APPENDIX 16

AVIATION SPECIALIST STUDIES IN SUPPORT OF THE ENVIRONMENTAL IMPACT ASSESSMENT AT CAPE WINELANDS AIRPORT – BASELINE ASSESSMENT REPORT AND SITE SENSITIVITY VERIFICATION

REPORT

Aviation Specialist Studies in support of the Environmental Impact Assessment at Cape Winelands Airport

Baseline Assessment Report and Site Sensitivity Verification

Client: Cape Winelands Airport

Reference: MD5423-RHD-ZZ-XX-RP-Z-0002

Status: Final/03

Date: 23 August 2024

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Date:	23 August 2024

Classification
Project related

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1 Introduction

1.1 Appointment

On the 4th of April 2022, Royal HaskoningDHV (Pty) Ltd (operating as NACO, Netherlands Airport Consultants) and Air Traffic and Navigation Services SOC Ltd (ATNS) were appointed by Cape Winelands Airport Ltd for the provision of aviation specialist studies in contribution to the Environmental Impact Assessment (EIA) for the Cape Winelands Airport. NACO is represented on this project by Mr. Marcel Langeslag and ATNS by Mr. Francois Barwise.

The Environmental Assessment Practitioner (EAP) for this project, appointed separately by CWA, is PHS Consulting (Pty) Ltd, represented by Mr. Paul Slabbert.

This Baseline Assessment report is the first deliverable produced by NACO and ATNS under their respective appointments for this project.

1.2 Specialists

This report was prepared by:

- Mr. Marcel Langeslag MEng MM, Director Aviation Africa at NACO (CV in Appendix A)
- Mr. Rumal Ramsaroop BEng, Airport Engineer at NACO (CV in Appendix A)
- Mr. Francois Barwise, Specialist: Air Traffic Management Operational Systems at ATNS (CV in Appendix A)

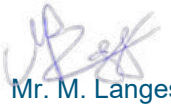
1.3 Declaration of consultant

1.3.1 NACO

Royal HaskoningDHV, operating as NACO, Netherlands Airport Consultants, hereby declares that it:

acts as the independent specialist in this study; does not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the appointment for the provision of aviation specialist studies; does not have and will not have any vested interest in the activity proceeding; has no, and will not engage in, conflicting interests in the undertaking of the activity; undertakes to disclose, to the competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2017 (as amended); and, will provide the competent authority with access to all information at our disposal regarding the study.

Signed by the authorized representative:



Mr. M. Langeslag, MEng MM

1.3.2 ATNS

Air Traffic and Navigations Services SOC Ltd, hereby declares that it:

acts as the independent specialist in this study; does not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the appointment for the provision of aviation specialist studies; does not have and will not have any vested

interest in the activity proceeding; has no, and will not engage in, conflicting interests in the undertaking of the activity; undertakes to disclose, to the competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2017 (as amended); and, will provide the competent authority with access to all information at our disposal regarding the study.

Signed by the authorized representative:

Mr. Francois Barwise

1.4 Scope and purpose of the report

This report outlines the status quo in terms of aviation infrastructure and activities at the site of the Cape Winelands Airport project. The objective of the baseline assessment report is to inform the Basic Assessment process of the project as part of the Environmental Authorization process. It describes the environment of the project site in terms of civil aviation activities, infrastructure and installations and identifies potential impacts the proposed development might have on the receiving environment.

1.5 Site investigations

Site investigations were conducted by Mr. Langeslag of NACO on 9 November 2020 and by Mr. Barwise of ATNS on 30 August 2021. During these site visits the existing footprint of the aerodrome were visually inspected. All areas, infrastructure and facilities, including runways, hangars and other facilities were inspected. Both visits were conducted during regular operating hours and deemed to be representative of 'normal' operations at the aerodrome.

1.6 Site sensitivity verification

The Department of Forestry, Fisheries and Environment (DFFE) screening report for the Cape Winelands Airport Expansion, generated on 5 May 2022, indicated High sensitivity of the proposed site with regards to civil aviation. The sensitivity identified by the screening tool was based on the following features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome
Medium	Between 15 and 35 km from a civil aviation radar
Medium	Between 15 and 35 km from a major civil aviation aerodrome

This prompted the need for specialist inputs in terms of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Civil Aviation Installations (Published in Government Notice No. 320 Government Gazette 43110, 20 March 2020). This protocol describes the possible sensitivity ratings as follows:

Sensitivity rating	Description
Very high	High likelihood for significant negative impacts on the civil aviation installation that cannot be mitigated. In-depth assessment of the potential impacts are likely to be required before development can be considered in these areas.
High	Potential for negative impacts on the civil aviation installation that can potentially be mitigated. Further assessment may be required to investigate potential impacts and mitigation measures.

Sensitivity rating	Description
Medium	Low potential for negative impacts on the civil aviation installation, and if there are impacts there is a high likelihood of mitigation. Further assessment of the potential impacts may not be required.
Low	No significant impacts on the civil aviation installation are expected in low sensitivity areas. It is unlikely for further assessment and mitigation measures to be required.

This Baseline Assessment (BA) describes the infrastructure and facilities in place at the CWA, and the current activities taking place there, all of which are in line with the current land zoning and the status of CWA as a licensed aerodrome. This BA also identifies potential positive and negative impacts of the development on the nearby aerodromes, particularly the Cape Town International Airport (CTIA) and Air Force Base (AFB) Ysterplaat that are both located at approximately 26 km from the site. The impacts are likely to be caused by the potential introduction of scheduled commercial air traffic in the vicinity of the CTIA controlled airspace. Further assessment will be required to determine the extent of the impacts and identify possible mitigation measures.

The current use of the land as a civil aerodrome and the environmental sensitivity being high, as identified by the screening tool are hereby confirmed.

2 Relevant policies and legislation

2.1 Civil Aviation Act, 2009

The Civil Aviation Act (Act 13 of 2009) was put in place to ensure effective control and safety in the civil aviation industry and is relevant to the project as such. The Act intends amongst others, to repeal, consolidate and amend the aviation laws giving effect to certain International Aviation Conventions; to provide for the control and regulation of aviation within South Africa; to provide for the establishment of a South African Civil Aviation Authority with safety and security oversight functions; to provide for the National Aviation Security Program; to provide for additional measures directed at more effective control of the safety and security of aircraft, airports and the like; and related matters.

2.2 Civil Aviation Regulations, 2011

The Civil Aviation Regulations were made to fall under the Civil Aviation Act and the parts listed below relate, amongst others, to the proposed development and activities. In particular, part 139 of the Regulations provide minimum standards and recommended practices on design and operation of aerodromes and heliports. The list below highlights some of the main parts that are relevant to the proposed development:

- General Aviation and Operating Flight Rules,
- Aerodromes and Heliports,
- Airspace and Air Traffic Services,
- Flight Procedure Design,
- Meteorological Information Services,
- Aeronautical Information Services,
- Instrument Flight Procedures, and
- ICAO Aeronautical Charts.

2.3 White Paper on National Civil Aviation Policy, 2017

This White Paper on National Civil Aviation Policy (NCAP) was developed to provide a primary framework for the future actions of the Department of Transport in the area of civil aviation. The White Paper acknowledges that the present airport infrastructure, with ownership vested in all spheres of government as well as the private and non -profit sector, is an integral part of the South African transport system. This infrastructure contributes to the socio- economic development of the country in terms of direct job creation and economic activity, stimulating economic activity in the wider airport precinct (including through "airport cities" and "aerotropolises ") as well as by facilitating domestic and international tourism and trade.

2.4 National Airports Development Plan, 2015

The National Airports Development Plan (NADP; v25 Final) has been initiated by the NCAP as the plan to address the gaps between the current airport network and the future desired state. It guides and supports both overall network planning and the development of individual airports integrated within their broader spatial and transport contexts, in consultation with key airport stakeholders. The regulation is relevant to the project as the infrastructure being developed and upgraded forms part of the overall airport infrastructure of South Africa.

2.5 White Paper on National Transport Policy, 2021

The objective of the National Transport Policy (NTP) is to create an environment that supports the development of transport system that economic and environmentally sustainable inclusive growth, and national and regional competitiveness. Key pillars to achieve this are to ensure transport is accessible, cost effective, time efficient and reliable, safe and secure.

In terms of civil aviation, the NTP recognizes the need to accommodate changing needs and circumstances that may be the result of global developments. This includes important matters such as liberalization of air transport, introduction of new technology, greater emphasis on environmental factors and the increased need to regulate remote piloted aircraft systems (RPAS).

It states that civil aviation should support the expansion of trade and tourism, by applying free market principles “with a view to maximising consumer choice and meeting consumers’ needs” and creating “an investor-friendly environment”.

2.6 National Transport Master Plan (NATMAP) 2050, 2011

The NATMAP 2050 is the masterplan for transport infrastructure that was created to ensure a sustainable and dynamic system that is well managed and coordinated. The NATMAP 2050, therefore, aims to achieve: An integrated, smart and efficient transport system supporting a thriving economy that promotes sustainable economic growth, supports a healthier life style, provides safe and accessible mobility options, socially includes all communities and preserves the environment. The NATMAP makes recommendations that are relevant to the development of airports as part of the national transport infrastructure network.

2.7 Cape Town Municipal Spatial Development Framework (MSDF), 2022

The Cape Town MSDF and the eight accompanying District Spatial Development Frameworks and Environmental Management Frameworks (DSDF/EMF) are currently out for public comment, in Draft and Final Draft status respectively. The MSDF and DSDFs/EMFs together provide a long-term guide for the development of the built environment. They set an agenda for coordination of various interventions and developments, and guide decision making for public and private investment. One of the key strategies they support is to plan for economic growth and improved access to economic opportunities.

The Integrated Northern District Spatial Development Framework and Environmental Management Framework specifically mentions that certain sites in the vicinity of Fisantekraal are “no longer of ‘agricultural significance’ and consideration would therefore be given to employment-generating land uses”. It includes the Cape Winelands Airport inside the so-called Urban Development Edge.

2.8 Chicago Convention, 1944

The Chicago Convention, also known as the Convention on International Civil Aviation, is published in Schedule 3 of the South African Civil Aviation Act No 13 of 2009. The Chicago Convention established the core principles permitting international transport by air and led to the creation of the International Civil Aviation Organisation (ICAO), a specialized agency of the United Nations charged with coordinating and regulating international air travel. The Convention establishes rules of airspace, aircraft registration and safety, and details the rights of the signatories in relation to air travel.

2.9 International Civil Aviation Organization (ICAO)

The International Civil Aviation Organization (ICAO) is a specialized agency initiated at the Chicago Convention (1944) with the core function to maintain an expert bureaucracy between the nation interacting

through the aviation industry, and to research new standards and innovations in the industry. The proposed development will be planned and designed to comply with the standards and recommended practices set out by ICAO. Of particular importance in the planning and design of airports are the ICAO Annex 14, DOC 9184 - Airport Planning Manual and DOC 9157 - Aerodrome Design Manual.

3 Project Description

3.1 Existing situation

3.1.1 General information

The Cape Winelands Airport (CWA) site is the former Fisantekraal Aerodrome. This aerodrome was built circa 1943 initially for the South African Airforce before being transferred to the local Municipality in the 1960s. It has been under private ownership since 1993 and was acquired in November 2020 by Cape Winelands Airport Limited. Since then, adjacent parcels of land have been secured by way of purchase or Power of Attorney, taking the current scope of the development to approx. 885ha. Military/defence activities no longer take place at the airport.

The initial property (the current aerodrome) was rezoned in March 2021 from Agricultural to Transport 1 with consent for an airport and falls within the City of Cape Town Municipality. The remaining extent (adjacent parcels) of the planned footprint are still to be rezoned and are all therefore still zoned as Agricultural.

The aerodrome has a valid Category 1 Aerodrome License (number 0820) from the SACAA, designating the aerodrome as Cape Winelands with ICAO code FAWN (see Appendix B). According to the Aeronautical Information Publication (SACAA Aerodrome Directory of 15 July 2021, see Appendix C) the aerodrome is located 5 nautical miles (NM) northeast of Durbanville and has a reference elevation of 399 feet (approximately 122 meters) above mean sea level. Air traffic operations are permitted under Visual Flight Rules (VFR).

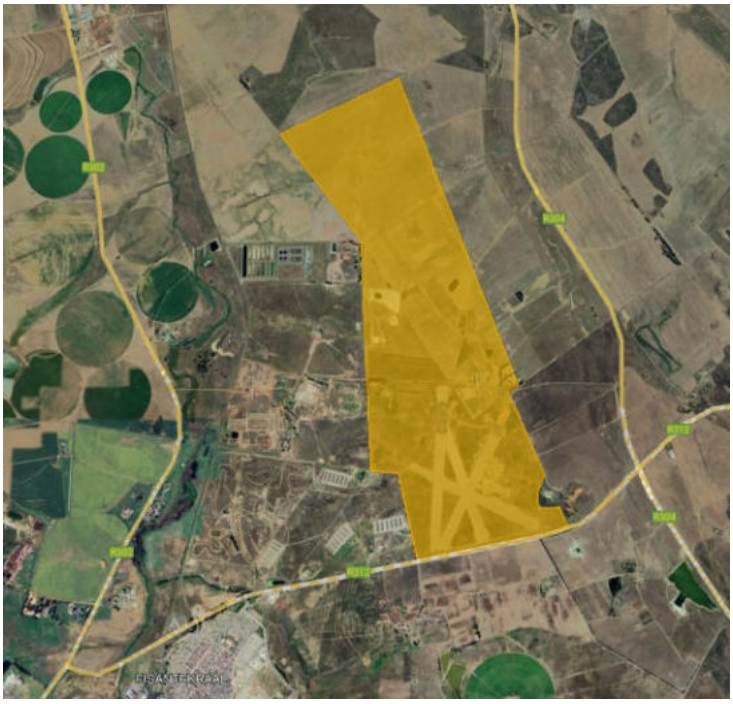


Figure 3-1: Development footprint

3.1.2 Aerodrome infrastructure and facilities

The site contains four runways:

- Runway 05-23 is 1 370 metres long by 90 metres wide (of which 900m x 20m remains in active use)
- Runway 14-32, at right angles to 05-23, is 1 230 metres long by 90 metres wide (of which 700 m x 16m remains in active use)
- Runway 01-19, currently not in use, is 1 080 m long and 90 m wide
- Runway 03-21, currently not in use but occasionally used for film shoots, is 1 454 m long and 90 m wide.

Currently, the primary runway in use is 05-23 and the secondary runway 14-32 is used in case of easterly (cross) wind. The concrete surface of these runways visually appears to be in reasonable condition, although it is cracked heavily and quite uneven in places. Parts of the runways are no longer in use; some areas were overgrown, and localised subsidence has been reported. As the runways were originally constructed more than 80 years ago, it can be expected that the concrete has exceeded its useful life. The exact condition of the pavements is yet to be determined.

A complex of small-aircraft hangars, offices and training facilities is located east of the junction of runways 05-23 and 14-32, at the same location as the former Airforce base. Access is obtained from Lichtenburg Road R312 at the southern boundary of the site. A network of internal tracks and roads, in varying levels of usage and states of repair, extends across the site.

The approximately 6000 m² of building space on site appear mostly in a visually reasonable condition. The various buildings are used for General Aviation activities, with Hangar A1 housing the Cape Town Flight Training Centre. None of the buildings are reported to be of any significant historic or architectural value.

