying Aerodrome then it must meet on-going operating requirements as listed below:

a) Continued compliance

Rule 139.451 requires the airport operator to comply with the policies and procedures contained in the exposition and to make it available to all airport who have functions to perform under it.

It also requires the airport operator to notify the Director of any change in the operator's contact details. **Changes to Senior Persons need to be approved by the CAA prior to any change taking effect.**

Rule 139.453 requires procedures to be in place for restricting or stopping aircraft operations in the event of any unsafe conditions. The policy and procedures for this would be included in the exposition. In addition to notification by NOTAM, AWIB, as recommended in the Part B aeronautical study, is a very effective means of advising pilots of any unsafe conditions.

Rule 139.457 requires the airport operator to monitor operations and conduct a further aeronautical study if there is any change. The next trigger point for another study is expected to be when the airport reaches 40,000 annual movements. Given this may be less than 1 years' time it may be sufficient to conduct a review of progress on implementing the recommendations in the Part A and B reports and hold a short workshop with users to determine the effectiveness and whether there are any further safety concerns.

These requirements are consolidated in Appendix 2 Gap Analysis Summary.

6.3 REQUIREMENTS FOR FULL AERODROME CERTIFICATION

Full certification would be required for regular operation of aircraft with more than 30 passenger seats. As mentioned, the requirements for full certification are much more prescriptive than the requirements for Qualifying Aerodrome certification.

Some of the additional requirements only arise if aircraft with 30 or more passenger seats operate regularly, e.g., most security requirements, ARFF and RESA requirements.

For and airport such as NZWF with the only regular operations being by aircraft with only 9 passenger seats, no night lighting and no ground-based navigation systems, the infrastructure requirements are not much greater for full certification. However, there is more "exposition overhead" by way of formal plans for; runway maintenance and inspections, environmental management, and conformance with physical characteristics requirements in AC139-6.

6.3.1 CONCLUSION

Currently NZWF operates as a non-certificated aerodrome and has done so safely for many years. However, expectations of safety management are, we believe, significantly higher now than in the past in part due to tragedies such as Pike River and White Island and

increased stringency of PCBU responsibilities under the Health and Safety at Work legislation.

NZWF is one of the busier domestic airports in New Zealand with a variety of aircraft operating and scheduled air transport operations, albeit on a small scale. Its movements are expected to grow as tourist numbers rebuilt post Covid-19.

We consider the airport and its owner (QLDC) and operator (QAC) as PCBUs would benefit from the airport obtaining certification as a Qualifying Aerodrome because:

a) Certification provides a define safety standard to be achieved based on the scale of the operation.
b) It ensures critical safety elements such as competent management, defined policy and processes to address specific areas of risk, a safety management system and safety auditing (including by the CAA) are in place.
c) Qualifying Aerodrome Certification is less onerous on an airport with a low level of scheduled passenger aircraft movements and using small capacity aircraft than full certification.

Recommendation A15: That NZWF seek certification under Part 139 as a Qualifying Aerodrome.

7 CONSULTATION INPUTS RECEIVED ON THE DRAFT AERONAUTICAL STUDY

There were 4 consultation inputs received from stakeholders. Key points are noted below, with our response to them

COMMENTS	RESPONSE
Airways: no comments.	Noted.
Performance Aviation requested that the following features be incorporated into the ground run-up area: • Is capable of handling Code B aircraft, • Is sealed, • Has rated anchor points suitable to restrain C208 and better during high power run-ups. They also requested a surveyed compass swing area at NZWF.	Noted, but these are not safety or Part 139 ussies so are outside the scope of this study. Performance Aviation should discuss this with Wanaka Airport Management.
Skydive Wanaka noted that the taxiway that is recommended is only rated for smaller GA aircraft. They were concerned that any future development may impact their loading area.	Due to restrictions on space, this taxiway would be limited to Code A and B aircraft, which should significantly reduce the requirement for light aircraft to backtrack on the main runway.
Wanaka Helicopters holds concerns that the proposed parallel taxiway will confine helicopter movements on the south side of the proposed taxiway to an unsafe extent, particularly noting that in general, proposed changes are due to an increase in activity on the airfield. (In other words, it's already reasonably tight on a busy day in the current climate; this plan will reduce the available space in an even more congested context).	It is noted that this may reduce helicopter manoeuvring/ parking in the area south of the runway. However, we feel that reducing light aircraft backtracking on the runway outweighs this from a safety perspective. Ideally, development of the land west of the Transport Museum could enable all helicopter activity to be relocated there, with a dedicated helicopter arrival and departure sector. This commentary has been added to the final Part B report.

Wanaka Helicopters felt, regarding repositioning of the FATO, that co-locating it with the proposed parallel taxiway would be a safer option than moving it closer to the sealed runway. In conjunction with the addition of holding points on the parallel taxiway that can be used by taxiing Fixed Wing aircraft in the event of crossing/holding helicopter traffic, we believe this to be a safer layout than having the FATO positioned between the taxiway and runway.	Our concern with placing the FATO on the taxiway is that helicopters final approach and departure will approach over the top of the taxiway, not over the top of the runway. This is unsafe for taxiing light aircraft beneath and effectively blocks the taxiway completely while helicopters are arriving or departing. It is a good suggestion to have hold points clear of the crossing air taxiway for FW aircraft using the taxiway and requiring FW to give way to helicopters using the air taxiway to and from the FATO. This would avoid helicopters having to hover at a taxiway hold point or on the FATO/runway for FW to pass on the taxiway. Commentary has been added to Section 6.1.1 to this effect.
Wanaka Helicopters are concerned that the proposed position of the FATO will put helicopters too close to the sealed runway in front, and too close to the taxiway aft, the latter being of particular concern noting the aft blind spot inherent to helicopter design.	This is noted but the suggested position ties in with the AIP requirement for all aircraft to approach, land, take-off and depart from the runways.
Wanaka Helicopters believe that placing the FATO in a location that is both inconvenient and that reduces safety margins risks the development of even less safe workarounds in our view, and there is risk that visiting operators may just depart from outside their operating hangar instead of using the FATO, reducing safety margins even further.	We believe that the safety implications of avoiding aircraft backtracking on the runway overrides this. A note would be required in the AIP that all helicopter arrivals/departures must be via the FATO and air taxiway. Commentary has been added to Section 6.1.1.

8 CONCLUSIONS

The aeronautical study into risk factors arising from NZWF's operational area layout and infrastructure, in line with the scope in Section 3.1.1, has resulted in fourteen recommendations aimed at reducing the identified ground-based operation risks SFARP.

These recommendations are listed in Appendix 1. Furthermore, we have recommended that Wanaka Aerodrome seek certification as a Qualifying Aerodrome. This report has included a detailed gap analysis of the requirements for both a Certificated Qualifying Aerodrome and a fully Certificated Aerodrome.

Managing Director

Quality Aviation Consulting

APPENDIX 1 – SUMMARY OF RECOMMENDATIONS

Recommendation A1: A parallel Code B taxiway is developed between stubs A2 and A4 with its centreline 87m south of the runway centreline, and an equipment/parked aircraft clearance line a further 20m south. This can be a grass taxiway so long as drainage permits its use in all but the wettest weather.

Recommendation A2: The FATO is moved to the south side of the sealed runway as shown in diagram 5, with an air taxiway connection to the parallel taxiway.

Recommendation A3: Taxiway W is connected to the rest of the airport via the proposed parallel taxiway and is restricted to Code A aircraft unless accessing Twenty-24 for which special procedures should be developed.

Recommendation A4: An aircraft parking area east of Skydive Wanaka, as shown in diagram 5 should be marked out and shown in the AIP. If required additional "parallel parking" for aircraft with wingspan 10m or less can be along the access road fence line. Fixed tie down positions should be provided here to ensure parking is parallel and as close to the fence as practicable.

Recommendation A5: The area identified in diagram 5 for runups should be designated as such on the AIP ground movements chart, suitable for short duration runs by Code A aircraft only.

Recommendation A6: The grass runway is restored to a smooth condition at the 11 end. Meanwhile its rough condition should be NOTAM'd.

Recommendation A7: Increase the width of the runway strip to 150m by removing the trees and any other significant obstructions within it and grading the embankment.

Recommendation A8: Grade the full 150m strip width, including culverting the water race, to remove the level transitions.

Recommendation A9: Protect the overrun areas at each sealed runway end, including allowance for a future 550m runway extension at the 11 end, for future RESA.

Recommendation A10: Should regular operations of aircraft with 30 or more seats be planned then prepare RESAs at each sealed runway end in compliance with CAR139 Appendix A.1. and obtain CAA's approval for it.

Recommendation A11: QLDC urgently reviews and updates the 2008 Master Plan to reflect the expected future mix of operations and its aspirations for the airport, ensuring that fixed wing and helicopter operations and basing are separated as far as practicable.

Recommendation A12: Review all fencing and upgrade to the standard in diagram 10 in areas that the public can easily access and between hangars, and robust 5 wire stock fencing on rural boundaries.

Recommendation A13: Change all vehicle access to swipe card and upgrade barrier arms airside to prevent pedestrians and animals gaining airside access around or beneath the barrier.

Recommendation A14: Implement an airside vehicle permit system to only permit vehicles and drivers airside for bonafide purposes relating to aircraft or airside operations.

Recommendation A15: That NZWF seek certification under Part 139 as a Qualifying Aerodrome.

APPENDIX 2 – QUALIFYING AERODROME GAP ANALYSIS SUMMARY

Rule ref	Subject	Gap to be addressed
139.401	Personnel	Designate WNZF CEO and Airport Manager (QAC CEO and COO/ Head of Operations and Safety respectively), include in exposition.
139.403	Limitations	Aerodrome operating limitations to be established, include in exposition.
139.405	Public protection	Security fencing and barrier arms upgraded
139.407	Notification of data	Aerodrome reporting and inspection policy and procedure in NZWFAOM to be reviewed and checked for conformance.
139.409	Safety management	Review the NZQN SMS for its application to NZWF and consider whether a simpler SMS would provide more focus and be more effective at NZWF. If it is decided to retain NZQN SMS for NZWF then make this clear in the exposition and update the CEO signed statement
139.411	Movements reporting	Increase frequency to quarterly
139.413	Works on aerodrome	No action required
139.415	Documentation	Urgently review and update the WFAOM incorporating those recommendations from this report that are easily done.
139.417	Exposition	Develop an exposition based on the WFAOM and WFAEM suitably expanded to include the recommendations in this report and those relevant from the Part B Airspace report. In particular review the SMS documentation as recommended under 139.411 above, include policy on the provision of ARFF, UNICOM/AFIS, review airside security and vehicle access control effectiveness, and set up a security awareness group as described in CAR139.205(b)(i).
139.451	Continued compliance	Notify Director of CAA of who the nominated senior persons are going to be and obtain CAA's approval for each.
139.453	Unsafe conditions	Review procedures for notifying unsafe conditions in WFAOM for adequacy and effectiveness. Consider implementing AWIB to improve dissemination of information on aerodrome condition to pilots.
139.455	Changes to organisation	Ensure the exposition contains effective procedures to ensure it is kept up-to-date, in compliance with the relevant Part 139 Qualifying Aerodrome requirements and the Director is notified of, and approves, any changes to senior persons and the system of safety management prior to the changes being implemented.
139.457	Aeronautical studies	Include in the exposition a requirement to complete another aeronautical study at the trigger points listed in the Rule, or as otherwise approved or required by the Director.

QUALITY AVIATION CONSULTING

SAFETY BY DESIGN

AERONAUTICAL STUDY

WANAKA AIRPORT – AIRSPACE DESIGNATION AND CONSIDERATION OF AIR TRAFFIC SERVICES

PRIVATE AND CONFIDENTIAL

Final Report

Dated: 2nd February 2024

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Glossary and Abbreviations

ACAS	Airborne Collision Avoidance System (also known as TCAS)
ADS-B	Automatic dependent surveillance broadcast
AFIS	Aerodrome Flight Information Service
AFRU	Aerodrome Frequency Response Unit
AGL	Above Ground Level
AIP / AIPNZ	Aeronautical Information Publication (of New Zealand)
Airways	Airways Corporation of New Zealand
ALARP	As low as reasonably practicable
AMSL	Above Mean Sea Level
ARC	Aviation Related Concern
ATC	Air Traffic Control
ATS	Air Traffic Services
ATSB	Australian Transport Safety Bureau
AWIB	Aerodrome and weather information broadcast
CAA	Civil Aviation Authority (of New Zealand)
CAR	Civil Aviation Rule
CFZ	Common Frequency Zone
CTA	Control Area
CTAF	Common traffic advisory frequency
CTR	Control Zone
DME	Distance measuring equipment
EC	Electronic Conspicuity
EMS	Emergency medical service
ESL	English as a second language
FIR	Flight Information Region
FIS	Flight Information Service
FISCOM	Flight Information Service Communications
FL	Flight level (hundreds of feet)
GAA	General Aviation Area
GAP	Good Aviation Practice (booklet)
GNSS	Global Navigation Satellite System
GPS	Global Positioning System H24 Hours: (i.e., permanent)
GPWS	Ground Proximity Warning System
HSWA	Health and Safety at Work Act 2015
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
LFZ	Low Flying Zone
MBZ	Mandatory Broadcast Zone
NDB	Non-Directional Beacon

NOTAM	Notice to Airmen
NZALPA	NZ Airline Pilots Association
NZHGPA	New Zealand Hang Gliders and Paragliders Association
NZWF/ WKA	Wanaka Airport
PCBU	Person conducting a business or undertaking (HSWA)
PLA	Parachute Landing Area
PLZ	Parachute Landing Zone
PSR	Primary Surveillance Radar
QAC	Queenstown Airport Corporation
QLDC	Queenstown Lakes District Council
QNH	Altimeter sub-scale setting
RESA	Runway End Safety Area
RFS	Rescue Fire Service
RNAV	Area navigation
RNZAF	Royal New Zealand Air Force
RPAS	Remotely Piloted Aircraft System
RPT	Regular Public Transport
RWY	Runway
SFARP	So far as is reasonably practicable
SFC	Surface
SSR	Secondary Surveillance Radar
TM	Transponder Mandatory Airspace
TWR	Aerodrome control tower
UNICOM	Universal Communication service
VFR	Visual Flight Rules
VMC	Visual meteorological conditions
VNC	Visual Navigation Chart

EXECUTIVE SUMMARY

This Aeronautical Study was conducted, at the request of Wanaka Aerodrome and Queenstown Lakes District Council, to predominantly assess aerodrome layout and design, requirements for certification under Part 139, airspace issues in the areas surrounding Wanaka Aerodrome and whether any form of Air Traffic Management was warranted at Wanaka Aerodrome.

Due to the broad scope of the study, it was decided to produce two reports, that could target key issues more effectively. This report pertains to airspace designation and consideration of any Air Traffic Management that may be deemed necessary. The other report deals with aerodrome design and aerodrome certification issues. Both reports should be read in conjunction.

The main recommendations are:

- That Wanaka Aerodrome petition the CAA to change the airspace surrounding NZWF from the current Common Frequency Zone to a Mandatory Broadcast Zone, with part of it being designated Transponder Mandatory.
- That Wanaka Aerodrome consider introducing a UNICOM service once sustained movements indicate more than 50,000 movements per annum.

The full list of recommendations can be found in Appendix 1.

1 OBJECTIVE

Wanaka Airport is owned by the Queenstown Lakes District Council (QLDC) and has been managed by Queenstown Airport Corporation (QAC) via a Management Service Agreement since April 2021. For the 3-year period prior to this, the aerodrome was leased by QAC from QLDC on a long-term lease.

It is designated as a non-certificated, unattended aerodrome with uncontrolled Class G airspace and a Common Frequency Zone (CFZ).

Prior to the 2020 Covid-19 global pandemic, annual aircraft movements were at approximately 66,000 p.a. with large seasonal activity during the summer and winter peaks. Current aircraft movements are approximately 34,000 p.a.

Due to the large traffic movements and complexity of aviation types, in 2019 QAC applied to the CAA to change the airspace designation to an MBZ. This application was rejected by the CAA noting that further consideration to a change in designation would not be undertaken until the proposal is developed to a more mature state in line with future airport strategies. Further discussions with the CAA, have indicated that an Aeronautical Study would be beneficial in providing a development plan for airspace management at Wanaka Airport and further consideration for a change in designation.

In November 2020, Sounds Air began a daily scheduled passenger service between Wanaka and Christchurch utilising a Pilatus PC12 with 9 passenger seats. Over the last 18 months the schedule has increased from 20 movements per week to 28 movements per week at its peak. Sounds Air continue to adjust their schedule to manage the impacts of Covid-19 and the annual ‘inversion’ weather patterns that can cause disruptions during May to July but are looking to increase their schedule further for the summer months.

With the introduction of the regular passenger service, along with the current and pre-Covid traffic density, the CAA have reviewed the certification status of Wanaka Airport and determined that an Aeronautical Study needs to be completed as per CAR Part 139.21 (b)(1)(i).

With the risk factors around aircraft movement density and frequency influencing both airspace and aerodrome management, the QLDC wish to undertake an Aeronautical Study that reviews both aspects and considers the holistic view of aeronautical and operational safety and risk management at Wanaka Airport.

Due to the broad scope of the study, it was decided that two reports would be produced so that key issues could be targeted more effectively. This report pertains to airspace designation and consideration of any Air Traffic Management that may be deemed necessary. The other report deals with aerodrome design and aerodrome certification issues.

2 PRELIMINARIES

2.1 SFARP APPROACH

This study has been conducted following the "So Far As is Reasonably Practicable" (SFARP) approach, as is prescribed in the Health and Safety at Work Act (HSWA) and referred to in the Advisory Circular (AC) relating to Safety Management (AC 100-1, Section 2.3.3). This differs from the "As Low As is Reasonably Practicable" (ALARP) approach that is detailed in the AC "Aeronautical Studies for Aerodrome Operators". However, recent Aeronautical Studies approved by the CAA have accepted this approach, and we believe that this better covers PCBU obligations for safety under the Health and Safety at Work Act (HSWA) as well as CAA requirements under Part 139.

The methodology included consultation with aircraft operators, NZWF operations personnel and other interested parties ("aviation stakeholders"). Generative interviews were conducted with the key aviation stakeholders to identify credible critical risks and any practical precautions that could be introduced.

The outcomes of the generative interviews are described in section 5.

2.2 REFERENCE DOCUMENTS

- Proposal for Aeronautical Study dated 1st June 2022
- CAR Part 91, Amendment 34, 1st December 2021
- CAR Part 139, Amendment 14, 1st December 2020
- CAR Part 172, Amendment 15, 8th February 2021
- AIPNZ
- NZWF Safety and Operations Meetings minutes
- NZWF website.
- Whanganui Airport UNICOM Users Guide, issued 7th April 2021
- Proposed Visual Reporting Points Wanaka Area – Airspace User Consultation, CAA, dated 4 March 2022

2.3 SCOPE

The following scope for the aeronautical study has been defined in accordance with the Proposal for Aeronautical Study Document dated 10th May 2022.

2.3.1 SCOPE

We would be gathering information that would be the basis for which a long-term airspace management plan for the aerodrome could be developed. This would include but not be limited to:

- The effects the aerodrome design or use has on the safe and efficient use of the aerodrome by aircraft, and on the safety of persons and property on the ground.
- Assessment of the airspace safety and risk based on current and forecast traffic density and complexity of activity type, acknowledging the impact of the Covid-19 pandemic over the past 2 years and the potential recovery to pre-pandemic volumes.
- Identification of future 'trigger points', including traffic density, a change in size and frequency of RPT, and other risk factors, at which point there would be a requirement to consider a change in airspace designation including:
    - A change from uncontrolled Class G to controlled airspace
    - A change from a CFZ to MBZ
- An assessment of traffic density to provide sufficient information to the Director of Civil Aviation enabling a consideration of CAR Part 71.157.
- Assessment of the appropriate size of an MBZ if a change in designation was considered.
- Current and proposed risk mitigation measures.

3 BACKGROUND

3.1 WANAKA AIRPORT OVERVIEW

Wanaka Airport (NZWF, or WKA) is a non-certificated aerodrome. It is managed on a day-to-day basis by the Airport Manager, assisted by an Operations Officer. However, due to organisational changes within QAC, it was indicated that this will be changing, with the current Airport Manager taking up a role in QAC. The Operations Manager will become a Duty Manager, with a second one to be employed, so that there can be management oversight 7 days a week.

The airport is approximately 5nm east-southeast of the Wanaka township. The aerodrome is 1142ft AMSL. Its main RWY is bounded by a road at the south-eastern end, but there is plenty of available land to the north-west, which could allow for RWY lengthening, if required.

Operations in and around NZWF include:

- Scheduled turboprop air transport operations (Sounds Air),
- Commercial parachuting operations,
- Commercial fixed wing tourism, general charter activity and flight training,
- Commercial helicopter activity including tourism, EMS flights, agricultural activity, flight training and general charter and commercial activity,
- Extensive paragliding activity nearby,
- Commercial Corporate jets,
- Military activity,
- Private flying, both fixed wing (including microlight) and helicopter,
- Infrequent visiting business jets,
- Infrequent training aircraft from other aerodromes, both VFR and IFR.
- Infrequent hot air balloon activity, but they are radio equipped.
- Airspace transiting glider activity
- On field maintenance facilities.

It also hosts a biennial Warbirds Air show, and an annual NASA Space Balloon launch programme.

3.1.1 OPERATIONS RISK AND USER GROUP MEETINGS

NZWF holds regular Safety and Operations meetings. Minutes of these meetings were made available to us. A review of these showed that they had good attendance, were seen

to be effective in raising key safety issues and that generally there was good effort being made to mitigate identified safety risks.

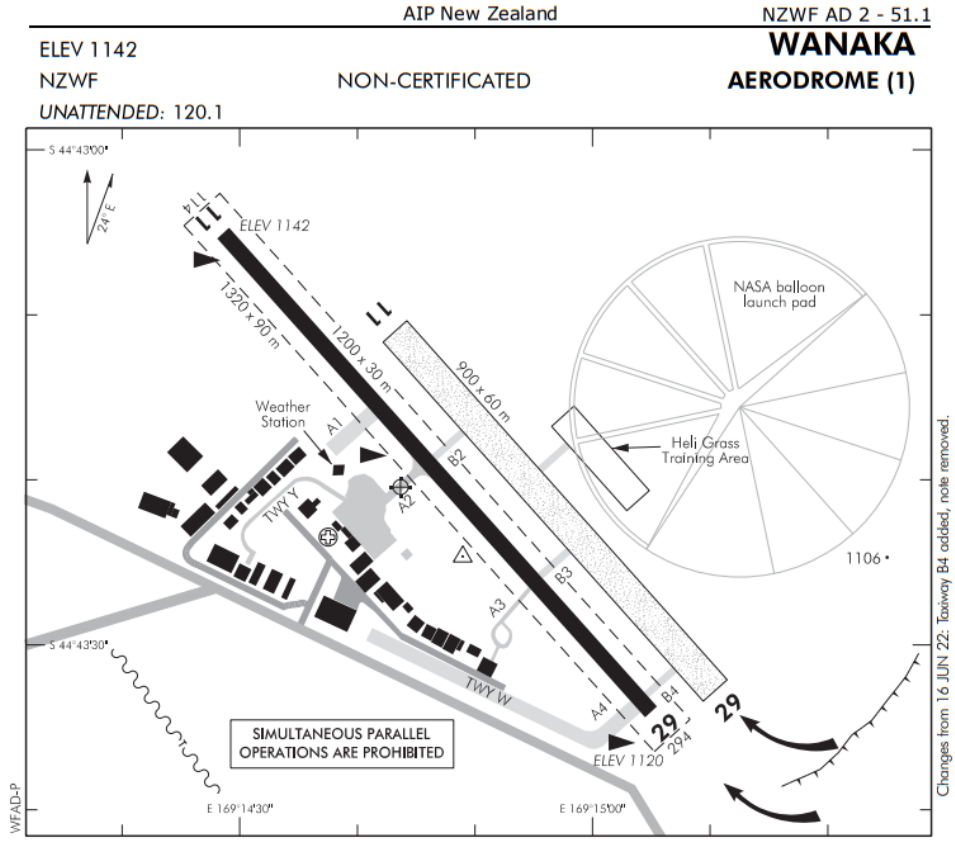
There is also an Airport User Group that meets on a quarterly basis. These meetings have not been as frequent during the Covid restrictions, but there is now a new president and these meetings have been reinstated.

While not having a certified Safety Management System, being an uncertified aerodrome, NZWF “piggy backs” on the QAC SMS. The same reporting system is used, and the data is managed and monitored by QAC.

3.2 AERODROME CONFIGURATION

The figure below shows the aerodrome layout.

Diagram 1: Aerodrome Layout



1. **CAUTION:** Commercial skydiving operations (from altitudes up to 17,000 ft) are in regular operation NE of the aerodrome circuit. Skydiving activity is broadcast on 120.1 MHz.
2. Simultaneous parallel operations are prohibited. Aircraft are not to land or take-off on paved RWY 11/29 or grass RWY 11/29, FATO or the helicopter grass training area while aircraft are landing or taking off on a parallel runway/FATO or the helicopter grass training area.
3. Circuit: RWY 11 and Grass RWY 11 — Left hand
   RWY 29 and Grass RWY 29 — Right hand
4. Approaches, landings, take-offs and departures for all aircraft **including helicopters** must be via the runways and normal circuit patterns. Helicopters must enter or exit the runway via a taxiway or the helicopter FATO.
5. Intensive helicopter training operations on and adjacent to aerodrome.

D 6. Grass RWY 11/29 has non-prepared surface suitable for light aircraft only.

7. **CAUTION:** Light aircraft on opposite THR are not always visible to each other due to hump in RWY.

(continued)

S 44 43 20 E 169 14 44*

Effective: 11 AUG 22

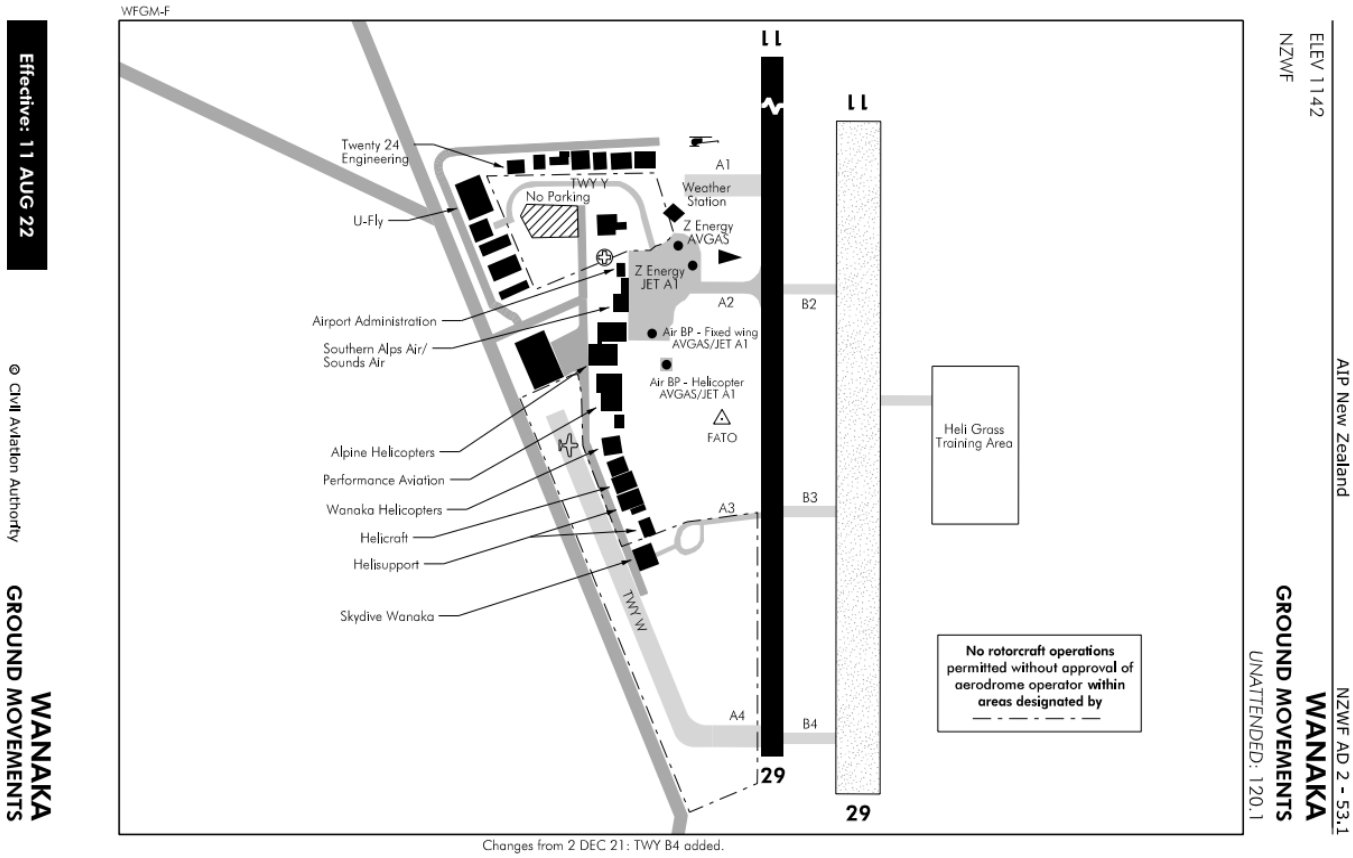
WANAKA
AERODROME (1)

The sealed main runway, RWY 11/29, is 1,200m long by 30m wide. The runway strip extends to the dimensions of 1,320m long by 90m wide, centred on the runway centreline. A parallel grass runway, Grass RWY 11/29, lies on the north-eastern side of the main runway and is 900m long by 60m wide. There is also a grass training area used by rotorcraft, parallel to and north-east of Grass 11/29. The training area, known as “Heli Grass,” extends over a portion of the NASA balloon launch pad.

