

2017

MOSSEL BAY AIRPORT

INVESTIGATION AND PROPOSALS FOR ITS FUTURE USAGE



Prepared for the Mossel Bay Municipality



ADLUM SOUND

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ACRONYMNS USED IN REPORT

Aereonautic

ACC	Area Control Centre
ACN	Aircraft Classification number, (A classification system consisting a series of alpha-numerical and numerical characters indicating the load of an aircraft on a pavement, also refer to definition of PCN)
ACSA	Airport Company of South Africa, a state owned Company who owns and operates George Airport
AIP	South African Aeronautical Information Publication
ATNS	Air Traffic and Navigations Company, a state owned Company responsible for air traffic control and navigation services in South Africa
CAA	South African Civil Aviation Organization
FIC	Flight Information Centre
FOD	Foreign Objects which could damage aircraft engines
GNSS	Global Navigation Satellite System
ICAO	International Civil Aviation Organization
IGA	International General Aviation
LCN	Load classification number (older terminology used to indicate the strength of an airfield pavement.
NDB	Code used for fixed beacons
PCN	Pavement classification number (A series of alpha and alpha-numerical characters indicating the strength of a pavement eg a PCN of 70 means that the pavement's remaining lifespan can accommodate 100 000 coverages of an aircraft with an ACN of 70. Should lighter aircraft use the pavement more coverages can be expected. If heavier aircraft use the pavement less coverages could be expected provided that the pavement is not damaged by an aircraft which is too heavy to operate into the airport)
QNH	Query National Height
SIGMET	Significant Meteorological Information
TMA	Terminal Control Area
VFR	Visual Flight Rules
Other	
CBA	Critical Biodiversity Areas
IDP	Integrated Development Plan

L _{Rdn}	Day Night Rating level for noise studies
LUPA	Land Use Spatial Planning Act, No 3 of 2014
MBGOS	Mossel Bay Growth Options Study
MBHSP	Mossel Bay Housing Settlement Plan
NEMA	National Environmental Management Act, No 107 of 1998, as amended
NID	Notice of Intent to Develop
ONA	Other Natural Areas
SDF	Spatial Development Framework
SPLUMA	National Spatial Planning and Land Use Management Act, No 16 of 2013
SQ	Mossel Bay Airfield Status Quo report, 2016

SET OF DOCUMENTS COMPRISING THIS STUDY

1. MAIN REPORT WITH ANNEXURES:
ANNEXURE A: REPORT ON PREDICTED NOISE CONTOURS
ANNEXURE B: COSTS ESTIMATES OF PHASES OF DEVELOPMENT OF AIRPORT

2. STATUS QUO REPORT – SEPARATE VOLUME WITH ANNEXURES:
ANNEXURE A: ENVIRONMENTAL STATUS QUO
ANNEXURE B: MOSSEL BAY AIRPORT NOISE REPORT
ANNEXURE C: ECONOMIC IMPACT ASSESSMENT

3. PLANS

	Airfiled surveyed layout of sites
	Fine scale map of biodiversity areas
1.0	Broad Spatial Pattern
2.0	Airfield Layout
3.1	Long Term Possibilities of an extended airport
4.1	Airport Extensions (Phases 1 – 3)
5.1	Proposed future spatial pattern for surroundings
N1.1	Airport Noise Contours Scenario 1
N1.2	Airport Noise Contours Scenario 2
N1.3	Airport Noise Contours Scenario 3

4. STAKEHOLDER PARTICIPATION
Attendance registers of various meetings, workshops and the open day
Newspaper articles and notices
Inputs received

1. BACKGROUND

1.1 INTRODUCTION

The activities of the Mossel Bay Airfield have developed over the past years to such a level that it became a cause for concern because of its location from a land use point of view and because of the perceived level of noise created by certain aircraft.

As the municipality has to take steps to ensure a proper and compatible land use pattern for the future, this study was commissioned to the professional team as indicated on page 2 of this report. The objectives of the investigation are to:

- establish and analyse the status quo of the airport and all its activities
- to consider alternative locations for the airport and/or some of its activities
- to recommend guidelines and to make proposals for its current and future management

The objective of the study is to consider the future function of the airfield – if it is to remain in its present location – in the larger spatial and economic context of Mossel Bay. To this end a long term view is taken - longer than the five and ten year periods of the IDP and the SDF, for if it is to remain in the present position it will be there permanently and its position will impact on the spatial and infrastructure pattern. This study comprises a Status Quo report (SQ) with specialist Annexures and this final Report with plans with an annexure on the noise levels.

In the SQ the present use of the site is referred to as an airfield while in this report its future usage is referred to an airport as its expansion and proposals imply that it will eventually have the characteristics of a fully-fledged airport.

1.2 THE STATUS QUO REPORT

The Status Quo report (SQ), attached hereto, was compiled to describe and evaluate the present position of the airfield. As background, and to understand the further analysis in this investigation, the SQ has to be read in conjunction with this report.

The main findings from the SQ are the following:

- The airfield is well situated from a spatial and environmental point of view with no impact on the physical environment.
- It is also well located from aeronautical point of view.
- The weather patterns in Mossel Bay is normally very good which minimises instrumentation requirements and flights can be undertaken under VFR (visual flight rules) conditions.
- The activities from various operators have a significant positive economic impact on the local economy.
- The noise levels are generally at levels normally associated with an airport of this nature. There are however, certain noise levels associated with the training activities and uncontrolled landings that could be mitigated.
- Air traffic control could be improved and to this end a management model between the municipality and the Aero Club has to be developed.
- There is no municipal by-law relating to the running and management of the airfield.
- The operators on the airfield have a significant impact on the local economy.

1.3 STAKEHOLDERS

Several stakeholders are affected by activities on or proposals for the airport. These are:

- The Municipality of Mossel Bay, the land owner and lessor;
- The Mossel Bay Aero Club, the lessee, administrator and manager of airport activities
- Operators on the airport
- Surrounding land owners from Aalwyndal
- Civil Aviation
- The Tourism industry
- The larger community who benefit from employment opportunities and economic growth

1.4 PROPERTY DESCRIPTION

The property on which the airport is situated is described as Farm 336, which is 66,4083 ha in size.

1.5 LOCATION AND CONTEXT

The attributes of the airfield as described in the SQ is repeated here from the Status Quo report for clarity.

The Mossel Bay Airport is a privately licensed airfield, owned by the Mossel Bay Municipality and managed by the Mossel Bay Aero Club. It specializes as a location for businesses related to aircraft training, provides base to tourism related businesses and hanger facilities for private aircraft owners. The Airports' private licensing prevents any passenger or freight transportation, for revenue purposes, to be undertaken at the airfield.

The airfield has two runways, of which only the main runway is operational. The main runway is 1 143 m long and 18 m wide, with a taxiway width of 7.5 m, orientated 10/28 (east west). The air reference code is Code 1A, as per ICAO Annex 14 Table 1.1. Operations to the airport are thus restricted to aircraft with a maximum wingspan of 15 metres and an outer main gear wheel span up to, but not, including 4,5 metres.ⁱ The airfield has a Category 1 Rescue and Firefighting capacity which further restricts the airfield's usage to aircraft with a maximum fuselage length of 9 meters and fuselage diameter of 2 meter. The secondary runway is not maintained and not listed in the current version of the South African Aeronautical Information Publication (AIP).

This layout is shown on Plan 1 in the Status Quo report.

2. MOSSEL BAY AIRPORT IN CONTEXT

2.1 ECONOMIC OVERVIEW

Mossel Bay Municipality is located in the Eden District Municipal Region and forms part of the Western Cape Province of South Africa. It is located 400km on either side between Cape Town and Port Elizabeth, within the Garden Route tourism region, and on the border of the Karoo region. Mossel Bay is classified as a holiday and port town and is located close to the towns of George, Swellendam, Oudtshoorn, Plettenberg Bay and Knysna.

The Mossel Bay economy is the second largest contributor to the Eden District Regions' GGP (Gross Domestic Product) with 26%, after George Municipality (30.7%). Although the Municipality has experienced fluctuating GGP growth over the past ten years, it exhibits a high average GGP growth rate of 7.1% for the period (2004 to 2014). The negative GGP growth from 2008 – 2009 can be attributed to the global economic recession.

In order to better understand the economic characteristics of the Mossel Bay Municipal economy it is important to understand the sectoral contribution towards economic growth as well as employment. Based on the analysis conducted as part of the SQ it is evident that the leading economic sectors in terms of economic contribution for the Mossel Bay Municipal economy are:

- Financial Insurance, Real Estate and Business Services
- Wholesale Retail and Trade, Catering and Accommodation
- Manufacturing sector
- General Government

In terms of employment contribution, the following sectors play a leading role:

- Wholesale and retail and trade, catering and accommodation sector
- Financial services
- Community, social and personal services
- General government services

The above show that the Mossel Bay economy is creating sustainable growth by creating jobs within the economic sectors that are growing the economy. Importantly, this shows the same structure as that of the Eden District economy. Economic activities that stimulate growth amongst the above-discussed sectors are therefore imperative for Municipal economic growth. In Mossel Bay tourism is one of these imperative growth stimulating economic activities. Its contribution is cross cutting through the various service sectors in the municipal economy.