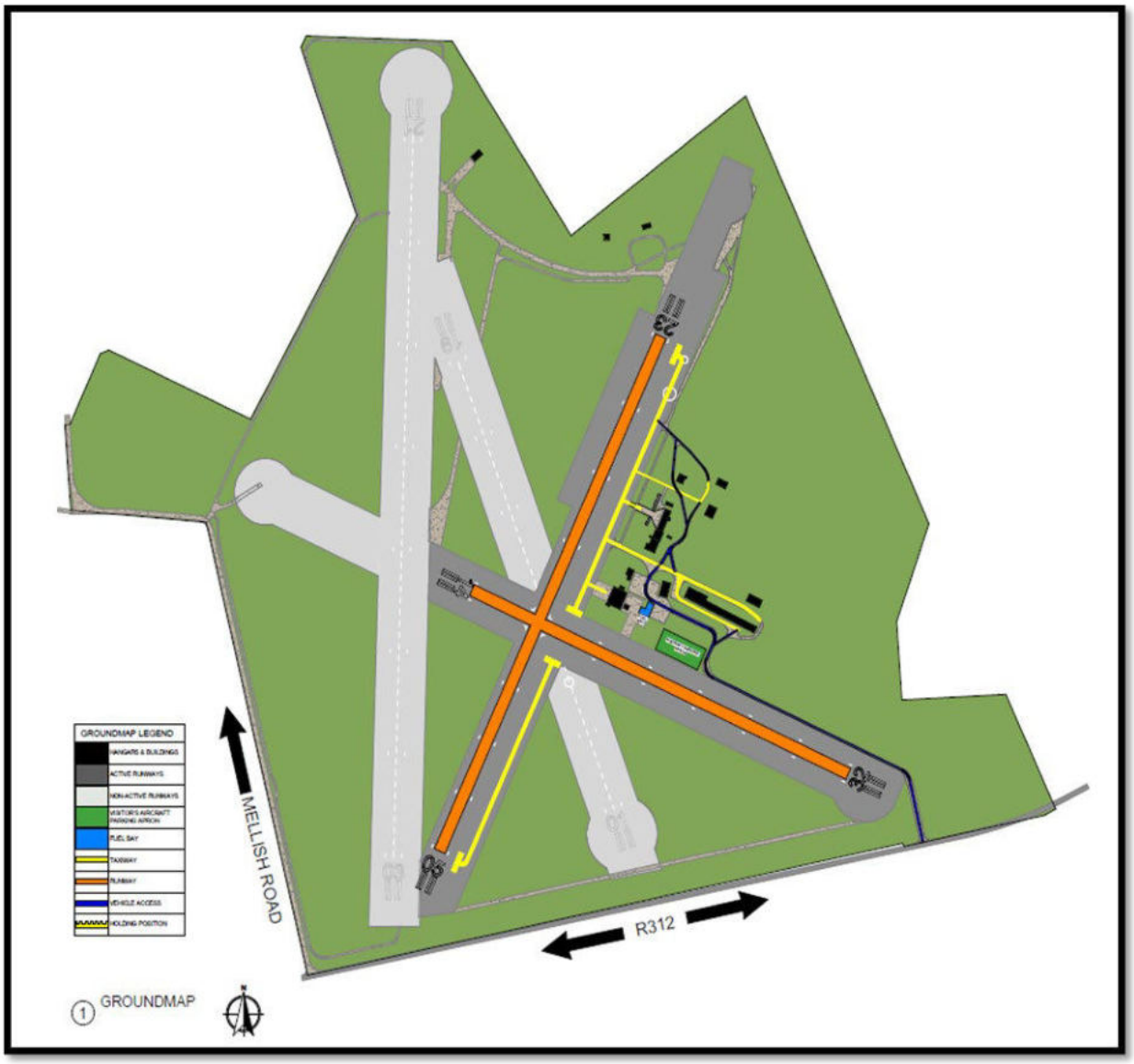


Figure 3-2: Ground map and layout of existing runways

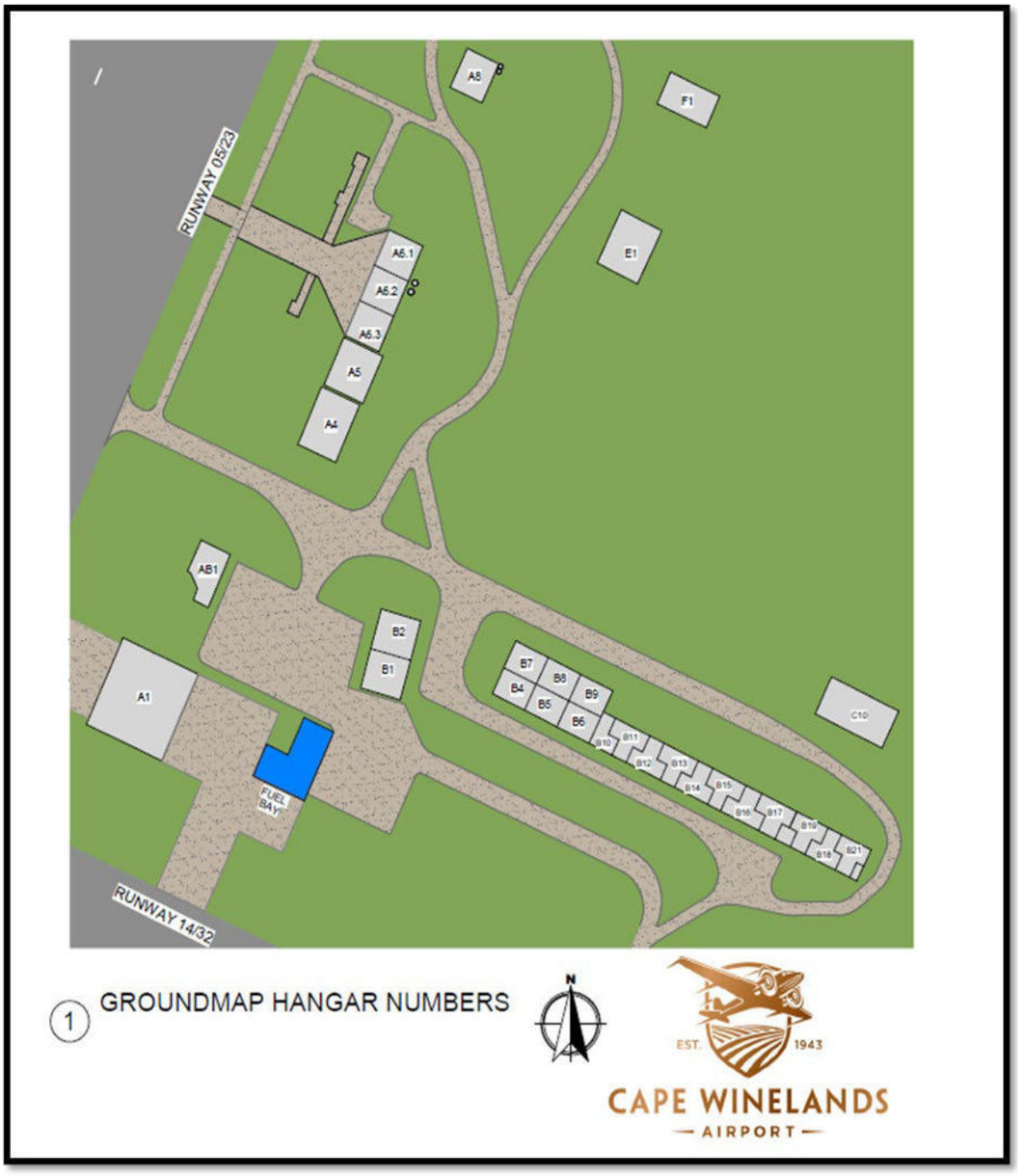


Figure 3-3: Ground map and layout of existing hangars

3.1.3 Aviation activity

Current aviation activity at the airport consists of flight school operations and other unscheduled general aviation (GA) flights. These includes private owner-pilots and limited charter operations in light fixed-wing aircraft, as well as helicopters, gyrocopters and microlights. All flights operate under visual flight rules (VFR) and make use of the runway 05-23 and 14-32 depending on wind conditions.

Flight activity at the airport averages approximately 100 air traffic movements (ATM; take-offs and landings) per day, varying with weather conditions, seasons and day of the week. The table below provides an overview of the aircraft types currently operating at the airport with some frequency, although all remain unscheduled.

Table 3-1: Overview of the aircraft types operating at the airport

Aircraft Type	Seats	ICAO Code	Frequency
Diamond DA20-C1 Eclipse	2	A	Daily
Beechcraft K35 Bonanza	4	A	Seldom
Cessna 150	2	A	Daily
Cessna 172	4	A	Daily
Cessna 175	4	A	Weekly
Cessna 177 Cardinal	4	A	Weekly
Cessna 182	4	A	Weekly
Cessna 206	6	A	Weekly
Cessna 208	14	A	Monthly
Cessna 210	6	A	Monthly
Gyrocopter - Xenon	3	A	Daily
Kitplanes For Africa - Bushbaby	2	A	Weekly
Kitplanes For Africa - Safari	4	A	Weekly
Microlights	1-2	A	Monthly
Pilatus PC-12	9	A	Weekly
Piper Cherokee PA28-180	4	A	Daily
Piper PA-28 Warrior	2	A	Daily
Piper PA28R-200 Arrow	4	A	Daily
Piper PA34-200T Seneca II	6	A	Weekly
Piper PA38 Tomahawk	2	A	Daily
Piper Pawnee	2	A	Monthly
Piper Brave	2	A	Monthly
Piper Tripacer	4	A	Monthly
Sling 2	2	A	Weekly
Sling 4	4	A	Weekly
Sling TSI	4	A	Weekly

Other aviation-related activities taking place at the airport include the rental of hangar space for privately-owned aircraft and the sale of aviation gasoline (Avgas 100LL). There are currently 34 hangars on the site that are in use by various private aircraft owners, two flight schools (Cape Town Flight Training Centre and Aerosport) and small aircraft operators, such as a crop sprayer and aerial advertising firm. There are no military/defence-related activities taking place at the airport.

3.1.4 Meteorological conditions

The meteorological conditions of the site are described in terms of temperature, rainfall and wind, which are some of the key conditions relevant to aviation activities. Several datasets were provided by CWA and compared to determine their suitability for use in airport planning and design.

Source 1:

- Received from a consultant appointed by the client (Machoy)
- The data consisted of a mix of measurements taken from sites at various distances from the proposed development over 11 years (2009 – 2019).
- The dataset was considered as low accuracy and reliability as the distance from the site varied from nearby to far.

Source 2:

- Received from a consultant appointed by the client (Machoy)
- The data consisted of readings taken from a site approximately 3.2km east of the proposed development over 5 years (2016 – 2020)

Figure 3-4: Location of the weather station

- This data is considered accurate as hourly readings provide a high resolution and a period of 5 years is sufficiently large to account for annual fluctuations. Since the data is 2 years old, it could be updated with more recent measurements. However, this is not expected to cause a material change in the reference temperature.

Source 3:

- This data was extracted from the Weather Research and Forecasting (WRF) model. The WRF dataset has been in development since the 1990's and was developed as a joint effort for research and development of accurate weather and climate predictions.
- The data was recorded at hourly intervals for 5 years (2014 – 2018).
- The accuracy of the WRF data was tested by comparing to data recordings taken at a nearby weather station of WASA (Wind Atlas of South Africa). The WRF and WASA data was compared as shown below.

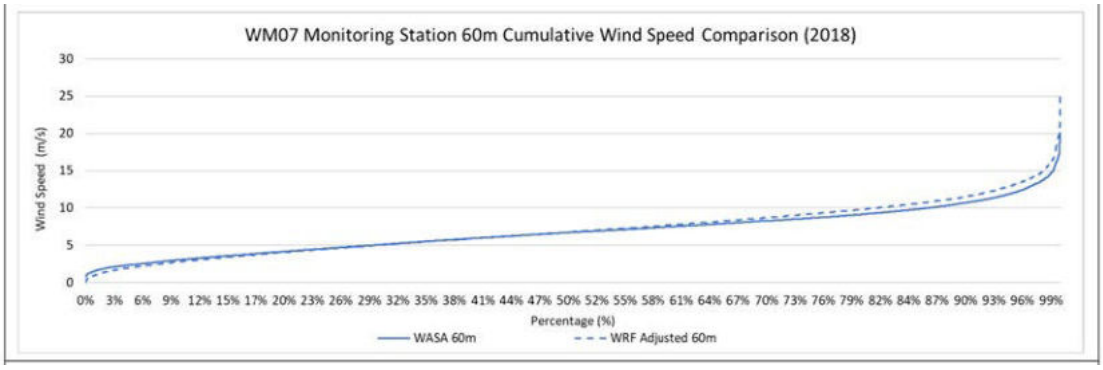


Figure 3-5: WRF and WASA data

- The dataset was the preferred source as the location of the data predictions was in close proximity to the site.

Source 4:

- This data was recorded by a newly installed weather monitoring system at the actual airport development site and is the most recently recorded. The meteorological data was recorded for 13 months with the last month being March 2022

Temperature

The graph below, from the World Bank Climate Change Knowledge Portal (https://climateknowledgeportal.worldbank.org/country/south-africa/climate-data-historical), provides an overview of the temperature trends in the Western Cape. The graph shows the mean, minimum and maximum temperatures (as well as the precipitation) based on data recorded between 1991 and 2020, produced by the Climatic Research Unit (CRU) of University of East Anglia. This data is considered very reliable as it spans several decades of measurements.

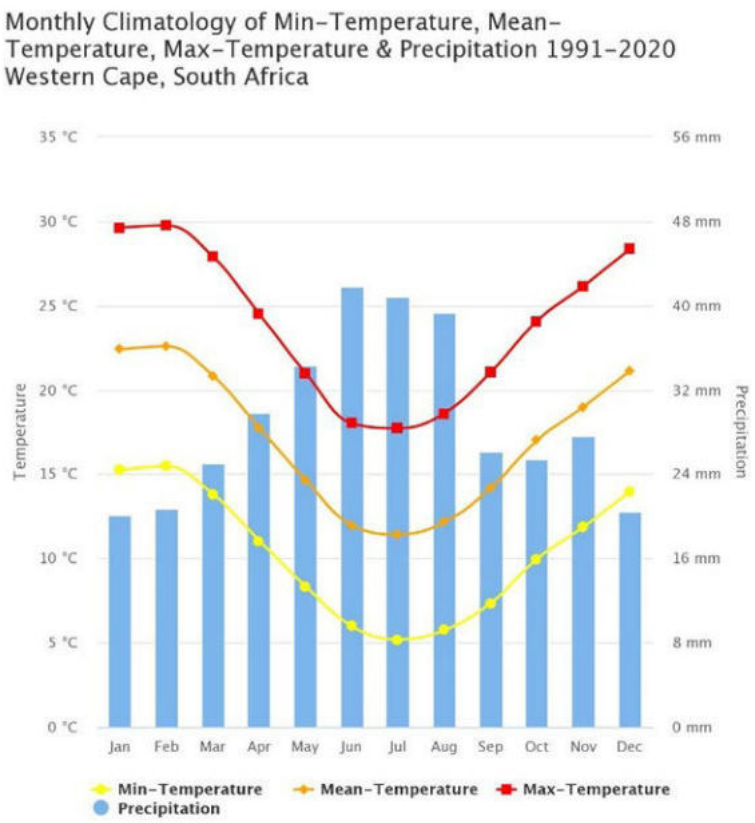


Figure 3-6: Minimum and maximum temperatures & precipitation in Western Cape

For the purposes of airport planning and design, the aerodrome reference temperature is defined by IACO as the monthly mean of the daily maximum for the hottest month of the year, where the hottest month is the month with the highest mean temperature. Using the data provided in source 2, the aerodrome reference temperature was calculated to be 24.1 °C.

Rainfall

The graph below, from website climate-data.org (https://en.climate-data.org/africa/south-africa/western-cape/durbanville-26949/) provides and the annual temperature trend in Durbanville, some 10km from the site. The data used in this graph is provided by the European Centre for Medium-Range Weather Forecasts, was collected between 1999 and 2019 and is considered to be very reliable.

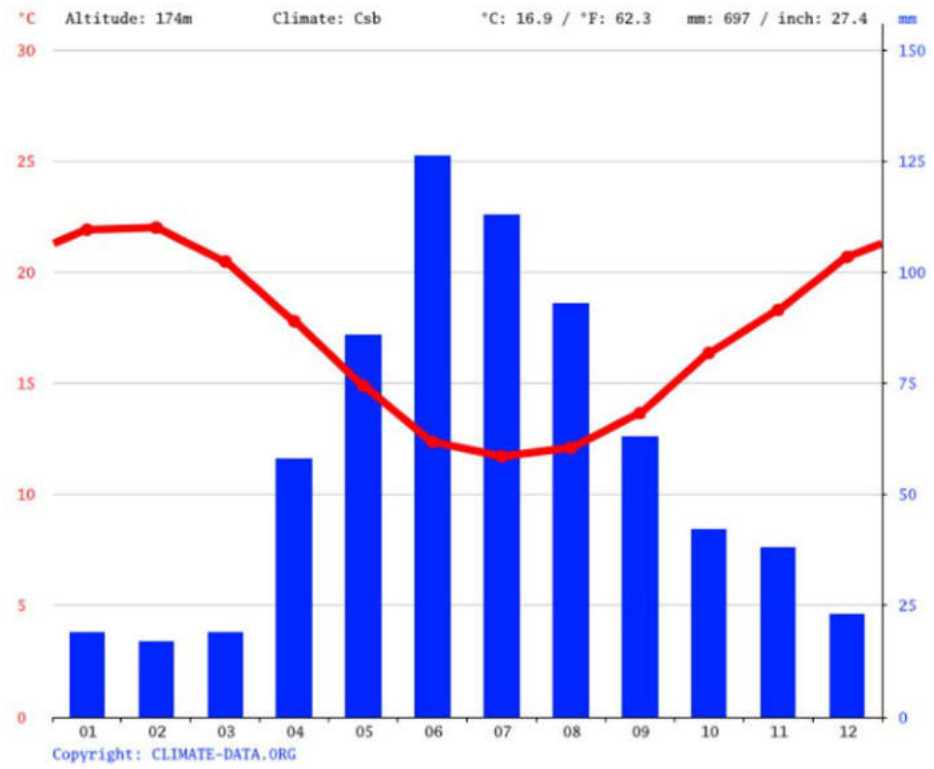


Figure 3-7: Illustration of monthly temperature and rainfall in Durbanville

To verify the rainfall data above, a rainfall graph has been plotted with the precipitation data measured on site (source 4). The data was based on 13 months ending March 2022. From the graph below, the overall rainfall trend at the site is relatively similar to the public domain data, with May, June, July and August being the wettest months of the year.

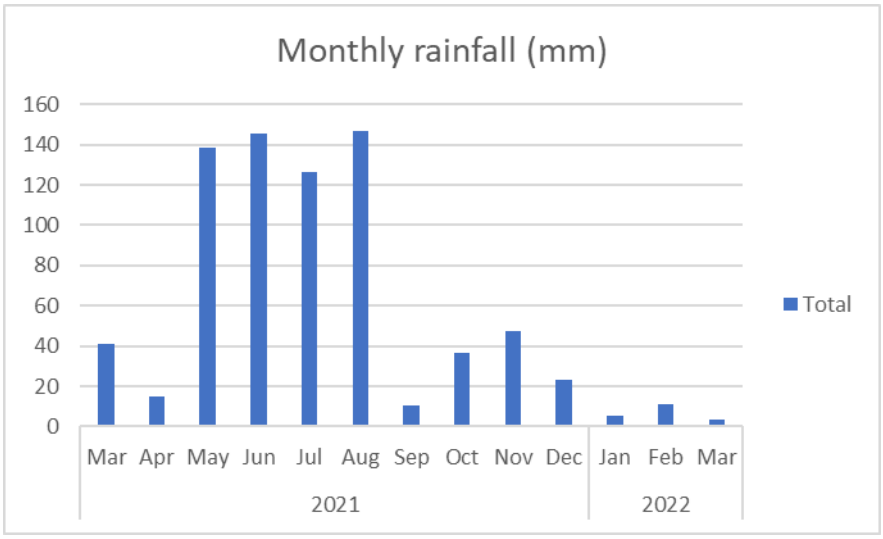


Figure 3-8: Illustration of monthly rainfall for 2021/2022 measured on the CWA site

Wind

The wind direction and speed play an important role in the design of the runway orientation. As per ICAO, the usability of the runway should be not less than 95%. Cross winds of a certain speeds as specified in the standards, make the runway unusable for certain aircraft depending on their size. A wind rose diagram or map is used to summarise wind information at a specific location over a specified time period.