Circuits on Seal RWY 11 and Grass RWY 11 are flown in the default left-hand direction, while circuits on Seal RWY 29 and Grass RWY 29 are flown in the right-hand direction. This results in circuit traffic remaining on the north-eastern side of the runways, regardless of which runway direction is in use.

Simultaneous operations with any combination of the parallel sealed and grass runways, the Heli Grass training area, and the FATO are not permitted.

Diagram 2: Apron and Taxiway Detail



The sealed main apron is located on the southern side of Seal RWY 11/29. A sealed taxiway with Hold Point A2 connects the apron to the main runway. Z Energy AVGAS and JET A1

pumps are located on the western end of the apron, and Air BP AVGAS and Jet A1 pumps are located at and near the eastern end.

Taxiway Y allows access to the hangars west of the main apron, where no rotorcraft operations are permitted without prior approval from QAC. Hangars east of the main apron are accessed via taxiing across the grass, although the Skydive Wanaka hangar is connected to the main runway via a sealed taxiway with Hold Point A3.

Taxiway W, a grass taxiway, runs between State Highway 6 and the hangars east of the main apron and joins the main runway at the RWY 29 threshold. No rotorcraft operations are permitted on Taxiway W, the taxiway to the Skydive Wanaka hangar, and all of the grass areas in between without prior approval from the aerodrome operator.

Grass taxiways on the opposite side of the main runway from hold points A2, A3, and A4 link the sealed runway to the grass. Hold points B2, B3, and B4 are located on these grass taxiways respectively.

Fixed-wing aircraft parking is not permitted in most of the open space accessed via Taxiway Y. Fixed wing parking is permitted adjacent to and parallel to Taxiway W, on the northern side but there are no formally designated parking areas marked.

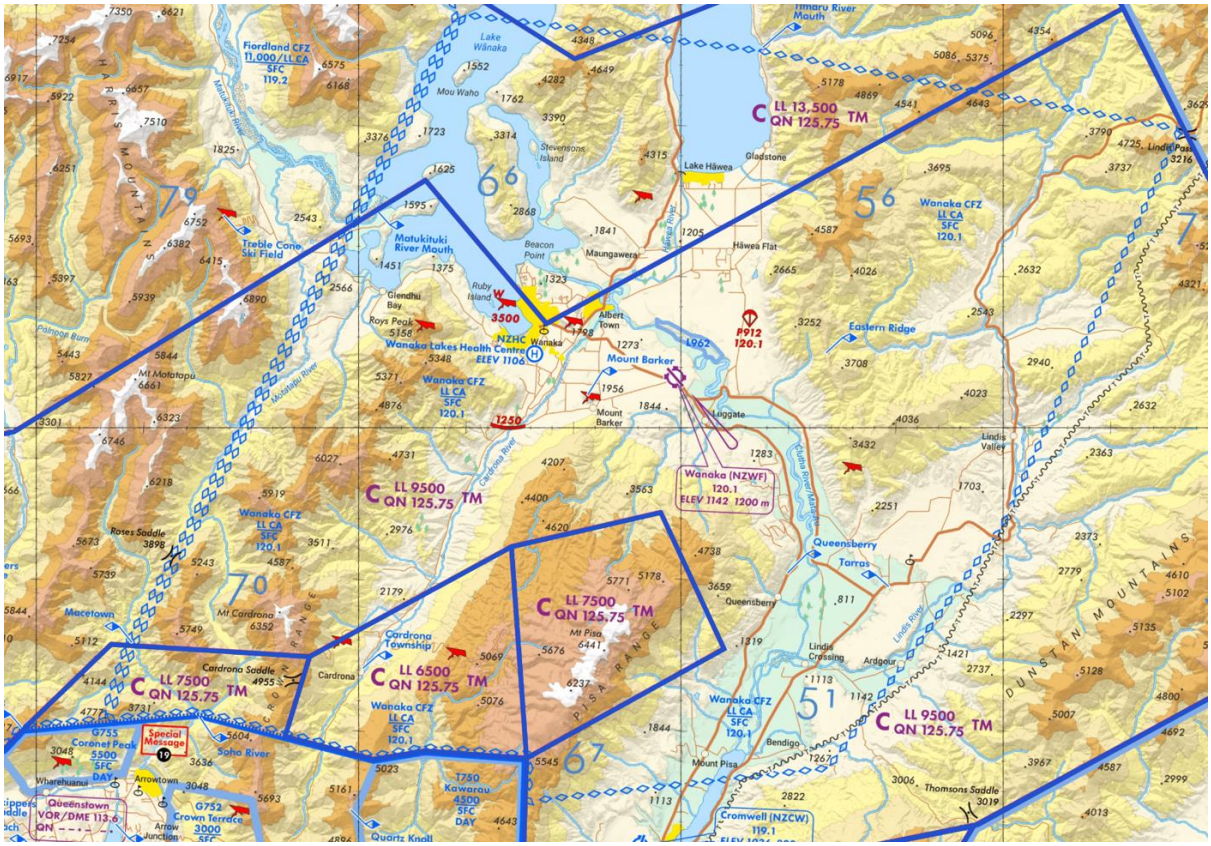
A helicopter FATO is designated on the grassed area between hold points A2 and A3.

3.3 AIRSPACE CONFIGURATION

NZWF is located within uncontrolled Class G airspace which extends from the surface to 9,500ft AMSL. Above the Class G airspace is a control area (CTA), for which Queenstown Control is responsible on the frequency 125.75 MHz. This CTA is Class C airspace.

No separation service for aircraft is provided in Class G airspace. There is also no AWIB (Aerodrome and Weather Information Broadcast) at NZWF. Further information including proximate traffic can be obtained from the area FISCOM, in this case Christchurch Information (122.2 MHz).

Diagram 3: Airspace Surrounding NZWF



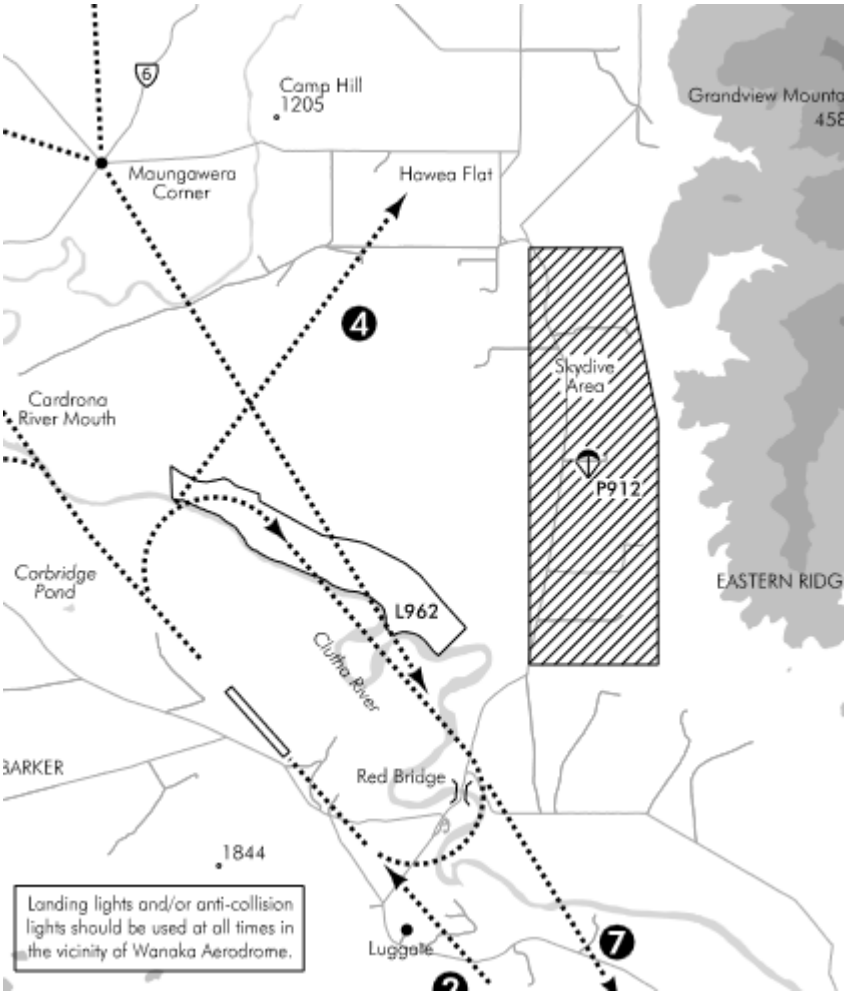
(Reproduced from AIP VNC-C17)

While not located in controlled airspace, NZWF is located within the Wanaka Common Frequency Zone (CFZ)[1]. This zone's frequency is 120.1 MHz, and the boundaries are marked by the blue diamonds on the above chart excerpt. The CFZ extends from the surface to the lower limit of the above control area, which varies from 6,500ft AMSL closer to NZQN, to 13,500ft AMSL north of NZWF.

North-east of NZWF, a PLA is established (P912). While the VNC depicts its general location, NZWF's VFR Preferred Arrival and Departure charts provide a much clearer picture of the actual boundaries, as seen below.

[1] For more detail regarding CFZs refer section 3.6

Diagram 4: PLA Area



The above diagram also shows the low flying zone that has been established below the aerodrome circuit. This low flying zone is only for helicopter use. We were also advised that there is an unmarked area SE of the LFZ (and outside the PLA) that is used for model aircraft flying, but that this has never caused any issues.

There is one heliport in the vicinity published in the NZAIP: Wanaka Lakes Health Centre (NZHC), a heliport located 4.7nm to the west of NZWF. NZHC is exclusively for the use of emergency medical evacuations or deliveries.

3.4 FLIGHT PROCEDURES

For the operations outlined in Section 3.1, there are a number of existing flight procedures:

- RNAV (GNSS) standard arrival (STAR) RWY 29
- RNAV (GNSS) approach to RWY 29.

- RNAV (GNSS) standard instrument departures (SID) both RWYs and a non-specific RWY SID.
- VFR Preferred Arrival/Departure routes for each RWY.

There are published approach and departure sectors into the Wanaka Lakes Health Centre heliport but no IFR approaches. However, we were advised by Airways that RNP procedures are being developed for the Wanaka Lakes Health Centre heliport which we understand will become effective early next year.

All NZWF IFR procedures (STARS; Instrument Approaches; SIDs) are limited to CAT A and B aircraft only. This means larger aircraft (CAT C) are currently unable to use these procedures and therefore will need to fly visually when operating below the area minimum safe altitudes. Given these minimum safe altitudes may be as high as 12,000ft it does mean these aircraft have a much higher weather-related risk of not being able to land at or depart from NZWF.

During our consultation with Sounds Air, they suggested a lower minima on instrument approaches (current lowest vertical minima 980ft AGL) would be of benefit and provide better schedule reliability.

Currently there is only one promulgated arrival holding pattern for IFR aircraft located at PASMU. If IFR traffic into and out of NZWF was to increase, which seems likely from both an increase in local IFR training flights and Sounds Air services, consideration to additional arrival procedural holding patterns would be of benefit. These will be needed to allow aircraft to hold for sequencing purposes and thereby allow for better separation between IFR aircraft both inbound to and outbound from NZWF.

Pilots operating under VFR will often not be familiar with IFR procedure waypoint names and locations. In practice, this is usually not an issue as general practice for IFR pilots is to include distance and bearing to the aerodrome within position reports for the benefit of pilots operating under VFR. We note that from Safety and Operations meeting minutes Sounds Air confirmed they will be using both IFR and geographical or bearing/distance reporting points.

3.5 CURRENT AIRWAYS PROCEDURES

3.5.1 GENERAL IFR PROCEDURES

With effect from June 2022, Christchurch Information commenced using surveillance information when providing known traffic information to IFR flights, and other VFR flights

operating in Class G airspace that Christchurch Information are aware of, when a specific request for traffic information is made by the pilot.

This change was driven by CAA's position that it was ineffective to rely on position reports of pilots, and flight plan information, for the provision of traffic information especially in the light of modern surveillance systems.

Christchurch Information have always had access to radar although they were not permitted to use the information in the provision of a Traffic Information Service. They have for many years used the electronic coordination component of the air traffic management system for IFR clearance and delivery procedures. Staff working in Christchurch Information attended a training programme which provided classroom and simulator training using the radar simulator. Assessment involved a written and practical check observed by an Airways Examiner.

There are detailed departure and arrival procedures that Christchurch Information use for IFR traffic.

3.5.1.1 CONTROL OF NZWF IFR TRAFFIC

CH Flight Information Officers (FIO) are responsible for relaying ATC clearances, provision of an alerting service and passing traffic information outside CTA. However, QN Approach are responsible for the airspace above NZWF from 9500ft to FL245. Christchurch Information provides services from Surface to 9500FT. QN Approach approve outbound clearances and are responsible for ensuring separation within CTA.

A recent discussion was had between AREA / FIO and QN APP regarding IFR flights 9500 or below departing NZWF. The proposed intent would be for FIO to not involve either QN APP or AREA in the pre-departure clearance process. FIO has the best picture of any IFR traffic operating in uncontrolled airspace and QN APP won't need to be involved since the flights won't enter QN CTA/C at any stage.

The boundary between QN Approach and CH Area Control is relatively close to NZWF, on occasion an arrival will leave controlled airspace with CH Area and not speak to QN Approach.

The below MAP helps paint a picture. The arrows depict the inbound/outbound flow from NZWF, the red lines show the CH Area/QN Approach lateral boundary where these tracks pass.

Diagram 5: Depiction of Inbound and Outbound IFR Traffic Flow

3.5.1.1.1 CONCERNS IF IFR TRAFFIC WERE TO INCREASE

The missed approach flies head on to the approach meaning aircraft arriving close together may need to hold a significant period of time before it is safe to commence the approach. The inbound STARs lack suitable holding patterns to manage this. QN Approach has a requested the addition of a holding pattern to the most common inbound STAR, and this would be a necessary change to help manage an increase of traffic. Alternatively, a redesign of the approach/missed approach is required to deconflict these procedures.

Due to the nature of weather conditions in mountainous terrain at some locations, a remote QNH setting must not be used for determining MDA or DA or flying RNAV (RNP) approaches. If the local QNH is not available, the approach cannot be used.

While FISCOM frequency coverage for Wanaka is good, the number of sites for 122.2 (X 3) currently requires the operator to carry out manual selection/deselection. Airways may need to review this situation if traffic was to increase.

3.5.2 SKYDIVING OPERATIONS AT NZWF

Skydive aircraft depart from NZWF, but the parachute landings occur in the designated PLA, P912 shown in Diagram 4. After dropping the aircraft returns to NZWF.

Queenstown approach provide Controlled VFR entry into controlled airspace (lower limit of 9,500ft overhead NZWF), the operator is responsible for obtaining local traffic information outside controlled airspace prior to drop, and Queenstown approach provide descent clearance. The operator calls on the NZWF CFZ frequency 2 minutes to drop and then again dropping.

3.6 COMMON FREQUENCY ZONE

There is a large common frequency zone surrounding NZWF. The definition of a CFZ is as follows: “CFZ have been established to encourage pilots to use a single VHF frequency specified for the zone. Pilots should transmit their position, altitude and intentions relevant to prominent reporting points or features at entry, or at other times for traffic safety. CFZs are not mandatory and are advisory in nature.”[2]

3.7 MANDATORY BROADCAST ZONES

Airspace which is uncontrolled can be classified by the CAA as a Special Use Airspace Mandatory Broadcast Zone (MBZ). In an MBZ, pilots are required to broadcast their position, altitude, and intentions prior to entering the MBZ, joining the aerodrome traffic circuit, departing the aerodrome (prior to taxi and take-off), and at regular defined intervals. This is to alert other pilots operating in the area, of the location and intentions of other aircraft.

3.8 TRANSPONDER MANDATORY AIRSPACE

TM airspace is airspace within which it is mandatory for aircraft to be fitted with an operative transponder transmitting “Mode A” (identification and position) and “Mode C” (altitude) information. A transponder enables aircraft to be seen on secondary surveillance radar (SSR) and by nearby aircraft fitted with Airborne Collision and Avoidances Systems (ACAS), more commonly referred to as TCAS.

ACAS equipped aircraft are given two levels of warning of proximate transponder equipped aircraft:

[2] AIPNZ ENR 5.3

(a) A traffic advisory (TA) is a prediction that another aircraft will enter the conflict area within 20-48 seconds depending on altitude. Time scales are shorter at lower altitudes. The message “TRAFFIC" is displayed along with an aural “TRAFFIC, TRAFFIC”.

(b) A resolution advisory (RA) occurs when an aircraft is detecting a threatening target in the warning area 15-35 seconds to conflict depending on altitude. This will be associated with vertical guidance. Many light aircraft operating outside of TM airspace, may be operating with only “Mode A” transponders and will not trigger an RA for the ACAS equipped aircraft. No RA will be issued for non-altitude encoded transponders.

Note: Traffic that is neither a TA nor RA that is within 6nm AND less than 1200ft vertically will appear as a solid diamond known as Proximate Traffic.

3.8.1 ELECTRONIC CONSPICUITY (EC) DEVICES

There has been work overseas to develop a small and cheap device that would give the same information as ADS-B out. A UK CAP[3] details efforts in the UK to develop EC devices, cheap, easy to fit or completely portable, and small and light. The British Hang Gliding and Paragliding Association (BHPA) were part of the working group that developed the CAP. CASA has approved an EC device (Skyecho 2)[4] which is relatively cheap ($AU1195), is about the size of a cigarette packet and weighs 120gm.

The use of EC devices that provide ADS-B OUT would be very beneficial in NZWF airspace as they would enable the position and height of paragliders and gliders to be seen by the increasing number of GA aircraft at NZWF that are equipped with ADS-B in.

At this stage there have been no EC devices approved for use in NZ and the rules would need to be amended to allow these. However, exemptions could be sought to use these instead of transponders or ADS-B, but this would be at the discretion of the CAA.

3.9 ADS-B MANDATORY AIRSPACE

ADS-B is already required in NZ controlled airspace above 24,500ft and is planned to become a requirement for controlled airspace below 24,500ft from 1 Jan 2023.[5]

[3] UK Cap 1391 - Electronic conspicuity devices (2021)

[4] https://www.ozpilot.com.au/product/skyecho-2-electronic-conspicuity/?gclid=Cj0KCQjwhY-aBhCUARIsALNIC05OfBqORx4uqnnkSqR95oOZA9eB0lQ8tClkuFAIH5jZSPLlRvRJpUMaAiiDEALw_wcB

[5] The New Southern Sky programme being run by the MOT and CAA is aimed at using new technology (ADS-B) to replace SSR. This is part of an ICAO mandated world-wide airspace upgrade initiative. ADS-B provides far superior aircraft

ADS-B is a surveillance technology incorporating both air and ground aspects. Compared to the current secondary surveillance radar system, ADS-B provides air traffic control (ATC) services with a more accurate and frequent picture of the aircraft's position.

Using ADS-B OUT equipment on board, the aircraft broadcasts its identification, position, altitude, velocity, and other information, described as ADS-B OUT functionality. The ground portion comprises a network of ADS-B ground stations which receive these broadcasts and direct them to the Air Navigation Service Provider for presentation on a controller's display.

The network of ADS-B ground stations that receive the aircraft ADS-B transmissions will provide increased surveillance coverage: 45 percent more of New Zealand's airspace will be visible when ADS-B is fully implemented. That includes surveillance to the ground at all controlled aerodromes.

In addition, aircraft equipped with an ADS-B IN receiver can receive these ADS-B OUT broadcasts and display the information to improve the pilot's situational awareness of other traffic.

Currently CAA Advisory Circular AC91-24 at paragraph 6.16 states that:

"Aircraft being operated in transponder mandatory airspace (including within special use airspace) that is outside controlled airspace will not need to be equipped with ADS-B OUT."

As all the immediate airspace around NZWF is uncontrolled, there is no regulatory requirement for ADS-B for aircraft operating in the vicinity of the aerodrome. However, many operators and most commercial operators based at NZWF have opted for ADS-B installation in their aircraft. Sounds Air have a Traffic Advisory System (TAS) fitted to their aircraft and most commercial operators have both ADS-B out and in. The lack of a requirement for ADS-B in uncontrolled airspace that is TM may be something that CAA reviews in the future.

position information to ATC than is possible with SSR. It also allows even small aircraft to be fitted with traffic alerting systems similar to ACAS and replaces existing Mode C and Mode S transponders with more capable systems.

3.10 AERODROME AIR TRAFFIC MANAGEMENT

3.10.1 GENERAL OVERVIEW

There are three different types of Aerodrome Air Traffic Management. These are Air Traffic Control (ATC), Aerodrome Flight Information Service (AFIS), or Universal Communications Service (UNICOM). AFIS and UNICOM would not require any changes to the current airspace arrangements, but the provision of ATC would require significant changes to the current airspace around NZWF, with a control zone (CTR) needing to be established, along with control areas (CTA) above this to the existing CTA. It is envisaged that could take at least two years to implement these airspace changes.

Area control services are currently provided for aircraft arriving and departing from NZWF if they are departing or entering controlled airspace. If provision of ATC was to be established, then this area control would change to Approach Control, probably operating to lower levels with the introduction of additional CTAs. AFIS and UNICOM would have no effect on current area control services.

3.10.2 AIR TRAFFIC CONTROL

The prime objective of ATC is to prevent collisions between aircraft, and on the manoeuvring area[6], between aircraft and obstructions.

When separation is applicable, it is provided by ATC in accordance with the prescribed minima referred to in CAA Rule Part 172 and is achieved by the issuance of ATC clearances and instructions. In these situations, ATC holds the primary responsibility for the prevention of collisions.

When separation is not applicable, prevention of collision is collaborative between ATC and each affected pilot. It is achieved by the provision of ATC clearances, instructions and traffic information that will enable each pilot, as far as is practicable, to comprehend the relative position of other relevant aircraft and, if necessary, to sight and avoid each other. ATC retains responsibility for passing (and updating as required) clearances, instructions, and

[6] As per CAR Part 1, the manoeuvring area includes parts of the aerodrome used for take-off, landing, and taxiing.

traffic information throughout the provision of an air traffic service, particularly Aerodrome Control.

Prior to the Covid pandemic, there was a project to install a “virtual” tower at Invercargill to ascertain the feasibility of this in NZ. With this, video surveillance cameras are mounted so they can provide a remote ATC controller with real time vision of the aerodrome, very similar to what would be seen from the tower. However, this project did not go ahead as planned. This technology is used at other aerodromes around the world and may be introduced into NZ in the future.

ATC is used extensively throughout NZ at busier aerodromes.

3.10.3 AFIS vs UNICOM

An Aerodrome Flight Information Service (AFIS) provides information to aerodrome traffic, such as the preferred runway, weather conditions, and traffic information. The information passed to the pilot by an AFIS is not an instruction or a clearance – it is issued to enhance safety.

An AFIS can only be provided by an organisation that is certified under CAA Rule Part 172. Airways Corporation of New Zealand Limited is currently the only certified Part 172 Air Traffic Service Organisation.

The more stringent requirements required for certification under CAA Rule Part 172 are developed from the annexes and advisory material that ICAO publishes. The material reflects the wisdom of ICAO Member States and has been developed over time. The considerably less stringent requirements for UNICOM service operators mean restrictions have to be placed on services that can be provided. This is to delineate them from certificated Air Traffic Services (ATS) where advice is given, and interpretation of the information and advice is passed on. With ATS, responsibility may pass from the pilot to the service operator and the pilot must comply except in exceptional circumstances.

An AFIS Part 172 service provides a comprehensive advice and information service which is certificated as fit for purpose, whereas a UNICOM service provides, without interpretation, isolated items of basic information which may be useful to pilots.

Two aerodromes utilise AFIS services: Paraparaumu and Milford Sound. Milford Sound is a unique environment, so only Paraparaumu has been used for comparison purposes in this study.

Two aerodromes utilise UNICOM services: Whanganui and Ardmore. Ardmore is predominantly a training aerodrome with no scheduled air services, so only Whanganui was used for comparison purposes in this study.

3.10.4 KEY DIFFERENCES

The key distinguishing features of the three options are shown in the following table.

Table 1: ATC, AFIS, UNICOM Comparison.[7]

Air Traffic Control Services (Part 172 Certificated)	**Aerodrome Flight Information Service (Part 172 Certificated)**	**UNICOM Services (Part 139 Certificated)**
Certificated under Part 172 and uses certificated Part 171 communications equipment. Currently only Airways holds a Part 172 certificate in NZ.		Certificated under the Aerodrome Operator's Part 139 and Part 100 (SMS).
Hours of service in accordance with certification and published accordingly.		Hours of service decided by operator and published accordingly.
Designates the controlled runway.	Designates the preferred runway in use.	May advise the preferred runway in use.
Provides meteorological information in accordance with Part 174 certification.		May provide local basic weather reports (BWR). If Part 174 certificated, provides meteorological information in accordance with certification.
Operators certificated to Part 65.		Operator has staff training requirements under Part 139, but not certificated to Part 65 standards.
Communications equipment Part 171 certificated.		Communications equipment does not have to be Part 171 certificated.
Provides aerodrome control service, traffic information, and traffic avoidance advice.	Provides traffic information within the vicinity of the aerodrome.	May relay whereabouts of known aircraft operating within the vicinity of the aerodrome.
Provides information relating to the physical characteristics of the aerodrome, and hazards to navigation in the vicinity of the aerodrome.		May provide information relating to the physical characteristics of the aerodrome, and hazards to

[7] Obtained and modified, with permission, from the Whanganui UNICOM User Guide.

	navigation in the vicinity of the aerodrome.
May be contacted to close or amend flight plans.	May relay request for flight plan termination to National Briefing Office.
Provides an alerting service and may activate an aerodrome emergency service.	May provide a flight-following service in accordance with the requirements of Part 119. May provide a service to alert emergency services.

It is worth noting that at Whanganui, the UNICOM is active from 0800 – 1700 hrs each day. The UNICOM Manager is the UNICOM operator from 0800 – 1300 Monday to Friday, with Academy flight instructors filling in the other 9 shifts at minimal cost. NZWF does not have access to a pool of instructors as large as at Whanganui, so manning a UNICOM effectively would probably result in additional cost.

3.11 AERODROME AND WEATHER INFORMATION BROADCAST (AWIB)

AWIB service means an automatic broadcast of aerodrome and weather information provided specifically for the facilitation of aviation.

Many NZ aerodromes have AWIB information available. This can include wind direction and strength, visibility, cloud cover, temperature, QNH, preferred RWY in use and other operational information. The weather and preferred runway information can be automatically captured or manually added, automatic capture being best due to frequent updating and 24/7 operation. Other operation information can be added by airport operations staff as required e.g., runway closures. Traffic information cannot be provided.

NZWF does not presently have an AWIB and if one were to be set up it would need to meet the requirements of Rule Part 139, Subpart F. Similar basic weather information can be provided by a UNICOM service when on watch.

3.12 VFR METEOROLOGICAL MINIMA

CAR Part 91 prescribes minimum VFR cloud base and visibility conditions, and distances VFR aircraft must remain from cloud when operating in controlled and uncontrolled airspace (VFR “minima”). Different minima apply for operations at an aerodrome and for operations in the airspace but not at an aerodrome (“vicinity operations”). These minima are specified in CAR Part 91.301 and are shown in the table on the following page.

Operations in a control zone have higher minima (i.e., the weather conditions must be better) than in uncontrolled airspace. This reflects the need to ensure VFR aircraft remain sufficiently clear of areas where IFR aircraft may be operating, especially near cloud from which IFR aircraft may emerge on approach. This is not the case at NZWF, as it is uncontrolled airspace (Class G).

Table 2: CAR 91 VFR minima for fixed wing aircraft.

Location	Ceiling	Distance from cloud	Flight visibility
Uncontrolled Airspace			
At aerodrome	600ft day 1500ft night		1500m day 8km night
Away from aerodrome (1)		2 km horiz 1000ft vert	5km (3)
Away from aerodrome (2)		Clear of cloud and in sight of surface	5km (3)

Notes:

(1) In class G airspace below 10,000ft AMSL but above 3000ft AMSL or 1000ft above terrain, whichever is higher

(2) In class G airspace at or below 3000ft AMSL or 1000ft above terrain, whichever is higher

(3) A helicopter may operate in Class G airspace with a flight visibility of less than 5 km if manoeuvred at a speed that gives adequate opportunity to observe other traffic or any obstruction in order to avoid collisions; and
an aircraft on agricultural operations in Class G airspace may operate with not less than 1500m visibility

3.13 WANAKA WEATHER[8]

Wind direction over New Zealand in the zone directly above the earth's surface may be interpreted from a mean sea level pressure (MSLP) map, following the general principle that, in the Southern Hemisphere, air flows in a clockwise direction around a depression, and in

[8] Data obtained from NIWA and MetService.

an anticlockwise direction around an anticyclone. As such, MSLP maps can be used to indicate the general wind direction at the earth's surface. However, actual wind direction at a particular locality is modified by the influence of friction and topography.