Mossel Bay with regards to tourism is marketed under the internationally acclaimed brand of the 'Garden Route (Eden District) and Klein Karoo' tourism region. Popular activities undertaken by tourists in this area include cultural and heritage activities, scenic drives, wine tasting and outdoor activities.

The Garden Route and Klein Karoo's tourism trends are of importance to the Mossel Bay Airport because the Airports' services supply tourist's activities within the area. Additionally, this overview serves to illustrate the already available tourism potential Mossel Bay Municipality could capture more off, with increased activities that attract travelers to the Airport.

The Garden Route is known as the adventure capital of South Africa. It attracts a significant share of both international and domestic tourists to the District. Mossel Bay Municipality, part of the Garden Route and Klein Karoo area, is a popular tourist destination, with both, international tourists' from Germany, United Kingdom and the Netherlands and domestic travelers from within the Western Cape, Gauteng and other provinces. However, over the past five years, the district has experienced a higher percentage of domestic visitors than overseas visitors and shortening of the duration of travelers' stays in the area. This, however, has been a national trend for South Africa.

Mossel Bay is a holiday destination, which, as discussed attracts both local and international tourist. Mossel Bay features in the Guinness Book of Records as having the mildest all-year climate in the world, second only to Hawaii. The tourism market in Mossel Bay is however very seasonal (mainly during the holiday season between December and February and Easter holiday in March/April).

The split between international and domestic tourist visiting the Mossel Bay is different to the average for the region. Most visitors visiting Mossel Bay (85%) are of foreign origin. The main source of markets of international tourists in Mossel Bay are Germany, United States, United Kingdom, The Netherlands and Belgium.

The domestic tourist market in Mossel Bay is very small and mainly consists of travellers originating from Gauteng. A reason for this small domestic tourist market could be the current marketing strategy employed that does not focus on the domestic market. It is, however, important to understand the value of the domestic tourist (specifically in current market conditions where families rather travel more often, for shorter periods of time, domestically, due to the financial constraints).

2.2 EXISTING AIRPORTS OVERVIEW

In order to take an informed decision on the future potential of the airport it is necessary to understand the various categories of airports and the maximum capacity for various types of aircrafts.

Various airports will have different functions and roles; however it is important to note that these airports as a unit support one another to achieve a greater strength than the combined strength of each aerodromes on its own. This means that it is important to understand that the Mossel Bay Airport does not function in isolation from other airports within the region and/or South Africa.

Other airports within the region include, George Airport, Plettenberg Bay Airport, Oudtshoorn Airport, Stilbaai Landing Strip and Overberg Airport; all of which have various functions and roles within the region.

Various organizations have defined various categorization systems for airports. For the purpose of this study, airports will be classified into the following four groups:

Airport classification	Typical Aircraft
Small Airports: Airports which do not accommodate any passengers or freight for revenue purposes. The maximum aircraft size which can be accommodated may have a maximum take-off mass, which is less than 12 500 lb (5 700kg), thus ICAO type A and certain Type B aircraft. Typical aircraft in this category is the Cessna 182 being used on Mossel Bay airport as shown on the right. <i>Mossel Bay and Oudtshoorn Airports is currently classified as small airports.</i>	 Cessna 182
Medium Airports: Airports accommodating scheduled traffic with aircraft ranging from 20 to 100 passengers. Thus larger ICAO Code B and C aircraft and in exceptional circumstances even small Code D aircraft falling in this category as a result of their outer main gear wheel span (eg Dash 8). The runway width in these cases varies from 100' (30m) to 60' (18m). <i>Plettenberg Bay Airport is classified as a medium sized airport and accommodated regular scheduled flights by Cemair.</i>	  King Air Embraer 145

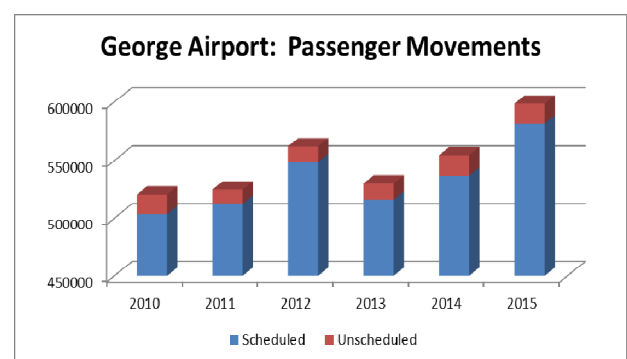
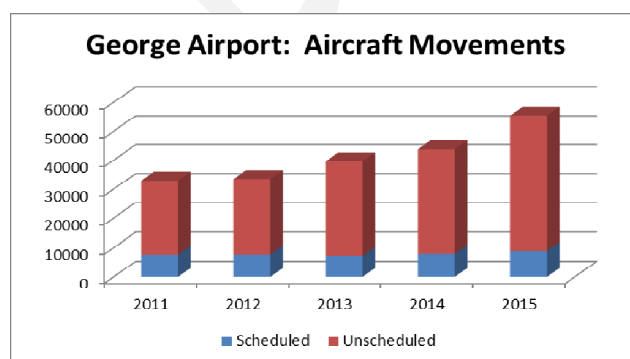
Airport classification	Typical Aircraft
Large Airports: Airports that accommodate aircraft normally being used for domestic and regional flights which carry 100 -200 passengers. This corresponds with ICAO's Code C and D aircraft which requires a runway with a width of 100' (30m) or preferable 150' (45m). Typical aircraft families in this category are the Airbus A 320 as shown on the right and Boeing 737. <i>George Airport is classified as a large sized airport.</i>	 Airbus A 318
Intercontinental Airports: Airports with facilities to accommodate wide body aircraft being used on intercontinental journeys. Thus ICAO Code E and F aircraft which require a 200' (60 m) wide runway for a Code E aircraft or 250' (75m) for a Code F aircraft. Typical aircraft in this category is an Airbus A 340, A380 (Indicated on the right) and Boeing 747 <i>Cape Town International Airport falls within this category.</i>	 Airbus A 380

Overberg Airport is an unlicensed military airport, and therefore has a specialized military function.

2.2.1 GEORGE AIRPORT

As noted above the George Airport is classified as a large airport according to the airport classifications. The airport accommodates both scheduled and unscheduled aircraft movements. Regular scheduled flights are available from major domestic destinations in South Africa to George Airport by various airlines including SA Airlink, Mango and Kulula.com. George is also a deviation airport for domestic flights to Cape Town International Airport as well as Port Elizabeth Airport.

Based on the graphs below it is evident that the George Airport accommodates more unscheduled aircraft movements (and this number is growing) than scheduled. However the scheduled flights are accommodating the passengers arriving at the George Airport.



In terms of the airport context the passengers are the major source of profit at the airport, therefore although the number of scheduled flights are lower than the number of unscheduled flights, the scheduled flight will be more profitable to ACSA. Although George Airport has the capacity to accommodate all the activities currently based at the Mossel Bay Airport, ACSA will not allow activities to negatively affect their existing and potential future profits.

The National Airports Development Plan makes provision for George Airport to be upgraded to accommodate up to Code E aircraft (wide bodies such as the Airbus A 340 and Boeing 747), similar to the aircraft allowed at South Africa's three intercontinental airports.

The landing system on one of the runways has recently been upgraded to a Cat 2 ILS, that is a runway equipped with an instrument landing system that makes it possible for commercial airliners to accomplish landings in greatly reduced visibility where they would previously have been mandated to divert to other airports such as PE or Cape Town. The diversions caused by weather will therefore reduce drastically.

2.2.2 MOSSEL BAY AIRPORT

The Mossel Bay Municipality owns the land on which the Mossel Bay Airport is located, but the airport and facilities are managed by the Mossel Bay Aero Club. Mossel Bay Airport provides aircraft landing and taking-off services. On average four private aircraft use the airport per day for recreational purposes, and four aircraft per week for business purposes. However, additional to these numbers are flights undertaken by Mossel Bay Skydive for recreational purposes and Starlite Aviation for training purposes.

The following activities are accommodated at the Mossel Bay Airport:

Operator	Activity
Mossel Bay Aero Club	• Operation of airfield flight traffic • Leasing of plot rights and hanger facilities • Selling of fuel at the airfield • Repairs and maintenance of airfield infrastructure: • Providing airfield security • Hosting sporting spectacles • Provides public services
Starlite Aviation	• Operates Starlite International Helicopter Training Academy • Has been operational for six years and provides training to an average 75 to 100 students per annum. The training comprises of between 18 to 36 hours per week on the available helicopters.
Starlite Maintenance	• Provides maintenance services • Have been operational for less than two years and have seen an increase from two customers in 2014 to five in 2015.
Skydive Mossel Bay	• Adventure sports center with recreational skydiving and training for sports skydivers. • Customers, including tourists and trainees, have doubled in the past five years, from 1500 in 2011 to 3000 in 2015
Southern Exploration Surveys	• Undertake equipment maintenance and general paperwork for the Civil Aviation Authority (CAA) • Have experienced a change in customer composition, from 25 clients in 2011 to 10 larger ones in 2015
Tours for SA	• Operate the largest touring operations on the garden route area • Have experienced increased touring, operations, from 4000 in 2011 to 5000 in 2015

Freelance Fixed Wing Instructors	• Provides freelance Part Time Instruction • Students trained have increased from four in 2012 to seven in 2015
Heli-Aircraft Maintenance Organisation	• Provides maintenance and repairs to helicopters • Customers have increased from seven in 2012 to nineteen in 2015

2.2.3 MOSSEL BAY AIRPORT OPPORTUNITIES FOR GROWTH

The following opportunities for growth exist for the Mossel Bay Airport with regard to functions within the regional airport context.