The wind rose diagram is shown below for the dataset of source 2, which was considered the most accurate dataset

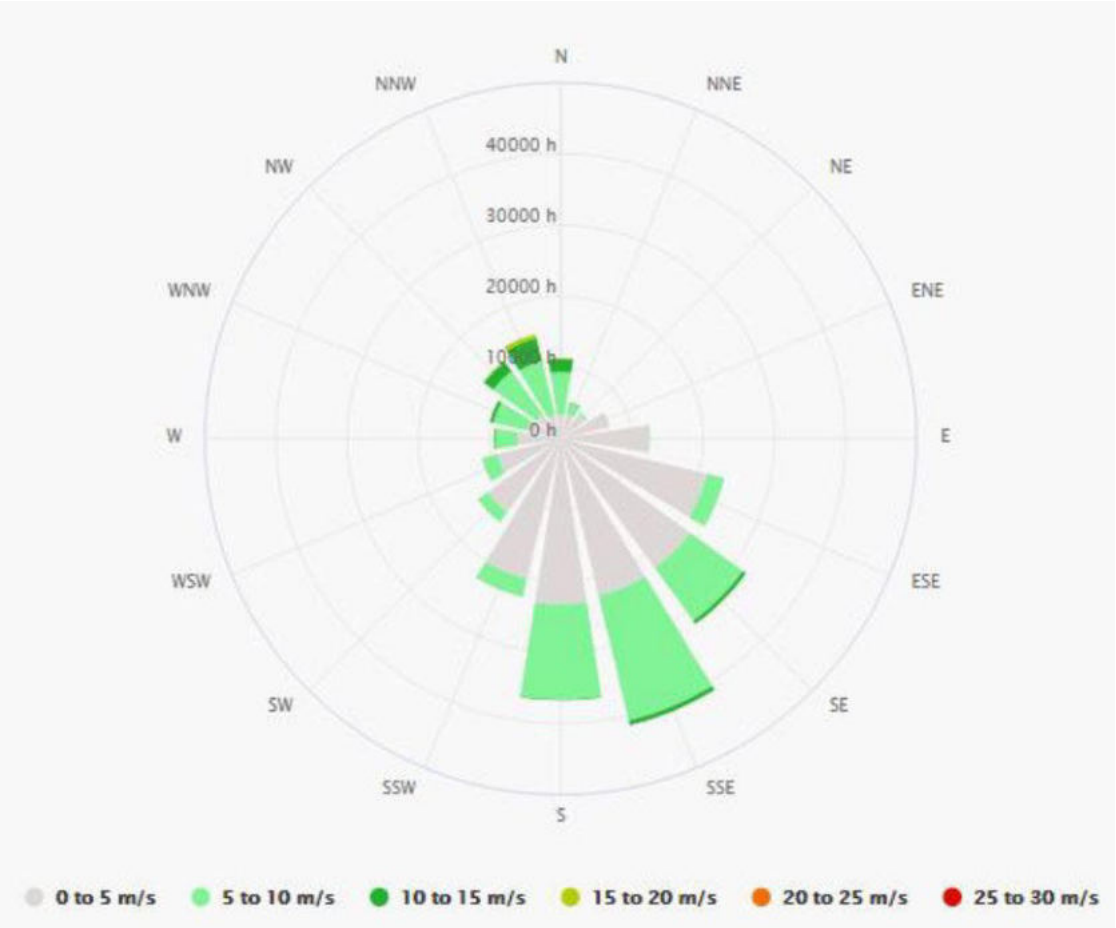


Figure 3-9: Wind rose of dataset source 2

The diagram shows a more common wind speed of 5 to 10m/s in the South East direction and slightly stronger winds in the North west direction on less common occasions. The diagram below shows the wind distribution based on the wind data measured on site (source 4). Although the data set is limited to 13 months, a similar trend can be seen in term of predominant direction, with some slight variation.

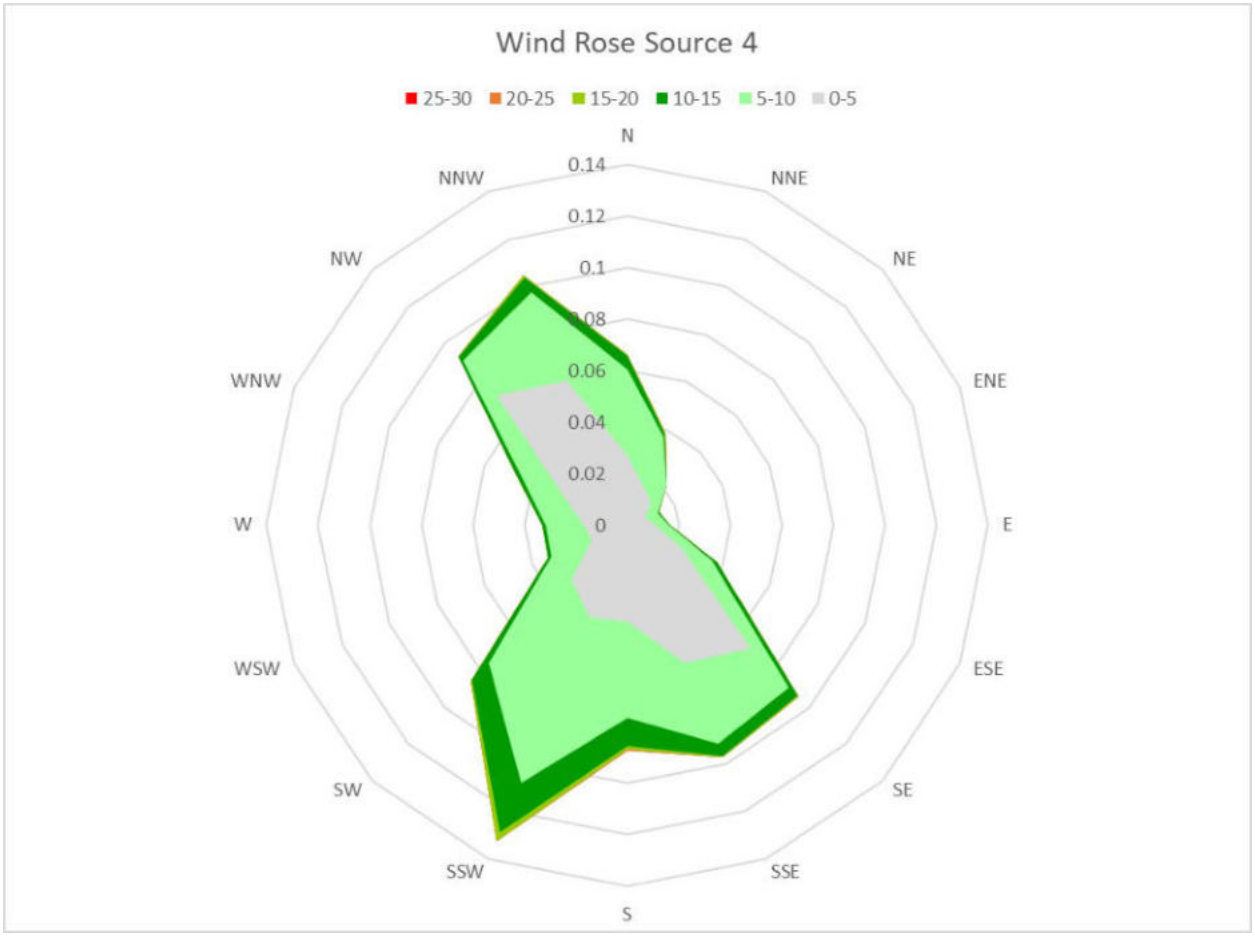


Figure 3-10: Wind rose of dataset source 4

3.2 Site environment

The CWA site is located to the northeast of Cape Town, approximately 13km from Durbanville, within the East Rural area of the City of Cape Town Municipality. The following sections describe the environment around the aerodrome site from the perspectives of ground transportation, land use, aerodromes and other civil aviation installations, and airspace.

Figure 3-11: Project location (depicted in yellow) and immediate environment

3.2.1 Ground transportation

To the south the existing aerodrome site borders the R312 Regional Route that connects to the R302 leading to Durbanville in the west and to the R44 leading to Wellington in the east. The west of the site borders on the unpaved Mellish Road. Less than 1km to the east of the site is the R304 Regional Route that leads to Stellenbosch in the south and connects to the R302 leading to Malmesbury in the north.

Approximately 1km to the west of the site runs the Cape Town Metrorail railway line between the Fisantekraal and Klipheuwel stations.

3.2.2 Land use

Land uses directly adjacent to the site include pasture and canola farming (north, east and south), equestrian (north) and broiler farming (west). To the northwest of the site there is a sandstone quarry.

Planned developments in the vicinity of the site include the expansion of the Fisantekraal township (approximately 1.5km southwest of the site) through the Garden Cities Greenville housing development, which is planned to extend to the south of the site. To the northwest of the site the Bella Riva Lifestyle & Golf estate is planned to be developed.

3.2.3 Aerodromes

Most of the airstrips located within the area suggest the usage of local farmers and/or wine producers in the area. The following 24 airports/helistops/airstrips have been noted in a 20 nm (+/- 37 km) radius from Cape Winelands Airport:

Table 3-2: Aerodromes within a 20 nautical miles radius from Cape Winelands Airport

#	Airport/Airstrip/Helistop	Distance from CWA	Surface, facilities and usage	Map Identifier
1.	Grootfontein	+/- 2nm	1 x Gravel/Hanger/Local Farmer	R 021
2.	Unknown airstrip (33°50'52.23"S 18°47'54.99"E)	+/- 5nm	2 x Gravel/Building/ Local Farmer	??
3.	Altona	+/- 6nm	1 x Gravel/No Facilities/ Local Farmer	Altona
4.	Coutermanskloof	+/- 8nm	1 x Gravel/No Facilities/ Local Business	R 022
5.	Wintervogel Flight Park	+/- 9nm	2 x Gravel/Frequency, Hangers & Buildings/ Local Farmers & Training	R 074
6.	Morningstar (WCMC Club)	+/- 9.6nm	1 x Asphalt/Frequency, Hangers & Buildings/ Local & Training	R 020
7.	De Waal	+/- 11nm	1 x Gravel/No Facilities/ Local Farmer	De Waal
8.	Klipvlei Airfield Park	+/- 12nm	1 x Gravel/No Facilities/ Local Farmer	Klipvlei Airfield Park
9.	Good Hope INTL	+/- 12.8nm	1 x Gravel/No Facilities/ Local Farmer	Good Hope INTL
10.	Stellenbosch	+/-13 nm	1 x Asphalt/Frequency, Hangers & Buildings/ General Aviation & Training	FASH
11.	Netcare Blaauwberg Hospital Helistop	+/- 13nm	Helipad/No Facilities/Emergency Helicopters Only	298
12.	Air Force Base Ysterplaat	+/-14nm	1 x Asphalt/Military Facilities/Military & State usage	FAYP
13.	Cape Town International Airport – ACSA	+/- 14nm	2 x Asphalt/All Commercial Facilities/ Commercial International usage	FACT
14.	Diemerskraal	+/- 14.7nm	1 x Gravel/Hangers & Buildings/Local Farmers & Training	R 039
15.	Paarl	+/- 14.8nm	1 x Gravel/No Facilities/ Local Farmers	FAPU
16.	Delta 2000	+/- 15nm	1 x Asphalt/Hangers/ Local Farmers	FADX
17.	Black River Helistop	+/- 15nm	Helipad/No Facilities/ Local Business use	394
18.	Paardeberg	+/- 16nm	1 x Gravel/No Facilities/ Local Farmers	Paardeberg
19.	WP OES	+/- 17nm	1 x Asphalt/Hangers/ Local Farmers	WP OES
20.	V&A Waterfront Helistop	+/- 17.5nm	Helipad/No Facilities/ Local Business use	225
21.	Robben Island Airstrip	+/- 18.9nm	Airstrip is closed	
22.	Vogel	+/- 19nm	1 x Gravel/No Facilities/ Local Farmers	Vogel

23.	Craigcor	+/- 20nm	1 x Gravel/No Facilities/ Local Farmers	Craigcor
24.	Swartdam	+/- 23nm	1 x Gravel/No Facilities/ Local Farmers	Swartdam

Figure 3-12: Aerodromes within a 20 nautical miles radius of Cape Winelands Airport

The above information was sourced from the following reliable sources:

1. World Aeronautical Charts 1:500 000
2. South African Aeronautical Information Publication
3. South African Civil Aviation Authority Website

It should be noted that Cape Town International Airport (FACT) is the main aerodrome in the vicinity of Cape Winelands Airport. This airport currently operates two runways, runway 01-19 for both Instrument Flight Rule (IFR) and Visual Flight Rule (VFR) traffic, and runway 16-34 for VFR traffic and/or emergency traffic. According to a presentation by Airports Company South Africa (ACSA) to the Westen Cape Parliamentary Committee for Finance, Economic Opportunities and Tourism on 11 September 2019, "environmental authorisation" for a new realigned runway had been obtained and construction was expected to start in early

2020. It is understood that this new realigned runway would have designation 18-36 and that the design of the runway, and associated flight procedures has not been completed to date.

3.2.4 Other civil aviation installations

Other civil aviation installations nearby the airport site include the following navigational aids and surveillance equipment. Most of these installations are located at or close to CTIA.

Table 3-3: Communication, Navigational and Surveillance Equipment nearby the Cape Winelands Airport

#	Communication/Navigation/Surveillance Equipment	Distance from CWA	Map Identifier	Civilian (C) or Military (M)	Source of data
1.	Navigational Aid - NDB	+/- 10.4 nm	CB	C	SA-AIP
2.	Surveillance (Radar) - Cape Town S-Band 1 MSSR (+ PSR)	+/- 13 nm	SSR_1	C	ATNS
3.	Communication – 13 x Transmitters	+/-13.1 nm	FACT TX	C	ATNS
4.	Navigational Aid - VOR/DME	+/- 13.8 nm	CTV	C	SA-AIP
5.	Surveillance (Radar) - Cape Town S-Band 2 MSSR (+ PSR)	+/- 14 nm	SSR_2	C	ATNS
6.	Communication – 13 x Receivers	+/- 14.1 nm	FACT RX	C	ATNS
7.	Communication – 6 x Local Transceivers	+/- 14.2 nm	FACT SSS	C	ATNS
8.	Communication – 7 x Local Transceivers	+/- 14.3 nm	FACT TWR	C	ATNS
9.	Surveillance - Various Multilateration sites at CTIA	13 – 14.7 nm	FACT MLAT	C	ATNS
10.	Navigational Aid - VOR/DME	+/- 18.8 nm	RIV	M	SA-AIP

Note that items RIV (10) and CB (1) navigational aids have been decommissioned.

In addition to the abovementioned existing installations, the following Wide Area Multilateration (WAM) antenna sites are planned to be implemented in the near future:

a. GS04 Cape Town Old Radar Site
b. GS05 Tygerberg
c. GS07 Simonsberg
d. GS08 Kanonkop
e. GS09 Hawequas

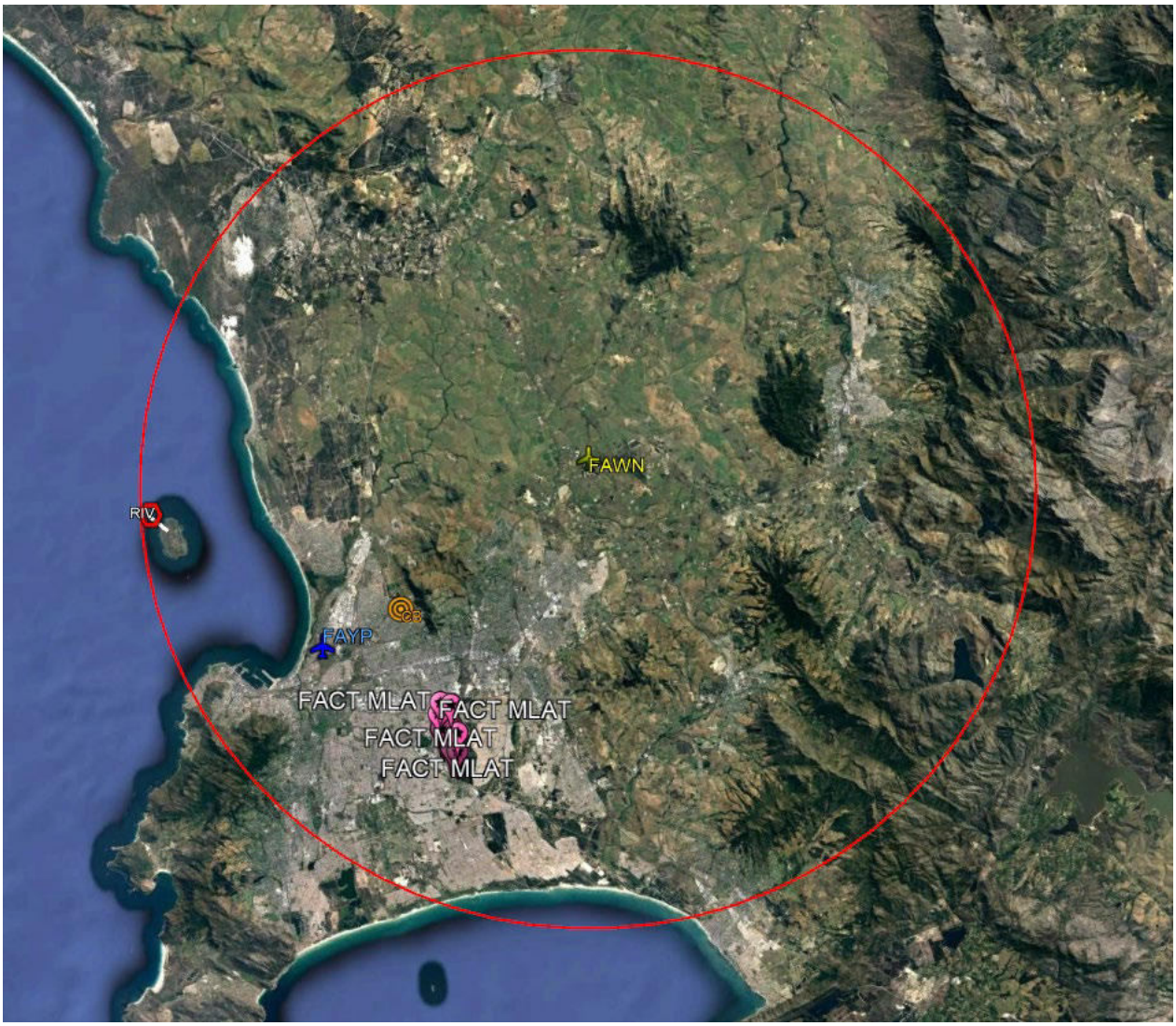


Figure 3-13: Other civil aviation installations within a 20 nautical miles radius of Cape Winelands Airport

3.2.5 Airspace

The Cape Winelands Airport does not have any airspace designated and falls within the Cape Town Special Rules Area. This airspace is uncontrolled, Class G airspace. Traffic operating within a 5 nautical mile radius must broadcast their intentions on radio frequency 131.1 MHz and the airport callsign is “Winelands Traffic”. The Cape Winelands Airport is 399 feet above mean sea level. The joining altitude for air traffic is restricted to 2000 feet above mean sea level because of the Cape Town Terminal Control Area (TMA) A which starts from 2500 feet above sea level above Cape Winelands Airport.