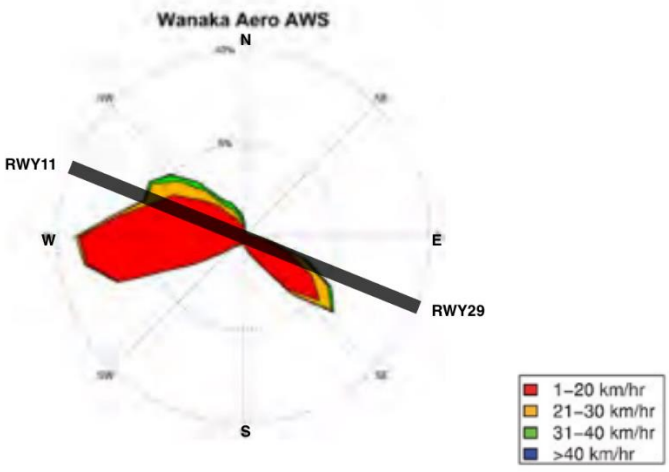
Furthermore, wind speeds are also subject to topographical influence. Such influences are especially prevalent in Central Otago (Wanaka Region), where winds may be channelled by mountains, hills and valleys.

South- westerly winds associated with depressions to the south of New Zealand or following the passage of cold fronts across Central Otago are common.

There is notable variability in mean monthly wind speeds over the course of a year in Central Otago, where wind speeds are highest from around mid-spring (October) to mid-summer (January), and lowest over the winter months (June to August).

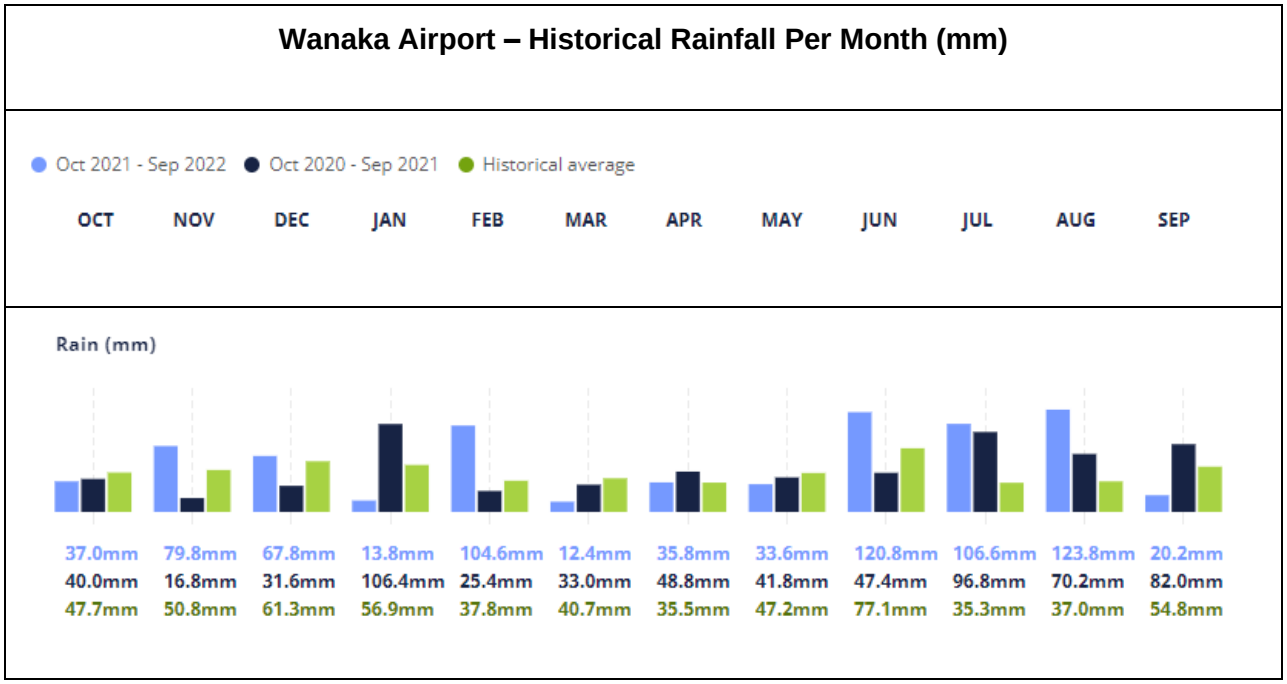
From the following diagram it can be seen that the wind at NZWF favours RWY 29.

Diagram 6: Wanaka Mean Average Wind Frequencies



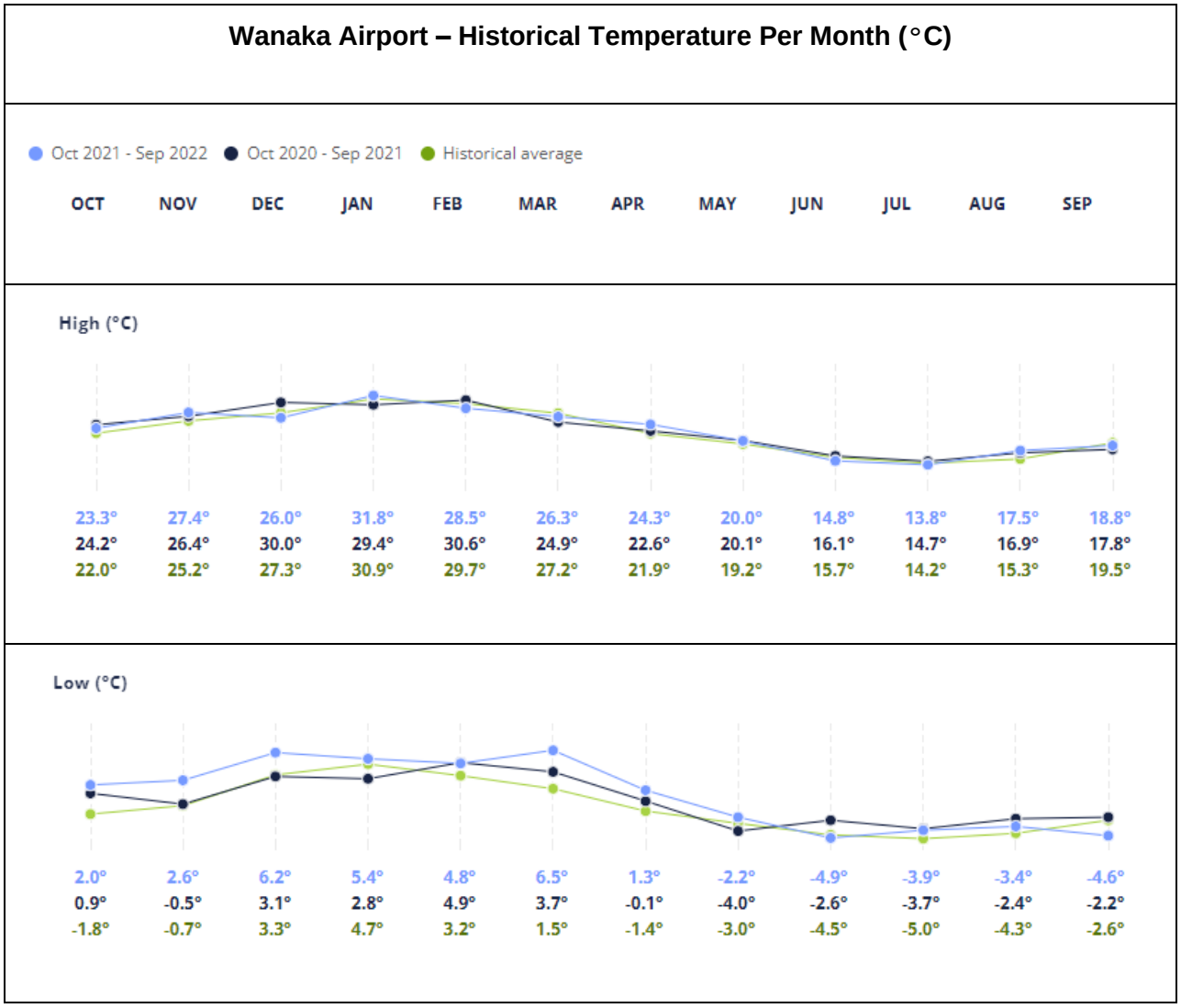
Rainfall is highest among the western ranges which have both high elevation and western exposure. Such high rainfall is primarily a result of the orographic effect. Specifically, moisture-laden air masses arrive off the Tasman Sea and are forced to rise over the western ranges. As these air masses rise, they cool rapidly, causing the stored water vapour to condense, resulting in rainfall. These air masses continue eastwards, but they hold significantly less moisture once beyond the western ranges. As a result, there is a marked decrease eastwards in median annual rainfall beyond the Otago lakes and headwaters. Central Otago is one of the driest areas in New Zealand.

Diagram 7: Wanaka Rainfall



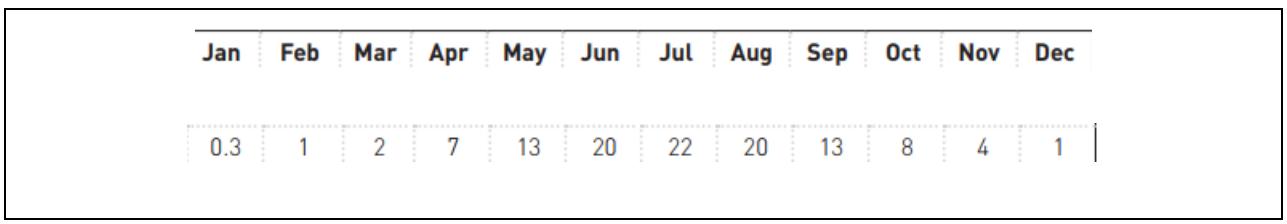
Central Otago locations reach maximum air temperatures in excess of 30°C relatively frequently when compared to remaining parts of New Zealand. Inland parts of Otago typically record a greater number of days with a maximum air temperature above 25°C (Wanaka 35 days per annum) and a minimum temperature below 0°C (Wanaka 73 days per annum) compared to locations closer to the coast. Indeed, Central Otago locations frequently observe New Zealand's highest daily maximum temperature during summer and New Zealand's lowest daily minimum temperature during winter.

Diagram 8: Wanaka Temperature



Frosts occur most frequently in winter during periods of anticyclonic conditions. Frosts are common in Central Otago in the cooler months. Refer to Diagram 8 (below) for mean number of ground frosts per month.

Diagram 9: Wanaka Ground Frosts – Mean Number Per Month



Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.3	1	2	7	13	20	22	20	13	8	4	1

Although fog can occur at any time of the year in Central Otago, it is recorded most frequently during autumn and winter.

During the months of May to July the Central Otago region can be subjected to extended periods of very low cloud (fog). This weather event results from a lack of heating at this time of the year, when the sun is at its weakest, combined with a lack of wind to mix dry air from above, which means the moisture stays in the basins and valleys. This normally occurs under a ridge of high pressure when the winds are light with clear skies, this allows rapid cooling to take place at the surface and if there's moisture trapped at low levels that condenses into fog.

Diagram 10: Wanaka Region Low Cloud (Fog)

3.14 CAA INCIDENT REPORTS

Information was requested from the CAA regarding notifiable occurrences that had been received by them relating to the NZWF area over the last 5 years. The CAA documentation that we received showed that there were 296 reports submitted. However, when we filtered these and removed incidents that don't pertain to the scope of the report, such as injuries sustained due to a hard parachute landing and defect incidents, the number was reduced to 78.

When reviewed, the occurrences were classified into the following main categories:

Table 3: Review of Occurrences Reported to the CAA.

Occurrence Category	TOTAL
RPAS Complaint	**21**
Traffic Conflict	**19**
A/C Handling Incident	**15**
Unsafe Flying Complaint	**15**
Bird Strike	**4**
AD Access Breach	**1**
Noise Complaint	**1**
PLA P912 Bust	**1**
Safety Concern	**1**
TOTAL	**78**

3.15 WANAKA TRAFFIC MOVEMENTS

The impact of Covid-19 has been felt significantly in the aviation industry, and this is reflected in a sharp drop in annual air traffic movement totals at many aerodromes. In an effort to provide a more accurate picture of aerodrome operations under normal circumstances, the following data is all sourced from 2019 figures – prior to the arrival of Covid-19 in New Zealand.

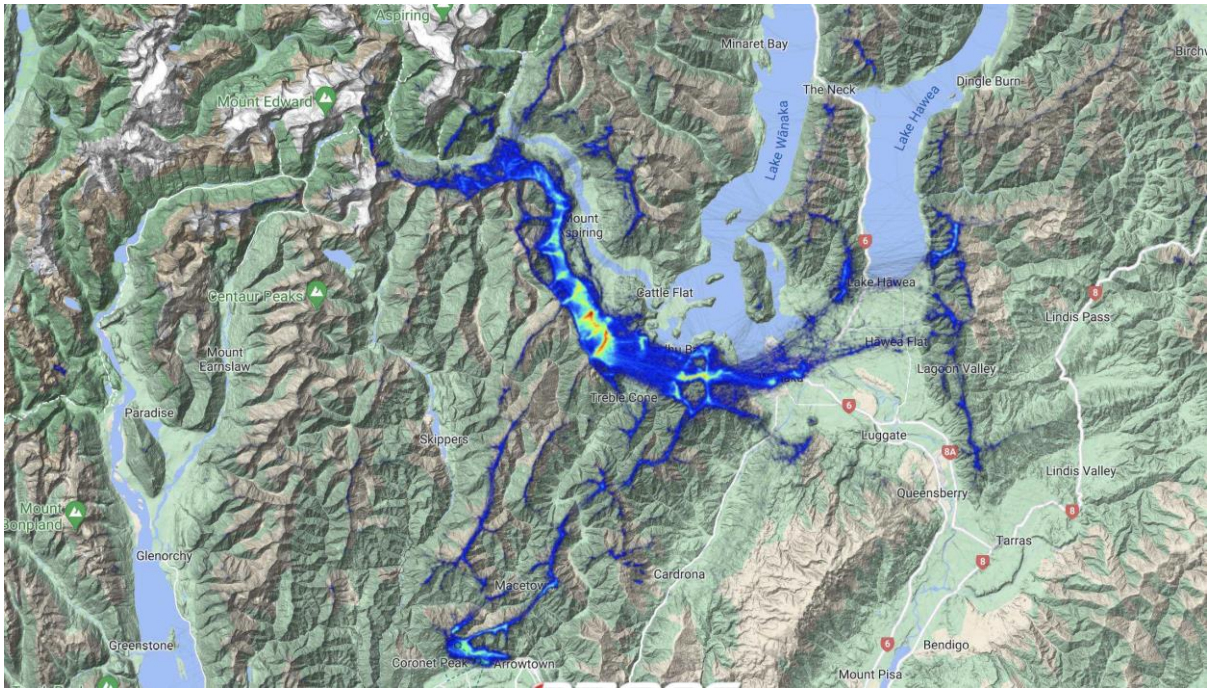
In 2019, Wanaka Airport recorded 62,040 total movements[9]. Of these movements, none were associated with scheduled Air Transport Operations. Of the non-scheduled movements, 21,296 were helicopter movements.

The movements are aerodrome movements only and do not account for transiting traffic. They also do not include hang gliding and paragliding activity, which is not recorded, but we were advised by NZHGPA that there were “thousands” of movements within the NZWF CFZ on an annual basis. We were advised that the bulk of activity is associated with flights

[9] A movement is measured in this study by the NZCAA definition, where a take-off, a landing, or a touch-and-go is each counted as a single movement.

around and between Treble Cone, Roys Peak and Mt Maud. However, there are also flights flown in the central Wanaka basin area and around the ridges to the NE of the aerodrome. It is also common to launch from Coronet Peak and fly to the north into the NZWF CFZ and Fiordland CFZ.

Diagram 11: Historical Track Log Data for Paragliders and Hang Glider Flights in the Southern Lakes Area.[10]



The following graph compares NZWF's total 2019 movements with other aerodromes around New Zealand. Included aerodromes are:

Controlled:

- Napier / Hawke's Bay
- New Plymouth
- Gisborne

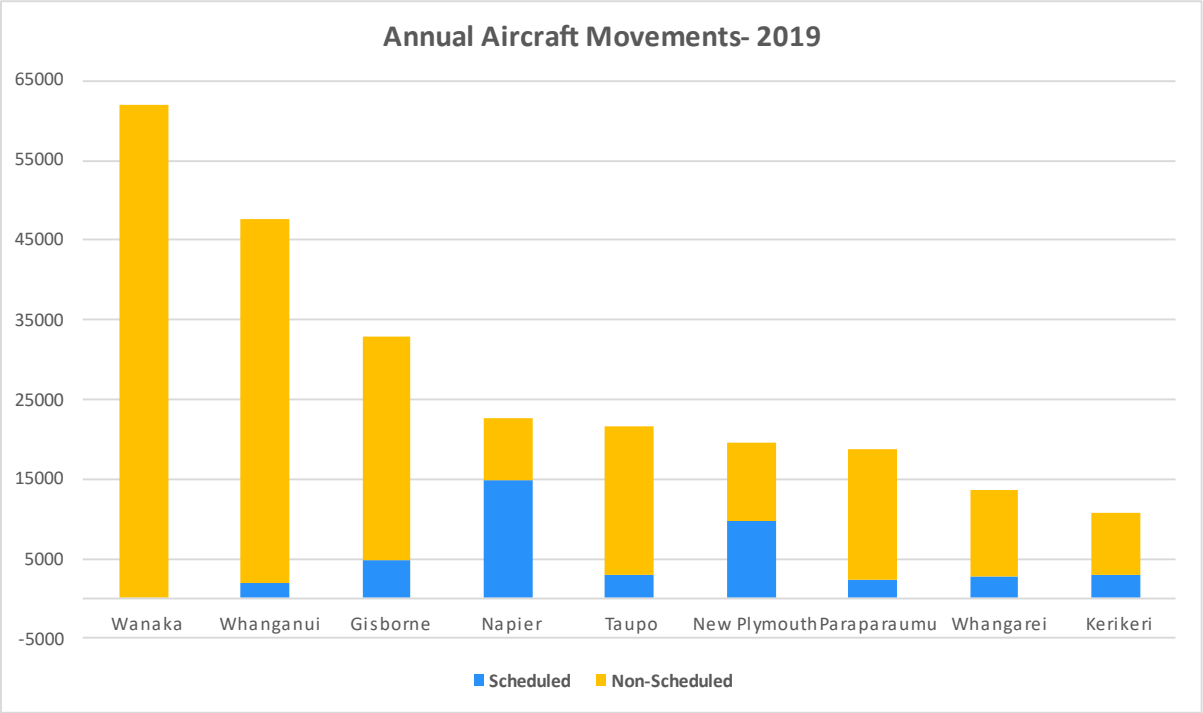
Uncontrolled:

- Taupo
- Paraparaumu / Kapiti (Utilises an Aerodrome Flight Information Service)
- Whanganui (Utilises a UNICOM)
- Whangarei

[10] Obtained from https://flyxc.app/

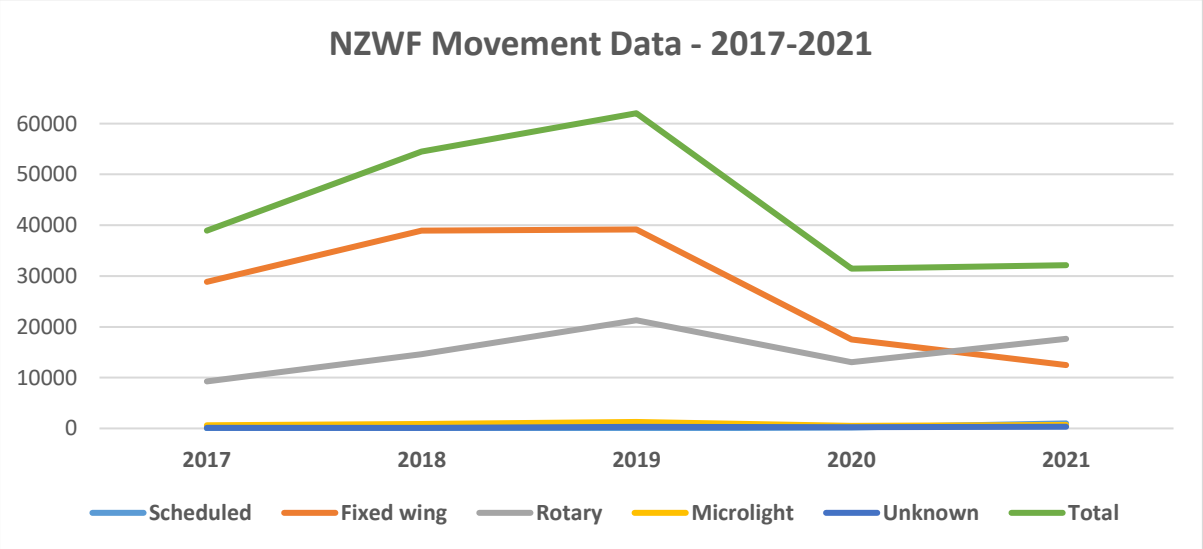
- Kerikeri

Diagram 12: NZWF Movements Compared to other Aerodromes



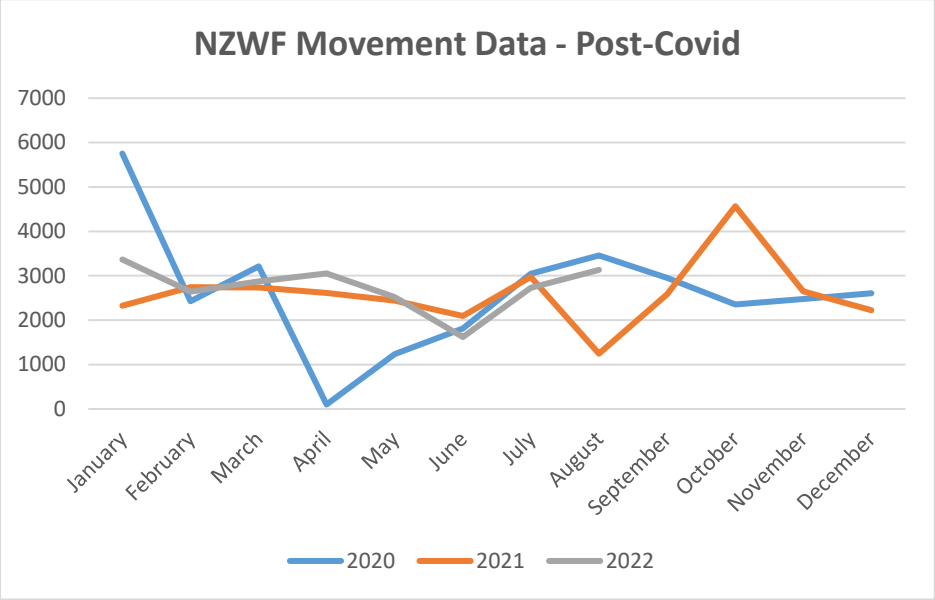
The following graph shows NZWF's yearly movement trend since 2017, which illustrates the effects that Covid-19 and its associated restrictions have had on activity at NZWF, especially on fixed wing movements. Total movements are expected to rebound in the next few years as the New Zealand government has now relaxed those restrictions and tourism and economic activity are beginning to show signs of recovery.

Diagram 13: Historic NZWF Traffic Movements



The following graph shows monthly movements since Covid. This shows that the effects of Covid are still evident, and that the recent removal of restrictions in NZ are still to make an impact on traffic movements.

Diagram 14: Monthly data since Covid



Rule Part 139 requires an aeronautical study to be conducted when key movement trigger points are met.

139.131 Aeronautical Study

(a) A holder of an aerodrome operator certificate must monitor

operations and conduct an aeronautical study for any significant change or

significant changes that may affect the safety of aerodrome operations.

(b) For the purpose of paragraph (a), a significant change includes:

(5) when annual aircraft movements at the aerodrome are forecast to exceed, for 3 consecutive years, —

(i) 40,000 or more combined VFR and IFR movements; or

(ii) 7,500 or more IFR movements; or

(iii) 60,000 or more combined VFR and IFR movements of which 9,000 or more are IFR movements; or

(iv) 15,000 or more IFR movements; or

(v) 100,000 or more combined VFR and IFR movements.

4 GENERATIVE INTERVIEWS

4.1 ATTENDANCE

The following people attended generative interviews, either in person or via Zoom. These were conducted by Dean Clisby, Dave Park, and Steve Ackland, with the assistance of Dan Allen.

NAME	REPRESENTING
Antony Sproull	Air Milford
Chris Pond	NZALPA
Mark Deaker	Alpine Heli
Megan George	Glenorchy Air
Sue Kronfeld	Independent/ AOPA
Peter Hendricks	NZ Flying Adventures
Nick Taber	NZ Hang Gliding and Paragliding Association
Andrew Wilton	Private Owner
Jeremy Booth Aviation	Skydive Wanaka/Performance Aviation
Jason Eteveneaux	Sounds Air
Taylor Rhind	Sounds Air
Paul Cooper	Southern Alps Air
Ryan Cooper	Southern Alps Air
Doug Patterson	Southern Hang Gliding & Paragliding Club
Callum Smith	Twenty24
Fox Lee	U-Fly Wanaka
Hamish McGill	U-Fly Wanaka
Don Grant	Wanaka Airport Users Group
Jason Lush	Wanaka Helicopters/Learn to Fly
Pete Spencer-Bower	Wanaka Helicopters/Learn to Fly

Ed Taylor	Warbirds over Wanaka
Graeme Gale	Heli Otago
Jo Learmonth	Wanaka Aerodrome
Jeff Hair	Wanaka Aerodrome
Jamie Waaka	Wanaka Aerodrome
Daniel Dodd	Wanaka Aerodrome
Callum McCaw	Gliding New Zealand (not consulted but commented on the draft report.

The following people or organisations were contacted but did not choose, or were unable, to attend an interview.

NAME	**REPRESENTING**
Scott Calder	Air NZ
Steve Kelly	Air NZ
Steve Scott	Air NZ
Tim Rayward	Air Safaris
Frances Dowdle	Airways Corp
James Evans	Airways Corp
Tim Bradding	Airways Corp
Todd Kendall	Airways Corp
Hugh Faris	ALPA
Jonathan Wallis	Alpine Group Ltd
Toby Wallis	Alpine Group Ltd
Tracey Bean	Alpine Group Ltd
James Stokes	Glenorchy Air
Andrew Dennyson	Helicraft
Rod Price	Helicraft
Grant Stewart	HeliSupport NZ
Kelly Buick	HeliSupport NZ
Austin Jones	Learn To Fly
Andy Pye	Milford Sounds Flights
Rhys Akers	NZ Hang Gliding and Paragliding Association

Alex Turnball	Queenstown Milford Users Group
Na'ama Gueta	Sounds Air
Elliot Kensington	True South
Gareth Allen	True South
Peter Daniell	True South

4.2 RISK ASSESSMENT

Assessment of credible critical risks was performed utilising information gathered in the generative interviews, using the SFARP approach.

The key credible critical risks are detailed below:

Mid-air collisions. The main conflict pairs at NZWF include:

a. Powered aircraft and paragliders/ hang gliders in the NZWF CFZ. This was seen as the greatest risk by all participants excluding representatives from the paragliding/ hang gliding community.
b. IFR traffic vs VFR fixed wing, microlight, and helicopter traffic.
c. VFR traffic joining to land and departing NZWF, especially if non-standard procedures are used.
d. IFR and VFR traffic vs parachutists.

Conflict between aircraft taking off or landing and aircraft taxiing on the RWYs.

These credible critical risks are discussed in the following section, including current mitigating procedures and practices (as published in the AIP and other sources of information), as well as recommendations that could further reduce the risk So Far As is Reasonably Practicable.

5 KEY OUTCOMES

5.1 ANALYSIS OF FACTORS THAT COULD WARRANT A CHANGE IN AIRSPACE DESIGNATION, OR THE REQUIREMENT FOR ATM

5.1.1 MOVEMENT COMPLEXITY[11]

The main activities are commercial skydiving, tourism, training (both fixed wing and helicopter), agricultural activity and general commercial/ charter activity along with private flying activity. These are interspersed with scheduled operations (up to 24 movements (arrivals and departures) per week with the Sounds Air schedule). There is also extensive paragliding activity within the NZWF CTZ.

The skydiving operation used to drop on the aerodrome. However, due to safety concerns, the PLA was moved off-aerodrome to a site approximately 3-5nm NE of the aerodrome. It was ascertained that in 2019 skydive movements accounted for less than 2% of all movements. Skydive Wanaka have developed good communication procedures for advising other traffic of skydiving activity, including calls prior to dropping (with information on how many chutes dropped) and advice that all chutes are on the ground.

There is extensive flight training activity carried out at NZWF, especially helicopter training, with fixed wing training to a lesser extent.

There is active private flying activity as well as increased itinerant traffic over the summer months, with pilots flying in to stay at Wanaka.