SMALL AIRPORTS

The growth opportunity as a small airport lies in attracting niche activities to the Mossel Bay Airport. One of the activities at the airport is accommodating the General Aviation market. However, in this market Mossel Bay Airport is competing with various airports, including George Airport. The opportunity is to enter into an agreement with George Airport to optimize airspace usage. Due to the growth in George Airport it is anticipated that the smaller operators using less powerful aircraft will become a hassle on George Airport restricting George's capacity to serve large aircraft (accommodating passengers and impacting on profit). As a result, ACSA will start introducing minimum fees and performance specifications on George similar to the case on OR Tambo and even on Lanseria (which is a private owned airport) to push the flying schools and small operators out. As a result, they will seek an alternative. Due to airspace limitations as described in the SQ, doubt exists if a license will be granted to any additional airport in the TMA of George. This situation will create a captive market and small operators will have to move either to Mossel Bay or Oudtshoorn, should they wish to remain in the broader region.

MEDIUM SIZED AIRPORTS

The next category airport is medium sized airports. Typical examples of medium sized airports are Plettenberg Bay, Margate, Skukuza, Gateway International at Polokwane. Plettenberg Bay Airport accommodates regular scheduled flights by Cemair. Margate, Skukuza and Gateway are also served by scheduled operators. Mossel Bay has a much larger tourism market and more beds on offer than Plettenberg Bay. If Plettenberg Bay and the other medium sized airports can attract scheduled flights, the question can be raised if Mossel Bay has the necessary airport facilities, why is it not served by a scheduled operator? Negotiations should be entered into with small scale scheduled operators such as Federal Air and Cemair on what the probability is that they will be interested to introduce scheduled flights to Mossel Bay. As pointed out in the economic feasibility report, this will have a large positive multiplying effect on the Mossel Bay economy. A prerequisite for this option is that Mossel Bay airport need to be licensed to be able to accommodate passengers and freight being transported for revenue.

LARGE AIRPORTS

The next category of airport to be considered is large airports with adequate facilities to typically accommodate the Boeing 737 and Airbus A 320 aircraft families, thus 100 to 200 seater aircraft. George Airport falls in this category. The weather patterns at George and Mossel Bay differ substantially. Each aircraft en route to George needs to carry additional fuel should it need to deviate from George to Cape Town or Port Elizabeth. This fuel is extra dead non-revenue weight on the aircraft and the air carrier is burning fuel to carry that additional non-revenue weight. If the runway facilities at Mossel Bay are upgraded that Mossel Bay can serve as official first deviation airport for flights to George. It will be an economic advantage for the air carriers and an environmental advantage that less fuel are burned on flights to George. The runway length at George airport is 2 000 m. However certain types of Boeing 737 will require a runway up to 3 000 m to take off with a maximum take-off

weight. If direct flights are introduced to link the Garden Route with other popular tourism destinations in southern Africa such as the Chobe Game Reserve/Victoria Falls or Kilimanjaro/ Serengeti Game Reserve, the Garden Route's main airport will have to be upgraded. In the shorter term a more feasible option to enter this market might be to make facilities available at Mossel Bay to accommodate diversions should weather patterns in George be unfavorable and aircraft need to deviate. For this purpose only the airside (runway plus taxiway and apron) will be upgraded with no alterations will be done to the terminal building. In this regard it could also be noted that the runway requirements for landing even in wet weather conditions are much shorter than the requirements to take off with a full load

INTERCONTINENTAL AIRPORTS

The South African constitution states that South Africa shall have three international Airports viz. Cape Town International, OR Tambo International and King Shaka International airports. OR Tambo is the main gateway into southern Africa. ACSA is currently accommodating in the order of 20 million passengers per annum and the airport can be upgraded to accommodate in excess of 65 million passengers per annum. Cape Town is accommodating in the order of 8 million passengers per annum and King Shaka in the order of 5 million passengers per annum. The latter two can be expanded to accommodate in the order of 45 million passengers per annum. The economy of Mossel Bay, George or even the Eden district is not comparable to that of Gauteng, the Western Cape or KwaZulu-Natal and the latter two airports are battling to attract intercontinental traffic. The development cost of King Shaka which was opened on the 1st May 2010 was R9,7 billion which excludes the cost of land and mass earthworks which was done in the 70's and the expenses of all the tenants including the air carriers to relocate their facilities from the old Durban International Airport to King Shaka. From the above it can be seen that it will not be sensible to construct an additional intercontinental airport in South Africa at this stage with facilities to accommodate wide body aircraft serving intercontinental destinations. The land requirements for an intercontinental airport is in the order of 2 000 hectares which is not readily available although the land surrounding the Mossel Bay airfield is sufficient to expand it into such a type of airport.

2.3 AIRPORT DRIVERS/LIMITATIONS

From the above the following airport drivers and/or limitations are identified which drive the demand for airports.

2.3.1 AIR SPACE LIMITATIONS

The Department of Transport compiled a National Airports Development Plan which regulates the development of airports in South Africa. On page 49 this document stipulates the following issue which is very important regarding the Mossel Bay Airport. "All greenfield airports will be required to obtain airspace approval from NASCOM prior to commencement of any construction activities. In particular proposals for airports within 50nm of the geographical footprint of any Terminal Area (TMA), or within 10nm of an existing licensed airport, must be evaluated in order to determine the potential interference with established procedures regarding controlled airspace in accordance with the Civil Aviation Regulations 201151." The Airports Development Plan further stipulates "Greenfield developments should ideally be planned outside the CTR of existing airports and preferable outside the TMA". From the above it can be noted that the entire area around Mossel Bay has air space restrictions which need to be considered should the alternative be considered to develop an alternative airport to supplement / replace the existing Mossel Bay airport.

2.3.2 INFRASTRUCTURE PROVIDED AT THE AIRPORT

Airport infrastructure plays an important role not only in the safety and security aspects of the airport but also in what activities can be accommodated at the airport. Infrastructure could be both a driver and limitation to the growth of an airport:

- Various size aircraft have different infrastructure requirements, eg. pavement strength, runway length and width, dimension and landing requirements of the aircraft.
- Infrastructure also indicate the type of aircraft movement can be accommodated – scheduled flights require specific infrastructure to be in place such as a terminal building.

2.3.3 NICHE MARKETS

Although the main focus of ACSA owned airports is to accommodate passengers being transported from one airport to the other, there are various other niche markets that also drive the demand for an airport. The niche market includes, but are not limited to:

- The General Aviation Market
- Training Facilities
- Tourism Activities
- Other non-airport related activities such as hanger space, business operations that require aircraft.

2.3.4 LOCATIONAL ATTRIBUTES OF AIRPORTS

Airports are generally a facility for aircrafts to take-off from and land. In this process the natural environment and weather conditions play an important role. Flat slopes and constant good weather conditions (i.e. limited mist, wind, rain, etc.) provide for an attractive airport location. As mentioned above airports are also driven by niche markets and these niche markets could potentially also have locational preferences such as a training academy that would like to have access to a variety of terrains within a short travel distance to provide the learner with the most comprehensive training programme at the lowest cost to the training school.

2.3.5 NOISE LIMITATIONS

Noise limitations for airports are guided by SANAS 10103 which provides both opportunities for growth and limitations to growth for airports. When planning on accommodating various activities, it is important to understand the noise implications of the activity in order to ensure that it is within the limitations of the airports.

2.3.6 LINKAGES WITH OTHER AIRPORTS

As indicated above airports are classified according to the size of the aircraft accommodated at the airport from small to intercontinental airports. It is also important to note that airports do not function in isolation of other airports and understanding this leads to the identification of complementary functions that could be accommodated at various airports. One such an example is a small to medium sized airport functioning as a deviation airport for a large airport. In this case it is important to note that in order for the small to medium airport to provide this function, the required infrastructure will need to be in place.

2.4 OPTIONS FOR CHANGE

Based on the airport drivers and limitations discussed above, the following options for change are identified for the Mossel Bay Airport.

Option 1- Do nothing: This means that the Mossel Bay Airfield will function as it is currently functioning and no infrastructure development takes place.

Option 2- Minimal upgrading: This means that limited upgrading will take place, however no changes are made to the current management of the airport. It may include noise mitigation such as moving the helipad for maneuver training to a more westerly position.