Nearby Cape Town International Airport (CTIA) operates commercial (passenger and freight), general aviation and training flights on its primary runway (01/19) and its secondary runway (16/34). The South African Air Force (SAAF) operates military flights from Air Force Base Ysterplaat on its single runway (02/20)

The airspace above Cape Town has been developed predominantly to accommodate air traffic to and from CTIA. Other airspace in the vicinity is mostly associated with military and/or state flights; i.e. Ysterplaat, Langebaan, Overberg, etc.

The CTIA airspace is served by five inbound gates or feeder fixes (ERDAS, GETEN, ASPIK, EVUKI & KODES) and three outbound gates or feeder fixes (IMSOM, TETAN & OKTED). Seven inbound procedures and seven outbound procedures are divided between runway 01 and runway 19. Limited procedures are associated with the secondary runway 16/34. The withdrawal of RIV (see section 3.2.4) has suspended numerous procedures and may not be used within the CTIA airspace. The inbound/arrival procedures connect with a precision approach (Instrument Landing System (ILS) Category II) to accommodate instrument landings during adverse weather conditions on runway 01 or runway 19. Runway 01 also hosts a non-precision approach for less adverse but marginal weather conditions. Runways 16 and 34 do not have any associated approaches.

Cape Town airspace is divided into a control area (CTA), six terminal control areas (TMA A-F) and a control zone (CTR) protecting aircraft on the various procedures. During visual meteorologic conditions standard published visual flight rule routes will accommodate air traffic operating between Cape Town International and Cape Winelands Airport.

The Cape Winelands Airport has no instrument procedures serving the airport and therefore being referred to as a VFR airport allowing visual procedures for landing. Aircraft operating under instrument flight rules and during instrument meteorologic conditions will have to conduct an approach at CTIA and thereafter fly under special visual flight rules below cloud to Cape Winelands Airport. During visual met conditions an instrument flight may continue under visual flight rules after overflying Cape Winelands airport and/or reporting it in sight. Instrument flights departing from Cape Winelands will have to depart under visual conditions and request to join controlled airspace to acquire an instrument joining clearance from Cape Town Air Traffic Control. Further details on the current airspace configuration are included in the Appendix D.

3.3 Proposed development

The project entails developing the existing aerodrome and adjacent plots of land into a thriving commercial and aviation hub, supporting flight operations domestically as well as internationally and with a particular focus on non-aeronautical revenue streams. the airport aims to be as carbon neutral as possible by making use of renewable energy sources.

3.3.1 Strategic positioning

Cape Winelands Airport strives to be the dedicated GA hub for the Western Cape and the preferred airport for discerning business and leisure passengers. To do this the airport will provide pilot training services, GA aircraft parking and maintenance, convenient business and leisure passenger facilities, as well as commercial, transport related facilities and services. Its target customers are flight schools, private aircraft owners, charter operators (business and tourism), business passengers travelling into and out of Cape Town, leisure passengers travelling into Cape Town, and various tenants, concessionaires and businesses operating at the airport.

The unique value of the airport is that it offers an ideal location with a favourable environment for GA operations, has good connectivity to major regional growth centres and will provide fast and high-quality passenger processing.

The nature of CWA in relation to Cape Town International Airport (CTIA) is that CWA will serve as a reliever airport, in a complementary role within South Africa’s network of airports and airfields. As a reliever airport, the majority of air traffic movements will take place in light aircraft on an unscheduled basis (e.g. flight

training, charter & recreational flying) while the remaining activity will comprise scheduled commercial operations. All unscheduled operations are referred to as general aviation (GA) and it is envisaged that a portion of the GA currently taking place at CTIA may relocate to CWA when possible, due to the efficiency and ease of operation that these aircraft would enjoy at CWA. Currently, GA operators struggle to compete for take-off/landing slots at CTIA due to the high volume of scheduled commercial operations, which take preference.

Overall, CWA will aim to:

Have a significant positive economic impact on the region by contributing towards, amongst other:

- The creation of job opportunities
- Gross geographic product (GGP) growth

Positively contribute towards the growth of scheduled air traffic into Cape Town by focusing on:

- Regional air mobility (RAM)
- Unserved markets
- Underserved markets
- Diversion services

Become a full reliever airport for all airlines flying into Cape Town, and in doing so, CWA will:

- Offer the City of Cape Town airport redundancy in case of an emergency or airport closures in Cape Town.
- Enable a positive environmental impact. With CWA as a closer designated alternate airport, all airlines flying into Cape Town will be able to reduce their contingency fuel requirements, therefore reducing carbon emissions, reduce their fuel burn and reduce their carbon footprint.
- Offer airlines the ability to increase their payload on each flight.
- Contribute towards the growth of scheduled air traffic into Cape Town due to lower operating costs of airlines and/or higher payloads, making the route more profitable and air ticket prices more competitive. The enhanced route profitability could mean more market entrants.
- Offer additional capacity where there is currently slot and capacity constraints at other airports. Additional capacity, at the right time, could mean more market entrants.

Offer international and domestic scheduled passengers a second airport of choice. Multi-airport cities drive and promote the following:

- Improved service across all airports
- More competitive pricing models
- Safer and reduced travel for various catchments areas
- Diversified products, services and offerings
- Airport redundancy in case of closures of a single airport

Create additional general aviation facilities for the region that will:

- Consolidate and integrate the general aviation activities across the region
- Enable growth of the general aviation market
- Provide much needed additional general aviation hangar capacity
- Provide a platform on which the general aviation and fixed base operators can create bespoke and superior customer facilities and experiences

By 2050, it is anticipated that CWA will be processing:

- Non-scheduled general aviation traffic
- Non-scheduled fixed base operations traffic
- Scheduled domestic operations
- Scheduled international operations

- As a destinate alternate airport, CWA will process:
  - Domestic diversions
  - International diversions

3.3.2 Civil aviation activity

The proposed development will increase the available capacity for GA activities, in terms of hangarage, outside parking and take-offs and landings. It will also provide the infrastructure and facilities necessary to attract fixed-base operators and to operate scheduled commercial airline operations. The development aims to make it possible for more and larger aircraft to make use of the airport.

Currently, the typical fixed-wing aircraft operating at the airport are ICAO Code A with fewer than 10 seats (see section 3.1.3). In future the airport aims to attract turboprop and jet aircraft up to Code C with as many as 200 seats. The following user groups are envisaged to make use of the airport's aeronautical facilities:

- Private Aircraft Owners
- Approved Training Organisations (ATOs) – i.e. flying schools
- Charter & Tour Operators
- Fixed Based Operators (FBOs)
- Scheduled Airlines
- Agricultural Flight Services (e.g. crop spraying)
- Aerial Surveying and Photography
- Aerial Advertising

While the unscheduled flight operations (for flight schools, leisure & business and charter activities) are envisaged to increase, the airport also aims to introduce the FBO traffic, alongside scheduled domestic and international airline traffic.

In addition to increased flight operations, the proposed development aims to see (more of) the following service providers operating at the airport:

- Approved Maintenance Organisations (AMOs)
- Aircraft Manufacturing and Sales
- Aircraft Parts and Avionics Supply
- Logistics/Courier/Cargo Operators
- Unmanned Aerial Vehicles (UAV)

3.3.3 Planned infrastructure and facility developments

In order to facilitate the abovementioned growth in civil aviation activity, the existing airport infrastructure will have to be upgraded and expanded, and additional infrastructure and facilities will be required. With the ultimate goal of facilitating scheduled commercial traffic at the airport in mind, the development of infrastructure and facilities will be planned in the most safe, efficient and practical way possible and aims to avoid disinvestments in future. The key aviation infrastructure developments envisaged include the following:

1. As it relates to runway development, CWA requires a Code F runway with a length of 3,500m and connecting taxiway system. This runway system is needed to enable safe operations for critical aircraft such as the B777 and A350 at maximum take-off weight (MTOW) as well as smaller general aviation type aircraft. The runway system design shall include runway end safety areas

(RESAs), taxiways, taxilanes as well as approach lights and navigational aids needed for safe operations in all weather conditions. The runway solution shall also be inclusive of drainage, pavement structures, paint markings and earthworks along with considerations for aircraft tracking, jetblast impact and hydroseeding requirements. The aerodrome shall comply with the International Civil Aviation Organization (ICAO) Annexure 14 Standards and Recommended Practices (SARPs) for a runway with an Aerodrome Reference Code 4F and Precision Approach CAT II/III procedures.

2. Air traffic control facilities are required to enable control of the airspace around the airport, so as to facilitate the intended scheduled commercial flight operations under instrument flight rules (IFR). Pending further investigation and engagement with the relevant authorities, this may be either a traditional physical tower with facilities for the presence of air traffic controllers, or a virtual tower equipped with technology enabling air traffic control to be carried out from a remote operations center.
3. Navigational and visual aids required to facilitate the intended flight operations under the visual and/or instrument flight rules (VFR and IFR).
4. Aircraft rescue and firefighting facilities, including the required supply of fire suppression agents and vehicles, in accordance with the relevant standards and recommended practices.
5. The sale of aviation fuel to customers operating from the airport is likely to increase, which will require expansion and possible upgrade and relocation of the fuel storage facilities. It is likely that both AvGas and Jet-A will be stored and sold from purpose-built facilities that are compliant will applicable regulations. In addition, fuel for ground service equipment (GSE) and airport maintenance, security and support vehicles (e.g. MoGas and diesel) may also be stored and supplied on site. As an alternative, full electrification of ground transportation on site may be considered.
6. Additional hangars, workshops and other aircraft parking, storage and maintenance facilities. Different hangars will be required for the various aircraft types and user groups.
7. Passenger and cargo terminal facilities for the processing of passengers (and air freight) prior to departure and upon arrival. Facilities will be designed specifically for the intended user groups and must be compliant with the relevant standards and recommended practices. These facilities may include specialized equipment and areas to facilitate check-in and bag-drop, security screening, and, in the case of international traffic, customs and emigration/immigration.
8. In line with the Green Transport Strategy for South Africa: (2018-2050) published by the Department of Transport, renewable energy alternatives are being considered – specifically photovoltaics installed on the roofs of the proposed buildings.

3.3.4 Airport development phasing

It is proposed that the airport will be developed in two phases. In phase 1 of the development, the runway 01-19 will be in place to accommodate scheduled air traffic, high-performance business jets and general aviation traffic. Intersection take-off points may be introduced to improve efficiency for general aviation operations. In phase 2 the airport facilities will be expanded to accommodate growing demand.

The two development phases are illustrated in Figure 3-14 and Figure 3-15 below.

Figure 3-14: Precinct Plans Phase 1 (from Drawing 2024-3297 408, Rev 9, dated 2024-08-20)

Figure 3-15: Precinct Plans Phase 2 (from: Drawing 2024-3297 400, Rev 14, dated 2024-08-20)

3.4 Need and desirability

3.4.1 Policy alignment

The draft Cape Town MSDF and Northern District SDF/EMF (2022) support *employment-generating* land uses to take place on land parcels in the vicinity of the former Fisantekraal Aerodrome that are currently zoned for agricultural use. It specifically states the CWA is included inside the Urban Development Edge and that nearby developments must consider aviation-related requirements such as height restrictions. These development frameworks have identified the expansion of CWA as an activity that would be beneficial to the region by generating economic activity and employment opportunities. The development is very much

part of the vision these frameworks set out for the City of Cape Town and the initiative seems to be supported in that regard.

The proposed upgrade and expansion of CWA is being developed on a purely commercial basis, without government funding, on the principle of financial sustainability and viability. In this regard it aligns with the Policy Statement 15 in the White Paper on Civil Aviation Policy (2017). Moreover, as an upgrade of an existing airport it aligns with the preference expressed in the NADP (2015) for “the upgrading of existing airports over development of green-field airports.”

By proactively reaching out to the authorities responsible for land-use developments, spatial planning and local economic planning in the vicinity of the airport, CWA supports the integration of the airport in its environment. The NADP (2015), the NATMAP (2016) and the White Paper on Civil Aviation Policy (2017) support this approach by highlighting the concept of “airport cities” and “aerotropolises”. Through its focus on commercial property development principles and integration into the so-called “landside” infrastructure, CWA embraces this concept.

CWA is a private enterprise that, through the proposed development, aims to increasing the options available to both GA and commercial aviation operators and users, and to serve the needs of its customers. This approach is fully in line with the NTP (2021) strategic objectives of supporting tourism and trade through the application of free market principles.

3.4.2 Benefit to local aviation industry

As a reliever airport to Cape Town International Airport (CTIA), the CWA will alleviate congestion at the CTIA and enable that airport to maximise its potential for scheduled commercial operations. It will provide a place for GA to operate safely and efficiently, without taking up capacity at CTIA. Relocation of GA facilities, such as hangars, from CTIA to CWA will also provide additional space at CTIA for the development of either aeronautical or commercial facilities, further supporting its growth. The development of CWA will, therefore, increase the availability of capacity in the market and enable the aviation industry in the region and the country as a whole to grow.

In addition to being a reliever airport to CTIA, CWA aims to provide an incidental alternative to CTIA in case of runway closures. Moreover, CWA could be the designated diversion airport for certain traffic segments, providing a much closer option than current (unplanned) diversions to Durban, Bloemfontein or Johannesburg. This means aircraft would have to carry less reserve fuel for diversion manoeuvres, which provides a significant benefit in terms of operating costs for airlines (and, theoretically, fares for passengers). Anecdotal evidence from operators in the region suggests that the dense fog that occasionally hampers flight operations at CTIA is less prevalent at CWA. It would thus provide a suitable alternative for operations in inclement weather conditions.

The expansion of CWA will provide additional hangar capacity for GA in the region, which (besides CTIA) is concentrated mainly at Stellenbosch, Morningstar and Diemerskraal aerodromes. Based on informal engagements with stakeholders, the perception is that there is a shortage of high-quality GA facilities in the Western Cape and that additional capacity and services would enable the sector to grow.

National Transport Master Plan (NATMAP) 2050 in Chapter 6 Transport Infrastructure describes this same dynamic in Johannesburg, where Lanseria International Airport was able to absorb local demand for air transport and “alleviated the pressure” on OR Tambo International Airport. It further states that a restriction on the minimum aircraft size using the three major international airports (JNB, CPT and DUR) must coincide with planned provision for general aviation elsewhere.

3.4.3 Multi-airport cities

The planned development of CWA would create a de facto secondary airport for the city of Cape Town. Case studies of Johannesburg, London and Barcelona (see Appendix E) indicate that different airports in a network serve different market segments and provide complementary services. Some, for instance, may focus on business travellers that require fast processing times, short travel distances and frequent connections to business hubs. Others could serve primarily the tourist market, which may be more interested in a leisurely airport experience, nearby accommodation and entertainment options and typically look for low-cost connectivity to tourism destinations and international hubs.

The multi-airport system benefits the customer/passenger, who is provided with different options and differentiated services offering to cater for varying needs. It can reduce travel times and reduce congestion in ground transportation systems as travellers (and airport staff) can choose the most convenient travel option for their location. By introducing a new, differentiated services offering to the Cape Town aviation market, the development of CWA would be beneficial to the traveling public and, as a result, the industry at large.

3.4.4 Competition between airports

In 2021 the Airports Council International (ACI) published a policy brief titled *Modernizing Global Policy Frameworks on Airport Charges: Ensuring the Efficient Use of Infrastructure for the Benefit of the Travelling Public*. This document describes several forms of competition between airports, namely:

- Competition for air services (i.e. airlines)
- Competition for local markets (i.e. passengers and cargo)
- Competition for transfer traffic.

The document states that competition between airports has increased, while at the same time the costs of aeronautical services to airlines has fallen. Between 2014 and 2019 the aeronautical revenue per passenger for airports decreased by a compound annual growth rate of -4.3%. A reduction in operating costs for airlines would be to the benefit of the industry as lower costs lead to lower fares and increased demand. Over the same period, the quality of services provided by airports, as measured by the Airport Service Quality (ASQ) score, has increased significantly. In short, passengers benefit from competition between airports as cost decrease and quality increases.

A report commissioned by ACI Europe titled *The continuing development of airport competition in Europe* (Oxera, 2017) confirms this view by stating that “Increases in service quality are consistent with the notion that airports are likely to face greater competition for passengers.”

This brief analysis supports the view that the development of CWA would be to the benefit of the aviation industry, and airline passengers in particular, by increasing competition within the Western Cape airport network.

4 Project alternatives

4.1 Site alternatives

Cape Winelands Airport purchased the former Fisantekraal aerodrome in 2020 with the explicit intention of developing it and growing aviation activity at the site. It is a licensed and active aerodrome with functioning infrastructure and facilities in place. In theory, it could be envisaged that the proposed development at CWA were to take place at an alternative location. However, it is not considered reasonable or feasible for the owner of CWA to purchase another site to pursue this development. Moreover, it should be noted that the NADP (2015) clearly expresses a preference of “upgrading existing airports” over the development of “green-field” facilities.

4.2 Design alternatives

Within the CWA site, the development could be designed in different ways, while maintaining compliance with relevant standards and recommended practices (specifically the Civil Aviation Regulations Part 139 and ICAO Annex 14). There are also technical, spatial, operational and financial considerations that determine the feasibility of alternative designs.

4.2.1 Runway infrastructure

The design of the runway is driven by the operational capacity they are intended to provide, in terms of the size of aircraft that can make use of it. This determines the length, width and other geometric and functional properties, as defined in local and international standards and recommended practices (mainly SACAA Regulation 139 and ICAO Annex 14). The orientation of the runway is driven, to a large extent, by the prevailing wind conditions on the site (refer to section 3.1.4). Since aircraft of different sizes have different tolerances for operating under crosswind conditions, an availability assessment determines the optimal runway orientation given historical wind data. Prevailing wind conditions on the site indicate that the optimal orientation of the runway would be between NNW-SSE and NNE-SSW.

In addition to these primary considerations, runway length and orientation are also driven by the availability of land and the topographical situation of the land. This means that certain runway orientations will not be feasible, simply because insufficient land is available to build a runway of the usable length required. Moreover, a steep drop-off in terrain may make certain runway locations and orientations challenging due to the amount of earthworks required to achieve the prescribed runway levels.

Finally, the departure and approach procedures used on the runways (whether visual or instrument) would impact the airspace around the airport. The orientations of runways, therefore, affects the feasible configuration of CWA airspace, particularly in relation to CTIA and, to a lesser extent, Ysterplaat AFB.

With these considerations in mind, the CWA site presents a number of constrains that limit the feasible options available for the design of the runway infrastructure, in compliance with local and international standards and recommended practices.

Various alternative designs for the two runways within the presented constraints are being considered in the design of the airport infrastructure. Refer to the Cape Winelands Runway Alternatives Report (Version 3, September 2023) for more information.