There was discussion to suggest NZWF has increasing corporate jet activity. These corporate jets will be a mix of private flights and corporate charters. Most, if not all, corporate jets will operate under IFR.

All aircraft use the same circuit which can cause issues with aircraft of varying speeds, especially training helicopters and faster aircraft. However, terrain prohibits establishing a differing circuit pattern for helicopters as is found in other aerodromes within NZ.

The Aerodrome Chart states “Approaches, landings, take-offs and departures for all aircraft **including helicopters** must be via the runways and normal circuit patterns”. However, we were advised that some commercial helicopters, when approaching from the south do not

[11] Refer Section 3.1 for detailed information.

always join the circuit as per the AIPNZ requirements (AD 1.6 – Aerodrome Operations) or the published VFR Preferred Arrivals tracks, and instead will, join via a close non-standard base leg. Given the level of activity at NZWF, this needs to be better enforced, as other aircraft operating at the aerodrome in the circuit may not be expecting this type of arrival.

A recent TAIC report into a mid-air collision at Hood Aerodrome cites non-standard procedures as a key factor. From a media article[12] it states "The report said the Cessna was joining the circuit via a wide right turn for the left-hand runway, while the Tecnam microlight was in the circuit approaching the right-hand runway and had right of way. TAIC's chief investigator of accidents, Naveen Kozhuppakalam, said the crash happened because the Cessna did not give way to the Tecnam. "**The Cessna's route to join the circuit was non-standard and disregarded civil aviation rules, but the pilot had been trained to do it this way in accordance with this accepted local practice at Hood Aerodrome"**. He said broader circumstances at busy local aerodromes with no air traffic control such as Hood made this kind of accident more likely. "These unattended aerodromes are safe so long as they're well managed by appropriately qualified ground staff and everyone observes Civil Aviation Rules," Kozhuppakalam said."

Recommendation B1: That NZWF management better monitor and enforce the requirements to conform with normal circuit procedures.

One respondent felt that forcing helicopters into the standard pattern would be detrimental to safety. However, as this is a Rule and AIP requirement, we are unable to support the practice of non-standard rejoins. To enable helicopter traffic to join from the south on more direct routing local helicopter operators should discuss this with Wanaka Airport Management and following agreement they could petition CAA for an exemption from the circuit direction rule requirements at NZWF. This would then require an amendment to the Wanaka Aerodrome AIP pages.

Alternatively, if there was airfield development west of the transport museum, this would be an ideal opportunity to move all helicopter activity into this area. This could also allow for a helicopter arrival/ departure sector to the south that would alleviate the concerns raised in the above paragraph, and certainly enhance safety.

[12] : https://www.stuff.co.nz/national/130351118/cessnas-pilot-failed-to-give-way-causing-masterton-midair-collision-that-killed-two-report-says

Movement complexity is a definite factor when considering the possible requirement for ATM.

It can be seen in Diagram 11 that fixed wing traffic had 68% fewer movements in 2021 compared to 2019. It is expected that these will rebound with increased scenic flying and parachute activity now that travel restrictions into NZ have ceased.

Activity associated with the Warbirds over Wanaka Airshow and the NASA balloon launches were not considered in this study, as there are well documented procedures and mitigations relating to both activities.

5.1.2 AIRFIELD AND AIRSPACE COMPLEXITY[13]

The airfield layout is a single main sealed RWY with a parallel grass RWY. There is also a Heli Grass Training area to the NE of the grass RWY. Larger aircraft are only able to use the TWY to access the apron, so they need to backtrack on the main RWY. Simultaneous operations on parallel sealed and grass RWYs are prohibited. Further considerations to airfield complexity are discussed in the second report as a part of this aeronautical study.

The airspace surrounding NZWF is uncontrolled Class G airspace, however it is located in an CFZ from the surface to 9500ft. This increases in height to 13,500ft in a sector to the north and there are three sectors to the south that reduce the height to either 6,500ft or 7,500ft. Use of radios in a CFZ is not mandatory, but pilots are encouraged to transmit on the common frequency. However, there is a restriction in the NZWF Aerodrome Chart advising that NORDO operations are not permitted at the aerodrome.

There have also been enhancements with Christchurch Information now using surveillance radar for better visibility and enhanced traffic information being able to be provided to IFR traffic, although IFR traffic movements at NZWF are currently relatively low compared to other similar aerodromes.

In our view the level of complexity of the airspace configuration surrounding NZWF is similar to those of other uncontrolled aerodromes. However, surrounding terrain, mix of traffic types (fixed wing, helicopters, paragliders etc) and traffic numbers at and in the vicinity of NZWF introduces other risks.

[13] Refer Section 3.2 and 3.3 for detailed information

The extensive activity by hang gliders and paragliders within the CFZ, often to high altitudes and with no radio communications or transponders, represents a considerable risk, especially considering the movement activity which is discussed in section 5.1.7.

5.1.3 SAFETY MANAGEMENT[14]

NZWF does not have a certificated Safety Management System, but "piggy backs" off the QAC SMS. There is a formal reporting system, but there is no information on the Wanaka Airport website detailing the reporting system to itinerant pilots.

Recommendation B2: That information regarding the reporting system is included on the Wanaka Airport website for itinerant pilots.

As is common at uncontrolled aerodromes, there may be a level of non-reporting. This is backed up by comments from Whanganui airport, where reporting levels increased substantially when UNICOM was introduced. At NZWF, investigations are conducted as required to address reports that have been submitted. These are conducted by QAC.

The level of SMS at NZWF is good given that it is a non-certificated aerodrome. Certification requirements, including the requirement for NZWF to have its SMS certificated separately from QAC is discussed in the second report.

5.1.4 PUBLISHED PROCEDURES AT NZWF[15]

There are well established, but limited, IFR procedures into and out of NZWF.

There are published VFR arrival and departure procedures depicted in the AIP. However, these are depicted by RWY and with no AWIB pilots may not be aware of what RWY is in use prior to planning their approach. It was felt that these charts would be more useful if they were designed around arrivals on one chart and departures on another chart, for both RWYs.

It was also noted in a review of these charts in many instances the departure track for one runway overlays the arrival track for the other runway. This does create a potential risk should an aircraft be following a departure from one runway (e.g., RWY 29) and another aircraft is following the arrival procedure for the other runway (e.g. RWY 11). When

[14] Refer Section 3.1.1 for detailed information

[15] Refer Section 3.4 and 3.5 for detailed information

designing or reviewing these procedures possible, in conjunction with aerodrome operator, consideration should be given to lateral track separation. Again, an AWIB will assist with managing this risk as the AWIB will provide details on the runway in use.

Recommendation B3: That NZWF consider redesigning the VFR Arrival and Departure charts, so that arrivals for both RWYs, and departures for both RWYs are depicted on separate charts.

5.1.5 WEATHER[16]

NZWF does not have an AWIB, so pilots have to rely on TAFs and METARs issued by the Met Service. There are limitations on the information that an AWIB can provide, but it was felt that having this basic meteorological information available to pilots would be very beneficial, especially having a real-time QNH. Another advantage of AWIB is that additional information can be added to the broadcast, such as parachuting activity in progress, increased bird activity, RWY closures, etc. Given the AWIB can also broadcast the preferred runway this will also assist aircraft in selecting the correct VFR Preferred Arrival Procedure.

An AWIB would allow access of the aerodrome QNH for IFR arrivals to be able to use the IFR approaches without having to obtain this from ATC, as well as VFR arriving and departing traffic being on the same QNH.

Recommendation B4: That Airport Management immediately explore options for an AWIB at NZWF.

The predominant wind is from the west, which favours RWY 29. Terrain in this direction should not cause excessive turbulence conditions, above what can be expected in mountainous terrain such as that surrounding NZWF. Excessive rainfall does not seem to be a major factor at NZWF. Low cloud (fog) can be an issue at NZWF, especially during autumn and winter, which will often result in the aerodrome being unable to be used, given IFR and VFR meteorological minima.

In our assessment, weather patterns at NZWF, along with associated terrain, can, at times, produce challenging flying conditions.

[16] Refer Section 3.13 for detailed information

5.1.6 INCIDENT REPORTS[17]

The study team reviewed incidents that have been reported to CAA over the past five years. This is tempered by the fact that non-reporting at uncontrolled aerodromes is usually higher than at aerodromes that have a level of air traffic management, as discussed in Section 5.1.3.

The highest number of reports were RPAS incidents, with the majority of these (approximate 75%) being complaints regarding RPAS operations over property without consent, as required by Rule Part 101. There were five reports of RPAS being operated above the mandated height restrictions without NOTAM advice. There was only one report of a near miss with a drone, which was in the traffic circuit (2017 report).

Traffic conflict, the second highest category, was broken down into circuit conflict and CFZ conflict. Circuit conflict accounted for approximately 68% of the conflicts (13 reports), one involving paragliders. There were 6 reports of CFZ conflict, one involving a paraglider. 25% of all traffic conflicts were attributed to lack of radio calls.

The ATSB Limitations of the see-and-avoid principle study has shown that the effectiveness of a search for other traffic is eight times greater under alerted see-and-avoid circumstances (when a radio is used effectively in combination with a visual lookout) than when just un-alerted (when no radio is used).[18]

A possible mitigation for this risk factor would be to introduce an Aerodrome Frequency Response Unit (AFRU) at NZWF. This is a ground-based VHF radio, which on receipt of a modulated VHF transmission from an aircraft on the appropriate frequency, automatically transmits either a voice or a tone response to confirm the pilot's radio frequency selection. They provide a safety benefit to pilots as they can confirm the operation of the aircraft's radio transmitter and receiver, the volume setting, and that they have selected the correct frequency for use at that aerodrome all at once. AFRU are currently in operation at both Ardmore and Taupo.

Recommendation B5: That Airport Management consider introducing an AFRU at NZWF on the current CFZ frequency.

[17] Refer Section 3.14 for detailed information

[18] ATSB document "A pilot's guide to staying safe in the vicinity of non-towered aerodromes" (AR-2008-044(1)), reprinted March 2013.

During the interviews we were interested to hear many of the participants advising that they had had traffic conflict incidents involving paragliders. When questioned, they advised that they had not reported them, confirming our view that there is a level of under reporting in and around NZWF. Most participants advised that they found that paragliders are very difficult to see, usually due to their slow relative movement. NZHGPA disputed this, stating that they believed that paragliders, due to the nature of their canopy and bright colours were relatively easy to see.

The third highest category of report (both with 15 reports) were aircraft handling incidents and unsafe flying complaints. These are outside of the control of NZWF management, with the exception that instances of poor airmanship could be taken up with the pilot concerned.

Bird strikes came in a distant 5th, with four bird strikes being recorded. This represents a low risk from bird strikes considering the traffic movements.

The analysis of the reports and information from the interviews indicates that traffic conflict, including with paragliders, is the biggest risk in and around NZWF.

5.1.7 COMPARISON OF MOVEMENT DATA IN RELATION TO OTHER AERODROMES[19]

Comparisons were made with movements at three controlled aerodromes, an aerodrome with AFIS and an aerodrome with UNICOM, as well as three other uncontrolled aerodromes. Due to the effects of Covid we have opted to compare 2019 data, as a probable benchmark as to movements once restrictions are eased.

There were no scheduled movements at NZWF in 2019. This followed Air NZ withdrawing scheduled services in the mid-2010s. However, Sounds Air commenced scheduled services in 2020, with 992 scheduled movements in 2021.

Whilst scheduled movements are considerably lower than those at other aerodromes that were used for comparison (Whanganui had the next lowest with 1872 scheduled movements), NZWF had the highest number of total movements (62,040 total movements). Whanganui had the second highest total movements with 45,814 (less than 75% of NZWF's movements).

A review of monthly data, especially for 2022, shows that the recent relaxation of travel restrictions into NZ is still to result in a significant increase in traffic movements. Fixed wing

[19] Refer Section 3.13 for detailed information

traffic has reduced the most at NZWF due to Covid and increasing tourism should see this increase to pre-Covid levels over the next few years.

It was noted that one training organisation is seeking student loan funding, and this may increase fixed wing training at NZWF.

It needs to be stressed that this movement data does not take in to account the extensive hang glider and paraglider activity in the CFZ.

Another factor that may see a need for more scheduled or charter services is that there are plans to construct a large film studio. The area identified for this is between NZWF and the Wanaka township, but final decisions on this and timelines are yet to be released.

5.1.8 ADVANTAGES OF ATM

ATC (on site or virtual) would clearly provide the safest solution at NZWF, as it would at many uncontrolled aerodromes. However, the cost to provide this service, as noted in the next section, and associated airspace changes outweigh the benefits at an aerodrome with the very low passenger movements that NZWF has.

AFIS is able to provide better weather information and situational awareness to pilots than currently exists. It is also able to relay clearances and other messages to and from ATC for IFR movements. Paraparaumu is the only similar aerodrome in NZ that has AFIS. It was introduced in 2012 following the certification of the aerodrome, recommencement of scheduled services (Air Nelson) and a requirement placed on the aerodrome by the CAA. It is important to note that at this time RNAV approaches were not common in NZ with the predominant approaches being VOR/NDB/DME approaches, which are considerably less accurate compared to current RNAV approaches.

UNICOM can also be of assistance in providing pilots with situational awareness by advising of other traffic when requested by a pilot. Both AFIS and UNICOM also show evidence of more complete reporting of aerodrome, aircraft, and airspace occurrences, aiding investigations and the improvement of procedures.

Given the comparatively high number of traffic movements at NZWF in 2019, and the fact that movements are once again trending upwards following Covid disruptions, it would not be unreasonable to assume that some sort of ATM would be warranted at NZWF. This would further be supported by the level of flight training activity that is undertaken at NZWF (being one of the key factors in the introduction of UNICOM at Whanganui).

5.1.9 COST

Airways were not willing to disclose the costs of providing AFIS services at Paraparaumu due to commercial sensitivity. However, a recent costing consultation paper by Airways states that the target revenue for NZPP is $600,000[20].

Whanganui advised that the cost of UNICOM there was about $150,000 per annum. However, they do utilise Academy flight instructors at minimal cost. This may also be something that could be done at NZWF. Due to the cost of UNICOM, landing fees at Whanganui have had to be increased to cover it.

Whanganui also advised that indications were that AFIS would cost considerably more than UNICOM, in the region of 4-5 times their current costs, i.e., at least $600-750,000 minimum.

Paraparaumu advised us that pre-Covid, Air Chathams were flying about 30,000 passengers in and out of the aerodrome per annum. They advised that, given the cost of AFIS, it would only be commercially viable if there were more than 250,000 passengers per annum, therefore at present it is not commercially viable, and this is unlikely to change in the immediate future. NZWF had 6354 passengers per annum in 2021 and are tracking to be around 7000 in 2022. There are no proposals we are aware of for increased scheduled services or aircraft size that would lift this to 250,000 or more.

We estimate the full annual cost of ATC would be 40-50% more than AFIS based on higher staff salaries and the likelihood that more staff would be required to provide approach control as well.

These costs do not include adding a tower, nor any fitout costs including connections to airfield lighting, communications, etc.

5.1.10 CONCLUSIONS

5.1.10.1 AIRSPACE DESIGNATION

Wanaka airport petitioned the CAA in August 2019 to change the CFZ to an MBZ. The response received from CAA in February 2020 advised that there was insufficient information provided and that they requested an aeronautical study to better assess this.

[20] https://www.airways.co.nz/assets/Uploads/Airways-2019-2022-Pricing-Consultation-Proposed-Prices.pdf

From the analysis of factors discussed above, it is our view that there would be justification for redesignation of the CFZ to an MBZ from the surface to the lower limits of the applicable controlled airspace above. There would also be justification in making this airspace TM from 2,500ft AMSL to the lower limit of the applicable controlled airspace above.

We have been advised that this will be strongly opposed by the NZHGPA and Gliding New Zealand (refer Section 6 comments), but we believe that, due to the high volume of traffic around NZWF, that there is a strong safety case for it. We did consider recommending an MBZ only in the immediate area of the NZWF aerodrome, but due to the extensive sightseeing traffic in the vicinity of the Wanaka township and the southern area of Lake Wanaka, we believe that this area should be protected. A mid-air collision over the increasing area of the Wanaka township could have catastrophic consequences to people and property if aircraft wreckage were to land in a built-up area. Additionally, we believe IFR arrival and departure areas should be protected.

To allow continued use of the airspace surrounding Roys Peak for paragliding activity without the need for pilots to carry and use radios a possible compromise would be to move the boundary of the recommended MBZ and the adjoining Fiordland CFZ further to the east, however this would require further discussions between the impacted parties.

Recommendation B6: That the current Wanaka CFZ be designated MBZ, with airspace within this designated as TM from 2,500ft AMSL to the lower limits of the applicable controlled airspace. We recommend that QAC/QLDC reengage immediately with the CAA who hold responsibility for airspace design and designation.

5.1.10.2 CONSIDERATION OF ATM

From the analysis of factors discussed above, it is our view that there would be justification for a UNICOM at NZWF, provided that there was an assured supply of UNICOM staff with the right qualifications and experience. The main factors include:

- Very high traffic movements pre-Covid, and the probability of an upward trend of movements back to those levels as tourist numbers increase. This should be

considered once traffic movements are seen to be tracking to be over 50,000 movements per annum,

- A high level of training activity interspersed with scheduled movements,
- Aircraft with differing performance characteristics operating in a common circuit,
- Extensive paragliding activity in the vicinity, if the airspace were to remain a CFZ,
- A high level of itinerant activity over the summer months,
- Challenging surrounding terrain and, at times, weather conditions,
- Better monitoring of pilot adherence to AIP requirements and good airmanship.

Recommendation B7: That due to analysis of factors covered in Section 5.1, that NZWF consider introducing a UNICOM at NZWF once sustained movements indicate more than 50,000 movements per annum.

Once the trigger point of 7,500 or more IFR movements (as per Rule Part 139.131), then consideration should be given to upgrading the UNICOM to a Flight Information Service, but this would require consideration of aircraft types and passenger numbers and would require a further Aeronautical Study.

5.2 OTHER CONSIDERATIONS

Under the SFARP approach, it has been identified that there are several low-cost mitigating actions that could be taken to further reduce the risk.

5.2.1 NZAIP IMPROVEMENTS

During this study it was noted that the AIP could be improved with regard to the notes on the Aerodrome Chart and the Operational Data. These points are listed below:

1. The Aerodrome Chart should make note of extensive paragliding activity in the vicinity of the aerodrome.
2. The Aerodrome Chart should state that all external lights, where fitted should be used when in the vicinity of NZWF, as is stated in the VFR arrival/ departure charts.

Recommendation B8: That the NZAIP is reviewed in line with the comments made above.

5.2.2 VNC CHART ENHANCEMENTS

We were advised during the study that additional or realigned visual reporting points (VRPs) had been recommended for the last VNC amendment, but due to staffing constraints, these could not be incorporated. This was the subject of a consultation paper from CAA, dated 4 March 2022, with submissions closed 31 March 2022.

It was also recommended during the interviews that further enhancements could be made to the VNC. These include:

1. Adding an additional reporting point in the Cardrona valley (possibly approximately midway between the Cardrona Township and Mt Barker VRPs. Cardrona Pines VRP is included in the consultation paper in this area.
2. That the Timaru River Mouth VRP be repositioned and renamed Timaru Creek to give it separation from the BEKNO SID position.
3. Show the dimensions of the PLA (P912) on the VNC as is currently depicted on the VFR arrival/ departure charts in the AIP.

Recommendation B9: That the VNC is reviewed in line with the comments made above.

5.2.3 FIORDLAND CFZ

Whilst outside the scope of this study, there were comments made regarding the size of the Fiordland CFZ. Due to the size of the CFZ, there is a lot of radio chatter that does not affect aircraft where they are operating. It was felt that this could be divided into a Fiordland CFZ to the south and a Mt Aspiring CFZ to the north. As this is outside of the scope, I will raise an ARC directly with CAA on this.

6 CONSULTATION INPUTS RECEIVED ON THE DRAFT AERONAUTICAL STUDY

There were 7 consultation inputs received from stakeholders. Key points are noted below, with our response to them

COMMENTS	RESPONSE
Wanaka Airport requested that we add commentary regarding at what trigger point we would envisage AFIS being a requirement.	Commentary to this effect has been made in Section 5.1.10.4.
Wanaka Airport requested clarity on when AWIB should be introduced and when the MBZ recommendation should be introduced.	Clarity has been made to recommendations B4 and B6.
Airways advised that they were aware that RNP procedures are being developed for the Wanaka Lakes Health Centre heliport which they understand will become effective early next year	Section 3.4 has been amended accordingly.
We found a CAA report relating to Proposed Visual Reporting Points in the Wanaka Area.	Section 2.2 (reference documents) has been amended. Section 5.2.2 has been amended to reflect this.
U-Fly advised that they had no comments.	Noted.
Wanaka Helicopters responded with two areas of concern: 1. **Recommendation B1:** Past experience has shown that a bottleneck develops (to the west and north-west of the airfield - approximating a 90 degree sector centred on the airfield extending towards Roys Bay to the west and Hawea outlet to the north) from being unable to use the airspace to the south of the airfield for joining, particularly when runway 29 is in use. This is the result of the majority of the traffic moving to and from locations to the west and north of the airfield, being funneled into	As this is a Rule requirement, we are unable to support this. If there was airfield development west of the transport museum, it would be an ideal opportunity to move all helicopter activity into this area. This could also allow for a helicopter arrival/ departure sector to the south that would alleviate the concerns raised in the above paragraph, and certainly enhance safety.

and out of the 29 circuit, and is exacerbated by the absence of FIS, UNICOM or similar. The use of a 'non-standard' left hand circuit for 29 by helicopters in recent years has alleviated this bottleneck, and has become possible through the relocation of the PLA. Whilst we agree that this has the potential to create a conflict similar to that referred to in the Hood Aerodrome accident, we believe the likelihood of this risk being realised is lower than the similar risk that comes about through forcing all traffic into a 'standard' 29 join, with the highest risk area in our view being in the vicinity of the start of the 29 downwind leg. This applies equally to the use of a SOHJ for 29. Also of note is that helicopters using the 'non-standard' 29 circuit are making a final approach to the FATO, south of the sealed runway (also the case for RWY 11), thereby further reducing the risk of an opposing traffic conflict on base or turn onto final. In relation to recommendations being viewed in conjunction with each other, it is of note that the adoption of Recommendation B7 will further compound the aforementioned bottleneck, as the time available to build an SA picture when joining will be reduced by moving the CFZ/MBZ boundary to the east. In the event of B7 being adopted and the western CFZ/MBZ boundary is moved further east, the use of the area to the south of the airfield for joining traffic will provide additional, safer options for joining traffic deconfliction.	Commentary to Section 5.1.1 has been added to this effect. We are proposing that the FATO be moved closer to the RWY to allow for the proposed grass TWY.
2. **Recommendation B7:** The movement of the proposed MBZ boundary to the position indicated has the potential to introduce additional risk, due to this being an area of high transient as well as 'loitering' traffic. Aircraft that operate in this area (rather than through it), e.g. to/from Coromandel Peak (1NM NNE of Roys Peak), The Peninsula and the area over Lake Wanaka to the west of The Peninsula will be required to monitor, and alternate between being active on, both frequencies. This will be especially difficult in the case of aircraft fitted with one radio, or unable to monitor more than one radio at a time. We would prefer if the	On consideration, this initial recommendation has been deleted, but commentary has been added that this could be a possibility.

proposed MBZ retained the same horizontal boundaries as the current Wanaka CFZ.	
A detailed response was received from the Gliding New Zealand Airspace Committee. This is included in Appendix 2. The main points are:	
1. That an Aeronautical Study is not required as present movements do not meet any of the trigger points in Part 139.131.	This part (Part B) of the Aeronautical Study was recommended by the CAA as detailed in Section 1.
2. That TM airspace is not justified as it does not mitigate an aviation hazard.	While no aircraft operating regularly into Wanaka are required to be fitted with ACAS, most commercial operators that were contacted advised that they had fitted ADS-B out and into their aircraft.
3. Designating an MBZ at the airport is not justified due to the NORDO prohibition at NZWF.	This restriction only relates to NORDO operations at NZWF, with no restriction in the greater CFZ.
4. Designating an MBZ in the surrounding airspace is not justified due to no significant change in the nature of air traffic.	Comparative data for NZWF for 2019 shows that it had more total movements than any of the other 8 aerodromes used for comparison. All of these aerodromes are either within controlled airspace or an MBZ.
5. An MBZ in the surrounding airspace would diminish safety and is likely unworkable.	ATSB advise that alerted see and be seen is 8 times more effective than unalerted see and be seen. Refer Section 5.1.6 for added commentary.
6. Creating a new CFZ boundary would increase risk.	Comments are confusing as they discuss that the CFZ should not be split between Wanaka and Fiordland. We recommended splitting the Fiordland CRZ in two. Refer Section 5.2.3.
7 (a). Attributing causality of conflict incidents in uncontrolled airspace.	Clarity and additional commentary in Section 5.1.6.
7 (b). Paraglider visibility.	Comments in Section 5.1.6 relating to this were from other participants in this study.
7 (c). Risk assessment, risk mitigation, and risk elimination logic 7.(d). Incident reporting chain	Noted.

7.(e). Conflict incident analysis 7. (f). Factual errors about ADS-B	We do not believe that we implied that NZWF management wish to receive reports well away from the airport. Noted. Section 3.9 amended for better clarity.
A detailed response was received from the Southern Hang Gliding and Paragliding Club. This is included in Appendix 3. The main points are: 1. A repeat of the Gliding NZ point 1, as addressed above. 2. The work also does not appear to have followed a formal, recognised or complete risk assessment process as required byAC139-15. 3. The report makes recommendations that cover a large area of airspace, (incorporating eight hang-glider symbols within its boundaries), well beyond the 'vicinity of the aerodrome'. The SHGPG club questions whether QLDC are aware that, if accepting this work, they may be assuming responsibility for airspace and aviation activity - and hence liability - well beyond that that is necessary. 4. The draft report appears to fall short of any reasonable expectations of an aeronautical study as no evidence of any recognised established or formal risk process has been applied. 5. The Southern Hang Gliding and Paragliding Club considers that there is no reasonable case for the establishment of an MBZ as proposed. In the absence of any evidence that a proper risk assessment has been completed, or that any consideration of alternative risk mitigation measures, of compliance with AC139-15, or failure to properly consult as required by the NZ Standard on risk, then the recommendations carry no weight and should be dismissed.	The SFARP approach has been used in several Aeronautical Studies that we have been involved in, including NZNV, NZRO, NZAP, NZWR and NZKK. The CAA has approved the use of the SFARP approach and it is consistent with Health and Safety at Work legislation. We do not believe that the recommendations in this report imply that QLDC is assuming responsibility for airspace and aviation activity beyond the vicinity of the aerodrome. Ultimately, decisions on airspace are the responsibility of the CAA. Refer to comments relating to point 2 above. Noted.

A response was received from the NZ Hang Gliders and Paragliders Association. This is included in Appendix 4. The main points are:	
1. Support for recommendation B4 (introduction of AWIB)	Noted.
2. Strongly opposing recommendation B6 (changing the CFZ to an MBZ (TM).	Noted.
3. Opposition to recommendation B11 (splitting the Fiordland CFZ into two parts.	Noted.
Skydive Wanaka made the following comments:	
• They agree with the recommendation for AWIB	Noted
• UNICOM – the experience / capability of the individuals conducting the service may not 'improve' airport safety or performance. It may actually hinder it. For this reason, we're cautious about a UNICOM service being introduced.	UNICOM would only be introduced if there was an assured supply of UNICOM staff with the right qualifications and experience as per Ardmore and Whanganui. Commentary has been added to Section 5.1.10.2.
• We support MBZ and Transponder Mandatory (TM) for the Wanaka basin (ADSB not TCAS).	Noted, but the CAA are only able to assign TM airspace, not ADS-B.
• We are cautious about any amended or introduced flight paths, or IFR tracks in and around Wanaka airport. Particularly the effect on Skydive Wanaka's SOZ (Skydive Operational Zone). We request we're consulted if any amendments are considered.	Noted. However, we are only recommending how the arrival and departure paths are shown, rather than changes to these paths. Commentary has been added to Section 5.1.4 for clarification.
• We support paraglider tech compatible with ADS-B.	Noted.
• We support inclusion of the PLA (P912) SOZ boundaries on the VNC charts, as depicted in the VFR arrivals / Dep plates in the AIP.	Noted.

7 CONCLUSIONS

Ten recommendations have been made as a result of this part of the Aeronautical Study, and in line with the scope as detailed in Section 2.3.1. The main recommendations are:

- That an AWIB and AFRU capability be introduced at NZWF,
- That Wanaka Airport petition the CAA to change the current CFZ surrounding NZWF to an MBZ, including a TM section.
- That Wanaka Aerodrome consider introducing a UNICOM service once sustained movements indicate more than 50,000 movements per annum.

The full list of recommendations is shown in Appendix 1.

Managing Director

Quality Aviation Consulting

APPENDIX 1 – SUMMARY OF RECOMMENDATIONS FROM PART B.

B1. That NZWF management better monitor and enforce the requirements to conform with normal circuit procedures.

B2. That information regarding the reporting system is included on the Wanaka Airport website for itinerant pilots.

B3. That NZWF consider redesigning the VFR Arrival and Departure charts and procedures, so that arrivals for both RWYs, and departures for both RWYs are depicted on separate charts.