Option 3 - The airfield is relocated: This means that the existing airfield and all its activities will be relocated. Apart from losing all the advantages of an airport in the present position, the airspace does not allow for a nearby alternative location – see par 2.3.1 above.

Option 4 - Improve the airport to a full Standard Airport: Various alternatives and phases exist under this option that are considered:

Option 4A: Construct a new runway north of the present runway for propelled aircraft such as the Pilatus PC 12 or King Air 300 and covert the present runway into a parallel runway. Construct a tower with FIS (flight information service) per radio. A small fire fighting unit could be present at the airport.

Option 4B: The same as A but accommodating aircrafts up to small business jets.

Option 4C: The same as above but the spacing between the two runways is provided wide enough to accommodate future instrumental landings.

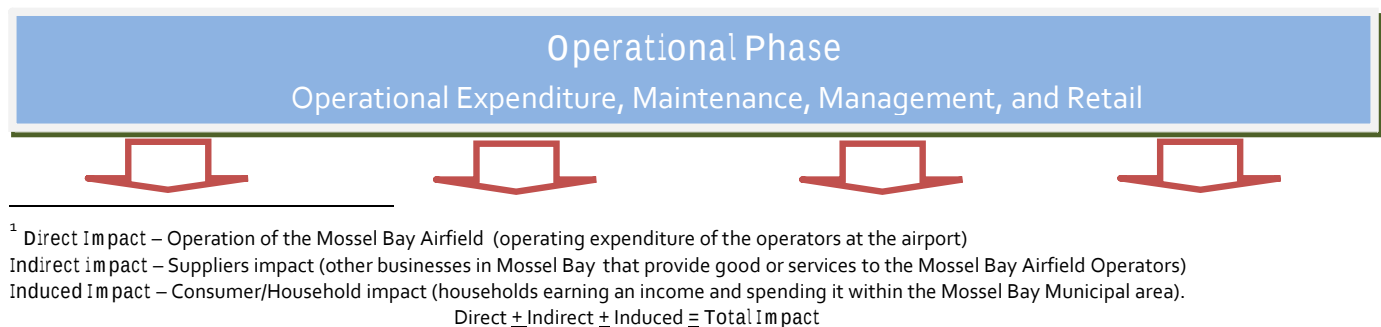
Option 4D: An extension on Option 4c where the airport can also serve as a diversion airport for smaller aircraft such as the Dash 8 and Bombardier from SA Express and SA Airlink or to accommodate scheduled flights as such as the Cemair that flies to Plettenberg Bay.

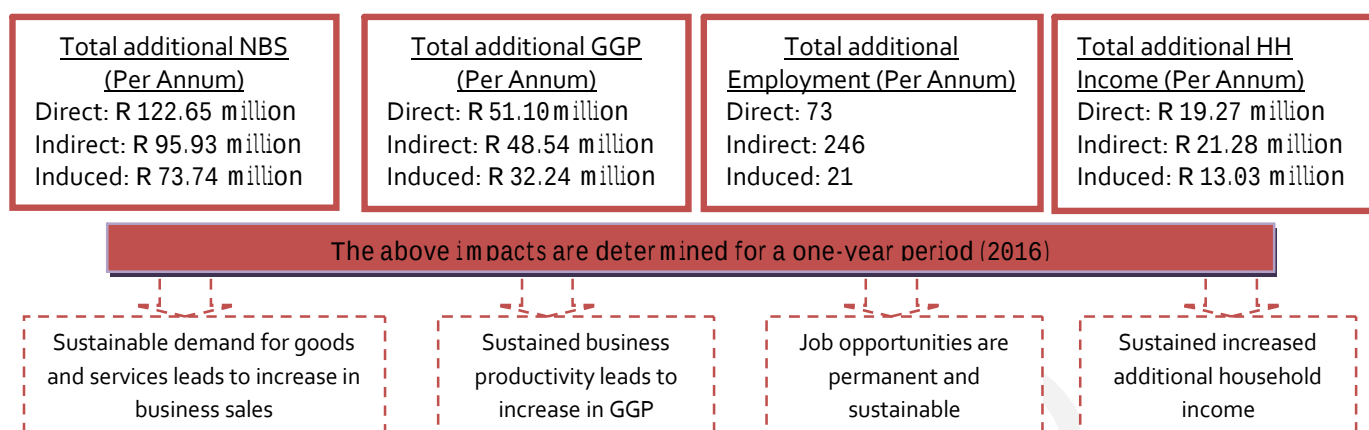
3. GROWTH POTENTIAL OF THE MOSSEL BAY AIRPORT

3.1 ECONOMIC POTENTIAL

A detailed economic impact assessment of the Mossel Bay Airport was conducted as part of the SQ Report. It is important that the economic impact of the Mossel Bay Airport is derived from the various economic activities taking place at the airport.

The economic impact modelling provides an indication of the direct, indirect and induced impacts¹ experienced as a result of investment made at the Mossel Bay Airport. These effects are illustrated in terms of production, gross domestic product, employment and income. The findings of the economic impact assessment are summarised as follows for the operations of the Mossel Bay Airport:





Based on this impact assessment it was found that the Mossel Bay Airfield has the following multiplying effect on the Mossel Bay economy. For every R 1 million investment made at the Mossel Bay Airfield a multiplying effect of R 4.47 million in total production is created, R1.67 million in total GGP, R0.73 million in total income and 4.78 jobs is created. This indicates that any additional investment made into the Mossel Bay Airfield will have significant multiplying effects on the economy as a whole.

In order to better understand the economic contribution of the Mossel Bay Airport to the Mossel Bay Municipal economy the following is noted:

- The direct operating activities at the Mossel Bay Airfield contributes to 0.57% of the total Mossel Bay Municipal GGP. This is only based on the direct effects.
- The direct operating activities at the Mossel Bay Airfield contribute to 0.23% of the employment opportunities in the Mossel Bay area's economy.

The above only accounts for the direct effects and although the indirect and induced effects will not be limited to the Mossel Bay economy, it should be noted that there will be additional effects as a result of the indirect and induced impacts. An important aspect to take note of is that Starlite Aviation and Starlite Maintenance contributes to 62% of the Mossel Bay airfield's economic activity, there the majority of these impact experienced is as a result of these operators. Therefore, if these operators are relocated, the contribution of these operators will be lost to the Mossel Bay economy.

The overall study also found that the operation of the airport stimulated economic activity in the sectors that currently drive economic growth and employment in the Mossel Bay economy. As well as that the airport's spill over effect into the Mossel Bay economy had overall improved standards of living, which has added social impacts such as reduced, poverty, crime and better access to education.

The growth of the Mossel Bay Airfield is mainly driven by the growth of the economic activities located at the airport which in return is driven by the locational attributes of the airport, the ability to unlock opportunities for niche markets and unlocking its full potential within the regional context of airports.

3.1.1 LOCATIONAL ATTRIBUTES OF THE MOSSEL BAY AIRFIELD

The Mossel Bay Airfield is located in Mossel Bay which is reported in the Guinness Book of Records as having the second mildest all-year climate in the world, second only to Hawaii. One of the main reasons operators such as Starlite Aviation is located at the Mossel Bay Airfield is due to the weather conditions – this means that there are

limited days when training cannot be conducted. Therefore the business model is more predictable and cost can be managed. Other attributes include the access the airfield has to various terrains for training purposes. In terms of other operators such as Skydive Mossel Bay, the pristine landscape surrounding the airfield allows for attraction for tourists to come and skydive. The weather conditions also play an important role for this operator.

3.1.2 UNLOCKING NICHE MARKETS

Due to the locational attributes the Mossel Bay Airfield has the potential to allow for expansion of Starlite Aviation and/or to attract additional training academies to be located at the airport. These training could focus on other small aircrafts as well. As indicated above the Mossel Bay Airfield also has the opportunity for agreement between the airport and George Airport to accommodate a greater portion of the general aviation market (this will be accommodated as George Airport grows).

3.1.3 REGIONAL OPPORTUNITY FOR MOSSEL BAY AIRPORT

The greatest opportunity for the Mossel Bay Airfield is to unlock its full potential as a functional airport within the regional context.

The upgrading of a runway at the George Airport to a Cat 2 ILS largely reduces the potential to use Mosel Bay as a deviation airport.

However, as the apron parking scale for smaller business jets and turbo prop aircraft is limited at the George Airport, and with the anticipation of growth in the usage of these aircraft, Mosel Bay airfield could be upgraded with the runway extended with about 600m, an enlarged apron and associated facilities to accommodate these types of aircraft.

Once this opportunity is unlocked the Mossel Bay Airport could potentially investigate attracting scheduled flights as is the case at the Plettenberg Bay Airport.

Once airlines start using Mossel Bay the market could be analysed to process scheduled flights on a regular base as well as charter flight to popular tourism destinations such as Chobe/Victoria Falls with any type of Boeing 737 Airbus A 320 which is not possible from the current George Airport due to its runway length. However, in the longer term it will make sense to reserve the land around the airport as such and impose building restrictions that such a possibility can be implemented in future.