4.2.2 Airspace configuration

The CWA website describes the airspace surrounding the airport as a 5 nautical mile radius around the airport as indicated in the Appendix F. The South African Aeronautical Information Publication (SA-AIP) has “NIL” airspace dedicated to CWA (see Appendix C). The absence of airspace and/or controlled airspace could hamper insurance for commercial operators that CWA aims to attract.

Preliminary engagement with air traffic services at CTIA has identified possible solutions to challenges currently experienced within the operational environment:

- With no Air Traffic Control service at CWA, it is known that aircraft will depart without informing CTIA Air Traffic Control. This unpredictability of traffic departing from CWA can be alleviated by having a person to manage coordination between CWA and CTIA Air Traffic Control.
- High ground towards the North (Paardeberg), East (Paarl) and South (Hottentots-Holland Mountain) limit instrument traffic to descend below the radar terrain clearance. Advance procedures may optimise routing in and out of CWA.
- During adverse weather conditions the demand will increase at CTIA, because it is the only airport in the area with the precision approaches to assist aircraft in arriving safely. The development of proper precision and/or non-precision approaches at CWA may alleviate the increase in demand at CTIA.

Various airspace configurations, IFR and/or Performance Based Navigation (PBN) procedures and air traffic control arrangements can be considered to facilitate the proposed development of CWA while ensuring safe operations for all aerodromes in the vicinity, including particularly CTIA.

4.3 No go option

There are clear indications that there is a demand for high-quality GA facilities in the vicinity of Cape Town and the Western Cape Province in general. GA traffic is using up valuable capacity at CTIA that could be used for its expansion and to enable it to focus on its core market of scheduled commercial traffic. Without additional GA capacity being made available the pressure would remain on CTIA and the local GA sector would remain underserved.

Without the implementation of this project, the growth of both GA and scheduled commercial traffic, and the development of civil aviation in South Africa in general, would be hampered. It would mean the considerable benefits to the traveling public, and the industry at large (as outlined in section 3.4) would not be realized. Therefore, the No-Go option is not considered as a feasible option on this proposed project.

5 Key Issues / Assessment Phase

Based on the analysis of the existing situation at the CWA site and the civil aviation environment, the proposed development is expected to impact its environment in several ways. The following sections describe the main areas of impact related to the civil aviation activities foreseen in the proposed development that require further investigation.

5.1 Obstacle Limitation Surfaces

An obstacle is defined as any object that stands on, or stands above, the specified surface of an obstacle restriction area which comprises the runway strips, runway end safety areas, clearways and taxiway strips; and. b. Any object that penetrates the ICAO Annex 14 Obstacle Limitation Surfaces (OLS), a series of surfaces that set the height limits of objects, around an aerodrome. The method of assessing the significance of any existing or proposed obstacle within the aerodrome boundary or in the vicinity of the aerodrome is to establish the defined ICAO Annex 14 Obstacle Limitation Surfaces (OLS) particular to a runway and its intended use. In ideal circumstances all the ICAO Annex 14 Obstacle Limitation Surfaces (OLS) will be free from obstacles, but when a surface is infringed, any safety measures required by the RSA CAA will have regard to:

- The nature of the obstacle and its location relative to the surface origin,
- to the extended centreline of the runway or normal approach and departure paths and to existing obstructions
- the amount by which the surface is infringed
- The volume and type of air traffic at the aerodrome; and
- The instrument approach procedures published for the aerodrome.

The purpose of this survey is to connect data of entities such as runway markings, navigational aids, instrument landing system components, taxiways holding points, obstacles, etc. that may penetrate the 2% slope and other Annex 14 safety surfaces in and around the vicinity of Cape Winelands Airport, to the WGS 84 datum (using the SAGEOID2010 gravitational model) in terms of:

- ICAO Doc 8168-OPS 6/11 Volume II (refer to Chapter 2 par. 2.4.3)
- ICAO Doc 9674 AN/946 World Geodetic System-1984 (WGS-84) Manual 9674.
- ICAO Annexure 14 - Volume 1 - 8th Edition - July 2018 - with Amendment 1-14

Evaluations of proposed or existing structures and developments are conducted in terms of:

- Protection of navigational aids (Radar, ILS, VOR, Communications etc) including the impact on the signal in space
- ICAO obstacle-free surfaces
- All instrument approach procedures.

ATNS Survey Team has conducted a full WGS84 Obstacle survey in and around Cape Winelands Airport to a 10km radius. The survey team consists of a professional land surveyors and registered obstacle evaluator recognized by the SACAA.

5.2 Airspace

There are several (minor) civil aviation aerodromes located within 20nm of the CWA site, as well as the AFB Ysterplaat. Moreover, Cape Town International Airport and its Terminal Manoeuvring Area (TMA) are also in close proximity to the site. The proposed increase of flight activity at CWA, and particular the introduction of scheduled commercial operations, will likely affect the flight operations at the nearby aerodromes.

In order to ensure safety of operations, it is important that airspace at the airport is suitably configured, and that feasible departure and arrival procedures are put in place at the airport. Therefore, an airspace study should be conducted by aviation specialists, suitably qualified in the field of Procedures for Air Navigation Services and Aircraft Operations (PANS-OPS), to determine safe and efficient ways of operating flights in and out of CWA in relation to CTIA and other aerodromes. This study should address the need for navigational and visual aids at the airport and identify possible impact this may have on existing (and planned) civil aviation installations in the vicinity. The following ICAO documents provide relevant context for such a study:

- ICAO Doc 8168 - Procedures for Air Navigation Services — Aircraft Operations
- ICAO Doc 9981 - Procedures for Air Navigation Services – Aerodromes
- SACAA Technical Guidance Material for Flight Procedure Design and Cartography (26 July 2021)

5.3 Noise

Aircraft noise is generally recognized as one of the most significant negative impacts of airport development on its environment. The noise footprint of an airport depends on its airside infrastructure configuration, flight procedures, mode and time of operations, frequency of flights and aircraft types operating at the airport, amongst other factors. The impact this noise has on the airport environment further depends on prevailing weather conditions, topography, and surrounding land use, as well as socio-economic and cultural factors.

It is essential that the impact of aircraft noise associated with the proposed development is studied in detail by suitably qualified experts in noise measurement, modelling and analysis. The following ICAO documents provide the relevant frameworks for such assessments and for managing the impacts identified:

- ICAO Doc 9911 - Recommended Method for Computing Noise Contours around Airports, Second edition, 2018.
- ICAO Doc 9184 - Airport Planning Manual, Part 2 — Land Use and Environmental Control
- ICAO Doc 9829 - Guidance on the Balanced Approach to Aircraft Noise Management
- SACAA Technical Guidance Material on the Balanced Approach to Aircraft Noise Management (3 February 2017)

5.4 Ground transportation

The envisaged increase in aviation activity at the CWA will likely result in increased ground traffic to and from the airport. Passengers, visitors, airport staff, tenants, concessionaires and related businesses will all use road access to the airport site. Currently, the main access to the airport site is off the R312 and traffic on this road is likely to increase due to the proposed development. However, other roads in the vicinity, such as the R304, R302 and even the N1, may also be affected.

In order to ensure the impact of increased ground transportation activity is managed appropriately, an assessment should be conducted that takes into account the various modes of transport and infrastructure available around the site. Such assessment should be conducted by a suitably qualified transport engineer in line with relevant national, provincial and municipal regulations and guidance material.

5.5 Socio-economic impact

Through the proposed development and the envisioned increase in aviation activity, the CWA will likely have a material socio-economic impact on its direct environment, the wider region and the aviation industry. The construction and development of the planned airport infrastructure and facilities will attract significant investment. This will result in substantial revenue and job creation for the local construction industry and

associated trades. Once operational, the airport itself, as well as the multitude of businesses it will support and facilitate, will present permanent employment opportunities. The connectivity the airport will enable, will support the growth and development of both trade and tourism. All this will likely encourage and attract further investment into the Fisantekraal area, and the entire growth corridor from Durbanville to Wellington and Paarl.

It is well documented that airports have a large, positive impact on employment and economic development. Benefits can be direct, indirect and catalytic and extend from the immediate local environment to the national and even international level. Further assessment by transport economists and aviation specialists can qualify and quantify the expected socio-economic impact of the CWA development in more detail.

Appendix A Curriculum Vitae

Appendix A-1 Marcel Langeslag

NACO
a company of Royal HaskoningDHV

Curriculum Vitae

Marcel Langeslag

Aviation
Director Aviation Africa

E: marcel.langeslag@rhdhv.com
T: +27 87 352 1500

As a senior project manager and consultant, Marcel has built up a wide range of experience in the global aviation industry. His strengths lie in the ability to work with and lead multi-disciplinary and multi-national teams of specialists. In every project he assists Clients through conceptual thinking and an integrated approach to airport development. He oversees the relevance and interrelationships of all technical disciplines, commercial considerations and the demands of stakeholders involved.

Marcel's airport experience includes several new-build, expansion and refurbishment projects, involving planning and design of airport infrastructure, special airport systems, site utilities and building services. He also has expertise in airport city planning, feasibility studies, strategy development, transaction advisory and commercial and financial planning.

Marcel manages multi-disciplinary projects and enjoys the challenges that the complexity of these projects bring with them. He is driven to deliver outstanding results.

Nationality
Dutch
Years of experience
14
Years with Royal HaskoningDHV
9
Professional memberships
South African Institute of Draughting, M171050
Special skills
Project Management
Special Airport Systems
Airport Strategy & Finance
Financial Feasibility Studies
Qualifications

2021 **Financing and Investing in Infrastructure**
SDA Bocconi School of Management, online

2016 **Master of Management (MM) in Finance and Investment**
Wits Business School, Johannesburg, South Africa
Cum Laude & Dean's List of Merit Award

2013 **Financial Management**
Gordon Institute of Business Science
Sandton, Johannesburg, South Africa

2008 **Master of Engineering (MEng) in Mechanical Engineering and Design with Professional Development**
Brunel University, West London, United Kingdom

Professional experience

NACO, Johannesburg, South Africa:

Planning and Design of new Simandou Airport

> 2021 | Guinea

- Project Director for the Master Planning and design of the first development phases of the new Simandou Airport.

Development Planning for Cape Winelands Airport

> 2020 - present | South Africa

- Project Manager for the Land Use and Master Planning for the Cape Winelands Airport.

Air Service Development for Zambia Airports Corporation

> 2019 | Zambia

- Project Director for the consultancy services on air service development and implementation for Kenneth Kaunda, Copperbelt, Harry Mwaanga Nkumbula And Mfuwe International Airports.

Operational Readiness for Sir Seretse Khama International Airport

> 2019 | Botswana

- Project Director for a project involving the design of parking positions for A350, B777 and B787, an airfield Compatibility Study and Operational Readiness Programme for the introduction of a new route.

Orapa Airport Risk Assessment Study – Mine & Airport Operations

> 2019 | Botswana

- Project Director for the Risk Assessment Study to identify operational hazards to the airport operations imposed by the proposed mining projects.

Tender Support for Cape Town Internal Airport Realigned Runway 18-36

> 2019 | South Africa

- Project Director for the tender design as part of a competitive design and construct bid for the New Realigned Runway at Cape Town International Airport.

Tender Support for OR Tambo International Airport New Remote Apron Stands

> 2019 | South Africa

- Project Director for the tender design as part of a competitive design and construct bid for a new remote aircraft apron at Oliver Tambo International Airport.

Airport City Plan for Zambia Airports Corporation

> 2018 – 2019 | Zambia

- Project Manager and Consultant for the development of an Airport City Plan and Financial Feasibility Study for Kenneth Kaunda International Airport in Lusaka, Zambia.

Tender Design for Western Sydney Airport

> 2018 – 2019 | Australia

- Aviation Lead for the tender design for the first civil works construction package of the new Western Sydney Airport.

Masterplan for Madrid Barajas International Airport

> 2018 | Spain

- Airport Planning Consultant responsible for the planning of all utilities as part of the overall airport masterplan.

Commercial Feasibility Study for the Upington Aviation Park

> 2017 – 2018 | South Africa

- Project Manager and Strategy Consultant for a study into the feasibility of establishing an Aviation Park at Upington Airport. The project includes the development of a Business Plan and Marketing Strategy for Airports Company South Africa.

Upgrade of Infrastructure at Kamembe International Airport

> 2017 – present | Rwanda

- Project Director for the upgrade of airside infrastructure and the implementation of airfield ground lighting and several safety and security systems at Kamembe International Airport.

Update of Air Traffic Forecast for Airports of Mauritius

> 2017 | Mauritius

- Consultant for the review and update of the long-term air traffic forecast for Airports of Mauritius, including extensive stakeholder engagements.

Due Diligence of Airport Ground Handling Firms

> 2017 | West Africa

- Consultant on the due diligence for possible acquisition of several airport ground handling firms in West Africa for a large global transport and logistics investor.

Appendix A-2 Rumal Ramsaroop

NACO
a company of Royal HaskoningDHV

Curriculum Vitae

Rumal Ramsaroop

Aviation
Junior Airport Engineer

E: rumal.ramsaroop@rhdhv.com
T: +27 87 352 1500

Being a recent graduate, and junior engineer, Rumal is motivated to understand concepts related to aviation in a broad sense (from first principles). He has a passion for programming and has channeled this passion to make aviation design more efficient by implementing various automation techniques to improve work efficiency

Rumal's airport experience includes a variety of civil, electrical and systems engineering tasks which allowed him the opportunity to gain a wide spectrum of valuable knowledge relating to operations and functionality of an airport.

Intrigued by the capabilities of programming, especially machine learning and AI, Rumal has experimented within NACO to idealize and create tools that integrate theoretical engineering, and practical hands-on experience.

With a personal mission to gain in dept knowledge of all aspects of aerospace engineering, Rumal is eager to get as much experience as possible in the aviation industry.

Nationality
South African
Years of experience
3
Years with Royal HaskoningDHV
3
Special skills
BIM360, Dynamo, Civil 3D, Revit
Python, VBA, C#
Civil 3D API
Qualifications
2021 Obstacle Restriction and Removal, Airports Council International (ACI)
2018 Bachelor of Engineering (BEng) in Civil, University of Pretoria, South Africa

Professional experience

Simandou Airport – OLS assessment for development of airstrip

> 2021 | Guinea

- Position: Airport engineer, BIM Coordinator, Information manager
- Assigned Tasks: lead design

King Salman Air Base - Design services

> 2021 | Saudi Arabia

- Position: Junior Civil Engineer and Airport engineer
- Assigned Tasks: Designer of certain utilities, duct banks routes and details, and manholes.

Red Sea International Airport - Design services

> 2021 | Saudi Arabia

- Position: Automation designer
- Assigned Tasks: Designer of certain utilities, duct banks, and manholes. Rumal also created various digital tools to assist with modelling elements.

King Khalid International Airport - Design Services for Airfield signage, Airfield lightings, Power Distribution, Apron 11, Cargo Apron, and Taxiway F, Riyadh

> 2020 – 2021 | Saudi Arabia

- Position: Airport engineer, junior civil engineer and assistant designer
- Assigned Tasks: Rumal was involved in a wide range of tasks involving the storm water design, utilities design and designing the expansion of a taxiway

Cape Town Internal Airport Realigned Runway 18-36

> 2019 | South Africa

- Position: Junior Airport engineer
- Assigned Tasks: Designed the electrical cable and duct routing, assisted in optimizing meteorological aids, created the service and perimeter roads.

OR Tambo International Airport New Remote Apron Stands

> 2019 | South Africa

- Position: Junior Airport engineer
- Assigned Tasks: Assisted in the design of electrical sub-stations

Sir Seretse Khama International Airport, Gaborone

> 2019 | Botswana

- Position: Junior Airport engineer
- Assigned Tasks: Created the Aerodrome, Obstacle, Docking and Ground Movement charts to be include in the AIP

Orapa Airport Risk Assessment Study – Mine & Airport Operations

> 2019 | Botswana

> Client Name: Debswana Diamond Company

- Position: Junior Airport engineer
- Assigned Tasks: Assisted in the development of a risk assessment and bowtie analysis.

Hamad International Airport

> 2018 – current | Qatar

- Position: Junior Civil engineer
- Assigned Tasks: Drafts person and designer of pavement jointing

Improvement of Infrastructure at Kamembe International Airport

> 2018 | Rwanda

This project scope includes the provision of a new AGL system. Further works includes fence lighting, apron floodlighting, AGL control system and a substation.

- Position: Junior Civil engineer
- Assigned Tasks: assisted in the design and modelling on various items

Kuwait Package 3: Design and Construction of New Runway 15R/33L, Reconstruction of Runway 15L/33R, Associated Taxiways, Infrastructure and Utilities

> 2017 – Current | Kuwait

- Position: Junior Airport engineer
- Assigned Tasks: Created the circuit and duct routes for the Kuwait international airport runway and taxiways

Appendix A-3 Francois Barwise

31 Cherbourg Street
Pierre van Ryneveld x29,
Pretoria, 0045
(+27) 66411–5622
francoisb@atns.co.za

Francois Barwise

I am an aviation fanatic working for Air Traffic and Navigation Services in South Africa as a Specialist: Air Traffic Management Operational Systems

I was appointed into this position in 2019 after being an air traffic controller training specialist at O.R Tambo International Airport in the Area North & South Pool.

April 2016 - December 2022

BCOM MANAGEMENT (Aviation Management)

Da Vinci Institute for Technology Management

- Communication
- Leadership
- Collaboration
- Problem solving
- Teamwork
- Innovation
- Negotiation

2019 - Present

Specialist: Air Traffic Management Operational Systems

ATNS

Leading and supporting project management roles for national and international projects.

2009 - 2019

Air Traffic Control: Area/En-route

ATNS

Managing and pre-sequencing air traffic for one of the busiest airports and airspace in Africa. Big events have shaped my development during this time: FIFA Soccer World Cup, World Summit, etc. A fast-paced environment where I developed into an instructor and later a training specialist to assist other students and their development.

2002 - 2009

Air Traffic Control: Approach, Aerodrome & Aerodrome Flight Information Service

ATNS

The first civilian airports worked. Grand Central and Lanseria International Airport. Major training airports with different small general aviation aircraft operation in proximity with O.R. Tambo International Airport.