B4. That Airport Management immediately explore options for an AWIB at NZWF.

B5. That Airport Management consider introducing an AFRU at NZWF on the current CFZ frequency.

B6. That the current Wanaka CFZ be designated MBZ, with airspace within this designated as TM from 2,500ft to the lower limits of the applicable controlled airspace. We recommend that this be applied for immediately.

B7. That due to analysis of factors covered in Section 5.1, that NZWF consider introducing a UNICOM at NZWF once sustained movements indicate more than 50,000 movements per annum.

B8. That the NZAIP is reviewed in line with the comments made in Section 5.2.1.

B9. That the VNC is reviewed in line with the comments made in Section 5.2.2.

APPENDIX 2 – RESPONSE FROM GLIDING NZ.

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24 November 2022

Dean Clisby
Managing Director
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Dear Dean

Aeronautical Study – Wanaka Airport Airspace Designation

This letter is in response to your request for comment on the draft aeronautical study "Wanaka Airport – Airspace Designation and Consideration of Air Traffic Services" dated 13 November 2022.

Thank you for getting in touch. The aeronautical study has fallen into a trap common to several airspace designation change requests we have seen from various parties in recent years, where the submitters have assumed that the majority of affected air traffic originates from the local airport (or at least are known to the airport operator). In the Southern Lakes area this is not likely. Gliders (sailplanes), paragliders, and itinerant GA aircraft from elsewhere are a significant proportion of the air traffic in the region.

Gliding is one of the sport aviation activities that form part of the attraction of the Southern Lakes region. The region is well known in soaring circles as one of the top three soaring locations in the world and attracts both national and international pilots during the soaring season.

Gliders are significant users of the airspace away from the immediate Wanaka airport environs. There are around 3200 glider launches from Omarama in most years, operating mainly in the soaring season from approximately October through March. Glider flights tend to be of several-hours duration and 200km to 500km or more in length (with sporting achievement or record attempt flights well exceeding those distances).

Many of those flights transit the wider airspace around the Wanaka aerodrome during out-and-back flights, creating one or two movements through the area per flight - perhaps about 2000 movements annually. Gliders will generally be above 4000ft AMSL, and can travel in gaggles. Gliders are held aloft by atmospheric dynamics which need heat from the sun, so gliding operations around the Wanaka area tend to be during afternoons between about 1300 and 1800 local time after the day has warmed up. Gliders almost never operate in with NZWF joining/departing or circuit traffic unless landing at the field, which is exceptionally rare.

1

Regarding the recommendations in the aeronautical study, our main comments are that most of the recommendations of interest to us are either unnecessary, or create new hazards. Our explanation follows.

1. The Aeronautical Study is unnecessary as it is not required by rule 139.131

As the study points out, an aeronautical study is required by rule 139.131 when traffic levels are forecast to reach certain trigger points. The trigger points are when annual movements at the aerodrome are forecast to exceed, for 3 consecutive years, any one of the following:

- 40,000 or more combined VFR and IFR movements
- 7,500 or more IFR movements
- 60,000 or more combined VFR and IFR movements of which 9,000 or more are IFR
- 15,000 or more IFR movements
- 100,000 or more combined VFR and IFR movements.

We note that there are no objective, evidence-based traffic forecasts in the study.

From Airways data the peak IFR movements at NZWF in the last decade were in the 2021 calendar year, driven by Sounds Air services which commenced in 2020. There were 1186 IFR movements recorded by Airways in 2021[1]. Even with 600% growth, the level of IFR traffic would not reach any of the IFR related trigger points above. The only relevant trigger points are 40,000 or 100,000 combined IFR and VFR movements.

CAA's 2021 New Southern Sky Benefits Study (NSS study) discusses potential future growth of air traffic, post the COVID-19 pandemic. As the Wanaka study says: at present, forecasts will be uncertain. Nonetheless the NSS study makes a reasonable case for a return towards normality. 2019 was clearly an outlier year with traffic well above the long-term trend. A return to normality is likely to mean a return to 2016 traffic levels, rather than 2019.

The NSS study suggests that traffic might return to around 80% of trend after about 5 years[2]. Given that there has been no upward trend in air traffic at Wanaka, according to the data in the aeronautical study, this may be optimistic.

Further, on-trend traffic levels prior to 2017 were below the 40,000-movement trigger point. Recovering to on-trend traffic levels would not trigger an aeronautical study. AC139-15 suggests aeronautical studies could be warranted when the aerodrome operating environment changes, but there are no indications of any relevant changes in the study.

Our view is that ***the Wanaka aeronautical study should be shelved until a reasoned and evidence-based traffic forecast suggests that it is required by rule 139.131***. Forecasts should exclude the traffic generated by the Wanaka airshow, as that traffic is extraordinary, and is managed using special arrangements and not by the normal airspace and aerodrome procedures.

2. Transponder Mandatory (TM) airspace is not justified as it does not mitigate an aviation hazard

TM airspace is required only to protect ACAS equipped aircraft. The Director may designate transponder mandatory airspace if it is determined that the traffic density in the airspace

[1] https://www.airways.co.nz/assets/Documents/Aircraft-movements/Movements2112-Stats.pdf
[2] https://www.nss.govt.nz/assets/nss/resources/May-2021-NSS-Benefits-Evaluation.pdf p25

requires the operation of transponders to reduce the risk of collision with those aircraft required to be fitted with an airborne collision avoidance system (ACAS). (Rule 71.203)

There are no aircraft forecast to be operating at Wanaka aerodrome that are required to be fitted with ACAS.

Sounds Air operate Pilatus PC-12 and Cessna Grand Caravans, single engine IFR carrying passengers. Rule part 125 applies. The aircraft are below the minimum weight/passenger capacity for which ACAS is required to be fitted. Rule 125.381(a) mandates ACAS to be fitted to turbine powered aircraft with MAUW > 5700kg, or 20-30 passenger seats. The Sounds Air aircraft are not this big.

Hearsay suggests that there may be a desire by airlines to schedule larger turboprop aircraft into NZWF. These aircraft would be required to be fitted with ACAS. However, there is no forecast in the study predicting the scale or timing of this. For TM to be designated, we expect that the Director would want to see genuine traffic forecasts showing that ACAS equipped flights would be operating in dense air traffic.

Our view is that ***because there are no aircraft required to be fitted with ACAS forecast to be operating at NZWF, there can be no reason for the Director to designate Transponder Mandatory Airspace.***

3. **Designating an MBZ at the airport is not justified due to the NORDO prohibition at NZWF**

In our view, **an MBZ is not required at NZWF**. The airport prohibits NORDO aircraft from operating at NZWF, which means that all aircraft operating at NZWF will be equipped with VHF. Good airmanship requires pilots to make the standard radio calls when taxiing, departing, inbound and in the circuit. An MBZ would not add any additional safety factor.

Any issues arising from poor airmanship, or failure to adhere to established procedures could warrant some corrective action by the airport manager. Given the description of non-adherence to circuit procedures by some helicopter operators, **we agree with your recommendation B1** that the airport management better monitor and enforce adherence to published procedures.

4. **Designating an MBZ in the surrounding airspace is not justified due to no significant change in the nature of air traffic**

Unless traffic growth at NZWF is such that conditions would significantly change in the surrounding airspace, there is no particular need for the airport managers to recommend any changes. According to the study, no significant growth is forecast. Traffic levels generated by the airport are below historical levels, and likely to stay so for some time. In our view, **changes to surrounding airspace designation are not required by developments at NZWF,** as airspace beyond the airport environs is not a responsibility of airport management, and forecast airport traffic growth will not significantly change the nature of air traffic in the surrounding region.

5. **An MBZ in the surrounding airspace would diminish safety and is likely unworkable.**

We are strongly in favour of improving separation assurance in uncontrolled airspace. However, we are not at all convinced that an MBZ or changes to the CFZ boundaries would do so. Rather, we believe that an MBZ would be unworkable at best, and that an MBZ, and a new CFZ boundary are more likely to create new hazards than reduce existing hazards. The

aeronautical study does not consider any potential negative impacts of the recommended airspace changes, but should.

Our views follow from the original basic research on see and avoid. Intruders are normally only sighted at the last minute. The nature of human visual acuity means that "only a tiny fraction of the opportunity for visual acquisition occurs before the target is well within the visual range and well above the resolution threshold"[3], intruders are only likely to be spotted when they are within about 2 - 3 nm distant. Because the see and avoid process takes about 36-42 seconds (a good lookout followed by an avoiding manoeuvre if necessary)[4], at typical GA aircraft speeds (say, up to 120kts), intruders are normally seen *for the first time* on the last visual scan before a conflict. In other words, at the last minute.

The primary mitigation for this risk is to ensure that pilots maintain a near continuous visual observation of the collision cone in front of the aircraft, as a first priority and their primary task when flying VFR en-route. The visual scan needs to be repeated more frequently than once per minute.

A number of comments in the study reflect the unfortunate emerging belief in NZ GA circles that pilot position reports by VHF are an essential part of see and avoid. They cannot be.

Anything which detracts from the visual task or lowers the motivation to lookout by lulling the pilot into a false sense of security reduces safety. It is our contention that regular en-route pilot position reporting on VHF does precisely this.

Even a cursory look at human factors involved in making and receiving position reports would predict a fall-off in visual performance. A pilot's visual field contracts under conditions of increased workload, resulting in a degree of ''tunnel vision'. As well, the pilot's visual scan is degraded significantly. "Peripheral stimuli are more difficult to detect when attention is focussed on a central task or an auditory task." Pilot eye movements can reduce by up to 60%[5]. Road transport regulations have recognised the hazards of distraction by regulating the use of mobile phones while driving. Making pilot position reports and processing those received from other aircraft creates exactly this kind of distraction.

Radio position reports are only of value when a visual sighting is the likely result. The use of radio in the vicinity of unattended aerodromes is of undoubted benefit as it allows pilots to identify and sequence other traffic in the circuit area. The key being that it allows pilots to make visual contact with aircraft well before they enter the collision cone as they both converge into the same circuit area.

Similarly, position reports from pilots flying defined routes at scenic spots such as the Tasman Glacier, Mount Tarawera and Milford Sound, or at known traffic choke points such as the Lindis Pass are of value as it gives nearby pilots the opportunity to sight traffic and

[3] *Air-to-Air Visual Acquisition Handbook*, J. W. Andrews, Lincoln Laboratory, Massachusetts Institute of Technology, 27 November 1991

[4] A good visual lookout requires the pilot to systematically fixate for a second on headings about 10 degrees apart, taking 24 seconds or so. GA pilots need about 12.5 seconds to execute an avoiding manoeuvre after looking directly at the intruder. *Limitations of the See and Avoid Principle*, Alan Hobbs, Australian Transport Safety Bureau, April 1991, p 21.

[5] *Limitations of the See-and-Avoid Principle",* Alan Hobbs, ATSB Transport Safety Report, April 1991

sequence accordingly. A report from an aircraft passing well away to a distant destination is a distraction.

Transport Canada and the Canadian branch of AOPA (COPA) are well aware of these factors. Unlike NZ, Transport Canada has defined a VHF frequency for use en-route. Canadian AIM RAC 5.1 states that pilots should monitor the *common frequency in uncontrolled airspace*, except when on other frequencies for operational reasons. COPA adds that pilots should report when joining the frequency, but should *not* report periodically ("every five minutes, five miles, five lakes")[6]. An effective visual scan is paramount.

Therefore, in our view, regular position reporting by en-route VFR aircraft in uncontrolled airspace should be discouraged.

Creating an MBZ is likely unworkable. 20 aircraft on frequency, reporting each 5 minutes would create 240 position reports per hour. For most pilots this would degenerate into a meaningless verbal wallpaper, and compromise aerodrome operations. In our view, **an MBZ may be unworkable and is likely to increase risk** given the likely air traffic density and the degradation of visual lookout for en-route pilots.

Given the level of traffic at NZWF, you might **consider recommending that the NZWF aerodrome frequency be changed to be different from the surrounding CFZ frequency**. Making this change would remove mutual interference between NZWF joining, circuit, and surface traffic, and the en-route traffic further away in the CFZ. It would reduce RTF congestion, and improve awareness of relevant traffic for both groups.

6. Creating a new CFZ boundary would increase risk

CFZ boundaries increase risk. They create zones of ignorance, and a distraction at the boundary.

Pilots entering a CFZ will not be aware of other aircraft within the CFZ until enough time has passed for all other aircraft to make a position report. If other aircraft are reporting every 10 minutes, an aircraft flying at 120kts would cover 20nm in that time. This means that either side of a CFZ boundary, there is a zone of ignorance for pilots who are (erroneously) depending on RTF position reports to augment their visual lookout. Removing the boundary eliminates this risk.

There is an increased risk of collision at the CFZ boundary. In aircraft on collision courses approaching the CFZ boundary from either side, the pilots will be head down checking the boundary location and changing frequency. Generally, pilots would change frequency and make a position broadcast on the new frequency. There is no particular reason that they would ever be on the same frequency at once, and therefore no reason to suppose that they are likely to hear one another. At the very time when a lookout is essential, they are distracted, and the practice of position reporting on a CFZ frequency will not help them. The effect is obviously marginal because it may be infrequent, but there are no counteracting benefits. Removing the boundary eliminates this risk.

In our view, CFZ boundaries should be minimised, as should en-route pilot position reporting. Creating a new CFZ boundary is likely to increase and not diminish risk. **The CFZ should not be split between Wanaka and Fiordland.**

[6] Good VFR position reports are good airmanship, COPA, August 2017. https://copanational.org/good-vfr-position-reports-are-good-airmanship/

7. Improving the credibility of the aeronautical study

The following comments relate to aspects of the study that some may find questionable. We hope these comments will be useful to you when finalising the study.

(a) Attributing causality of conflict incidents in uncontrolled airspace

On page 46, the study mentions 6 conflict incidents in the CFZ, of which 25% (presumably 1.5 incidents?) were attributed to lack of radio calls. Generally, causation would be assigned to either not following procedures, or a situation that the procedures do not protect. In uncontrolled airspace, see and avoid is the legal requirement for separation assurance. There are no rules requiring radio calls in uncontrolled CFZ airspace to aid sighting other aircraft, so this attribution is clearly incorrect.

Even in MBZ, unless radio position reports are made so frequently that a visual sighting immediately follows (say every minute), sighting aircraft (including those having made position reports sometime previously) requires the pilot to execute an effective visual lookout.

Failure to sight another aircraft in uncontrolled airspace is a failure to see, not a failure to hear. Corrective action would involve improving the pilot's competency in visual lookout, and perhaps reducing distractions, especially listening to the radio and mentally tracking aircraft that are not collision risks.

(b) Paraglider visibility

The study leaves an unfortunate impression that seeing paragliders is hard. In our experience, it is no harder than spotting other small aircraft. Paragliding canopies are large and colourful, and generally stand out well enough against the background. Paragliders fly relatively slowly, so usually act more like a stationary obstacle, and are therefore usually moving relative to the background, making them easier to see. The recent national gliding competition happened to run some tasks along the Kaimai Range at the same time as a paragliding competition was underway. Glider pilots were easily able to see and avoid the paragliders. There are no known AIRPROX incidents from these competitions. Glider pilots report sighting paragliders well over a minute before encountering them. Gliders are known to climb in thermals with paragliders, with both circling tightly within one or two hundred metres of each other. The key is to maintain a good lookout.

Also on page 46, some participants report paragliders being hard to see due to their low relative movement. A basic tenet of see-and-avoid is that any aircraft with no relative movement is on a collision course. All aircraft not moving against the background are harder to see. The correct course of action is for the pilot noticing this to change course.

(c) Risk assessment, risk mitigation, and risk elimination logic

Recommendation B1 follows a clear line of logic from the reported behaviour of helicopters not following circuit procedures. The argument is clearly articulated, and the recommendation clearly appropriate.

It would be helpful to do the same with the incident analysis. The study currently simply lists incident categories, and leaps directly to recommendations without articulating what risk the incident exposed, and why that risk is addressed by the recommendations. It would be easy to support recommendations that clearly follow from known, inadequately mitigated risks. The proposed airspace changes do not arise from identified, quantified, unmitigated and unacceptable risks.

(d) Incident reporting chain

All certified operators, including part 149 certificated aviation recreation organisations such as Gliding New Zealand, are required to have incident reporting and safety management processes. The study implies that Wanaka airport management would want to receive incident reports from the airspace well away from the airport. We would expect that incident reports for such incidents involving certificated operations would flow through the certificated organisation's process. Ours, in the case of gliders. For private operators, incident reports would be made direct to CAA. Where incidents occur at the airport, or in flight on approach / departure or in the circuit, the airport may become involved, but not generally for incidents occurring in airspace away from the airport.

(e) Conflict incident analysis

The fact that most conflicting aircraft are only sighted in the last minute means that in most conflict incidents pilots will report a sense of being 'jumped' or surprised. Seeing the intruder at the last minute is a normal outcome of see-and-avoid working as designed. A failure to see-and-avoid only occurs when sighting is too late for either aircraft to take avoiding action if it was prudent. It would be interesting to know how many of the 6 reported incidents resulted in seeing in time, and taking avoiding action. Reports of this nature are in effect evidence that see and avoid is working, and that the normal risk of conflict in uncontrolled airspace exists. Neither would be cause for concern, unless the frequency of reports indicated that traffic density was approaching the limit for see and avoid to be effective. Given the very low number of reported conflict incidents in the airspace away from the airport (6 in five years), the reasonably high traffic levels, and no airborne collision occurrences, the data suggests that see and avoid is indeed acceptably safe in the area. The Transport Accident Investigation Commission use the term "exceptionally unlikely" for events with < 1% probability. Clearly, in and around Wanaka, the risk of airborne collision is exceptionally unlikely.

(f) Factual errors about ADS-B

The draft study states that ADS-B is transmitted by local ground stations or satellite and therefore has greater range than SSR (page 23). This is patently incorrect.

ADS-B is transmitted by aircraft. ADS-B transmissions are made on 1090 MHz, the same frequency as responses to SSR interrogations, using the same transmitter (the aircraft transponder) and therefore the radio range is generally identical to SSR, depending on the radar or receiver sensitivity.

The coverage area of both SSR radars and ADS-B receiver sites is limited by line-of-sight radio propagation. In New Zealand the predominant limiting factor for operating range is shielding by terrain. ATC (Airways) has larger coverage of airspace for ADS-B than SSR because the ADS-B receiver network has more receiver sites, and therefore overcomes some of the terrain shielding that affects radar coverage.

Thank you for the opportunity to comment. As mentioned, we do not think that any airspace changes are essential at this time, although changing the NZWF frequency would be desirable.

As a final comment, AC139-15 mentions that decisions made in respect of risks must balance the technical aspects of risk with the social and moral considerations that often accompany such issues. For an effective outcome, there should be a level of consensus as to their

7

acceptability among the key stakeholders. Given the crucial nature of the location for both the gliding movement and paragliding, we would be unwilling to support changes that diminish or threaten the future of these sports, unless they are absolutely essential to aviation safety. In past negotiations with high profile airspace users, we have generally found mutually satisfactory solutions to issues, that allow all parties to thrive.

I would appreciate receiving a copy of your final report.

Sincerely

CJ McCaw ATPL
Chairman, Gliding New Zealand Airspace Committee

SPORT
NEW ZEALAND

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APPENDIX 3 - RESPONSE FROM SOUTHERN HANG GLIDING AND PARAGLIDING CLUB

Southern Hang Gliding & Paragliding Club

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24th November, 2022

The Southern Hang-gliding and Paragliding Clubs (SHGPGC) response to the QLDC's Aeronautical Study-Airspace Designation Final Draft Proposal for Wanaka

Summary

- The study is unnecessary due current and projected traffic movements and is not required by rule 139.131. The Wanaka aeronautical study should be shelved until a reasoned and evidence-based traffic forecast suggests that it is required by rule 139.131.
- It is SHGPGC's considered view that the report does not set out a considered or complete consideration of the matters apparently being considered. The work also does not appear to have followed a formal, recognised or complete risk assessment process as required by AC139-15.
- The report makes recommendations that cover a large area of airspace, (incorporating eight hang-glider symbols within its boundaries), well beyond the 'vicinity of the aerodrome'. The SHGPG club questions whether QLDC are aware that, if accepting this work, they may be assuming responsibility for airspace and aviation activity - and hence liability - well beyond that that is necessary.
- The draft report appears to fall short of any reasonable expectations of an aeronautical study as no evidence of any recognised established or formal risk process has been applied.
- The Southern Hang Gliding and Paragliding Club considers that there is no reasonable case for the establishment of an MBZ as proposed. In the absence of any evidence that a proper risk assessment has been completed, or that any consideration of alternative risk mitigation measures, of compliance with AC139-15, or failure to properly consult as required by the NZ Standard on risk, then the recommendations carry no weight and should be dismissed.

Background

Paragliding is an iconic adventure activity with an almost 40 year history in the Southern Lakes region. The SHGPGC is the largest Paragliding and Hang-gliding Club in New Zealand with over 350 active members, with most of those currently based in the Queenstown and Wanaka area.

Treble Cone, near Wanaka, is the premier flying site for recreational PG /HG in New Zealand and is recognised as a world class flying destination, attracting overseas pilots, valuable tourist dollars and jobs every year. Like Mount Cook for climbers, Treble Cone and Wanaka environs are world famous for the spectacular and demanding flying that the area offers.

Many New Zealand cross-country flight records and competitions are flown from Treble Cone, Coronet and Long Gully, heading north across the Wanaka basin to the ranges beyond. The flight from Treble Cone to Wanaka's Pembroke Park over Mt Roy is an iconic flight especially for the day-to-day recreational pilot.

Through the early 2000's the tourist boom led to the development of Queenstown airport and controlled airspace surrounding it. Early on in the Queenstown airport expansion, hang glider and paraglider flying were permitted (under limited circumstances) to continue flying, with the use of Airband radios. They were eventually shut out through the mandatory use of transponders. Due to the CAA rules surrounding transponder installation and limited carrying and power supply capacity, it was not possible for Hang Gliders and Paragliders to comply. Airspace for flying paragliders and hang-gliders consequently became severely confined and restricted, leaving Wanaka as the last remaining easily accessible area for free flying.

Like mountain biking, trails in the air are of vital importance to the Hang Glider and Paraglider community.

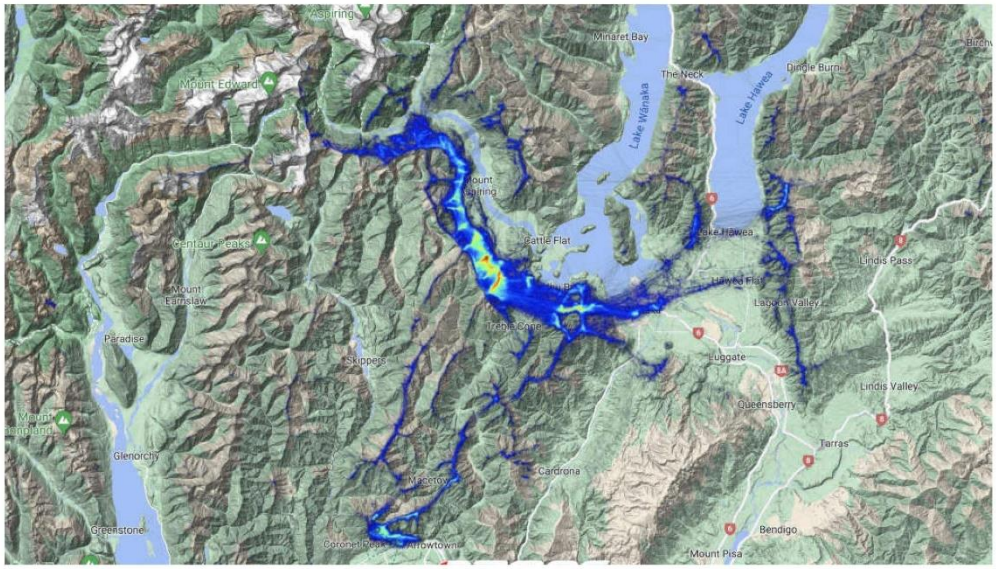


Figure 1. Historical track log data for Paraglider and Hang Glider flights in the Southern Lakes area

Report General Feedback

Rather than a carefully considered and industry standard risk assessment as outlined and expected in

AC139-15, one must conclude that the work has set out to justify a pre-ordained answer. The AC139-15 also requires balancing technical aspects of risk with the social and moral considerations that often accompany such issues. **The draft report appears to fall short of any reasonable expectation of an aeronautical study as there is no evidence of any recognised established or formal risk process having been applied.**

Expanded Council Liability

The draft Report refers to "Wanaka Aerodrome" but appears to be considering airspace well beyond the vicinity of the aerodrome, as described in the Advisory Circular AC172-2 to be less than 5 nm. This implies QLDC is claiming authority and hence assuming liability for the whole Common Frequency Zone (CFZ) for which they have no authority, and almost certainly have not advised the Councillors thereof.

The report states that a 2019 review to implement a MBZ was rejected by the CAA noting that further consideration to a change in designation would not be undertaken until 'the proposal is developed to a more mature statement in line with future airport strategies.

To date these expansion strategies have not received public support and have also been significantly curtailed by the recent High Court judgment that QLDC acted unlawfully in awarding QAC a 100 year lease of Wanaka Airport. High Court judicial review also found the QLDC/QAC had been "evasive and misleading" in failing to properly consult the Wānaka community on airport expansion.

In a recent public statement deputy mayor Quentin Smith has made it clear the wider community needs to be consulted before any decisions are made about increased airport and airspace use.

Over $500,000 has been budgeted for the strategic direction of Wanaka airport in this financial year. It seems highly unlikely that the QLDC would spend that amount of time and money to investigate the future strategic direction for Wanaka Airport if they didn't expect to come up with something significantly more ambitious and profitable than its current status, servicing the needs of general aviation, tourist flights, current passenger service and NASA.

Project Description	2022/23 Budget
Aircraft Movement Areas	70,000
Café Carpark Reseal	10,000
Wanaka Airport Wastewater Upgrade	75,000
Wanaka Airport Water Supply Upgrade	75,000
Wanaka Airport Storm Water	30,000
Fencing	40,000
Wanaka Airport Other Sustaining	50,000
Wanaka Airport Strategic Direction	500,000
	$ 850,000

Figure 2. Wanaka Airport budget for 2022/2023

Many people travel from afar to visit and participate in adventure activities in the region- in fact, the QLDC prides itself on supporting outdoor adventure activities so as to attract foreign visitors. New Zealand was recently voted the No1 destination for adventure activities by the prestigious National Geographic magazine.

The Queenstown / Wanaka region is probably the most desired adventure capital of the world and yet is the QLDC bent on stifling, or even eliminating, what is perhaps one of the most iconic adventure activities from its environment? Are we killing the golden goose by further anticipated airport expansion?

The Aeronautical Study is unnecessary as it is not required by rule 139.131

As the study points out, an aeronautical study is required when traffic levels are forecast to reach regulatory trigger points. The trigger points are when annual movements at the aerodrome are forecast to exceed, for 3 consecutive years, one of the following:

- 40,000 or more combined VFR and IFR movements
- 7,500 or more IFR movements
- 60,000 or more combined VFR and IFR movements of which 9,000 or more are IFR
- 15,000 or more IFR movements
- 100,000 or more combined VFR and IFR movements.

We note that no objective, evidence based traffic forecasts are quoted in the study.
Airways data shows that the peak IFR movements at NZWF in the last decade were in the 2021 calendar year, driven by Sounds Air services which commenced in 2020. There were 1186 IFR movements recorded by Airways in 20211

Even with 600% growth, the level of IFR traffic would not reach any of the IFR related trigger points set out by the CAA. The only relevant trigger points are 40,000 or 100,000 combined IFR and VFR movements.
The 2021 New Southern Sky Benefits Study (NSS study) for CAA discusses potential future growth of air traffic, and the Wanaka study says that, at present, the forecasts will be uncertain.

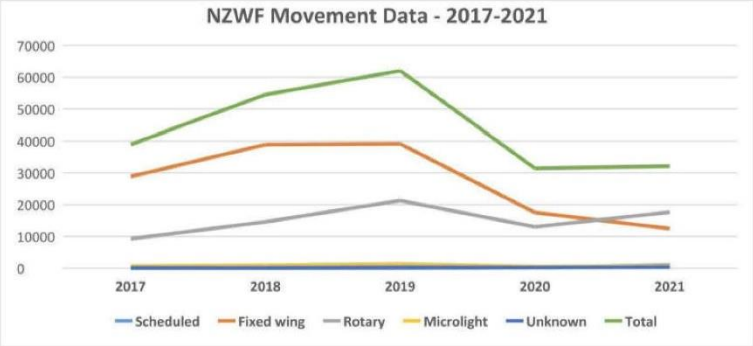
Nonetheless the NSS study makes a reasonable case for a return towards normality in time. What is clear, however, is that 2019 was an outlier year with traffic well above the long-term trend. A return to normality is likely to mean a return to 2016 traffic levels, rather than 2019.

The NSS study suggests that traffic might return to around 80% of trend after about 5
years. Given that there has been no increase of traffic at Wanaka according to the data in the aeronautical study, this may be optimistic. Further, on-trend traffic levels prior to 2017 were below the 40,000 movement trigger point. Recovering to on-trend traffic levels would not trigger an aeronautical study.