Although the actual length needs to be determined during the detail design phase, the vacant land at Mossel Bay Airport allows the upgrading of the airport to accommodate the entire Boeing 737 / Airbus A320 range of aircraft. This is a long term scenario that which may only materialize in 20 to 50 years' time. It is however wise to reserve the land now as this will create a buffer zone where noise sensitive developments are not allowed.

These long term possibilities are shown on Plan 3.1.

It is important to note that in order to unlock any of the above opportunities, the required infrastructure has to be developed together with the implementation of an effective management strategy.

3.1.4 ECONOMIC MOTIVATION FOR OPTIONS

If Option 1 or 2 is implemented, it will mean that the potential economic value of the Mossel Bay Airport will not be realized. From an economic perspective it would not make sense to implement Option 3, mainly because this

will mean that the existing economic value and effect of the Mossel Bay Airport will be lost to the Mossel Bay economy (this is also based on the argument that within the current air space allocation there is no alternative location for the Mossel Bay Airfield within the Mossel Bay area).

It has been shown above that the present airport and activities have a significant impact in the local economy. It has also been shown that the future airport in its present locality has the capacity to expand and it will furthermore be shown hereunder that an expanded airport in Mossel Bay will have regional significance in terms of the regional aviation context. The above options furthermore indicate that the most viable and practical option is option 4D – to expand the airport to become an airport where smaller aircraft with scheduled flights could be deviate to. It is important to note that this development should be phased, and in the initial expansion phases the Mossel Bay Airport should be closely linked to the growth of the George Airport. The reason for this is that the initial opportunities entail the linkage between the Mossel Bay Airport and the George Airport.

As mentioned the unlocking of the opportunities will rely on the development of infrastructure as well as the implementation of effective management strategy. The following sub-section will identify the potential infrastructure development potential of the Mossel Bay Airport as well as the spatial development.

3.2 INFRASTRUCTURE DEVELOPMENT OPPORTUNITIES

The current Infrastructure on the airport and the surrounding land uses have been evaluated in the SQ. Plan 1 in the SQ refers. The potential for further development is analyzed hereunder.

3.2.1 RUNWAY

The current runway length is 1 143 m and the width is 18 m. A longitudinal profile has been drawn and the elevations on the runway vary from 546 m and 548 m on the two thresholds to a highest point of approximately 550 m in the middle of the runway. The runway strength has not been determined. The pavement structure is very dry and signs of stone loss are evident on the runway. This can have large financial implications should an aircraft engine suck up a stone and the engine is damaged as a result thereof (the responsibility of damages would depend on the agreement between the municipality and the aeroclub). The runway can be classified in terms of ICAO classification as a Code 1A². The runway length is adequate to accommodate aircraft such as the Beech 1900, Cessna Grand Caravan and Pilatus PC12, although the runway width is does not comply with ICAO recommendations for such large aircraft types. The recommended runway width for these aircraft is 23 m. The permissible maximum longitudinal slope on this type of runway is 1% and the current average slope between points taken over the runway centreline falls within the specification. Although the average slope is within the ICAO recommendations, variations occur over the runway length which is not ICAO compatible. Furthermore, there is a slight drop on the western side just after threshold 10 which will necessitate earthworks should Council decide to lengthen the runway in that direction. On both thresholds are 120 m overruns which complies with ICAO specifications. The airport boundary 160 m from the threshold on each side. If Council decides to lengthen the runway in future or install approach lights additional land will be required.

On the eastern side approximately 630 m land is vacant up to the road leading to the airport. The ground level at that point is approximately 540 m which is 8 m lower than the height at threshold 28. ICAO recommends that we should have at least a vertical clearance of 4.8 m at a road between the the crest of the road and a 1.6% slope originating at the runway's inner edge. Preliminary calculations indicate that it would thus be possible to lengthen

² ICAO Annex 14 Table 3-3 and 1-1

the runway with approximately 300 m in an eastern direction leaving a 240 m area to construct a runway safety area. Over and above this Council would also have to register a servitude for a further 300 m should they want to install a simple approach light system and 660 m for a full set of runway approach lights. Furthermore, there is an existing farm shed, which was vacant during our inspection of the site which will have to be demolished / relocated. The slope on the eastern portion falls from 548 m at threshold 28 to approximately 541 m over 600 m at an average of 1.2%. Minimal earthworks would thus be required to extend the runway in an eastern direction. After the airport access road the terrain falls sharply in the direction of Vyf Brakken Fontein. The approach areas should thus most probable be clear of any obstacles.

On the western side 3.6 km vacant land is available up to the R327 which leads to Mossdustria that could be acquired to enlarge the airport site. The ground profile drops suddenly after threshold 10. It has a relative high point 800m after the threshold and then drops steadily up to a distance of 1 200 m from the threshold. Fairly balance earthworks will be obtained should it be necessary to lengthen the runway in that direction for a distance up to 1 200 m where after a small valley has to be crossed at 1 400 m from the threshold. From the valley the ground lifts gradually up to the watershed and then drops evenly down to the R327. Unlimited extension possibilities thus exist to lengthen the runway in a western direction. If the nucleus of the airport is located in a western direction a new direct access can be established for Mossel Bay airport from the N2.

3.2.2 TAXIWAYS

The full length of the main runway is served by a 6m wide gravel parallel taxiway. The distance between the runway centreline and taxiway centreline is 45m. A few ICAO recommendations regarding the development of taxiways are as follows:

Recommendation 3.9.5: *"Taxiway width: A straight portion of a taxiway should have a width of not less than given by the following tabulation:*

- *Code A: 7.5m* (Aircraft with a wingspan up to but not including 15m, eg the Cessna 182 which has a wingspan of 11m described under small airports)
- *Code B: 10.5m* (Aircraft with a wingspan of 15m up to but not including 24m. Typical examples are the Beach 1900 with a wingspan of 17.64 m, the Cessna Grand Caravan with a wingspan of 15.88 m and Pilatus PC12 with a wingspan of 16.23 m)
- *Code C: 15 or 18 m"* depending on wheelbase (Aircraft with a wingspan of 24m up to but not including 36m. Typical aircraft in this Code is the Embreair ERJ 135 with a wingspan of 26.34m, BA Avo with a wingspan of 26.21m and the Boeing 737 with wingspans up to 35.79m and Airbus A 320 with wingspans up to 34.16 m)

The taxiway is thus not wide enough even to accommodate the smallest type of aircraft. Furthermore, Annex 14, Table 3.1 provides information on the minimum distance between taxiways and other airport developments. Salient recommendations from ICAO applicable to Mossel Bay Airport is as follows:

DESCRIPTION	ICAO Code referring to aircraft wingspan		
	A	B	C
Distance from a taxiway centreline to a non – instrument Code 2 runway (Runway reference length 800 – 1 200m)	47.5 m	52 m	-

Distance from a taxiway centreline to a non – instrument Code 3 runway (Runway reference length 1 200 – 1 800 m)	-	-	93 m
Distance from a taxiway centreline to a non – instrument Code 4 runway (Runway reference length longer than 1 800m)	-	-	101 m
Distance from a taxiway centreline to an instrumented Code 2 runway (Runway reference length 800 – 1200m)	82.5 m	87 m	-
Distance from a taxiway centreline to an–instrumented Code 3 runway (Runway reference length 1 200 to 1 800 m)	-	-	168 m
Distance from a taxiway centreline to an instrumented Code 4 runway (Runway reference length longer than 1 800m)	-	-	176 m
Taxiway centreline to an object	16.25 m	21.5 m	26 m
Taxiway centreline to a parallel taxiway centreline	23.75 m	33.5 m	44 m

From this table it can be noted that the separation distance from the runway to the parallel taxiway is too small should Council intend to upgrade the airport in future. An option to consider is to retain the existing 18 m wide runway to become the future main taxiway and rather construct a new runway with a longitudinal profile which complies with ICAO recommendations and a pavement strength which is adequate to accommodate larger aircraft types. Secondly, the separation between the runway and taxiway should be adequate to allow the introduction of Global Navigation Satellite Systems (GNSS) procedures for runway approaches. GNSS procedures are replacing land based procedures where aircraft flew between fixed beacons on the ground (NDB's) straight to their end destination guided by satellites using the co-ordinates of the end destination. It can thus be compared to using a GPS whilst travelling by road.

A second issue to consider is the taxiway between the hangars. Based on a layout drawing in the SQ (plan number UM 953W3 dated March 2006, compiled by Van der Walt and Van der Walt Professional Land Surveyors as included in the SQ), the distance between the hangar on C8 and the erven boundary of D11 is only 23.3 m. This distance is inadequate and limitations should be placed on any further developments on stands D11 and D10. However, this drawing does not correlate with the current developments on Google Earth and therefore it is recommended that all the existing developments be resurveyed and a new basis plan be drawn up.