1998 - 2002

Air Traffic Control: Aerodrome Control & Flight Information Service

South African Air Force

My career as an air traffic controller started within the SAAF. Air Force base Hoedspruit was a tactical base with Impala tactical training aircraft and Mirage F1 tactical attack aircraft. Training was my area of expertise

Appendix B CWA Aerodrome License

AERODROME LICENCE

Cape Winelands (FAWN)

REFERENCE COORDINATES: 33°46'17"SOUTH - 18°44'24"EAST

CATEGORY 1

AERODROME ADDRESS	NAME AND ADDRESS OF LICENSEE
Cape Winelands Aerodrome, Lichtenburg Road, R312 Durbanville	Cape Winelands Airport Limited Durbanville 7550

LICENCE NUMBER: 0820

AERODROME SERVICES:

Rescue and Fire Services:	CAT1	**ATC:**	false
Navigation Aids:		**Runway Lighting:**	
VOR:	0.0		NIL
NDB:	NIL		
ILS on:	NIL		
Radar:	NIL	Emergency Power Generators:	No

PERIOD OF VALIDITY: 01/10/2021 to 30/09/2022

Issued by the Civil Aviation Authority

.....

for Director of Civil Aviation

The above mentioned aerodrome licence is issued in accordance with Part 139 of the Civil Aviation Regulations, 2011, as amended. This licence shall remain valid for the indicated period and is subject to the compliance with the requirements as prescribed in the Civil Aviation Regulations, 2011; and

(i) The details denoting the aerodrome licence, are being complied with.

(ii) Any deviation in aerodrome services, or conditions, shall be brought under the attention of the Director or Civil Aviation within 24 hours of occurrence.Non-compliance may result in the invalidation of this licence.

(iii) Application for renewal should reach the CAA, together with the correct fee, no later than 60 days before expiry of this licence.

(iv) "Non-compliance with Part 187.01.33 (regarding payment not received at application date) of the Civil Aviation Authority Regulations shall render the issued document ineffective if credit terms have not been authorized by the Authority.

(v) Exemption/Operational Conditions: NIL

Appendix C Aeronautical Information Publication

AD 2 AERODROMES

FAWN AD 2.1 Aerodrome Location Indicator And Name

FAWN – CAPE WINELANDS (820)

Previously called FAFK Fisantekraal

AD 2.2 Aerodrome Geographical And Administrative Data

1	ARP Coordinates and site at AD	Ref. Point: 334617S 0184424E
2	Direction and distance from city	5 NM NE of Durbanville
3	Elevation/Reference temperature	ELEV: 399 FT
4	Geoid undulation at aerodrome elevation position	NIL INFO AVBL
5	MAG VAR / Annual change	24.5 °W /2007
6	AD operator, address, telephone, telefax, email, AFS address and, if available, website address	Authority and Remarks: Cape Winelands Airport Ltd Lichtenburg Road, R312 Durbanville Cape Town TEL: +27 21 486 5999 FAX: +27 21 447 9120 Email: info@capewinelands.aero Website: www.capewinelands.aero
7	Types of traffic permitted (IFR/VFR)	VFR
8	Remarks	NIL

AD 2.3 OPERATIONAL HOURS

1	AD Operator	HJ
2	Customs and immigration	NIL
3	Health and sanitation	NIL INFO AVBL
4	AIS Briefing office	NIL INFO AVBL
5	ATS reporting office (ARO)	NIL INFO AVBL
6	MET briefing office	NIL INFO AVBL
7	ATS	NIL
8	Fuelling	MON-FRI: 0600 – 1500 SAT: 0600 – 1000 Outside HOD: Available on call out.
9	Handling	NIL INFO AVBL
10	Security	NIL INFO AVBL
11	De-icing	NIL INFO AVBL
12	Remarks	NIL

AD 2.4 HANDLING SERVICES AND FACILITIES

1	Cargo-handling facilities	NIL INFO AVBL
2	Fuel and Oil types	AVGAS available. Monthly fuel and landing arrangement to be made with George Lourens at +27 72 184 5587.
3	Fuelling facilities and capacity	28000 litres
4	De-icing facilities	NIL INFO AVBL
5	Hangar space for visiting aircraft	Hangarage available.
6	Repair facilities for visiting aircraft	Diepkloof AMO - Pieter 082 784 7133
7	Remarks	NIL

AD 2.5 PASSENGER FACILITIES

1	Hotels	NIL INFO AVBL
2	Restaurants	NIL INFO AVBL
3	Transportation	NIL INFO AVBL
4	Medical facilities	NIL INFO AVBL
5	Bank and Post Office	NIL INFO AVBL
6	Tourist office	NIL INFO AVBL
7	Remarks	NIL

AD 2.6 RESCUE AND FIRE FIGHTING SERVICES

1	Aerodrome category for fire fighting	CAT I
2	Rescue equipment	NIL INFO AVBL
3	Capability for removal of disabled aircraft	NIL INFO AVBL
4	Remarks	NIL

AD 2.7 SEASONAL AVAILABILITY - CLEARING

1	Types of clearing equipment	NIL INFO AVBL
2	Clearance priorities	NIL INFO AVBL
3	Remarks	NIL

AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA

1	Designation, surface and strength of aprons	NIL INFO AVBL
2	Designation, width, surface and strength of taxiways	NIL INFO AVBL
3	ACL location and elevation	NIL INFO AVBL
4	VOR checkpoints	NIL INFO AVBL
5	INS checkpoints	NIL INFO AVBL
6	Remarks	NIL

AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

1	Use of aircraft stand ID signs, TWY guide lines and visual docking / parking guidance system of aircraft stands.	NIL INFO AVBL
2	RWY and TWY markings and LGT	NIL INFO AVBL
3	Stop bar	NIL INFO AVBL
4	Remark	NIL

AD 2.10 AERODROME OBSTACLES

In AREA 2					
OBST ID/ Designation	OBST type	OBST position	ELEV/HGT	Markings/type , colour	Remarks
a	b	c	d	e	f

In AREA 3					
OBST ID/ Designation	OBST type	OBST position	ELEV/HGT	Markings/type, colour	Remarks
a	b	c	d	e	f

AD 2.11 METEOROLOGICAL INFORMATION PROVIDED

1	Associated MET office	NIL INFO AVBL
2	Hours of service MET office responsible outside hours	NIL INFO AVBL
3	Office responsible for TAF preparation and periods of validity	NIL INFO AVBL
4	Type of trend forecast and interval of issuance	NIL INFO AVBL
5	Briefing / consultation provide	NIL INFO AVBL
6	Flight documentation / language(s) used	NIL INFO AVBL
7	Charts and other information available for briefing or consultation	NIL INFO AVBL
8	Supplementary equipment available for providing information	NIL INFO AVBL
9	ATS units provided with information	NIL INFO AVBL
10	Additional information (limitation of service, etc.)	NIL INFO AVBL

AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designations RWY NR	TRUE & MAG BRG	Dimensions of RWY (M)	Strength (PCN) and surface of RWY and SWY	THR coordinates RWY end coordinates THR geoid undulation	THR elevation and highest elevation of TDZ of precision APP RWY	Slope of RWY-SWY
1	2	3	4	5	6	7
05	25.18°T/ 50.70°M	900 x 20	Concrete LCN 16	334631.48S 0184415.74E	400 FT	NIL INFO AVBL
23	203.70°T/ 229.22°M	900 x 20	Concrete LCN 16	334601.11S 0184432.47E	394 FT	NIL INFO AVBL
14	117.31°T/ 142.83°M	700 x 16	NIL INFO AVBL	334614.20S 0184417.59E	400 FT	NIL INFO AVBL
32	293.57°T/ 319.09°M	700 x 16	NIL INFO AVBL	334625.72S 0184447.60E	407 FT	NIL INFO AVBL
	SWY dimensions (M)	CWY dimensions (M)	Strip dimensions (M)	RESA dimensions (M)	Location (which runway end) and description of arresting system (if any);	OFZ
Designations RWY NR	8	9	10	11	12	13
05	NIL	130 M x 90 M	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL
23	NIL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL
14	NIL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL
32	NIL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL

14 Remarks:

1. All Circuits to be confined within an area 2,5 NM radius of the aerodrome.
2. Landing area is on the Western side of cement area marked with white blocks of 3 x 1 meter and 100 m apart and all landings and take-off's are to be conducted in the marked area.

AD 2.13 DECLARED DISTRANCES

RWY	TORA (M)	TODA (M)	ASDA (M)	LDA (M)
1	2	3	4	5
05	900	1030	900	900
23	900	900	900	900

14	700	700	700	700
32	700	700	700	700
Remarks: NIL				

AD 2.14 APPROACH AND RUNWAY LIGHTING

RWY	APCH LGT Type and LEN INTST	THR LGT Colour WBAR	VASIS (MEHT) PAPI	TDZ, LGT LEN	RWY Centre Line LGT, Spacing, colour INTST	RWY Edge LGT, LEN, Spacing, Colour, WBAR	RWY End LGT Colour WBAR	SWY LGT LEN (m) Colour	Remarks
1	2	3	4	5	6	7	8	9	10
NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL

AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY

1	ABN/IBN location, characteristics and hours of operation	NIL INFO AVBL
2	LDI location & LGT and anemometer location and LGT	NIL INFO AVBL
3	TWY edge and centre line lighting	NIL INFO AVBL
4	Secondary power supply and switch-over time	NIL
5	Remarks	NIL

AD 2.16 HELICOPTER LANDING AREA

1	Coordinates TLOF or THR of FATO / Geoid undulation	NIL INFO AVBL
2	TLOF / FATO elevation (m/ft)	NIL INFO AVBL
3	TLOF and FATO area dimensions, surface, strength, marking	NIL INFO AVBL
4	True BRG of FATO	NIL INFO AVBL
5	Declared distance available	NIL INFO AVBL
6	APP and FATO lighting	NIL INFO
7	Remarks	-No helicopters are to take-off, land, or taxi between the hangars. All helicopter movements are restricted to the main runways, taxiways, or designated helicopter landing areas. -Helicopters will be charged a R50 per day operating fee, in addition to standard landing fees unless arrangements were made with management.

AD 2.17 ATS AIRSPACE

1	Designation and lateral limits	NIL
2	Vertical limits	NIL
3	Airspace classification	NIL

4	ATS unit call sign Language(s)	NIL
5	Transition altitude	NIL
6	Remarks	NIL

AD 2.18 ATS COMMUNICATION FACILITIES

Service designation	Call sign	Channel (s)	Hours of operation	Remarks
1	2	3	4	5
NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL INFO AVBL	NIL

AD 2.19 RADIO NAVIGATION AND LANDING AIDS

Type of aid, MAG VAR, Type of supported OPS (for VOR/ ILS/MLS, give declination)	ID	Frequency	Hours of operation	Position of transmitting antenna coordinates	Elevation of DME transmitting antenna	Remarks
1	2	3	4	5	6	7
NIL	NIL	NIL	NIL	NIL	NIL	NIL

AD 2.20 LOCAL AERODROME REGULATIONS

Circuit joining procedures:

- All traffic within 5NM of the airfield must monitor and make regular position reports on frequency 131.10MHz.
- All inbound traffic shall approach the airfield at 2000FT ALT from 5NM.
- A radio call must be made at 5 NM inbound at 2000FT ALT on VHF frequency 131.10 MHz.
- Join overhead at 2000FT ALT, to enter a left-hand pattern for either runway 05/23 or 14/32.
- A further radio call must be made from overhead the airfield at 2000FT ALT to advise traffic of further intentions.
- Descend on the “dead side”, outside the active left-hand circuit, to merge with the active circuit on the downwind leg at 1200 FT.
- Standard circuit height for all aircraft 1200FT ALT except microlight aircraft which shall fly a “low level” circuit at 900FT ALT. Standard radio calls must be made in the circuit.
- Orbits are not permitted in the circuit.
- Aircraft leaving the area must maintain 1500FT ALT until 5NM and call outbound on 131,10MHz. Aircraft with dual-frequency monitoring capability are advised to also listen out on 124.8MHz for inbound traffic.
- Transiting aircraft to avoid overflying the airfield and to maintain 2000FT ALT from 5NM until past the airfield, descending to 1500FT ALT thereafter until outbound at 5NM.
- Aircraft turning right after take-off must remain below 900FT ALT until 3NM before climbing to 1500FT ALT to ensure no conflict with joining traffic.
- Circuit joining procedures herein to be adhered to by all general aviation.

Non-standard operations/procedures may be conducted by FAWN Fixed-Base Operators with the prior consent of the Airport Authority.

Unmanned AD: Frequency 131,10 MHz,
Call-sign: **Winelands Traffic**

Caution: AIAA (Area of Intense Aerial Activity) – maintain a constant lookout for traffic

Banner tow operations taking place, Call-sign: Sky AD FREQ: 131.10 MHz
Crop Spraying Operations
Intensive Flight Training Operations involving multiple aircraft.
Multiple active runways

AD 2.21 NOISE ABATEMENT PROCEDURES

NIL INFO AVBL

AD 2.22 FLIGHT PROCEDURES

NIL INFO AVBL

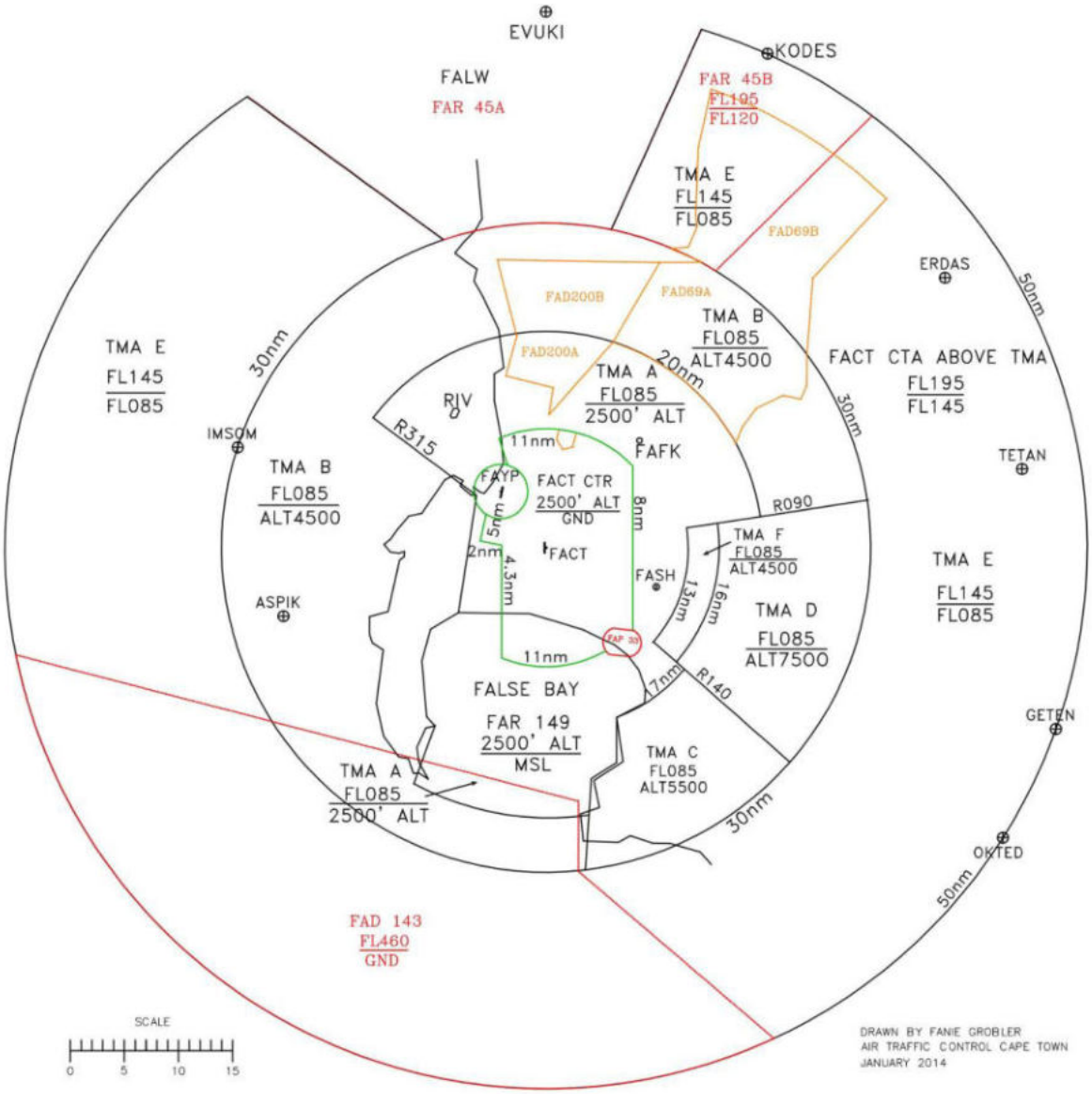
AD 2.23 ADDITIONAL INFORMATION

NIL

AD 2.24 CHARTS RELATED TO AN AERODROME

NIL

Appendix D CWA's Current Airspace


EVUKI
KODES
FALW
FAR 45A
FAR 45B
FL105
FL120
TMA E
FL145
FL085
FAD69B
ERDAS
FAD200B
FAD69A
TMA B
FL085
ALT4500
50nm
TMA E
FL145
FL085
30nm
FAD200A
TMA A
FL085
2500' ALT
20nm
FACT CTA ABOVE TMA
FL195
FL145
30nm
RIV
R315
11nm
FAFK
IMSOM
TMA B
FL085
ALT4500
FAYP
FACT CTR
2500' ALT
GND
8nm
TETAN
R090
5nm
2nm
4.3nm
FACT
TMA F
FL085
ALT4500
FASH
TMA E
FL145
FL085
ASPIK
13nm
16nm
TMA D
FL085
ALT7500
FAP 30
11nm
17nm
R140
FALSE BAY
FAR 149
2500' ALT
MSL
GETEN
TMA C
FL085
ALT5500
TMA A
FL085
2500' ALT
30nm
OKTED
50nm
FAD 143
FL460
GND
SCALE
0
5
10
15
DRAWN BY FANIE GROBLER
AIR TRAFFIC CONTROL CAPE TOWN
JANUARY 2014