The view of the SHGPGC is that the **Wanaka aeronautical study should be shelved until a reasoned and evidence-based traffic forecast suggests that it is required by rule 139.131.** Forecasts should exclude the traffic generated by the Wanaka airshow, as that traffic is extraordinary and is managed using special arrangements, and not by the normal airspace and aerodrome operational requirements.

https://www.nss.govt.nz/assets/nss/resources/May-2021-NSS-Benefits-Evaluation.pdf p25

Diagram 12: Historic NZWF Traffic Movements



The following graph shows monthly movements since Covid. This shows that the effects of Covid are still evident, and that the recent removal of restrictions in NZ are still to make an impact on traffic movements.

Figure 3. Historical NZWF Traffic Movements

Diagram 13: Monthly data since Covid

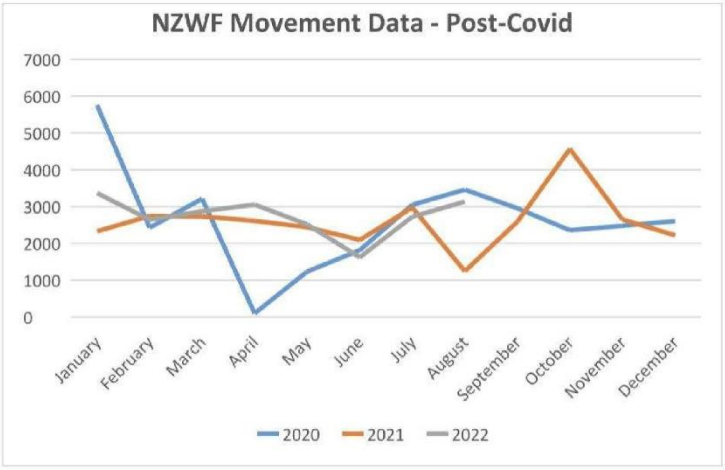


Figure 4. Monthly Traffic movements post COVID

Questionable Risk Assessment

The Report gives no evidence that a proper or recognisable risk assessment has actually been carried out. Claims made are not backed evidence or data. There is no reference to the Wanaka occurrence data, NZ accident statistics or international statistics relating to mid air collisions and conflicts with paragliders/hang gliders. The SHGPGC has requested the working documentation that

this assessment was based on. It appears highly unusual that working documentation with likelihood and impact ratings, used to justify the report, could not be produced.

On reading the report it is evident that no meaningful analysis has been completed. The work has been based only simply on subjective interviews from commercial stakeholders who may not be neutral in their views or assessments of risk.

Evidence based statistics:
The Report does not appear to have undertaken any research into Paraglider / Hang Glider to powered aircraft conflict statistics or research whether that be in NZ or internationally.

Publicly available information shows that there have been no mid air collisions between powered aircraft and paragliders/hang gliders between 1989 - 2022 here in NZ, yet there have been eight fatal mid air collisions between powered aircraft in that same period. Yet, despite this readily available information, the draft report concludes that PG/ fixed wing accidents are the biggest risk but there are no figures presented to support the issue of 'likely collision'.
The reality is that VFR air to air collisions in NZ are infrequent, and the ones that happen are the result of a failure to follow 'see and avoid' procedures, rather than the inadequacy of the airspace regime in force. The higher local occurrence data for powered aircraft in the circuit also support this assertion regarding likelihood.

Date	Location	Aircraft	AS Class	Activity	Location / ATC
Jul 1989	Palmerston North	FW/FW	G	VFR formation flying	Not in vicinity of an aerodrome
Dec 1989	Milford Sound	FW/FW	G	VFR Transiting over / departing	Above circuit height AFIS not responsible for separation
Feb 1990	Ardmore Ad	FW/FW	D	VFR Formation Flight	Formation flight - ATC not responsible for separation
Jun 1992	Fox Glacier Valley	FW/RW	G	VFR Sight seeing	Not in vicinity of an aerodrome
Nov 1993	Auckland City	FW/RW	G	VFR Traffic spotting	Near unattended Heliport
Feb 2008	Paraparaumu	FW/RW	G	VFR approaches. In the circuit.	In vicinity of certificated unattended aerodrome
Jul 2010	Near Fielding	FW/FW	G	VFR Training Remaining below Class C	In vicinity of unattended and uncertificated aerodrome
Jun 2019	Hood Ad, Masterton	FW/FW	G	VFR TAIC Investigation in progress	In vicinity of unattended and uncertificated aerodrome

Figure 5. Mid Air Collisions (MAC) in NZ from 1989 to 20022

In Europe, where paraglider traffic is significantly higher and relatively freer, instances of paraglider and powered aircraft are "exceptionally unlikely" and have not typically resulted in the catastrophic crashes commonly seen between fixed wing aircraft. This may in fact be due to the soft fabric paragliders use versus the hard collision risk posed by powered aircraft. The slow speed and good

field of vision for paragliding all add up to lowering the real risks of collision with a powered aircraft.

The aeronautical draft report claims 'under reporting' is the reason for low paraglider occurrence numbers relating to Wanaka Airport however no factual evidence is put forward to support this claim. Like much else in the report, this is simple conjecture. The lack of reports is far more likely due to the fact that cross-country paragliding pilots, who know the region, know there is no reason or advantage to go near the immediate area surrounding Wanaka airport, as evidenced by the historical track log map of flights logged online (see figure 1)

A full analysis of incidents might include factors such as: What were the times of the incidents, flight paths and location 'hotspots'? Is there a common thread?
If one looks at the busiest times for fixed wing scheduled movements at Wanaka Airport they are first thing in the morning and around 5pm in the afternoon. At these times there are no paragliders likely to be flying as normally on a warm day, cross-country flights don't begin until around midday and, mostly, pilots are on the ground, or well away from Wanaka by 5 pm. This fact, taken together with the number of good flyable days means that the **chance of a collision becomes "exceptionally unlikely"**

3.14 CAA INCIDENT REPORTS
Information was requested from the CAA regarding notifiable occurrences that had been received by them relating to the NZWF area over the last 5 years. The CAA documentation that we received showed that there were 296 reports submitted. However, when we filtered these and removed incidents that don't pertain to the scope of the report, such as injuries sustained due to a hard parachute landing and defect incidents, the number was reduced to 78.
When reviewed, the occurrences were classified into the following main categories:

Table 3: Review of Occurrences Reported to the CAA.

Occurrence Category	TOTAL
RPAS Complaint	21
Traffic Conflict	19
A/C Handling Incident	15
Unsafe Flying Complaint	15
Bird Strike	4
AD Access Breach	1
Noise Complaint	1
PLA P912 Bust	1
Safety Concern	1
TOTAL	78

Table 1. Occurrences reported to CAA

Mid-air collisions. The main conflict pairs at NZWF include:
a. Powered aircraft and paragliders/ hang gliders in the NZWF CFZ. This was seen as the greatest risk by all participants excluding representatives from the paragliding/ hang gliding community.
b. IFR traffic vs VFR fixed wing, microlight, and helicopter traffic.
c. VFR traffic joining to land and departing NZWF, especially if non-standard procedures are used.
d. IFR and VFR traffic vs parachutists.
Conflict between aircraft taking off or landing and aircraft taxiing on the RWYs.
These credible critical risks are discussed in the following section, including current mitigating procedures and practices (as published in the AIP and other sources of information), as well as recommendations that could further reduce the risk So Far As is Reasonably Practicable.

Traffic conflict, the second highest category, was broken down into circuit conflict and CFZ conflict. Circuit conflict accounted for approximately 68% of the conflicts (13 reports), one involving paragliders. There were 6 reports of CFZ conflict, one involving a paraglider. 25% of traffic conflicts were attributed to lack of radio calls

Traffic conflict occurrences	**Comment**
17/6014 ASP CR 43000 *Near miss with a Paraglider over Wanaka Township. No radio contact able to be established. A helicopter pilot reported a near miss with a Paraglider over Wanaka Township. The pilot reported that radio contact with the paraglider was unable to be established. The area is Class G and in a CFZ. It is also noted that there is a paraglider symbol on the relevant VNC chart in that vicinity. The whole GA is VISUAL FLIGHT RULES apply. Paragliders and Hang-glides are effectively NORDO aircraft and are allowed to operate quite legally in a CFZ, are also generally large coloured targets, which enhances their visibility. It is clear in this case that local operators know this and they apply good airmanship and 'see and avoid' principles to mitigate any risk.*	Reference is made to the CAA GAP booklet New Zealand Airspace Page 24: "It is not mandatory to use a radio on the specified frequency within a CFZ", Additionally this occurrence is beyond the immediate Aerodrome and not subject to QLDC responsibility and scope of this aeronautical study.
44852 ARC MI 43105 *Concern about safety of a forthcoming paraglider event.*	A notam is always produced for competitions that occur within the Southern Lakes area. In

Wanaka WF	addition, the Wanaka air users group is notified and air band radios are used to make proactive calls. Satellite tracking will additionally be made mandatory in the upcoming national championships and will appear on the https://puretrack.io website along other aircraft movements. We don't believe this is a valid actual occurrence. To our knowledge there have not been any near misses as a result of paraglider competitions in the Wanaka CFZ.
18/2781 ASP MI 43127 *2 paragliders in late downwind at circuit height. No avoiding action required. Wanaka WF*	
18/419 ARC MI 43126 *Query regarding tourist operating a drone during fire fighting operation. Person responding. Wanaka WF*	
18/490 ARC MI 43138 *Phone complaint about drone operating overhead for up to 4 hours without permission of owner. Operator identified in Occ log. Albert Town WF*	
17/7548 ARC CR 43068 Large drone passed within 100 ft of aircraft on finals. Wanaka	
18/6945 ASP MI 43331 *Close proximity to Wanaka Helicopter R44 5000ft north of Mt Coromandel. Miss communication and mindset of aircraft location. Neither aircraft adjusted altitude*	

and DXP Pilot was unaware of the desired route carried out by the R44 Pilot. A Cessna 172 came into close proximity to a Robinson 44 helicopter north of Coromandel Peak, near Lake Wanaka. Both aircraft were approximately 5000ft. Neither aircraft had time to take avoiding action. Investigation found that a previously agreed helicopter flight route had changed but was not advised to other local scenic flight operators. The Cessna pilot therefore had a situational awareness mindset about the route the helicopter would fly and therefore did not appreciate that their respective tracks would conflict. The Cessna was also slightly off its normal track on this occasion which further compounded the situation. While both pilot knew each other were operating close to each other they did not use their radios to confirm each other's specific intentions. All the local operators continue to work together to improve their systems and safety regarding routes and tracks flown during their respective scenic flights. *Lake Wanaka WF*	
18/8724 ASP MI 43432 *ETA was in the grass 11 circuit and made numerous position reports including one stating 'finals grass 11 touch and go'. Despite this DHV lined up on seal 11 and took off. DHV then conflicted with ETA when it turned crosswind as both circuits are left hand.An aircraft was using the grass circuit when another aircraft lined up and departed off the parallel sealed runway. Both circuits are left hand and the second aircraft conflicted with the other as they both turning crosswind. A NOTAM has since been issued prohibiting parallel operations of all vectors and this will be permanently promulgated in*	

the next AIP cycle. *Wanaka WF*	
19/3845 ASP MA 43604 *A/C had landed on RWY29 seal and was vacating at A2, A/Cwas halfway between the runway centreline and A2 hold short bar when second A/C touched down on the same runway 100m behind and rolled past at approx 40kts. Had A/c 1 stopped, or was slow to vacate, there was a high chance of a collision.An Airvan had landed on RWY29 seal and was vacating at A2. The aircraft was halfway between the runway centreline and A2 hold short bar when a PA28 touched down on the same runway 100m behind and rolled past at approx 40kts. Had the Airvan stopped, or slowed to vacate there was a high chance of a collision. Following the occurrence, the pilot of the PA28 was spoken to by a CAA Aviation Safety Advisor. It was agreed that the pilot was not setting a good example or contributing to a safe operating environment. It was also agreed that the way forward was for the pilot to have a meeting together with their other two pilots to discuss the "pressure creep" that their high volume short duration Part 115 flights involved in regard to a lack of conservative spacing in the circuit. That they recognise this event is probably a "slice of cheese" that can easily be taken out of any future possible event by better circuit planning, spacing and landing outcomes. The pilot's willingness to accept fault and the responsibility to engage with their other pilots to improve their circuit airmanship is a redeeming factor. The CAA ASA will be following up on the situation to monitor reactions. Since this occurrence occurred, there have been no further occurrences reported to the CAA of this nature.*	

Wanaka WF	
8/596 ASP MA 43145 Avoiding action required by an Airtourer in the circuit against a C185. It is believed the C185 made no radio calls and was not landing. Wanaka WF	

'able 2. Occurrence data relating to conflicts within the Wanaka CFZ and Wanaka Aerodrome

Electronic Conspicuity Devices

CAA have not yet approved portable EC devices for general aviation use and seem to be taking a watch and see approach with the emerging technologies. Many of the cross country pilots are already carrying satellite tracking devices like Spot and Garmin devices and are actively being tracked and are used in case of emergency.

3.8.1 ELECTRONIC CONSPICUITY (EC) DEVICES
There has been work overseas to develop a small and cheap device that would give the same information as ADS-B out. A UK CAP 3 details efforts in the UK to develop EC devices, cheap, easy to fit or completely portable, and small and light. The British Hang Gliding and Paragliding Association (BHPA) were part of the working group that developed the CAP.
CASA has approved an EC device (Skyecho 2) 4 which is relatively cheap ($AU1195), is about the size of a cigarette packet and weighs 120gm.
At this stage there have been no EC devices approved for use in NZ and the rules would need to be amended to allow these. However, exemptions could be sought to use these instead of transponders or ADS-B, but this would be at the discretion of the CAA.

Use of Airband Radios

The NZHGPA has an airband radio certification program and the SHGPGC actively promotes the use of airband radios for pilots that intend to fly cross-country. The SHGPGC is proactive in sourcing affordable and lightweight airband radios for its members. Consequently increasing numbers of cross country pilots are using airband radios on a listening watch and make calls when required particularly those pilots who would be transiting the area to the north of the Wanaka airport. Paragliders usually see and hear traffic long before it's an actual issue.
There is currently no CAA requirement for PG / HG to carry or use airband radios. The areas from which paragliders fly are marked clearly on the VNC charts.

This initiative is an example of the many possible responses to risk that the report team appears to have failed to consider. This once again suggests the work has not been completed to an adequate standard as could be expected of an aeronautical study.

Problems with HG/PG using Airband and the proposed MBZ

Hang glider and paraglider pilots face difficulties using an airband radio on a potential MBZ channel. Pilots need to use both hands for controlling their aircraft whilst keeping a full visual lookout.
Operating a radio is typically by a press-to-talk microphone requiring one hand to come off the

controls to activate the talk switch. Typically turbulent thermal conditions may result in an unacceptable delay in response to other aircraft users or temporary loss of control to the hang glider or paraglider pilot and is of a real safety concern, especially within close proximity to the terrain. Pilots however do generally use better performing Ham 2m or UHF Radios to communicate with fellow pilots or to ground crew for the retrieval on landing. For optimum safety our pilots update regularly and pass information which would not be suitable chatter to hear on the MBZ channel. Using an extra airband radio or switching between airband radio channels to talk to other pilots and ground crew, significantly increases workload and complexity for pilots flying aircraft that require constant input on the controls.

PG / HG operations are very 'good weather' dependent. They require pretty much CAVOK conditions and light winds (< 15kts) before the flight conditions are outside the flight envelope for the aircraft. Very often, in the South Island, these days are few and far between which means on the 'good days', owing to the popularity of the sport and the site, there could be up to 100 or more movements per day which means if an MBZ is declared and R/T requirements applied then radio chatter would almost certainly become unmanageable.

The move to an MBZ is not argued for, just wanted. A robust analysis of an MBZ might suggest that it should NOT be implemented. MBZs are good at a certain traffic level, but detract from safety at higher traffic levels due to the distraction factor created by too much radio traffic. One way to mitigate this risk is to limit the size of the MBZ to just as large an area as required to address this risk for example within the immediate vicinity of the airdrome and below a given height.

The Draft report mentions that one of the biggest concerns for other air operators is that paragliders are difficult to see and so they are a hazard. If you speak to the gliding (sail-plane) fraternity (who by the way weren't included in the initial survey /consultation for this draft) and who are used to flying VFR and looking out, they say PG /HG are extremely easy to spot as they appear like stationary objects as a result of the rapid apparent movement of the aircraft relative to the background.

The most fundamental and established risk mitigation factor in aviation is the requirement for pilots to see and avoid. This is not mentioned in the report yet it is the principal collision avoidance requirement of all "pilots in command" flying VFR.

Transponder Mandatory Recommendation

TM is only required in ACAS mandatory airspace. Currently Wanaka's only scheduled airport movements are with Sounds Air who operate Pilatus PC-12 and Cessna Grand Caravans, single engine IFR aircraft carrying passengers. These aircraft are below the minimum weight/passenger requirements for mandatory ACAS. (Rule 125.381 mandates ACAS for turbine powered aircraft with MAUW>5700kg, or 20-30 pax seats). Therefore, TM is not required for Sounds Air operations.

Including TM airspace in this study implies that larger (e.g. Air NZ Q300 or ATR72) aircraft would be scheduled into Wanaka airport at some future point. TM is only required if the director considers the traffic density to warrant it, in order to reduce collision risk for aircraft that are required to be fitted with ACAS. Is Wanaka airport busy enough?

TM airspace can only be designated in controlled airspace or special use airspace. The MBZ is therefore a prerequisite for TM airspace, presuming that the airport will not need an ATC service. The report states that there is no known plan to introduce larger turbo prop operations. If so, this means that ACAS is not required, and therefore TM is again not required.

Until such time as larger aircraft operate into Wanaka there is no requirement to change airspace designation. It is noted that significant runway works would need to be undertaken for larger aircraft to operate in Wanaka airport. A delay to any airspace changes should be warranted.

Conclusion

The Southern Hang Gliding and Paragliding Club strongly objects to the establishment of a MBZ at Wanaka as the Club does not consider this will mitigate risk for the current Wanaka Common Frequency Zone (CFZ) and that there is no reasonable case for the establishment of an MBZ. Furthermore, the proposed recommendation of Transponder Mandatory would result in the prohibition of paragliding activities in the existing CFZ according to existing CAA regulations.

Yours Sincerely

Tim Brown
Airspace Officer SHGPGC

Louis Tapper
Chairman NZHGPA Safety Task Force / Risk Consultant
5 x NZ Paragliding Champion

APPENDIX 4 - RESPONSE FROM NZ HANG GLIDERS AND PARAGLIDERS ASSOCIATION

24 November 2022

Dean Clisby
Managing Director
Quality Aviation Consulting

Dear Dean

Re: AERONAUTICAL STUDY WANAKA AIRPORT – AIRSPACE DESIGNATION AND CONSIDERATION OF AIR TRAFFIC SERVICES

I write in response to your request for feedback on the draft report issued by your Consultancy dated 13 November 22.

Specifically, I would like to comment on your recommendations B4, B6, and B11 as these areas have the potential to adversely affect the ability of hang-glider and paraglider pilots to continue to fly in the area, potentially shutting down one of the top cross country flying locations in New Zealand.

The New Zealand Hang Gliding and Paragliding Association (NZHGPA) works on behalf of over 1700 local and visiting pilot members to ensure continued access to uncontrolled airspace without additional equipment or cost burden.

Due to the unique nature of the topography and airspace in the Otago region the area around Wanaka is without doubt one of the finest thermalling and cross-country flying areas in New Zealand. As such the Southern Hang Gliding and Paragliding Club is the largest of our clubs and will also be submitting feedback as your proposed changes will most directly affect them.

Recommendation B4- Provision of AWIB at NZWF.

The NZHGPA sees this as a potential way of improving GA pilot awareness of paragliding and hang gliding operations in the vicinity. Ideally Southern club members would be able to either make a phone call or provide notification via a website of their flying intentions that would then be included in the AWIB broadcast. As good airmanship dictates, this would ensure pilots arriving and departing NZWF are prewarned as to the likely presence and general location of paraglider traffic.

This is considered a safety improvement and as such would be supported by the NZHGPA.

Recommendation B6- That the current Wanaka CFZ be designated MBZ, with airspace within this designated as TM from 2,500ft to the lower limits of the applicable controlled airspace.

The NZHGPA strongly opposes this proposal.

Designating a large area with busy traffic an MBZ places additional workload on all pilots and detracts from the primary VFR task of looking out the window. For a paraglider pilot it also detracts from the physical task of controlling the paraglider in what can be very turbulent air on a strong thermalling day.

While a flight information or ATC unit may be able to keep track of numerous aircraft while sitting at a desk with a high-quality radio and a pen and stripboard this is far from the reality of a cramped GA cockpit or paraglider harness.

With the size of the proposed MBZ and forecast traffic density I would expect a constant barrage of radio chatter causing far more distraction than safety enhancement.

Being an 'open cockpit' usually our first warning of approaching motorised aircraft is hearing the engine or rotor blades and you can be assured that the paraglider pilots scan will remain focussed on spotting this hazard until it has either passed or been seen and deemed to be clear. This 'first-line' of defence could conceivably be drowned out by unnecessary MBZ calls.

Designating the entire CFZ as Transponder mandatory would be the worst outcome for the least gain and we can see no practical reason for the Director to go down this path.

71.203 - Transponder mandatory airspace within special use airspace

The Director may designate any portion of special use airspace as transponder mandatory airspace if the Director determines that the traffic density in the airspace requires the operation of transponders to reduce the risk of an airborne collision with those aircraft that are required to be fitted with an airborne collision avoidance system.

At this stage I do not believe that any of the RPT operators using NZWF fit into this category, so I question the premise behind seeking to make the area TM.

Rule Part 91.247 specifies the Transponder types acceptable where required outside of controlled airspace- Mode A/C transponders are not available or practical for our use, and current ADSB units that are lightweight and portable have not yet been approved by CAA for paraglider use in NZ. Enforcing this change would effectively force us below 2500ft, a short glide to the ground.

For these reasons with no obvious safety improvement the NZHGPA strongly oppose this recommendation.

Recommendation B11: That CAA consider splitting the Fiordland CFZ in to two parts to reduce irrelevant radio communications.

The NZHGPA agree that large areas of airspace with unnecessary reporting requirements distract pilots from their primary task of collision avoidance.

Unfortunately the earlier recommendations made in your proposal aim to establish another of these areas with frequent mandatory radio calls, likely creating similar problems.

I have spoken briefly with members of the Southern Club and with representatives of Gliding New Zealand and it appears that we all share similar concerns regarding the proposed changes.

I am happy to provide additional information regarding common paraglider flight paths or you may be interested in the 'heat map' type display of flights around the Wanaka region available at the flyxc.app website – turn on 'airways' in the menu.

Should you wish to make any changes to the proposal after considering feedback I would welcome the opportunity to again look over the document prior to submission to CAA, else I would appreciate a copy of your final report when available.

Regards,

NZHGPA

Rhys Akers
National Airspace Officer
airspace@nzhgpa.org.nz

Agenda for a meeting of:

Wānaka Airport Liaison Committee (WALC)

23 November 2023

QUEENSTOWN LAKES DISTRICT COUNCIL

WĀNAKA AIRPORT LIAISON COMMITTEE

COMMITTEE MEMBERS

Mr Rob Phillips (Chair)

Ms Juliet Breen

Mr Don Grant

Mr Andrew Crawford

Mr Jon Brooks

Mr Simon Telfer

Agenda

DATE AND TIME	23 November 2023, 1.00pm-3.00pm
LOCATION	Wānaka Alpine Helicopters Boardroom
CHAIRPERSON	Rob Phillips
MEMBERS	• Tony Avery, General Manager Property & Infrastructure, QLDC • Juliet Breen, The Airport Manager • Don Grant, Wānaka Airport Users Group • Andrew Crawford, Commercial Airlines • Jon Brooks, Airways Corporation • Simon Telfer, Wānaka Upper Clutha Community Board, QLDC
APOLOGIES	• Don Grant, Wānaka Airport Users Group
ADDITIONAL ATTENDEES	• Jane Robertson, Senior Governance Advisor, QLDC

	ITEM	**PAGE**	**WHO**
Opening Karakia			Rob Phillips, Chair
Apologies			Don Grant, Deputy Chair
Confirmation of Agenda			
Confirmation of Previous Minutes		5	Draft minutes of a meeting of the Wānaka Airport Liaison Committee held on 4 September 2023
Items			
1	Wānaka Airport Manager's Report	8	Juliet Breen to present
2	Noise Monitoring at Wānaka Airport (For information) Attachment A: Marshall Day Acoustics, Wānaka Airport 2022 Compliance Monitoring	16	Juliet Breen to present
3	Report from Queenstown Lakes District Council	27	Tony Avery to present
4	Review of Work Programme		Rob Phillips to lead discussion
5	Confirming date and location of next meeting		All
6	Closing Karakia		Rob Phillips, Chair

Confirmation of Previous Minutes

Draft minutes of the meeting of the Wānaka Airport Liaison Committee held on 4 September 2023

Minutes of a meeting of the Wānaka Airport Liaison Committee held on Monday 4 September 2023 beginning at 10am online via a Teams meeting.

The meeting started at 10am.

Present

Mr Rob Phillips (Independent Chair), Mr Tony Avery (General Manager Property & Infrastructure, QLDC), Ms Juliet Breen (The Airport Manager), Mr Don Grant (Wānaka Airport Users Group), Mr Andrew Crawford (Commercial Airlines), Mr Jon Brooks (Airways Corporation), Mr Simon Telfer (Wānaka-Upper Clutha Community Board Chair).

In Attendance

Mr Jon Winterbottom (Governance Team Leader).

Apologies

There were no Apologies.

1. Terms of Reference

All members expressed approval for the amendments made to the updated terms of reference.

On the motion of Mr Telfer and Ms Breen It was resolved that the Wānaka Airport Liaison Committee:

1. **Approve the Wānaka Airport Liaison Committee's Terms of Reference**

Motion carried unanimously.

Note: a clean copy of the approved Terms of Reference (Attachment B in the agenda for the 4 September 2023 meeting) has been appended to these minutes.

2. Work Plan – Early Thoughts

Members discussed the "Activity areas" (#1) and the "Responsibilities and Key Projects" (#2-7) listed in the approved Terms of Reference (see page 3 of the clean copy below).

It was suggested that members step through designation #64 line by line to develop better understanding so as to facilitate their compliance with #1 (Activity Areas) which is "1. To ensure

Wānaka Airport is managed in accordance with the conditions of the designation for Wānaka Airport (Designation #64) provided in the Queenstown Lakes Proposed District Plan." It was agreed that the latest version of designation #64 would be circulated to all members for detailed review prior to the next meeting of the Wānaka Airport Liaison Committee (the Committee).

It was clarified that the standing Airport Manager's [Juliet Breen's] report would address review of complaints around airport operations, minimisation of environmental effects on the community, and noise management issues/procedures as specified in responsibilities/key projects #2, #3 and #5 respectively.

Related to responsibility/key project #3, members discussed what, besides noise issues, might be included under "environmental effects on the community." Ms Breen (the Airport Manager) indicated that she would consult further on this matter and examine what issues it was appropriate to cover in light of this specific language, and report back to the Committee on her findings.

With respect to #4 ("Assist Queenstown Lakes District Council and the Airport Manager to communicate and engage with the community") members discussed what is meant by "community." Ms Breen (the Airport Manager) and Don Grant (Wānaka Airport Users Group Chair) agreed to coordinate to examine this issue (#4), as well as issue #3 (noise management), more closely and report back to the Committee with an update.

Wānaka-Upper Clutha Community Board Chair Simon Telfer suggested that two reports be provided with respect to responsibility/key project #6 ("Review progress on airport development and the master plan"): one to review progress the on airport development and a second report to review progress on the master plan. QLDC Property & Infrastructure General Manager, Tony Avery, clarified that the first issue would be covered in the report on airport operations he would be preparing for the next Committee meeting. Mr Avery and Ms Breen indicated, however, that there currently was no master plan in development, and so a full (second) report on this matter was not warranted. Mr Avery suggested that QAC and QLDC would consult on whether there were any existing plans to develop an airport master plan, and he would then update the committee on that matter.

Regarding responsibility/key project #7 ["Encourage parties to work together co-operatively, sharing information and making recommendations by consensus and agreement"], members discussed to whom the term "parties" referred, and emphasised the importance of encouraging parties involved in complaint processes and other airport-related business to work co-operatively.

The meeting concluded at 10:28am.