3.2.3 FUTURE RUNWAY TAXIWAY SYSTEM

In the SQ a number of limitations were indicated regarding the maximum aircraft size that can currently be accommodated on the airport. These limitations were summarized as follows in Table 1 in the SQ as follows:

MAXIMUM CHARACTERISTICS OF LARGEST AIRCRAFT THAT CAN BE ACCOMMODATED ON MOSSEL BAY AIRPORT	
Wingspan	15 m
Fuselage length	9 m

Outer main gear wheel span	4.5 m
Fuselage diameter	2 m
Maximum permissible weight	5 700 kg

The current airport infrastructure consists of two runways of which only the main runway is operational. The runway length is 1 143 m and 18 m wide. The airport reference temperature is 23.9°C and the elevation is 526 feet. ICAO recommends that the runway length should be reduced by 1% for each degree the reference temperature is higher than standard atmospheric temperature and with 7% for 100 feet elevation. At an elevation of 526 feet, standard atmospheric temperature is 14°C. The respective correction factors are thus 10% for temperature and 3.5% for elevation. From the above the airfield reference length is 1 004 m.

3.3 SPATIAL CONTEXT AND OPPORTUNITIES

The Mossel Bay Airport will comprise of a land use with increasing beneficial impact on the town in the future if the proposals that follow are implemented. It is primarily a major land use and therefore the spatial land use pattern that could develop around it must be considered. To this end a long term view is taken, i.e. a view that is more concerned with the permanency of the uses and patterns that should form over time than the actual period it will take to realize. It means that if the airport remains in its present position, the future most realistic and compatible spatial pattern surrounding the airfield must be considered. Whether this pattern evolves over 20 or 50 years is not the issue. What is of importance however, is that decisions taken now, should keep the envisaged pattern in mind and planning and budgeting should be geared towards it.

The creating of a scenario for a long term vision of the land north of the N2 should not be construed as pre-empting the new SDF or contradicting the Mossel Bay Growth Options Study, (MBGOS). It serves to place the airport in the context of the urban area of the future and has to be taken cognizance of in future planning.

The MBGOS proves that urban sprawl is uneconomical and has many other disadvantages. On the contrary it shows that densification along the Louis Fourie corridor has many economical advantages. This view is supported in principle but it must be noted that the MBGOS foresees that the Louis Fourie corridor will have to accommodate most of the more than 18 000 projected households as well as the backlog of more than 9 800 in housing over the next 20 years. The Mossel Bay Housing Settlement Plan (MBHSP), on the other hand, indicates that the projected housing need for subsidized, social and affordable housing is about 6 800 units over 10 years. It further points out that there is not enough land earmarked for subsidized housing over a 20 year period and that future land for the long term urbanization will have to be considered. The property market furthermore requires a variety of housing types and prices that could not be accommodated along the Louis Fourie Corridor only.

Against this background it is submitted that, in the long term (more than 20 years), the area north of the N2 comprising of Aalwyndal and the area between the airport and Moss gas will have to become an urban area to provide in the need of housing at that stage. The densification of Aalwyndal will cater for the higher price class market with larger size stands while the land west of the airport could cater for a variety of housing types at various densities as well as social infrastructure (education, health and recreation, etc) business and commercial uses.

In terms of compact growth, this scenario will in the long run not represent urban sprawl but will rather be a logical and economic option for the expansion of the town at that stage.

The Aalwyndal properties are zoned single residential and, in terms of the objective of densification of towns, it is foreseen that this area will be permitted to densify to at least 15 units per ha in the future. Topography, stakeholder preferences, access and other constraints might limit the number of potential units and therefore 15 units per ha could be considered a realistic maximum density for the area. It is estimated that Aalwyndal could ultimately accommodate about 9 000 residential opportunities on about 600 hectare which is the total size of the existing properties.

The area west of the airport comprises of pockets of greenfield land among steep valleys where various urban forms at various densities and land uses could be provided. This area will also have to accommodate future non-residential uses needed for the population and required by the economy. It comprises of about 1270 ha and as a point of departure it is assumed that 40% of land will be available for residential uses and 60% will be taken up by non-residential uses such as industry, commercial, sports fields and recreation, school sites and open space. If a realistic density of 25 units per ha is applied to the said area, about 15 875 could eventually be developed. The noise contours of the airport as it is envisaged to expand in the long run, will have to be taken into account in urban form.

The MBGOS describes a scenario where the increase in population over the next 20 years will be about 18 000 households which should mainly be accommodated in the Louis Fourie corridor. This projection did not take into account that a considerable percentage of residential units in Mossel Bay are empty during the off-peak holiday season because they belong to holiday goers. Provision should thus be made in the spatial budget in the new SDF for the future permanent population as well as for holiday housing. In the phase of the town's growth the scenario described above, envisages the further expansion over, say, 50 years, where a further 24 875 households can be accommodated in the northern area.

What does this mean for the future of the Mossel Bay Airport? It shows that its location will eventually be in the centre of a new urban area which will consist of a variety of commercial and residential uses. If a decision is taken that the airport remains and should expand in this present location, as is proposed in this report, the planning of future urban land uses around the airport can take cognizance thereof and planning can be done accordingly. The land use planning around an airport requires special attention to the spatial pattern especially with regard to the location of residential areas. The development of the so-called aerotropolis is a relative new phenomenon in urban development but has been proven highly successful to serve as a catalisator to stimulate urban growth. Many case studies of the development of an aerotropolis exist worldwide but locally the Ekurhuleni Areotropolis at the OR Tambo International Airport as one of the key government projects for economic growth, serves as an example how urban development can co-exist with the airport.

The planning of the land surrounding the airport requires cognizance of possible economic spin-offs as the activities of the airport increase. Airport related uses pertaining to commercial, manufacturing, tourism and training could locate near the airport site while residential uses that include tourist accommodation further away should be considered.

More specifically the economic growth possibilities should be considered as pointed out elsewhere in the report. The training facilities for both fixed wing and helicopters, manufacturing of light aircraft, glider crafts, export possibilities of fynbos and flowers, etc, are all economic possibilities that could be pursued and that could locate in the spatial pattern foreseen for the area surrounding the airport. The success of the manufacturing of the Jonker glider at Potchefstroom is an example how small beginnings led to a major export activity.

A popular recent form of residential development is the so-called aero estate or fly-inn. Requests for this type of development in the region have been turned down in the past due to lack of adequate and permissible aviation space. This airport provides the space that is required.

The above vision for the airport of Mossel Bay serves as guide for the consideration of land uses on the airport site and spin-off uses that may be required on land surrounding the airport. The above analysis shows that it is possible to expand the airfield in its present location from an economical, practical and aeronautic angle.

3.4 CONCLUSION BASED ON THE GROWTH POTENTIAL AND OPPORTUNITIES

It has been shown above that, based on the economic advantages and the infrastructure capacity and opportunities as well as disadvantages of a no-go option or relocating elsewhere, to retain and expand the airport, has high potential. It could also fit into the future spatial context. Option 4D as set out in par 2.4 above is therefore the most viable option for the future of the present airfield, i.e. the upgrading of the current airfield and the limited expansion to allow smaller aircraft and scheduled passenger flights.

This option could be divided into the following phases that will form the core of the business plan for the foreseeable future:

PHASE 1	
PHASE 1.1	Relocation of the training helipad for maneuver training
PHASE 1.2	Appointment of a flight control officer
PHASE 1.3	Various arrangements in connection with safe and efficient management
PHASE 2	
PHASE 2.1	Installation of an automated weather observation station (AWOS)
PHASE 2.2	Upgrading of the runway to accommodate small 20 seater aircraft
PHASE 3	
PHASE 3.1	New parallel 1500m long runway
PHASE 3.2	Development of a new apron, terminal building and runway

See Plan 4.1 on which the physical aspects of these phases are shown. In the Noise Contour report in Annexure A these phases are referred to as Scenarios 1, 2, and 3. The phases must be implemented taking the long term regional opportunities into account – see par 3.1.3 and Plan 3.

4. OPERATIONAL CONSIDERATIONS

4.1 CASE STUDIES

The purpose of the case studies is to observe trends and methods in running a small airport that could be taken into account when considering a management model for Mossel Bay airfield as well as to assess the possible tourism value of the airport. They are not complete surveys and only the aspects that could have lessons for the Mossel Bay Airport are highlighted.

4.1.1 STELLENBOSCH

The airfield belongs to the municipality and the operations are run by the Stellenbosch Flying Club with 350 members and 8 employees which include two flight control experts. There were objections to noise from the

abutting De Zalze Estate but it was solved by erecting a berm and changes to flight operations. Regular meetings between the Flying Club, the municipality and the neighbors paved the way for solving conflicts and keeping up to date with every stakeholder's activities and issues.

4.2.2 WORCESTER

The airfield is owned by the municipality and run by a committee on which the operators, private business and nearby residents are represented. A gliding club also operates from the airfield.

4.3.4 RAND AIRPORT

The airport belongs to a Section 21 company and the owners are largest users of the airport.

4.3.5 LANSERIA

Lanseria International Airport has been sold to a consortium of investors including a pension fund in 2012. It has been called a "landmark transaction for private sector infrastructure" in the country.