Update: AIRAC 1304

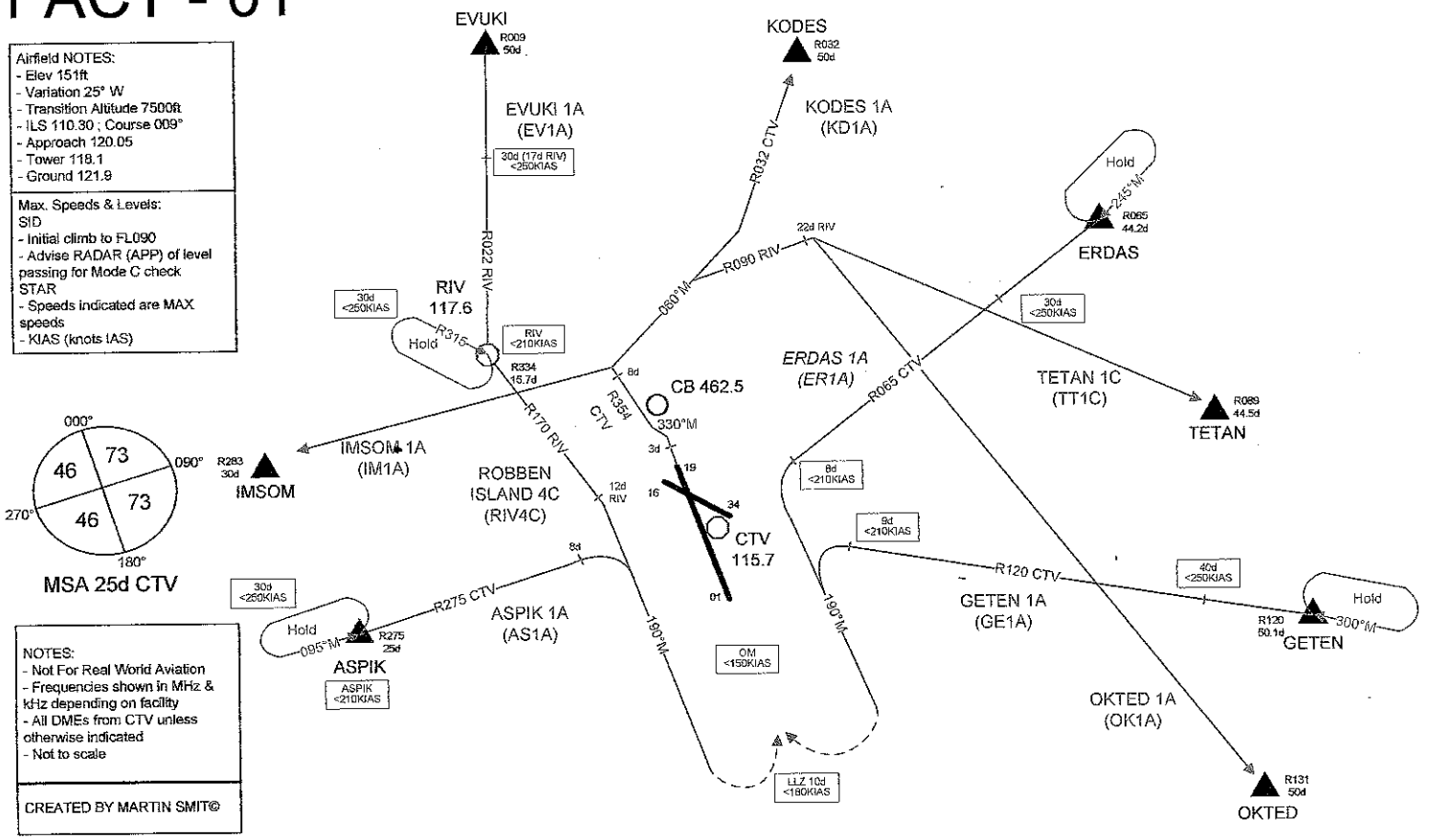
FACT - 01

Airfield NOTES:
- Elev 151ft
- Variation 25° W
- Transition Altitude 7500ft
- ILS 110.30 ; Course 009°
- Approach 120.05
- Tower 118.1
- Ground 121.9

Max. Speeds & Levels:
SID
- Initial climb to FL090
- Advise RADAR (APP) of level passing for Mode C check
STAR
- Speeds indicated are MAX speeds
- KIAS (knots IAS)

NOTES:
- Not For Real World Aviation
- Frequencies shown in MHz & kHz depending on facility
- All DMEs from CTV unless otherwise indicated
- Not to scale

CREATED BY MARTIN SMIT©



Update: AIRAC 1304

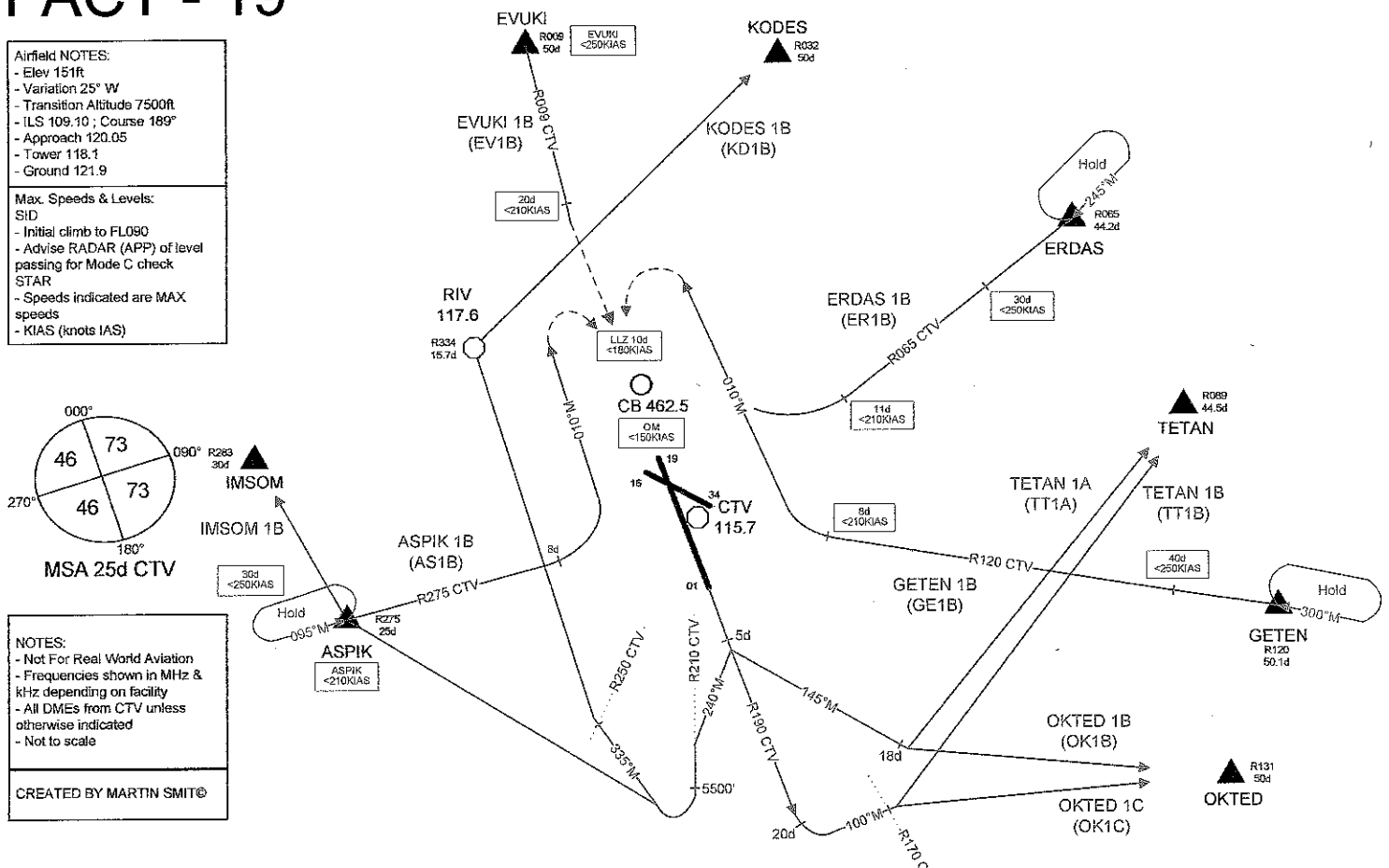
FACT - 19

Airfield NOTES:
- Elev 151ft
- Variation 25° W
- Transition Altitude 7500ft
- ILS 109.10 ; Course 189°
- Approach 120.05
- Tower 118.1
- Ground 121.9

Max. Speeds & Levels:
SID
- Initial climb to FL090
- Advise RADAR (APP) of level passing for Mode C check
STAR
- Speeds indicated are MAX speeds
- KIAS (knots IAS)

NOTES:
- Not For Real World Aviation
- Frequencies shown in MHz & kHz depending on facility
- All DMEs from CTV unless otherwise indicated
- Not to scale

CREATED BY MARTIN SMIT©



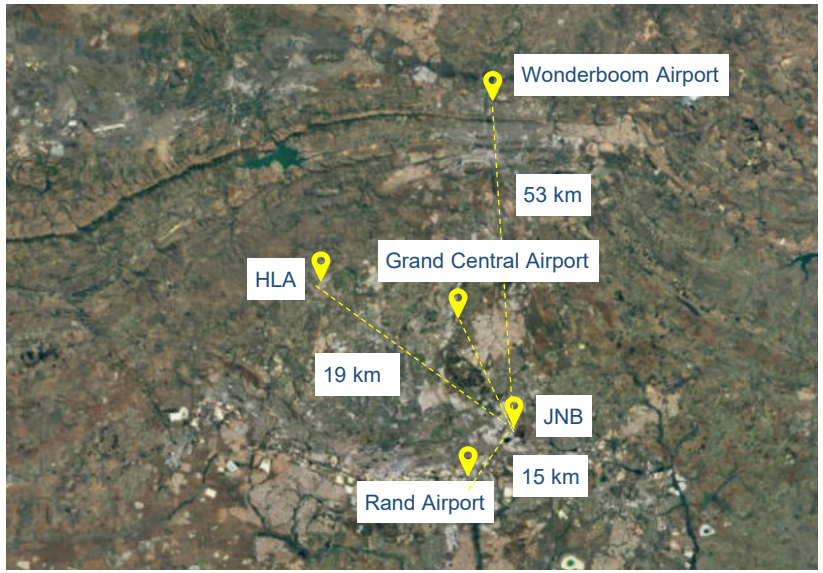
Appendix E Case Studies

Appendix E-1 Johannesburg

Case Study: Johannesburg, South Africa

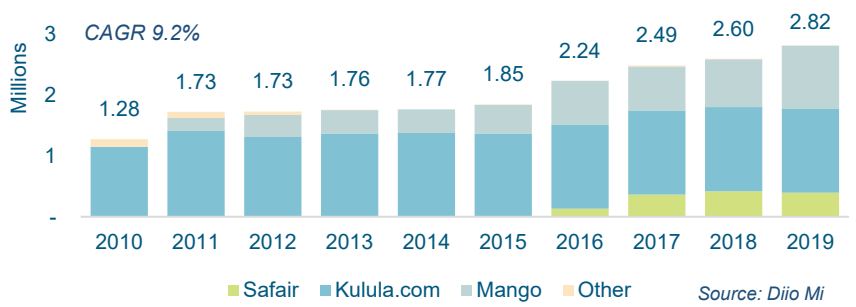
Cape Town is the main domestic market for travelers from Johannesburg

Johannesburg airports system



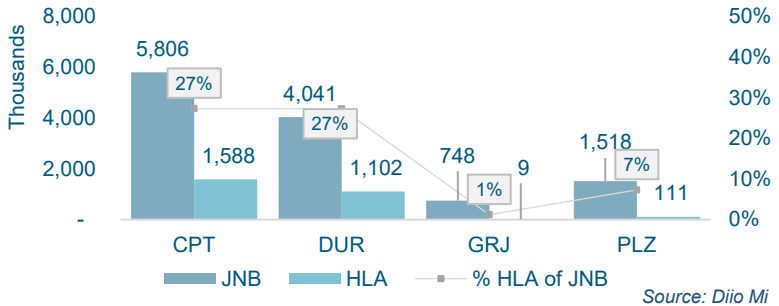
- OR Tambo International Airport (JNB) – biggest airport of the country and African continent with almost 22 MAP in 2019;
- In addition to JNB and Lanseria (HLA), Gauteng Province counts several airfields serving GA flights, including training and private flights, namely Rand Airport, Wonderboom Airport, Grand Central Airport;
- HLA – since 2012 privately owned secondary airport in Johannesburg with approximately 2 million passengers in 2019. In addition to commercial traffic, the airport accommodates a great share of charter and training flights. In 2015, **40% of the total flights were training flights with another 40% capturing charter, corporate and private flying;**
- Most of the scheduled traffic at HLA serves the domestic market. Scheduled seat capacity from HLA to Cape Town and Durban is **roughly 30% of the seat capacity scheduled from JNB in 2019**. The share of HLA with respect to JNB capacity has been growing continuously since opening of the new 3,000 meters runway in 2013;
- HLA growth driven by LCC expansion while JNB serves a wide range of (international and FSC) airlines.