Confirmed as a true and correct record:

_____

C H A I R

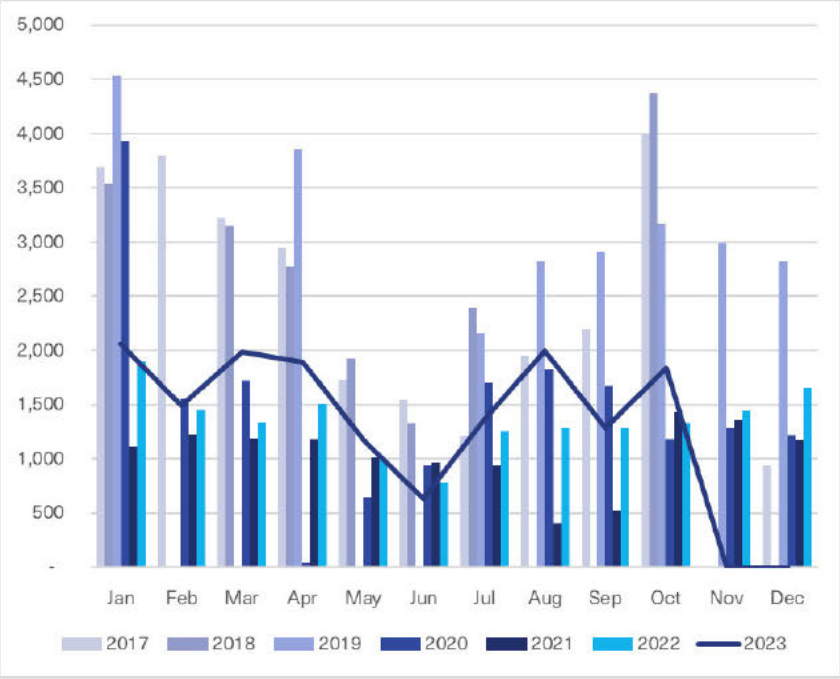
_____

D A T E

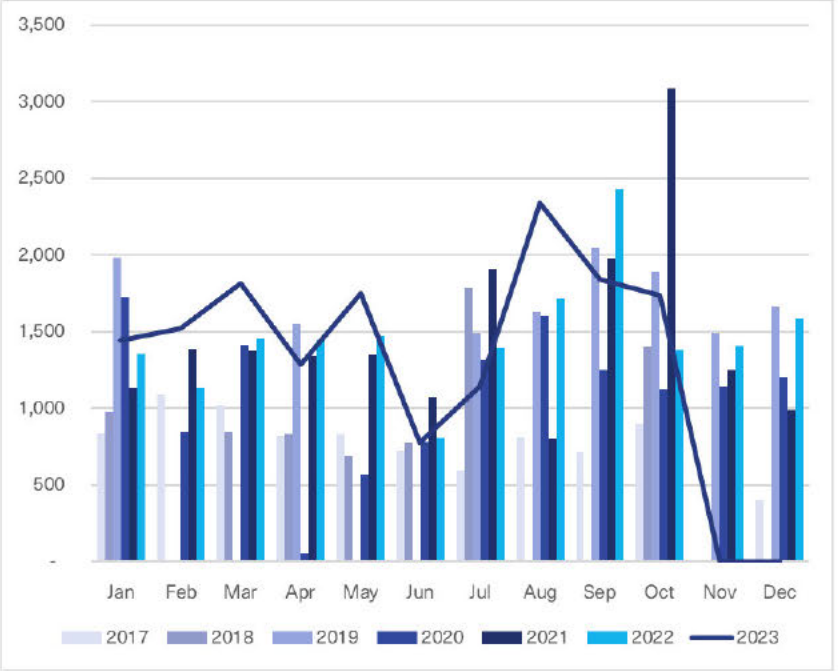
WĀNAKA AIRPORT MANAGER'S REPORT

1 AIRCRAFT ACTIVITY

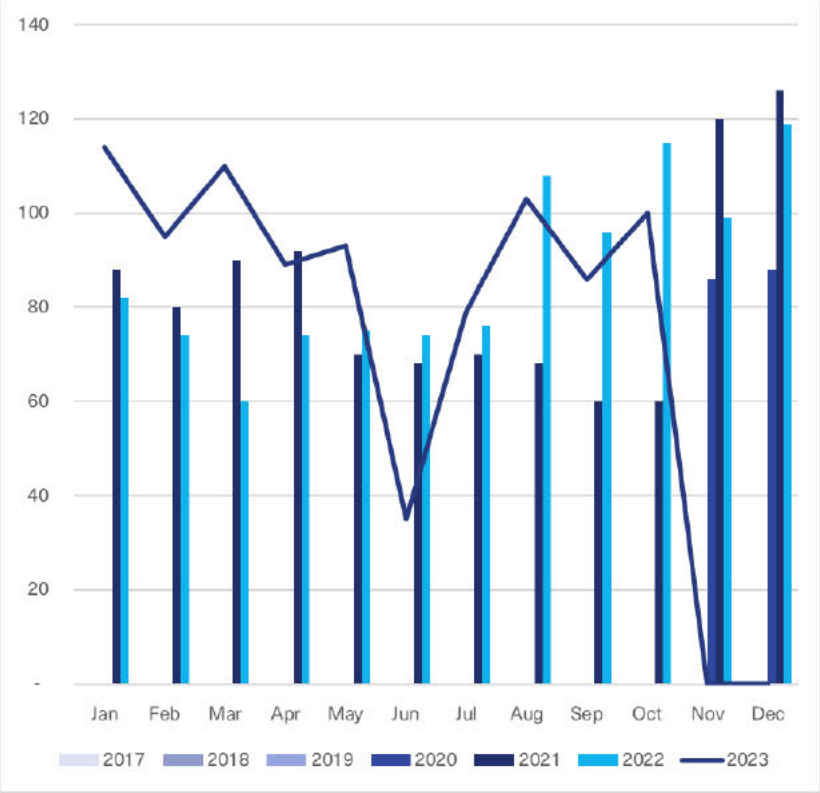
1.1 Fixed Wing Landings



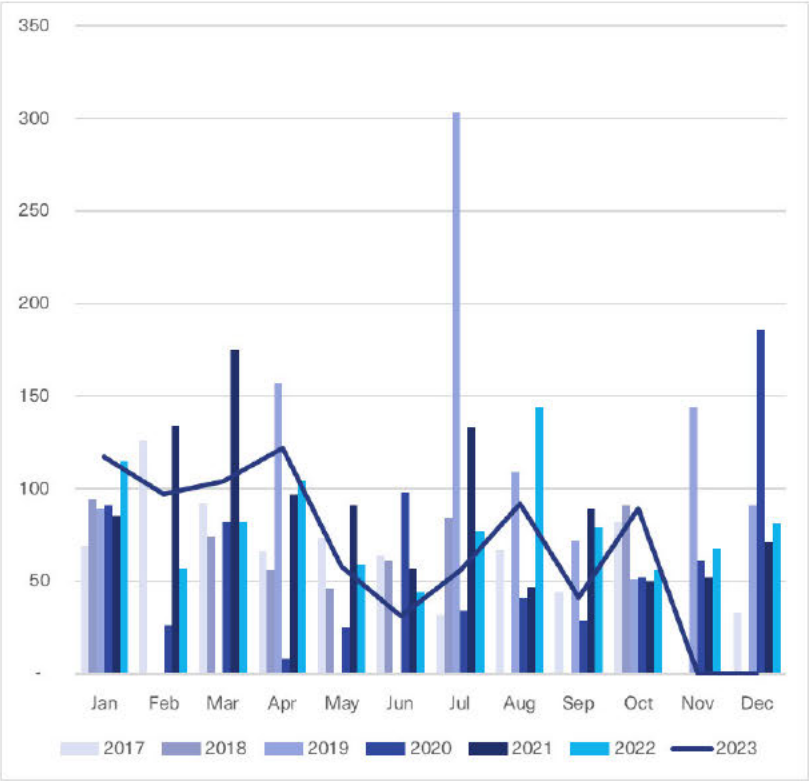
1.2 Helicopter



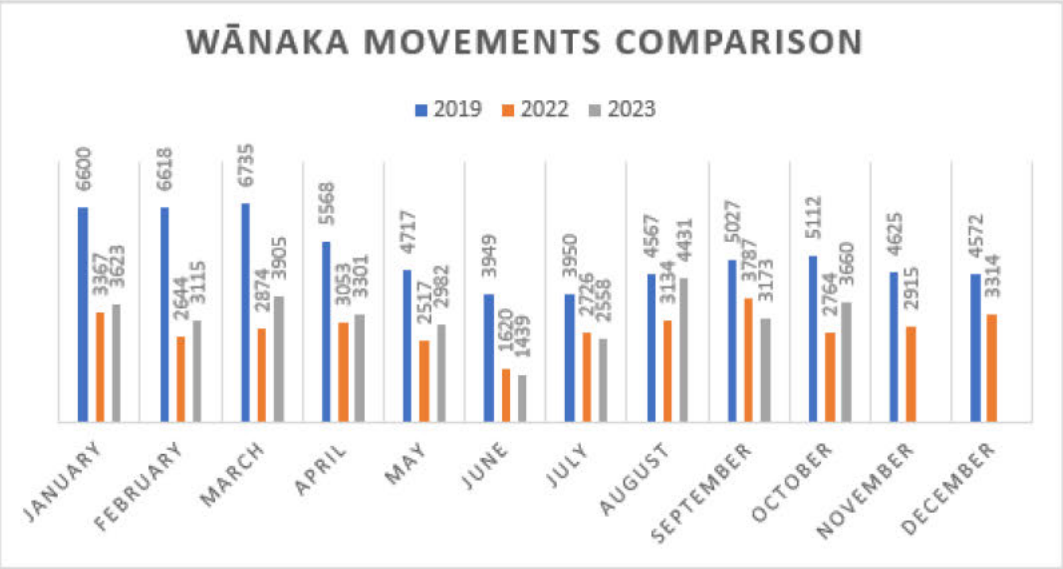
1.3 Scheduled Flights



1.4 Microlight/Gyroplane/Other



1.5 Movements Comparison



2 UNPLANNED ENGINE TESTING INCIDENTS

There have been no unplanned engine testing incidents at Wānaka in the last two years.

3 COMPLAINTS REGISTER SUMMARY

Noise Complaints

Date and Time	Name	Complaint	Response
1 April 2022 1615hrs	(name supplied)	Large noisy aircraft flying very low over the township.	Flightradar & CCTV footage confirmed RNZAF 2x C130 Hercules did a low circuit over Wanaka township before passing NZWF on the west, still at low altitude. Airport not aware of low flying flight.
26 June 2022 1412hrs	(name supplied)	2 x Low-flying aircraft doing circuits over their farm, spooking horses, animals, and children. (Tarras)	Flightradar24 identified one aircraft as ZK-JCW (owned by Canterbury Aviation Ltd) which later landed at WKA. Contacted aircraft owner regarding concern for low flying aircraft and danger to animals and children.
23 December 2022 0923hrs	(name supplied)	Complaining of irresponsible flying behaviour by a white Helicraft that disturbed / distressed livestock on their property.	Advised to contact CAA. Will inform WAUG and Safety committee of location of livestock.

17 January 2023 0930hrs	(name supplied)	Aircraft circling Lake Hawea & Hawea Flat townships during training flights	Referred to Airport Safety & Operations Committee.
13 February 2023 – visit to WKA Airport Office	(name supplied)	Concerned about the increasing number of aircraft, fixed and heli, flying directly over his house as opposed to going via published departure & arrival routes. Often quite low and noise levels increasing.	Referred to Airport Safety & Operations Committee.
13 February – 1115hrs	(name supplied)	Low flying aircraft, above congested areas i.e. Albert Town	Referred to Airport Safety & Operations Committee.

Operational Complaints

Date	Name	Complaint	Response
10 July 2022	User Group Members	Installation of the water tanks for fire water supply - the concern was around the positioning of the tanks, aesthetic implications, and lack of consultation.	Wānaka Airport responded in October addressing the concerns. In summary the positioning of the tanks were following. advice from a Fire Engineer and FENZ approval was required and final sign off was provided. A rail fence and plantings have been budgeted which will soften the look. The proposed fire water supply had been in discussion since 2019 and it is believed that it was spoken about at user group

			meetings however no record of this could be found.

4 OPERATIONAL REPORT

Environmental Effects on the Community

The predominant potential environmental effects on the community are Noise from Aircraft, fuelling operations and the potential of fire.

Noise

As per a requirement of the designation, a Noise Management Report has been prepared by Marshall Day Acoustics. The report provides an overview of the noise compliance programme for 2021 and 2022 including calculation of noise contours known as the Annual Aircraft Noise Contours (AANC) to determine compliance or otherwise with the aircraft noise monitoring related designation conditions applicable to the airport. This report is attached as Appendix 1.

Noise monitoring is completed every two years as required by the designation.
Wānaka enables noise complaints to be logged via the Wānaka Airport Website. Complaints go directly to the Wānaka Airport team who contact the complainant and log the complaint. If appropriate an investigation will be undertaken.
Wānaka Airport will capture any unplanned engine testing that occurs on schedule services. Sounds Air are the only scheduled service at Wānaka and do not complete any engine testing (scheduled or unplanned).

Fuelling

Wānaka has two fuel pumps on the apron. One belonging to GoFuel and the other belonging to BP. Each pump has an extinguisher, an additional extinguisher is located outside of the terminal. The GoFuel pump has a spill kit located at the pump. The BP pump does not, however there is another spill kit located outside of the terminal.

Fire

Wānaka Airport owns a fire trailer which contains 1000l of water, along with a foam additive for the purpose of being used on an aircraft fire or any small vegetation fire.

Recently stage one of a project to provide a temporary common-user fire water supply at Wānaka was completed. Six x 30,000L tanks were installed. Stage two involves the installation of a further 120,000L on Lot 7 to provide an in-house sprinkler system for the NASA development.

Item 2

WĀNAKA AIRPORT LIASON COMMITTEE – INFORMATION PAPER
Noise Monitoring at Wānaka

Overview

Wanaka Airport is owned by Queenstown Lakes District Council (QLDC); however the airport is managed by Queenstown Airport Corporation (QAC) under a Managed Services Agreement with QLDC. QLDC remains the Requiring Authority and is responsible for the designations associated with Wanaka Airport.

Designations

QLDC is responsible for all obligations set out in the designations.

Wanaka Airport Designations:

- Designation 64 – Aerodrome Purposes
- Designation 65 - Approach and Land Use Controls (transitional slopes and surfaces)

The Wanaka Airport Aerodrome Purposes Designation includes the following requirements:

1. **Establishment and facilitation of a Wanaka Airport Liaison Committee**
2. **Monitoring and Reporting of Aircraft Noise**
   Airport noise shall be measured, predicted and assessed in accordance with NZS 6805:1992 "Airport Noise Management and Land Use Planning", by an acoustics specialist.

Statutory Requirements

The list of rules relating to airport noise compliance at Wānaka Airport are set out in the Queenstown Lakes District Plan, and are reproduced below:

The Airport shall be managed so airport noise does not exceed a day/night level of 55dB outside the Outer Control Boundary.

Compliance with the 55 dB Ldn noise limit at the Outer Control Boundary (OCB) shall be determined every two years by the calculation of noise contours using the IMNv7b acoustics computer model and records of actual aircraft activity at the Airport. A report shall be provided every two years to the WALC, including the noise contour results and the methodology used in the preparation of the contours.

Once the calculated noise levels at any point on the Outer Control Boundary shown on the Planning Maps is 54dB Ldn or greater, noise level measurements shall be carried out for a minimum of one month in the summer and one month in the winter at each of the two measurement locations every two years. The noise measurement locations should be

selected to allow confirmation of compliance with the 55dB Ldn limit at the OCB. The measurement locations do not need to be on the OCB. The difference between the measured sound level and the calculated sound level at a measurement location shall be added to the calculated sound level at the OCB to determine compliance. A report on the results of such monitoring shall be forwarded to the WALC within two months of the monitoring being undertaken.

Note: This designation does not provide for an Air Noise Boundary at the 65 dB Ldn contour as the provisions and extend of the OCB render this unnecessary at Wānaka Airport at this time.

Noise from the following Aircraft Operations shall be excluded from the compliance calculations set out above:

- Aircraft landing or taking of in an emergency; and
- Emergency flights required to rescue person from life threatening situation or to transport patients, human organs or medical personnel in medical emergency.
- Aircraft using the airport due to unforeseen circumstances as an essential alternative to land at another schedule airport.
- Flights required to meet the needs of national or civil defence emergency declared under the Civil Defence Act 1983.
- Flights certified by the Minister of Defence as necessary for reason of National Security in accordance with Section 4 of the Act; and
- Aircraft undertaking firefighting duties.
- Aircraft using the airport in preparation for and participation in the biennial Warbirds of Wānaka air shores (this applies 5 days prior to and 3 days after the air show).

Wanaka Compliance Contours

Queenstown Lakes District Council is the Requiring Authority for the airport, and responsible for the designations. QLDC are required to prepare a Noise Monitoring Report every two years in accordance with the provisions of Chapter 37 of the Queenstown Lakes District Plan (QLDP).

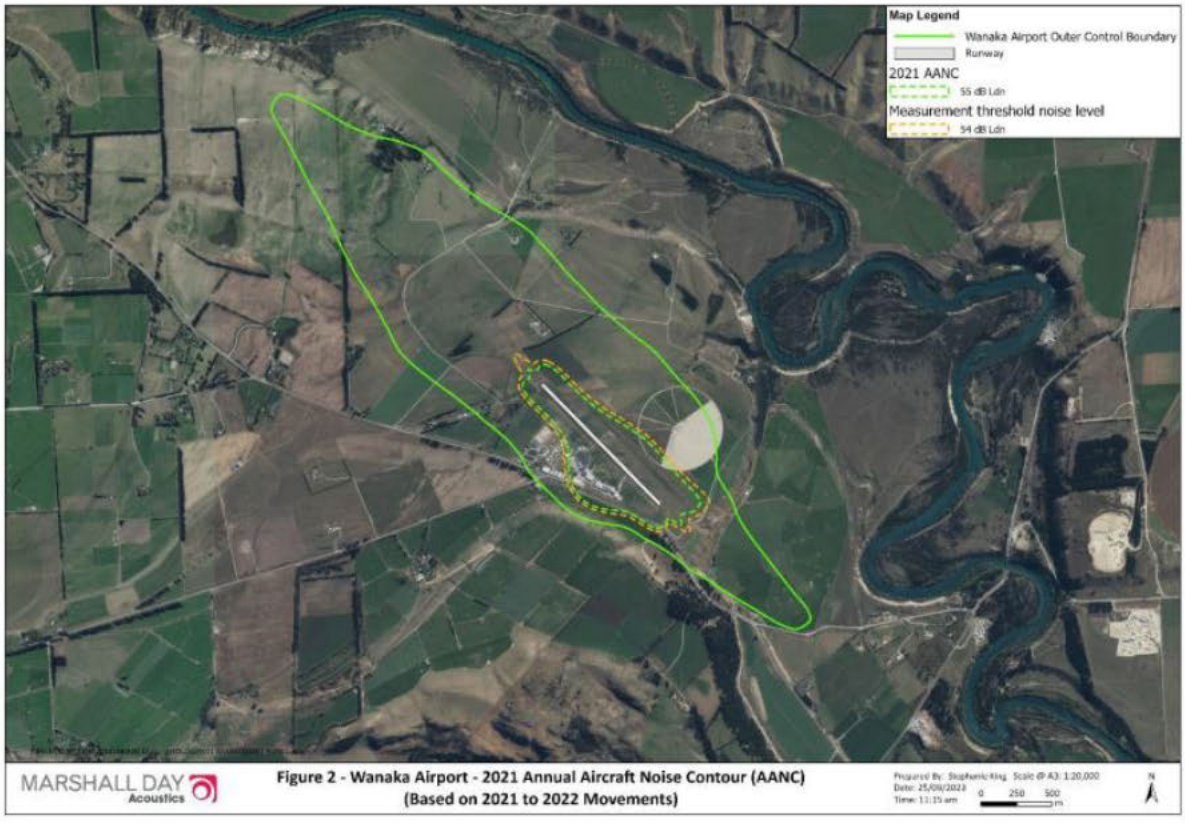
QAC undertakes the noise monitoring on behalf of QLDC. A noise compliance assessment was completed in September 2023, for the calendar years 2021 and 2022.

Marshall Day Acoustics (MDA) have provided an overview of the noise compliance programme for 2021 and 2022 including calculation of noise contours known as the Annual Aircraft Noise Contours (AANC) to determine compliance or otherwise with the aircraft

noise monitoring related designation conditions applicable to the airport. As for Queenstown Airport, the monitoring is based on the busiest three months of the reporting period for aircraft movements. For Wanaka Airport, this was September, October and November 2021.

This noise monitoring showed that Wanaka Airport was compliant with its noise boundaries, as shown by the 55 dB Ldn contour below. This figure also shows the 54 dB Ldn 2021 noise contour. Once this 54 dB Ldn contour reaches the Outer Control Boundary (OCB), noise measurements will be required.

Figure 2: 2021 AANC and Outer Control Boundary



Juliet Breen
Head of Operations, Compliance & Safety
Queenstown Airport Company November 2023

Attachment A: Marshall Day Acoustics, Wanaka Airport 2022 Compliance Monitoring

Attachment A

MARSHALL DAY Acoustics

WANAKA AIRPORT
2022 COMPLIANCE MONITORING

Rp 001 20230664 | 25 September 2023

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Project: **WANAKA AIRPORT**

Prepared for: **Queenstown Airport Corporation**
PO Box 2641
Wakatipu
Queenstown 9349

Attention: **Rachel Tregidga**

Report No.: **Rp 001 20230664**

Document Control

Status:	Rev:	Comments	Date:	Author:	Reviewer:
Draft	-	Client Draft	22 September 2023	Stephanie King	Steve Peakall
For issue	0	Client comments	25 September 2023	Stephanie King	Steve Peakall

TABLE OF CONTENTS

1.0 INTRODUCTION

Wanaka Airport is owned by Queenstown Lakes District Council (QLDC), however the airport is managed by Queenstown Airport Corporation (QAC) under a Managed Services Agreement with QLDC. QLDC remains the Requiring Authority and is responsible for the designations associated with Wanaka Airport.

The designation requires the preparation of a Noise Monitoring Report (NMR) every two years in accordance with the provisions of Chapter 37 of the Queenstown Lakes District Plan (QLDP).

This report has been prepared by Marshall Day Acoustics (MDA) on behalf of QAC and provides an overview of the noise compliance programme for 2021 and 2022 including calculation of noise contours known as the Annual Aircraft Noise Contours (AANC) to determine compliance or otherwise with the aircraft noise monitoring related designation conditions applicable to the airport.

A glossary of terms is provided in Appendix A.

2.0 STATUTORY REQUIREMENTS

The full list of rules relating to airport noise compliance at Wanaka is given in below:

Airport Noise

12. *Airport noise shall be measured, predicted and assessed in accordance with NZS 6805:1992 "Airport Noise Management and Land Use Planning", by an acoustics specialist.*

13. *The Airport shall be managed so airport noise does not exceed a day/night level of 55 dB Ldn outside the Outer Control Boundary.*

14. *Compliance with the 55 dB L_{dn} noise limit at the OCB shall be determined every two years by the calculation of noise contours using the IMNv7b acoustics computer model and records of actual aircraft activity at the Airport. A report shall be provided every two years to the WALC, including the noise contour results and the methodology used in the preparation of the contours.*

15. *Once the calculated noise levels at any point on the Outer Control Boundary shown on the Planning Maps is 54 dB Ldn or greater, noise level measurements shall be carried out for a minimum of one month in the summer and one month in the winter at each of two measurement locations every two years. The noise measurement locations should be selected to allow confirmation of compliance with the 55 dB Ldn limit at the OCB. The measurement locations do not need to be on the OCB. The difference between the measured sound level and the calculated sound level at a measurement location shall be added to the calculated sound level at the OCB to determine compliance. A report on the results of such monitoring shall be forwarded to the WALC within two months of the monitoring being undertaken.*

16. *Note: This designation does not provide for an Air Noise Boundary at the 65 dB Ldn contour as the provisions and extent of the OCB render this unnecessary at Wanaka Airport at this time.*

17. *Noise from the following Aircraft Operations shall be excluded from the compliance calculations set out above:*

    a. aircraft landing or taking of in an emergency; and

    b. emergency fights required to rescue persons from life threatening situations or to transport patients, human organs or medical personnel in medical emergency;

c. aircraft using the airport due to unforeseen circumstances as an essential alternative to landing at another scheduled airport;

d. fights required to meet the needs of a national or civil defence emergency declared under the Civil Defence Act 1983;

e. fights certified by the Minister of Defence as necessary for reasons of National Security in accordance with Section 4 of the Act; and

f. aircraft undertaking fire fighting duties;

g. aircraft using the airport in preparation for and participation in the biennial Warbirds Over Wanaka air shows (this applies 5 days prior to and 3 days after the air show).

The following noise monitoring report details information required under Rules 37(E1) 12 to 37(E1)17 of the QLDP. The purpose of this report is to assess compliance of aircraft operations with Rule 37(E1) 13 for the period of 1 January 2021 to 31 December 2022.

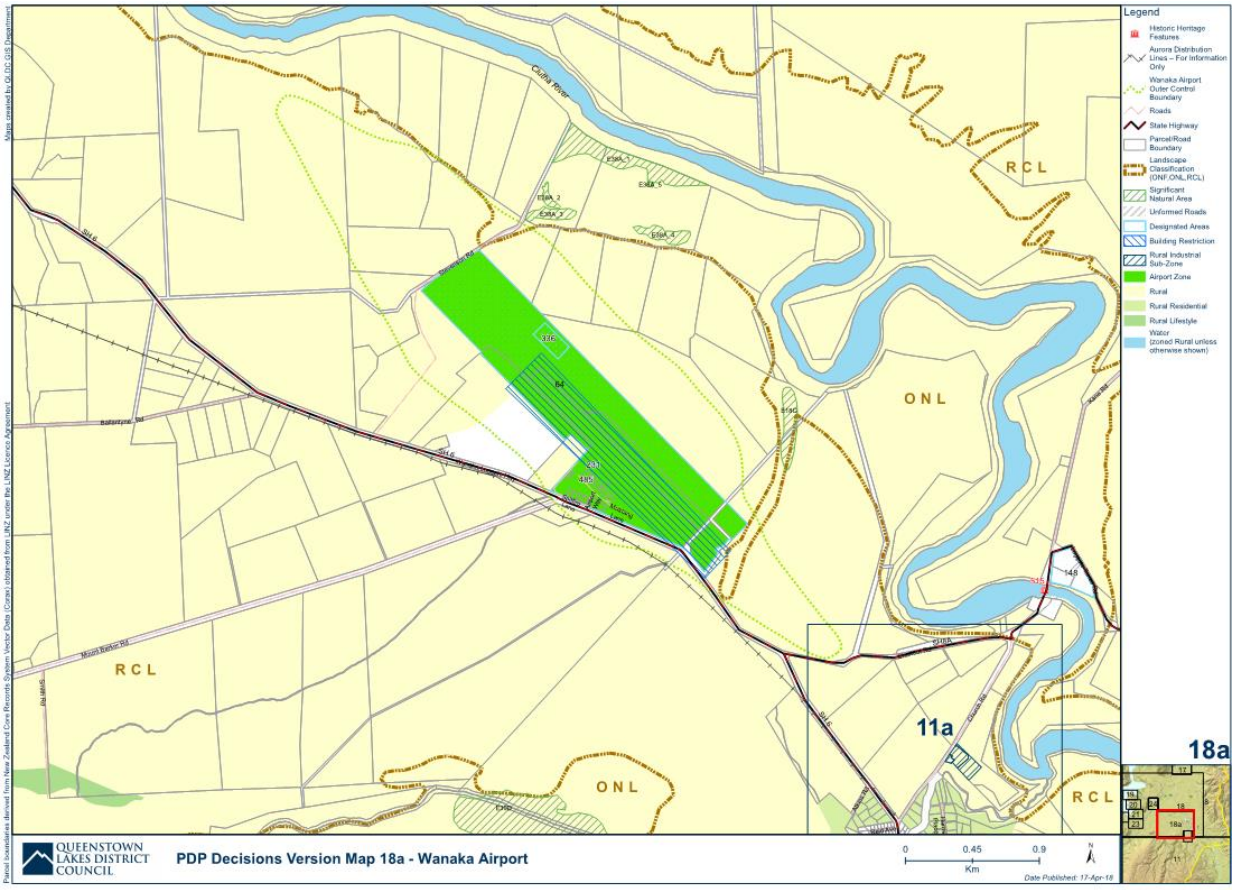
2.1 Noise Limits - Aircraft Operations

Aircraft operational noise limits are set in Rule 37(E1) 13:

> *"The Airport shall be managed so airport noise does not exceed a day/night level of 55 dB L_{dn} outside the Outer Control Boundary."*

The Outer Control Boundary is shown in dotted green on the QLDP planning map below:

Figure 1: QLDP Map showing Outer Control Boundary



3.0 OPERATIONAL NOISE

As defined in the QLDP Rule 37(E1) 17 noise from aircraft operations excludes aircraft operating in an emergency for medical or national/civil defence reasons, air shows, aircraft using the airport as an alternative to a scheduled airport elsewhere, aircraft taxiing and aircraft engine testing.

We have reviewed the full AIMMS data for Wanaka for the entire 2-year period to which this report relates (2021 and 2022), in accordance with Designation condition 37 (E1) 14.

3.1 Summary of Operational Aircraft Movements

Based on information provided by QAC and derived from AIMMS data, for the year 2021 there were 29,855 fixed wing movements and 12,275 helicopter movements at Wanaka, with a total number of 42,130 movements.

Based on information provided by QAC and derived from AIMMS data, for the year 2022 there were 33,304 fixed wing movements and 15,815 helicopter movements at Wanaka, with a total number of 49,119 movements.

The number of movements at Wanaka over the last two years remains lower than that experienced prior to the Global COVID-19 pandemic in 2019.