4.3.6 KASANE (BOTSWANA)

Kasane is situated next to the Chobe Game reserve and 70 km from the Victoria Falls. Since this airport was developed, it grew from a small landing strip to an airport where two AVRO 85 flights with 170 passengers per day is landing. Tourist packages to the game reserve and the waterfalls are offered from Kasane. Two hotels are under construction. The upgrading of the airport serves as an example where it led to a boost in the regional tourism. The runway is 3000m long and 45m wide.

4.3.7 KITTY HAWK

Kitty Hawk aerodrome near Pretoria is a sectional title scheme and managed by a Board of Trustees and a Body Corporate. The Trustees have portfolios such as safety, facilities flying school and projects. An airfield manager and secretary are responsible for everyday management. The ownership of the hangars are in the form of sections in the sectional title scheme similar to a residential title scheme. The day-to-day management is guided by the management and conduct rules of the Body Corporate.

4.3.8 MARGATE

A qualified Air Control Officer was appointed who manages air control with the help of three retired persons who assist after hours and over weekends.

4.3.9 HAMILTON AIRPORT, NEW ZEALAND

Hamilton Airport in New Zealand is situated about 13km from Hamilton, a town about the size of George. It is mainly used as an airport between the main cities in the country and for passengers who want to avoid the busy Auckland airport but it could also handle international flights to Australia. It accommodates about 290 000 passengers per year. The runway is 2.195m long and the main apron is large enough to park 5 A320/737/500 size aircraft.

Private aircraft, the control tower and hangars are on the opposite side of the terminal.



Adjacent to the airport are conference facilities, a motel and sites for mixed industrial and commercial use. Rural lifestyle living occur in the surrounding area.

This airport may resemble a vision of the scale of the Mossel Bay airport in the far future.

Of particular interest is the airport's Noise Management Plan wherein the residents in the life style living area are considered. The Plan is designed to achieve the following objectives:

- Form the basis for the airport's management and mitigation of all aircraft noise at and around the airport
- Facilitate community feedback to and from aircraft operators and the airport operators on noise issues through an Airport Community Liaison Group
- Document procedures and responsibilities for noise management and record outcomes from these procedures
- Increase the community knowledge of airport operations through the distribution of information regarding airport operator activity.
- Set out and adopt a complaints procedure
- Set out a dispute resolution process
- Record agreed noise abatement measures
- Assist in ensuring compliance with the relevant District Plan noise rules.

More information at www.hamiltonairport.co.nz

4.3.10 ASPEN AIRPORT, COLORADO

Aspen Airport is known as a 'county airport' close to the mountain resorts in Colorado in the USA. It has developed over 60 years from a privately owned landing strip to an airport with non-stop flights to and from the major cities in the USA. The runway is 8006 feet long and 100 feet wide. Its scale and regional function gives perspective on the Mossel Bay airport of the future.

More information at <http://aspenairport.com/>

4.2. OPERATIONAL FRAMEWORK

4.2.1 MANAGEMENT

Affective management is the key to solve day to day problems and conflicts. This could be achieved by implementing the recommendations in connection with aspects such as a by-law, aircraft control, ownership, etc hereunder. As substantiated by the case studies above, it is imperative that the management structure comprise of all stakeholders and a smooth communication system.

4.2.2 AIRFLIGHT CONTROL

A form of air flight control is one of the most urgent needs on the airfield that will curtail many of the present contraventions of the air space. The options are a full ATNS (Air Traffic Navigation Service) tower or a AFIS (Aeronautical Flight Information Service). Discussions with pilots and operators revealed that they recommend an AFIS as being more practical and economical for this airfield for the foreseeable future.

Aerodrome flight information service (AFIS) is the term used to describe the provision of information useful for the safe and efficient conduct of aerodrome traffic at those aerodromes designated for use by general aviation.

Basic elements of information provided to aircraft:

- Meteorological information for aircraft about to take off or to land, including SIGMET (Significant meteorological Information), eg. the current surface wind direction and speed, QNH (Query Nautical Height), air temperature, visibility.
- The most suitable runway for use.
- Information that is essential to the safe operation. E.g. current aircraft in the circuit and vicinity, construction or maintenance work.
- Information that is related with aerodrome equipment or radio bearings. eg. navigation aids.
- Any other information or messages contributing to safety.

AFIS units should, to the extent possible, be supplied with the same information as that provided to aerodrome control towers.

- Meteorological Information
- Information on aerodrome conditions and the operational status of associated facilities
- Information on the operational status of navigation aids
- Information on unmanned free balloons

AFIS requirements for communications are:

- Aeronautical mobile service (air-ground communications)
- Air-ground communication facilities should enable direct, rapid, continuous and static-free two-way communications to take place between an AFIS unit and appropriately equipped aircraft operating at any distance within 45 KM (25 NM) of the AFIS aerodrome.
- Aeronautical fixed service

An AFIS should be connected with the associated flight information centre (FIC) or area control centre (ACC).

Airspace designation:

- AFIS should be provided to all IGA (International General Aviation) traffic on the manoeuvring area and to all IGA aircraft flying in the vicinity of the aerodrome.
- The airspace within which AFIS will be provided should be designated as a flight information zone (FIZ) and its lateral and vertical limits specified.

Accommodation and equipment:

- AFIS should be provided from a location where there is the best possible view of the aerodrome and the surrounding area.
- The equipment for the AFIS unit should be similar to the aerodrome control tower.

An Aircraft Control Officer (or two) (ACO) is needed to ensure safety and controlled flight operations. A large number of the incidents of noise disturbance were caused by a lack of control over unscheduled flights and

landings in the past. The cost of employing qualified persons must be budgeted for out of the income of the airport or financed from outside sources. Ideally the ACO must man the AFIS or control tower which will later form part of the planning and development of a new terminal building (see par 3.1.3) but in the interim such ACO can be accommodated in the existing building.

4.2.3 OPERATIONAL SAFETY MANAGEMENT SYSTEM

For effective operations on the airport as well as peaceful existence among stakeholders outside the airport, communication systems must be in place. The way of operating the airport must be documented and contained in a document that is agreed upon and understood by all participants. It will be supplemented by the municipal by-law. In this way a transparent operational system of which each stakeholder can acquaint himself can be maintained and communicated. It is essential that there will be a buy-in from all participants and stakeholders in the operation in what is known as a 'safety culture', i.e. ground staff, pilots, operators and training schools, committee or board members (or Owners' Association or Body Corporate), as well as neighboring stakeholders must understand and support the operational system.

Such a safety management system provides a quality baseline and is essential to monitor operational activities. Should one link in the chain be broken by individuals taking decisions on their own, the entire operation could start taking short cuts to execute their operation. This could lead to violations of the agreements, rules and regulations among stakeholders, including the municipality, airport management and surrounding property owners.

It is therefore recommended that a Memorandum of Understanding between stakeholders be drawn up which must include the internal operational system in the airport. All parties must sign to the agreement.

Safety regulations exist in terms of the Civil Aviation Act.

4.2.4 STAKEHOLDER COMMUNICATION

In terms of the above Memorandum of Understanding regular and clear communication is required. The safety officer, or other responsible staff, and the operators need to meet regularly on safety issues. The airport management and the municipality need to meet frequently and on an ad hoc basis to ensure good relationships. Airport management and the abutting property owners need to meet to discuss and clarify issues, if any.

Many creative ways could be established, eg. a news letter, Facebook page, a What Up group for emergencies, etc. The point to take into account is that the usual AGM and Chairperson's report (once a year) is not sufficient.

4.2.5 INCOME GENERATION AND EXPENDITURE

The airport should be run on a sound commercial basis. The objective with income received, apart from maintenance, should be to 'plough back' into improvements and to save for future expansions. The finances should be run on the same basis as a sectional title scheme with an annual budget and provision in a trust fund for emergencies and for future expansion. In a sectional title scheme no profit is made and withdrawn from the scheme. The municipality should be part of the budgeting process for the current management. In the future, depending what option is chosen for future ownership, the municipality, the private sector and the airport entity will have to budget and fund the future expansion of the airport.

For certain income generating functions a market related rental or price should be charged. Average market related prices that were found in our general survey of small airports were the following:

Selling of fuel: R 14 – 17 per liter. Non-members usually pay R 1 per liter more than members.

Rental of sites for operators and for hangers: R 7 to R12 per m²

Landing fees for non-members are charged in terms of a price list from ACSA according to the maximum take-off weight (MTOW) of the aircraft.

Parking fees: R 24 000 per month without a hanger.

4.2.6 LAND ACQUISITION

The schematic proposals on Plan 4.1 shows that parcels of land from the adjacent farms will have to be acquired or servitudes will have to be registered across them for the runway. The farms that are affected by Phase 3 are Farms 225/3, Rem 337 and 221/1.

4.2.7 SPATIAL PLANNING

A) DEVELOPMENT FRAMEWORK AND URBAN EDGE

Expansion of the airport on adjacent properties will have to go through a process of subdivision and rezoning. The first issue that have to be addressed is provision in the new SDF and either inclusion in the urban edge or special provision for a utility use outside the urban edge.