HLA 2010-2019 scheduled seat capacity development by airline, million seats



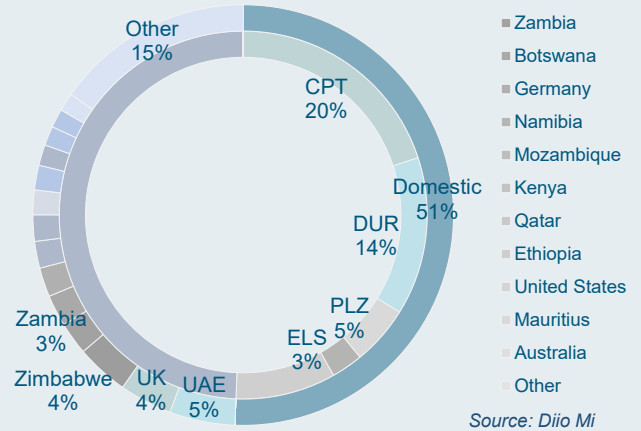
Source: Diio Mi

Domestic seat capacity JNB vs HLA in 2019, main destinations



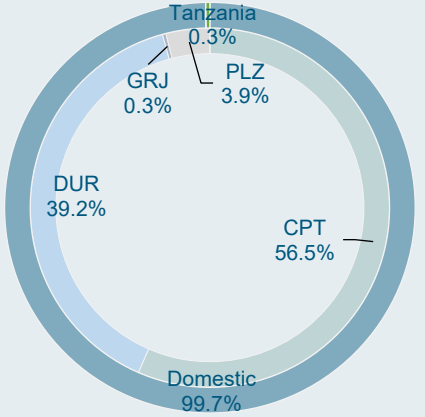
Source: Diio Mi

JNB 2019 scheduled seat capacity breakdown by destinations



Source: Diio Mi

HLA 2019 scheduled seat capacity breakdown by destinations



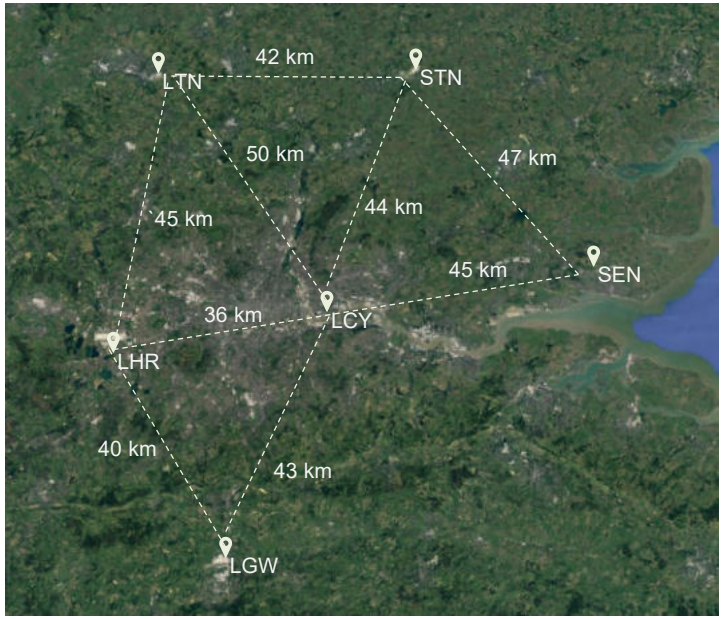
Source: Diio Mi

Appendix E-2 London

Case Study: London, United Kingdom

London City (LCY) serves the City, the business district of London

London airports system



14.2
million population
Metropolitan area

6
airports

180
million passengers
served in 2019

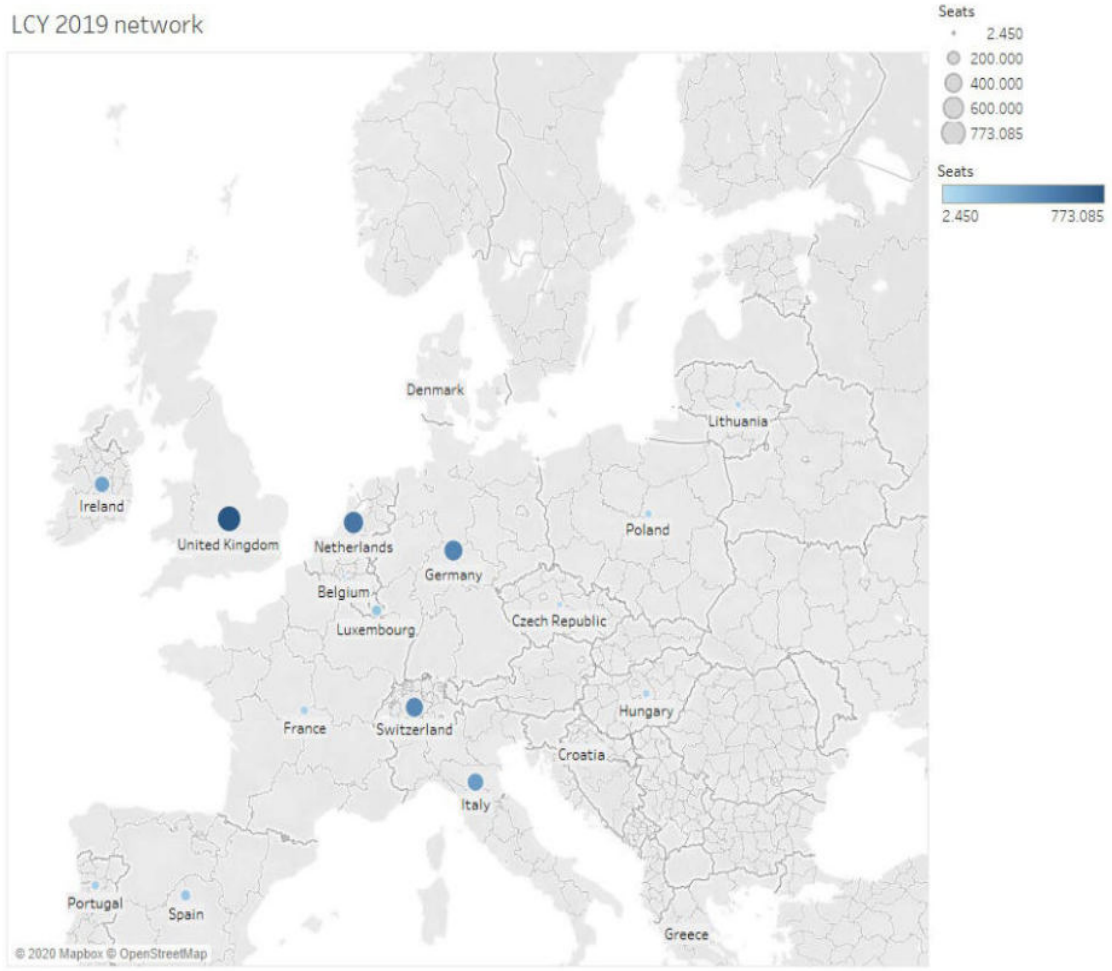
Airports overview

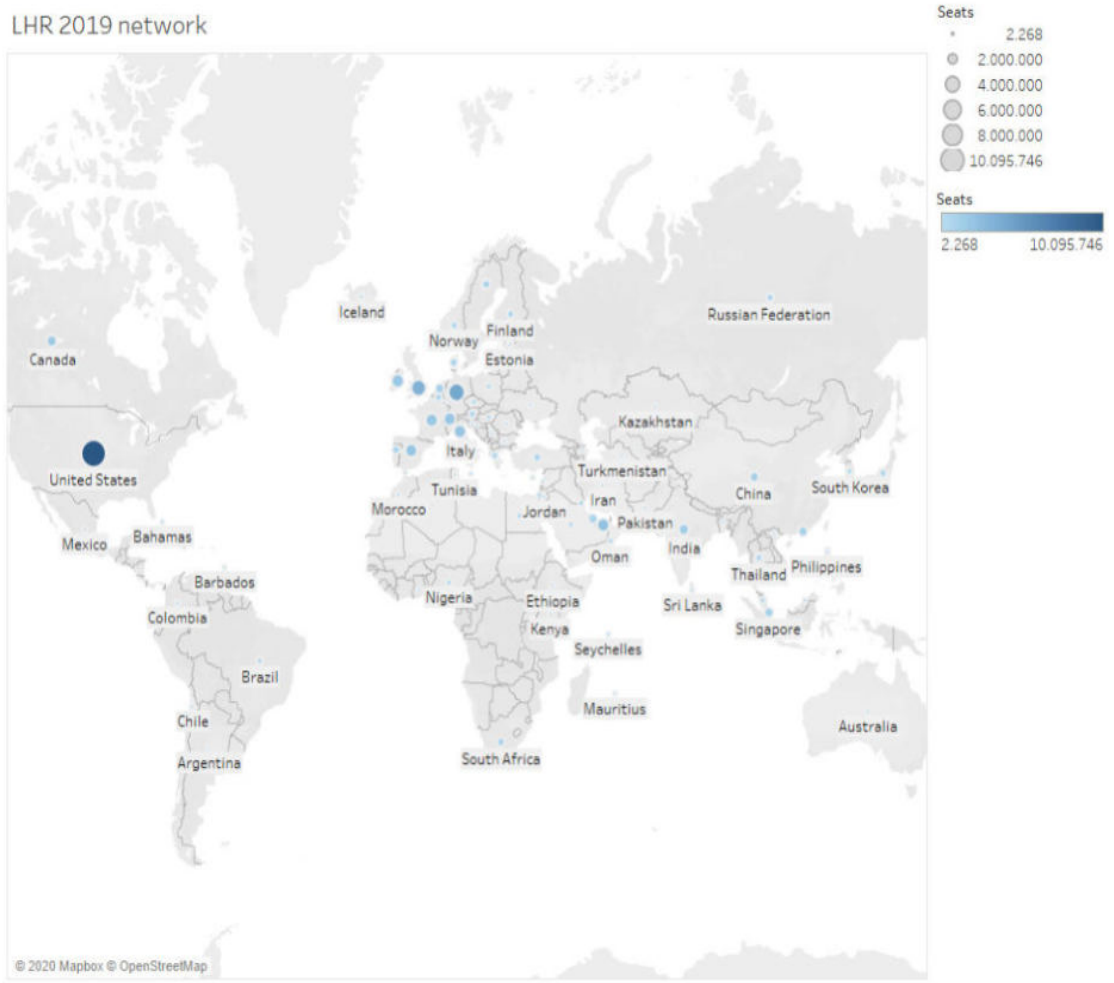
Airport	Type	Runway length, meters	2019 PAX, MAP	2019 ATM, thousands	Traffic profile
Heathrow (LHR)	Civil	3658, 3902	80	478	FSC, scheduled traffic
Gatwick (LGW)	Civil	3316, 2565	46	284	FSC, LCC, charter, transfer traffic
Stansted (STN)	Civil	3049	28	200	LCC, regional, long-haul international flights, budget travel
Luton (LTN)	Civil	2162	18	143	LCC, charter
London City (LCY)	Civil	1508	5	82.7	Europe, NA business traffic, close to the CBD Winter outbound tourism
Southend (SEN)	Civil	1856	2	36	Regional traffic, LCC, charter services, flight training, business aviation

- LCY accommodates business traffic arriving from major cities in Europe and North America. It is conveniently located close to the City of London and boasts a very short ‘plane to curb’ time and multimodal connectivity.
- The other airports in the London Metropolitan Area are located further away from the city center of London, within 35-50 kilometers distance. They are more oriented for tourism traffic, budget operators, intercontinental / long-haul destinations.

One-way seat capacity from London City and Heathrow airports

LCY focuses on European business hubs, while LHR connects the UK with the rest of the world



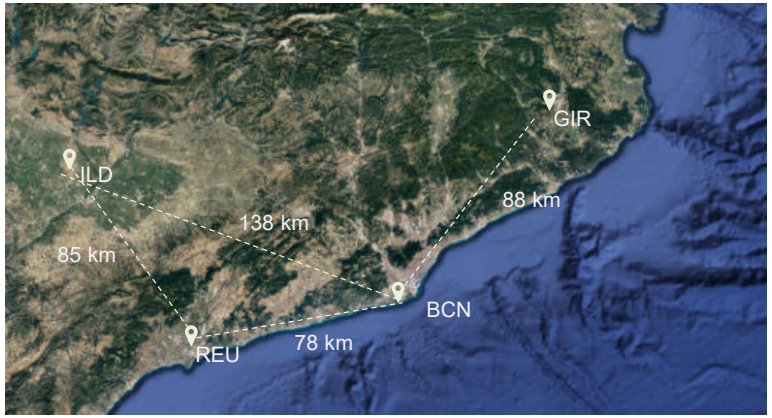


Appendix E-3 Barcelona

Case Study: Barcelona, Spain

Secondary airports play role as gateway to local leisure destinations

Barcelona airports system



6.1
million population
Urban Region

4
airports

56
million passengers
served in 2019

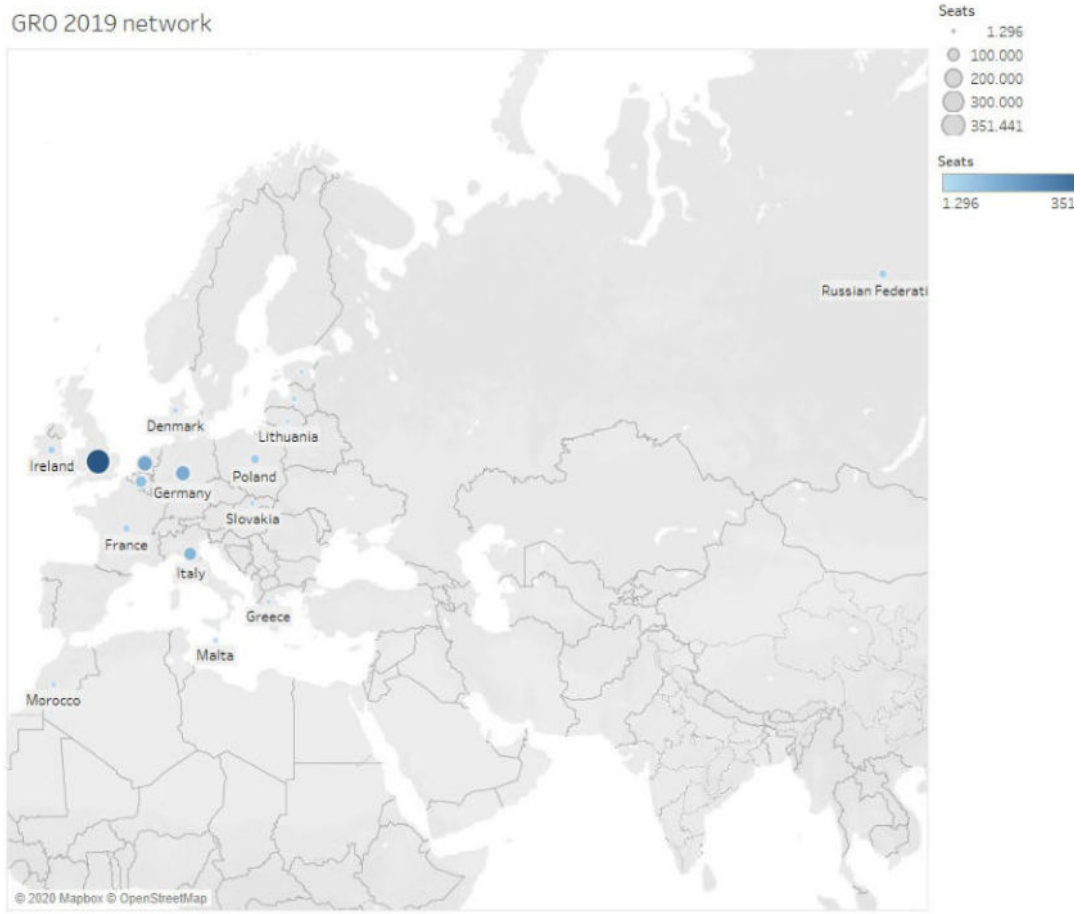
Airports overview

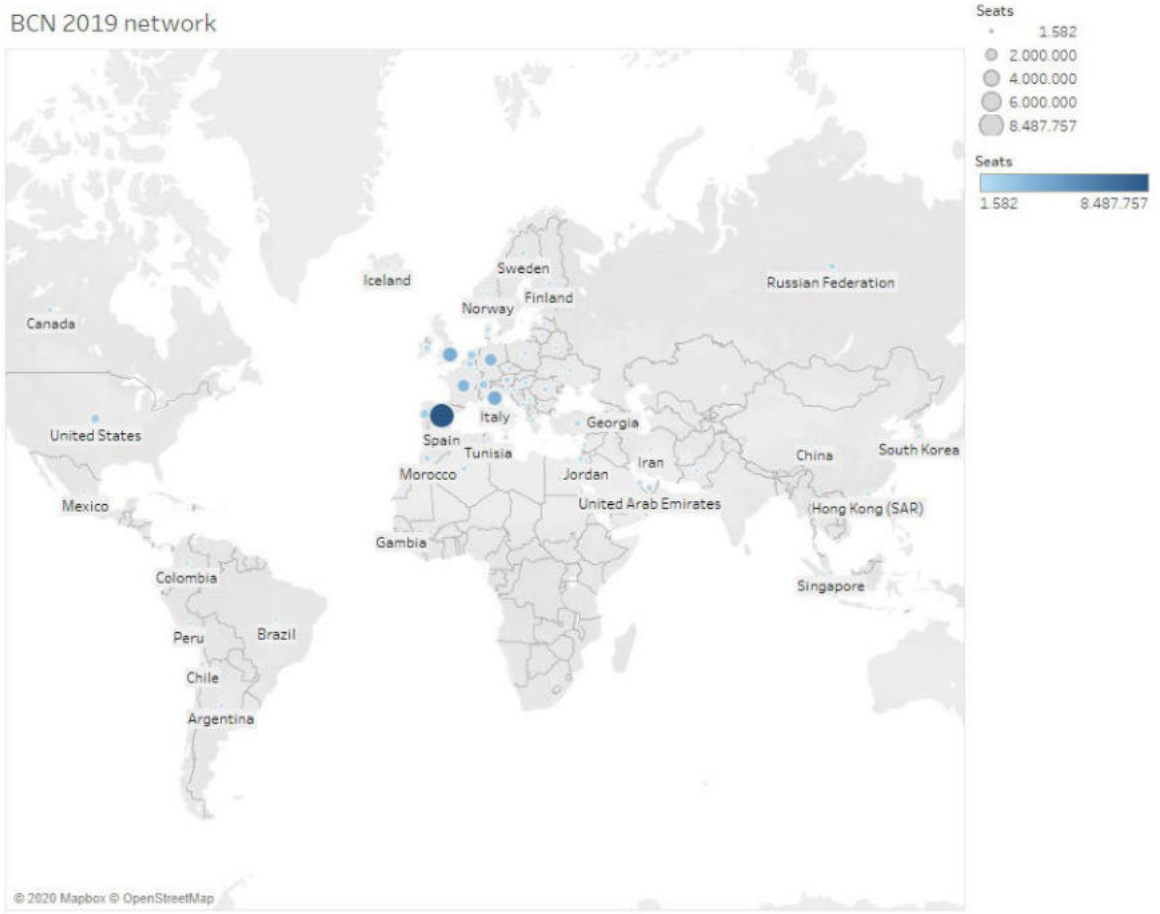
Airport	Type	Runway length, meters	2019 PAX, MAP	2019 ATM, thousands	Traffic profile
Barcelona (BCN)	Civil	3352, 2660, 2528	52.6	344.5	FSC, LCC, intercontinental flights
Girona (GRO)	Civil	2400	1.9	18.2	LCC, seasonal, leisure-oriented
Reus (REU)	Civil	2459, 950, 2455	1	17.6	LCC, seasonal, leisure-oriented
Lleida–Alguaire (ILD)	Civil, MRO	2500	0.055	N/A	Regional, leisure-oriented

- Inbound tourism traffic of major importance;
- BCN – primary airport in the region, second busiest airport in the country;
- GRO, REU, ILD – play roles as alternative airports to BCN, while being gateways to leisure destinations outside the city of Barcelona:
  - REU – Costa Daurada, PortAventura World, Mountains of Prades
  - GRO – Girona, Costa Brava, Pyrenees
  - ILD – mountain activities in the Pyrenees
- LCC are the main operators in the secondary airports, GRO experienced spectacular passenger growth when Ryanair chose the airport as a European hub.

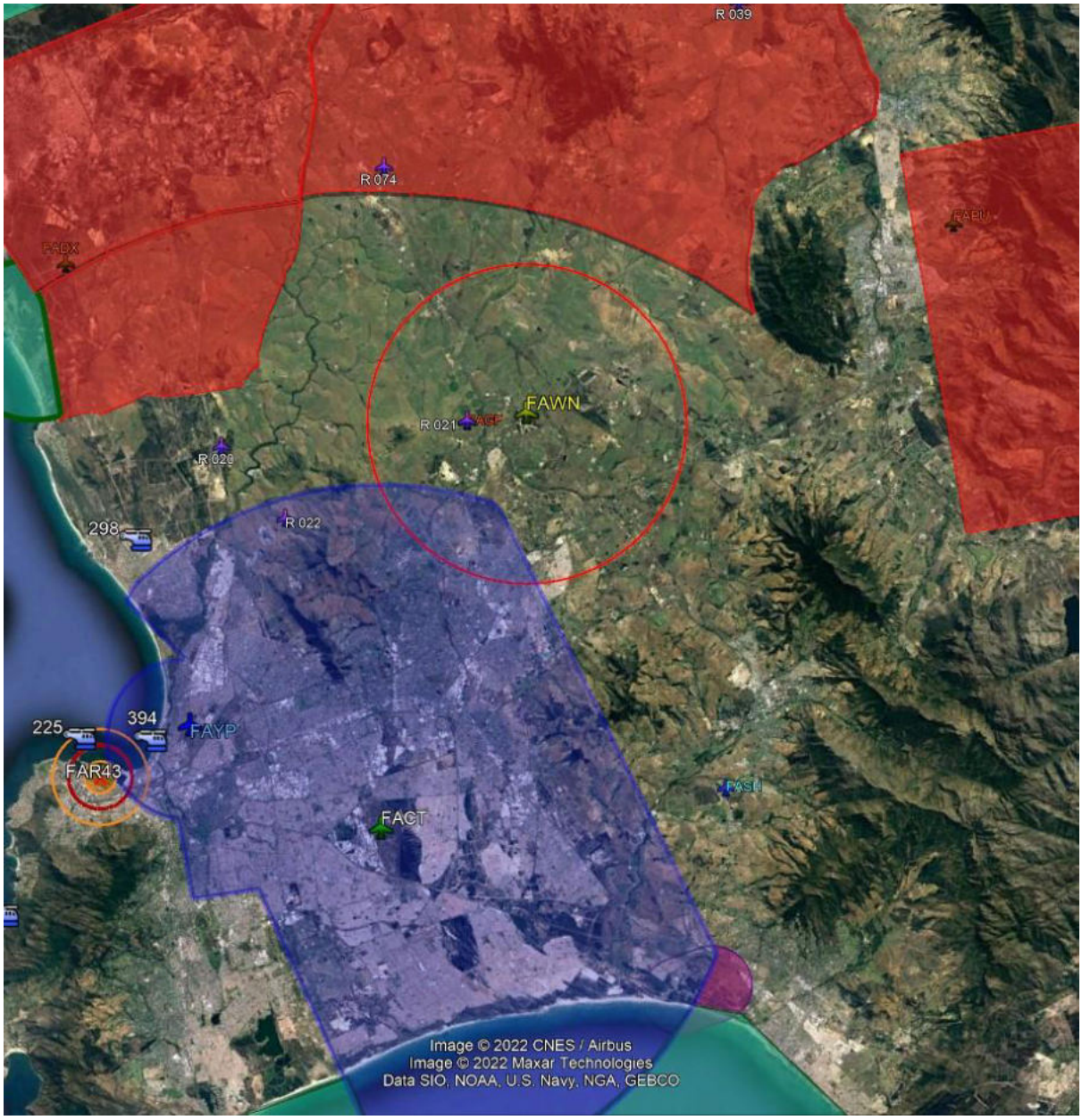
One-way seat capacity from Girona and Barcelona airports

GRO attracts European leisure passengers with budget flights, while BCN is an important domestic node as well as one of the main gateways to the country





Appendix F CWA's Current Airspace Configuration


R 039
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225
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FAYP
FAR43
FACT
FASU
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