The busiest three months for aircraft movements in the 2-year monitoring period subject to our assessment is shown to be September 2021 to November 2021. A summary of the movement data input into the Integrated Noise Model (INM) used to produce the 2021 Annual Aircraft Noise Contours (AANC) is provided in Table 1 in the next section of this report.

3.2 Modelling Methodology

To ensure consistency with the Outer Control Boundary in the QLDP and in accordance with Rule 37(E1) 14, the 2021 AANC has been calculated using version 7b of the Integrated Noise Model (INM) developed by the US Federal Aviation Authority.

The INM software (like most software), has been upgraded regularly over the last 10 years. Each update to the INM program has resulted in slightly different calculation results. As the District Plan contour and AANC are both used for noise control purposes, and as the District Plan contours are used as the basis of determining appropriate land use planning controls and the selection of mitigation treatment, we therefore consider that the same software version should be used to prepare the AANC.

The 2021 AANC is based on aircraft movements provided by AIMMS. This data includes all movements of aircraft fitted with a transponder. Some general aviation (GA) aircraft do not have transponders and therefore data for these movements is unavailable.

The total movements for the modelled scenario are shown in Table 1 as well as a breakdown of the day and night-time movements. Night-time movements are those that occur between 10pm and 7am. The number of night-time movements is relevant as night-time activity has an associated +10 decibel adjustment.

Table 1: Summary of Modelled Aircraft Movements

	Busiest 3 Months (Sep-Nov 2021)
Total Movements	9,518
Day-time Movements	9,447
Night-time Movements	71

We note that these movements are almost half of those in the busiest 3-month period of 2019-2020 used to prepare the 2019 AANC (see Table 2 below). This decrease in movements is largely due to the Global COVID-19 pandemic, although we do note a marked increase in helicopter movements.

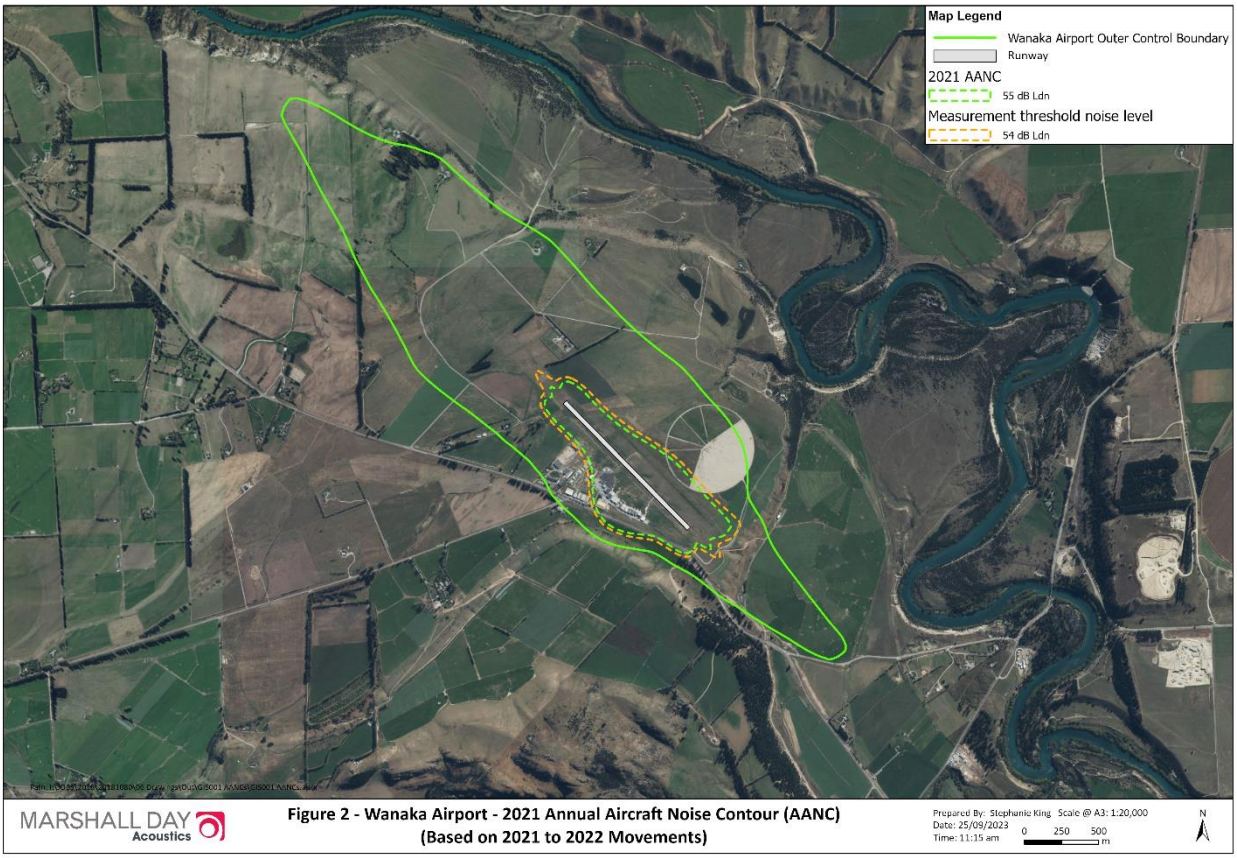
Table 2: Comparison of Busiest 3-months in 2019-2020 and 2021-2022

	Busiest 3 Months in 2019-2020 (Jan-Mar 2019)	Busiest 3 Months in 2021-2022 (Sep-Nov 2021)
Total	18,440	9,518
Fixed wing aircraft	13,619	3,221
Helicopter	4,821	6,297

Data provided by AIMMS includes actual runway usage data which has been used in the preparation of the 2021 AANC. The flight tracks used in the model are the same regular flight tracks as were used for the development of the Outer Control Boundary and the 2019 AANC. We have assumed these flight tracks remain the best approximation of flight tracks and therefore they remain a reasonable approximation of long-term average flight tracks flown.

In accordance with Rule 37(E1) 13 the 2021 AANC demonstrates 2021 and 2022 aircraft operations comply with the Outer Control Boundary as shown in Figure 2 below. Also shown in Figure 2 is the calculated 54 dB L_{dn} 2021 noise contour. This contour has not reached the Outer Control Boundary so in accordance with Rule 37(E1) 15, noise measurements are not required at this stage.

Figure 2: 2021 AANC and Outer Control Boundary



APPENDIX A GLOSSARY OF TERMINOLOGY

Noise	A sound that is unwanted by, or distracting to, the receiver.
Ambient	The ambient noise level is the noise level measured in the absence of the intrusive noise or the noise requiring control. Ambient noise levels are frequently measured to determine the situation prior to the addition of a new noise source.
dBA	The unit of sound level which has its frequency characteristics modified by a filter (A-weighted) so as to more closely approximate the frequency bias of the human ear.
A-weighting	The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.
L_{dn}	The day night noise level which is calculated from the 24 hour L_{Aeq} with a 10 dB penalty applied to the night-time (2200-0700 hours) L_{Aeq}.
SEL or L_{AE}	Sound Exposure Level The sound level of one second duration which has the same amount of energy as the actual noise event measured. Usually used to measure the sound energy of a particular event, such as a train pass-by or an aircraft flyover
NZS 6805:1992	New Zealand Standard NZS 6805:1992 *"Airport Noise Management and Land Use Planning"*

Item 3

Wanaka Airport Liaison Committee

November 2023 Report

QUEENSTOWN LAKES DISTRICT COUNCIL

Part A Aeronautical Study

QUEENSTOWN LAKES DISTRICT COUNCIL

Civil Aviation Authority (CAA) Requirements

- In 2022, QLDC received a letter addressed from the Director Civil Aviation (DCA) issuing the requirement for an aeronautical study to be conducted.
- The Airport currently operates as a “non-certificated” facility meaning that it is not certificated by the CAA as an aerodrome under the Civil Aviation Rule (CAR) Part 139.
- As there is now regular passenger transport, CAA required Council to conduct an aeronautical study to determine the level of operational risk, including:
  - Assess existing infrastructure
  - Assess proposed changes ensuring it provides a safe and efficient operational environment
  - Consider requirements to provide RESA if regular passenger air transport services (with more than 30 passengers) commences
  - Assess all applicable Civil Aviation Rules and compliance
  - Undertake meaningful consultation with Users and Stakeholders

Qualifying Aerodrome Requirements [redacted]

> The intent of Qualifying Aerodrome certification is to provide a basic regulatory structure for the safe operation of an airport
> It is essential to note that a Qualifying Aerodrome certification only permits scheduled operations of aircraft with 30 or fewer passenger seats (restricts growth to some degree)

Qualifying Aerodrome Requirements:

1) Personnel Requirements (requires competent “senior persons” to be nominated as the airport’s Chief Executive Officer and Airport Manager)
2) Limiting scheduled operations to aircraft with 30 or fewer seats
3) Public Protection (security fencing and barrier arm)
4) Notification of data and information
5) Revisited and tailored Safety Management System
6) Reporting to CAA (movement data)
7) Enhanced document management
8) Operational requirements

Refer to Part A Aeronautical Study Page 43 – 6.2.3 – Subpart G

Part A Aeronautical Study Recommendations

QUEENSTOWN LAKES DISTRICT COUNCIL

Part A Aeronautical Study Recommendations:

> **Parallel Taxiway and Taxiway W connection** – current risk of runway incursion and delayed operations due to backtracking (if full length of runway is required for takeoff). Parallel taxiway and connection to Taxiway W to improve safety and operational efficiency

> **Helicopter approach and take off relocation** – fixed wing and helicopter operations should be kept separate due to the rotor wash and propellor wash each can conflict on the other

> **Aircraft parking location review** – including fixed tie down positions to ensure parking is parallel and close to fence line

> **Runway repairs, upgrading and widening** – to reduce risk of aircraft damage and harm to occupants in a runway excursion

> **Protect overrun areas** – graded and cleared of objects that may damage aircraft overrunning or undershooting the runway

> **Aircraft runup area** – designated area to conduct extended pre-flight or post maintenance engine run-ups to avoid damage to adjacent aircraft and injuries to persons in the vicinity

> **Access swipe cards, security fencing and barrier arm** - review all fencing in areas that the public can access to improve safety. 5 wire stock fencing on rural boundaries. Access swipe cards and barrier to prevent pedestrians and animals gaining airside access

> Review and update masterplan – to reflect the expected future mix of operations and aspirations for the airport

TOTAL ESTIMATED CAPEX COST

Part B Aeronautical Study

QUEENSTOWN LAKES DISTRICT COUNCIL

Part B Aeronautical Study

[redacted]

[redacted]

QUEENSTOWN LAKES DISTRICT COUNCIL

- This report pertains to airspace designation and consideration of any Air Traffic Management that may be deemed necessary at Wanaka Airport.
- Significantly fewer capital works recommendations compared to the Part A Aeronautical Study.

Wanaka Airport Airspace

- Wanaka Airport is located within uncontrolled Class G airspace. No separation service for aircraft is provided in Class G airspace.
- While not located in controlled airspace, Wanaka Airport is located within the Wanaka Common Frequency Zone (CFZ).
- CFZ have been established to encourage pilots to use a single VHF frequency specified for the zone. Pilots should transmit their position, altitude and intentions relevant to prominent reporting points or features at entry, or at other times for traffic safety. CFZs are not mandatory and are advisory in nature.
- In addition, Wanaka Airport has no automatically broadcasted information bulletin, or AWIB (Aerodrome and Weather Information Broadcast)

Part B Aeronautical Study Recommendations

QUEENSTOWN LAKES DISTRICT COUNCIL

Rec	Description	Status	CAPEX/OPEX
1	That NZWF management better monitor and enforce the requirements to conform with normal circuit procedures.	Ongoing	OPEX
2	That information regarding the reporting system is included on the Wanaka Airport website for itinerant pilots.	Complete	OPEX
3	That Airport Management immediately explore options for an AWIB (Automatic Weather Information Broadcast) at NZWF.		**CAPEX**
4	That Airport Management consider introducing an AFRU (Aerodrome Frequency Response Unit) at NZWF on the current CFZ frequency.		**CAPEX**
5	That the current Wanaka CFZ be designated MBZ, with airspace within this designated as TM from 2,500ft to the lower limits of the applicable controlled airspace. Recommend this be applied for immediately.		OPEX (review of MSA req)
6	That due to analysis of factors covered in Section 5.1, that NZWF consider introducing a UNICOM at NZWF once sustained movements indicate more than 50,000 movements per annum.		**CAPEX**
7a	That the NZAIP (Aeronautical Information Publication) is reviewed in line with the comments made in Section 5.2.1.		OPEX
7b	The Aerodrome Chart should make note of extensive paragliding activity in the vicinity of the aerodrome.		OPEX
7c	The Aerodrome Chart should state that all external lights, where fitted should be used when in the vicinity of NZWF, as is stated in the VFR arrival/ departure charts.	Complete	OPEX
8	That the VNC (Visual Navigation Chart) is reviewed in line with the comments made in Section 5.2.2. (VRP)		OPEX

Part B Aeronautical Study Recommendations

QUEENSTOWN LAKES DISTRICT COUNCIL

Part B Aeronautical Study Recommendations (CAPEX):

Recommendation 3

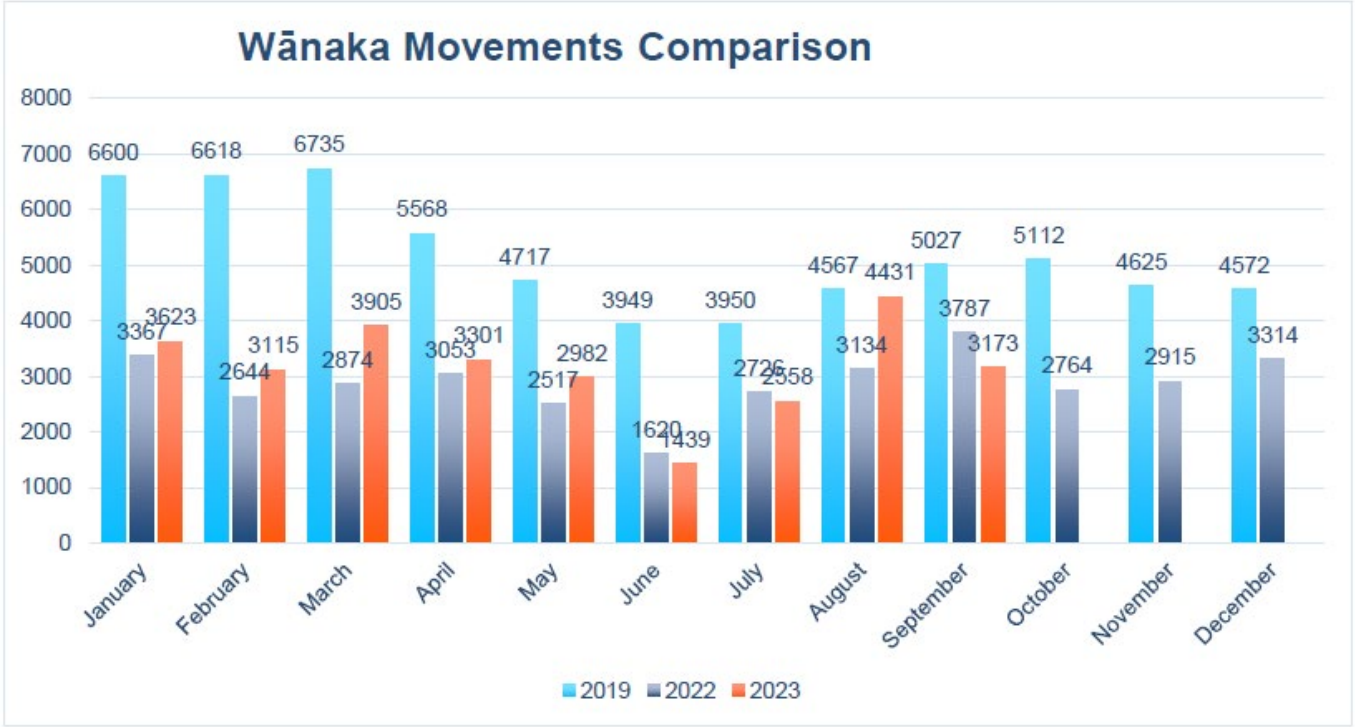
Explore options for an AWIB (Automatic Weather Information Broadcast) at NZWF - Automatic Weather Information Broadcast to improve radio communications and radio information to pilots.

Recommendation 4

Consider introducing an AFRU (Aerodrome Frequency Response Unit) at NZWF on the current CFZ frequency - Improves safety by confirming aircraft's radio is working and pilot has selected correct frequency.

Recommendation 6

Introduce a UNICOM once sustained movements indicate more than 50,000 movements per annum – 34,715 in 2022 and 28,527 at 30 Sept 2023. A UNICOM (Universal Communications) station is a non-government base station that offers ground to air and air to ground communication. It is a service provided at uncontrolled aerodromes that have become busy enough to warrant additional oversight of airfield action by a dedicated operator. It is not an air traffic service.



Part B Aeronautical Study

TOTAL ESTIMATED CAPEX COST = [redacted]

> UNICOM costs are still being investigated which will involve OPEX for staffing and CAPEX for ensuring the renewed terminal building caters to the needs of a UNICOM service.

> CAA are yet to respond as to what changes will be mandatory and the timeline to implement these changes.

>

Capital Expenditure and Revenue

QUEENSTOWN LAKES DISTRICT COUNCIL

Wānaka Airport Capital Works Plan Summary

Total proposed capital expenditure over 10 years = [redacted]

Total estimated Aeronautical Study capital costs [redacted]

Aircraft movement areas [redacted]

- Grass runway smoothing*
- New parallel taxiway*
- Taxiway W connection & grass taxiway edge marking*
- Relocation of FATO & run-up area*
- Aircraft parking tie downs*
- Runway strip widening*
- Surface remediation & patch reseeding (where required)*
- TLOF & other line marking*
- Maintenance engine run-ups concrete pad

Services infrastructure $[redacted]

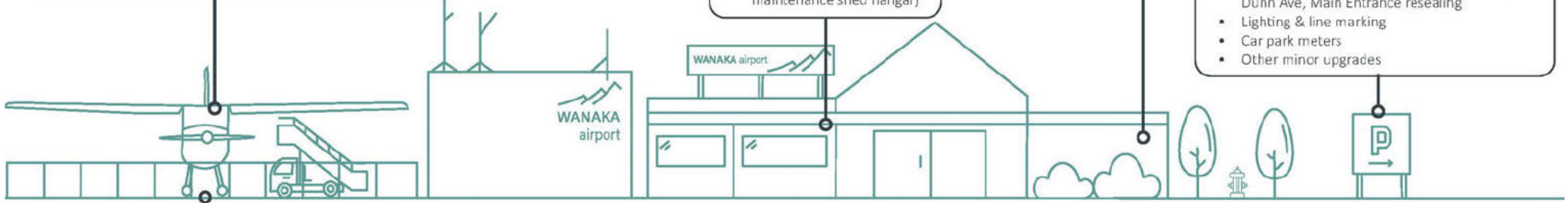
- Onsite long term fire water solution*
- Wastewater reticulation
- Entrance Way & Mustang Lane stormwater upgrades
- Power & fibre utility upgrades (excluding Chorus upgrade estimates)

Buildings $[redacted]

- Terminal building upgrade
- Other hangar upgrades (note does not include QAC maintenance shed hangar)

Roading and car parks $[redacted]

- Short term, Mustang Lane, Spitfire Lane, Llyod Dunn Ave, Main Entrance resealing
- Lighting & line marking
- Car park meters
- Other minor upgrades



Grounds and security infrastructure [redacted]

- Fencing upgrades*
- Barrier arm and security upgrades*
- CCTV & tech upgrades
- Taxiway W irrigation supply

Other sustaining capital expenditure [redacted]

Unplanned capex pool (for safety and security reasons)

Vehicles and equipment [redacted]

Tractor, trailers, sprayer units etc upgrades as required

Wanaka Airport Proposed Capital Budget (FY25 – FY34)

	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	Total
	$	$	$	$	$	$	$	$	$	$	$
Buildings	[redacted]										
Services Infrastructure											
Aircraft Movement Areas											
Other Sustaining Capex											
Roading & Carparks											
Grounds & Security Infrastructure											
Vehicles & Equipment											
Total											

Table 7: Total Estimated Capital Expenditure

Notes and disclaimers:

- Based on assumptions outlined in Appendix One
- The Capital Works Plan is developed based on Council's strategies to plan for natural growth, and maximise revenue
- All costs are provisional estimates only
- Detailed design and costs are still to be investigated
- Projected costs subject to change. TPG reserve the right to review costs if base assumptions change
- Does not include any estimated costs for Part A Qualifying Aerodrome requirements and only selected Part B Aeronautical Study recommendations
- Refer to Capital Works Plan section of the Report for further information, including programme, critical success factors and budget implications etc
- Refer to Next Steps section of the Report which outlines our recommended short, medium and long term next steps
- Items highlighted with a * are compliance in nature (e.g. fire water, Part 139 requirements).

Revenue

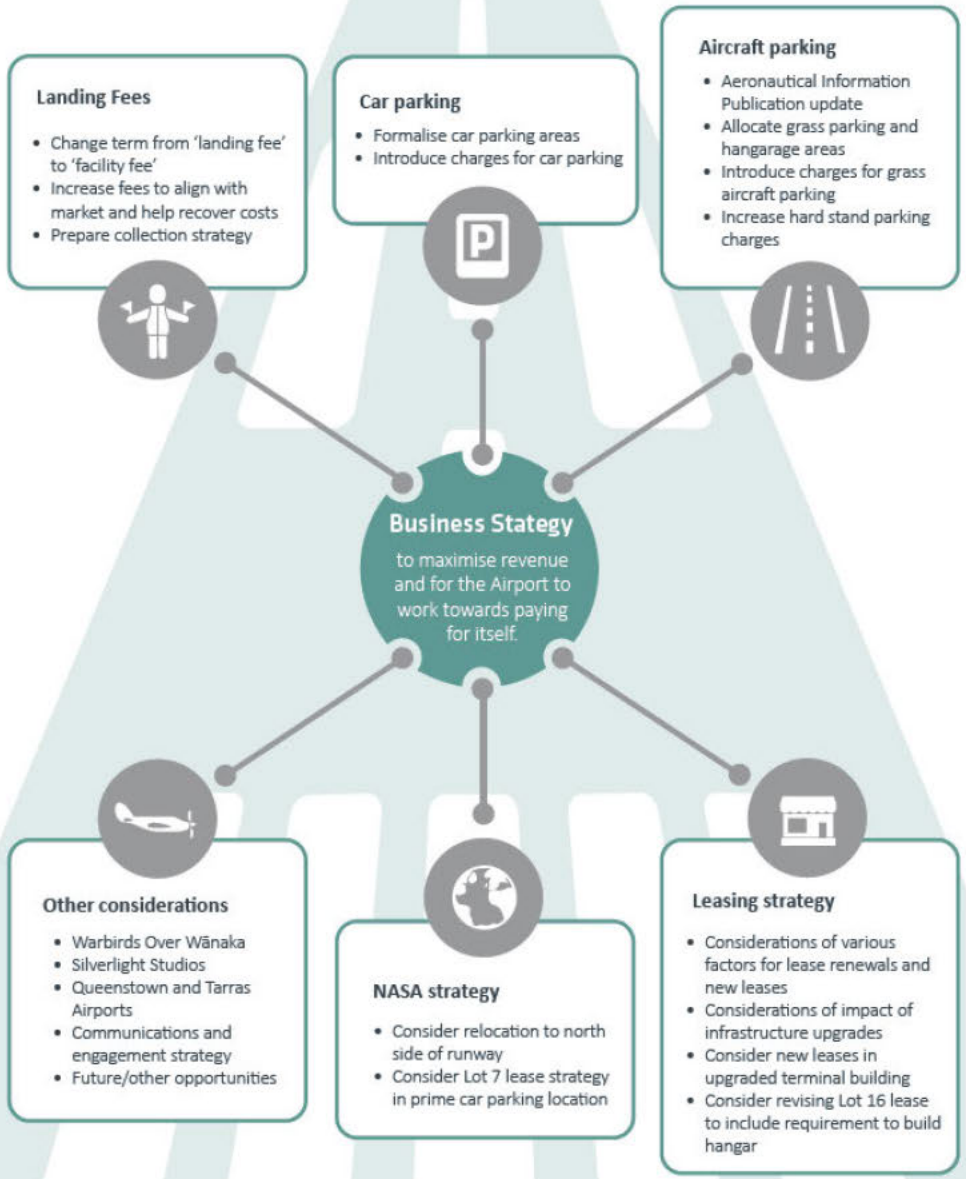
- **The Airport is a Community Asset and should cover its costs and generate a return if possible**
- **Currently running at a loss, currently subsidised by rate payers from across the Queenstown Lakes District. and will continue to do so until revenue is increased.**
- **Increased costs as a result of the CAA recommendations will increase the deficit.**

OPEX P/L	2020/21	2021/22 Actuals ($)	2022/23	2023/24 YTD
Net Operating Surplus/(Deficit) **does not reflect CAPEX*	*Transfer period*	36,666	(72,259)	(129,810)

Revenue Opportunities:

1. **Current and future leasing opportunities**
2. **Car Parking**
3. **Landing Fees**
4. **Aircraft Parking**

Wānaka Airport Functional Strategy Summary



WĀNAKA AIRPORT PROJECTED BUDGET (FY25 - FY34)

	FY25 $	FY26 $	FY27 $	FY28 $	FY29 $	FY30 $	FY31 $	FY32 $	FY33 $	FY34 $
General Aviation Landings	147,207	257,207	378,277	499,347	620,417	731,779	843,141	954,504	1,065,866	1,177,228
Total Aeronautical Revenue	**147,207**	**257,207**	**378,277**	**499,347**	**620,417**	**731,779**	**843,141**	**954,504**	**1,065,866**	**1,177,228**
Commercial Property Leasing	771,092	791,001	811,427	832,384	853,885	875,943	898,575	921,795	945,617	970,059
Commercial Other	177,966	206,119	234,271	262,424	261,332	295,320	329,308	363,296	397,284	401,692
Total Commercial Revenue	**949,058**	**997,120**	**1,045,698**	**1,094,808**	**1,115,217**	**1,171,263**	**1,227,883**	**1,285,091**	**1,342,901**	**1,371,751**
Corporate Revenue	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Total Corporate Revenue	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**
Total Revenue	**1,106,265**	**1,264,327**	**1,433,975**	**1,604,155**	**1,745,634**	**1,913,042**	**2,081,024**	**2,249,595**	**2,418,767**	**2,558,979**
Professional Services	120,000	105,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000
Management Fee	440,000	462,000	485,100	509,355	534,823	561,564	589,642	619,124	650,080	682,584
Repairs & Maintenance	157,000	177,000	181,500	186,135	190,909	195,826	200,891	206,108	211,481	217,016
Utilities	148,696	156,131	163,938	172,135	180,741	189,779	199,267	209,231	219,692	230,677
Administration & Other	84,200	99,150	94,364	105,866	101,685	113,852	110,400	123,366	120,791	134,720
Depreciation	289,114	323,634	326,630	330,641	333,560	337,024	339,006	342,080	343,984	345,077
Interest	281,852	375,332	384,812	393,492	400,172	411,452	421,932	429,612	434,292	437,692
Total Operating Expenditure	**1,527,140**	**1,706,476**	**1,720,275**	**1,780,931**	**1,824,885**	**1,893,728**	**1,947,177**	**2,015,481**	**2,066,203**	**2,133,882**
Projected Net Operating Surplus/(Deficit)	**(420,876)**	**(422,150)**	**(286,300)**	**(176,776)**	**(79,251)**	**19,614**	**133,848**	**234,113**	**352,563**	**425,097**

Table 19: Proposed budgets to FY34

Notes and disclaimers:

- Based on assumptions outlined in Appendix One
- The Functional Strategy is developed based on Council's strategies to plan for natural growth, and maximise revenue
- All costs are provisional estimates only
- Detailed design and costs are still to be investigated
- Projected costs subject to change. TPG reserve the right to review costs if base assumptions change
- Does not include any estimated costs for Qualifying Aerodrome requirements or Part B of the Aeronautical Study
- Refer to Functional Strategy section of the Report for further information, including critical success factors and budget implications etc
- Refer to Next Steps section of the Report which outlines our recommended short, medium and long term next steps.

Next Steps

- **Develop a Wanaka Airport Operational Plan**
  - Considers capex and opex costs, as well as funding opportunities
  - Considers user feedback and needs

- **Investigate airport management options**
  - Second busiest uncontrolled airport in the country
  - Significant Health and Safety obligations and risks
  - Complex commercial operating environment
  - CAA requirements will require higher standard of operational management

WANAKA Airport Fiancial Summary 2020 -2023

	2020	2021	2022
Operating Revenue	113,355	194,005	1,022,062
Personnel Expenditure			7,884
Operating Expenditure	154,486	363,329	719,923
Interest and Depreciation	13,873	638,129	257,549
Grand Total	**-55,004**	**-807,453**	**36,705**

Notes
Management Services Agreement with QAC in place from FY2022
FY 2021 includes one off costs associated with transition from Leased airport to managed airport

2023
1,062,987
1,418
697,033
365,813
-1,277