B) URBAN LAND USES AROUND AIRPORT

Urban development around an airport requires specific land use planning around it; especially with regard to the noise levels, as explained in par 7.2.1.

4.2.8 COST IMPLICATIONS OF RECOMMENDATIONS

Phases 1, 2 and 3 of the proposals in this report have to become part of the Council's IDP and Annual Capital and Operational Budget. The long term vision could extent over 10 to 20 years according to the demand and available funds and should be included in the SDF.

5. LEGAL FRAMEWORK

5.1 LEASE CONTRACT

While the current lease between the Municipality and the Mossel Bay Aero Club (Pty) Ltd runs until 2055, the proposals and long term vision that this study creates, necessitates a reconsideration of this lease. In the interest of the economical advancement of the Mossel Bay community as explained in this study, a new way of thinking about the future management of the airport is eminent.

5.2 VEHICLE FOR OWNERSHIP AND MANAGEMENT

In the light of a new approach about the future management of the airport, the following two options for ownership and management are the most viable, taking into account the interests of the present stakeholders:

Option A: A Section 21 company in which and the municipality, the Aero Club and private enterprise are the shareholders.

Option B: A public/private partnership where the funding from a private enterprise is utilized.

Option C: Combined ownership by means of subdivision into separate erven of the various components (operators/ erven and terminal building) with common property (the runways and other open spaces). The airport will then be run by an Owners Association as legally prescribed for residential estates and group housing. Alternatively a sectional title scheme could be registered in which case the airport will be managed by a Body Corporate with Trustees.

5.3 ZONING

The draft Western Cape Standard Municipal Zoning Scheme by-law of 2014 is currently being revised and the Mossel Bay Municipality will adopt it, probably with amendments of their own, as their new zoning scheme by-law. The airport and any new developments will be zoned in terms of this by-law.

5.4 INTEGRATED DEVELOPMENT PLAN (IDP) AND MOSSEL BAY SPATIAL DEVELOPMENT FRAMEWORK (MSDF)

The Municipal Systems Act stipulates that the municipal SDF is a core component of the IDP. As the municipality is heading into a start of a new five year cycle of the IDP, it is essential to incorporate their new revised SDF into the IDP by 2017. The proposals for the airport should be included in the IDP as part of this five year cycle and budgeted for where appropriate. The spatial proposals should be included in the revised MSDF.

This process is supported by the new Spatial Land Use Management Act (SPLUMA).

5.5 BY-LAW FOR AIRFIELD AND NOISE MANAGEMENT PLAN

Examples of by-laws from other municipalities indicate that a by-law pertaining to airports provides a dedicated legal tool to legalize activities on the airport and prevent undesirable activities. Aspects that can be covered in a by-law are: hours, arrivals and departures, tariffs, access, prohibition of vehicular traffic and pedestrians, conduct of persons, removal of damaged aircraft, supply of fuel to aircraft, tampering with aircraft, use of buildings and hangars, trading, penalties, etc.

Such a by-law may include components of a noise management plan or the latter could consist of a separate document compiled with the inputs from all stakeholders.

5.6 LICENSE OF PASSENGER AND FREIGHT TRANSPORT

Should the airport be extended to cater for passenger and freight transport for revenue, a license for this purpose has to be obtained from the South African Civil Aviation Authority.

6. IMPLEMENTATION ON SITE

6.1 AIRFIELD MANAGEMENT AND LAYOUT

The shortcomings and needs of the airport were pointed out in this report and translated into phases for development in Par 3.4. The practical implementation of these phases are explained hereunder.

6.1.1 PHASE 1.3 - NEGOTIATIONS AND ARRANGEMENTS

In order to determine a clear road map for the future, the various negotiations and arrangements that are discussed below and set out in the Business Plan in par 8, need to take place in the first phase.

6.1.2 PHASE 1.1 – RELOCATE THE HELIPAD FOR MANEUVER TRAINING

This is a relatively easy operation to relocate the training helipad to a position which Starlite Aviation will execute. The position of the threshold of Runway 10 is shown on Plan 4.1. The helicopters will still depart from and return to their building but the maneuvering training will take place further to the west, next to start of the runway. This will lessen the noise levels of the training maneuvers to a large extent.

6.1.3 PHASE 1.2 – INTRODUCTION OF AERONAUTICAL FLIGHT INFORMATION SERVICE (AFIS)

See par 4.2.2 for a description of the AFIS to be introduced.

6.1.4 PHASE 2.1 - INSTALLATION OF AN AUTOMATIC WEATHER STATION

Parallel to this upgrading, the airport needs to ensure that the runway is optimally orientated. In order to determine this it is further recommended that an automatic weather observation station (AWOS) be installed on the airport. The ICAO recommendation in this regard is that airport planners should have five years wind data and at least eight readings should be taken per day. During consultations with both the Aeroclub and Starlite Aviation both requested that an information centre should be established to provide pilots with weather information.

6.1.5 PHASE 2.2 - UPGRADING OF PRESENT RUNWAY

It has been pointed out above that the runway length is adequate for smaller aircraft such as the Cessna 182 currently using the airport frequently and even the Pilatus PC12, Beech 1900 and Cessna Grand Caravan. Some of these aircraft types have used the airport in the past although the facilities do not comply with ICAO recommendations to accommodate them. Shortfalls are a dry pavement surface which needs attention and the runway width should be increased to 23m. (75').

This development could even be phased and a band aid solution will be to seal the cracks, repair deficiencies, spray a rejuvenator and repaint all the markings. At a later stage a slurry seal over the entire runway can be applied. As soon as a contract is in place with a scheduled operator and he demands or CAA insists that Mossel Bay must comply with ICAO recommendations to operate a scheduled service, the widening could be done. This phase will allow the airport to determine the need and desirability to accommodate small scheduled operations in Phase 3.

6.1.6 PHASE 3.1 - UPGRADE OF THE AIRPORT TO ACCOMMODATE LARGER AIRCRAFT

A prerequisite for this phase is that reliable weather data is accumulated over a period of at least five years as recommended as part of Phase 2 above. The required runway length to be constructed shall be the balanced field length for the design aircraft, adjusted for temperature and elevation plus 10% and is calculated at 1500m long and 23m wide.

6.1.7 PHASE 3.2 - APRON

The airport has one small apron in front of the clubhouse. The apron is not marked out and would have to be redeveloped in total with any airport upgrade. Small aircraft as envisaged to be accommodated during the Phase 2 development should be able to be accommodated on the current apron. Should the market indicate that it is

feasible to operate with larger aircraft in the long run, provision is made to develop a new apron and terminal complex, parking terrain and direct access from the N2 west of the current landside airport developments.

6.1.8 PHASE 3.2 TERMINAL BUILDING

Mossel Bay Airport does not have a terminal building. The Aeroclub has a small clubhouse building with a single office on the first floor. Depending on the lease conditions, the possibility to utilize this building to process passengers could be investigated. During the first phase of the development the magnitude of the operations is so small that passengers could be screened just before boarding. The public area in the building is large enough to provide seating for the passengers could be screened with their bags when they leave the terminal for the aircraft using a walk through detector plus baggage screener.

An alternative would be to plan and develop a small terminal building. An option for such a building would be between the Aeroclub and the fuel depot but very limited land is available in this location and the apron is also fairly small. Alternatively, should it be necessary to develop such a building with a long term view, a location west of Starlite's main hangar will be suitable. If this option is implemented, an additional taxiway should also be developed from the middle of the current runway perpendicular to the runway plus a small apron with the building. Initially the arrivals and departure halls could even be combined and the only other facilities required will be ablution facilities, security screening (which can be done at the gate prior to exiting the public area onto the apron) and two offices. The offices will be used by the airline serving Mossel Bay and the Municipality.

6.2 LAND USE LAYOUT

Plans 3.1 and 4.1 indicate a schematic lay-out of the proposed future uses described above. It serves as a guide for short term consideration of applications for hangars and airport related uses and long term planning of future uses.

6.3 ROAD ACCESS

The present access road through Aalwyndal is inadequate and in the light of the long term prospective of more activities on an extended airport, an alternative road access has to be found. The Roads Master Plan shows a number of main roads in a grid for the area western of the airport. One of the obvious roads in a south-north direction will require an interchange from the N2 and will be costly to provide without other development to assist in justifying the cost. A more practical access for the medium term is a road from the R327 at Moss gas in a west-east direction to the terminal building, existing or new.

6.4 INFRASTRUCTURE CAPACITY AND PROPOSED EXTENSIONS

6.4.1 WATER

A 50mm connection out of a 110mm municipal network exists. The 110mm pipe should be adequate for at least a doubling of the existing facility. Connection pipes, internal pipe and fire lay outs will have to be upgraded.

6.4.2 SEWERAGE

The existing system of septic tanks and conservation tanks could be extended, but in the long run a connection to the closest municipal sewerage system or the erection of a package plant have to be considered. It appears as if the closest point is probably at the nearest residential development 2,5 km away.

6.4.3 STORM WATER

Storm water will have to be disposed of to the closest natural drainage areas by means of channels, pipes and outlets with the necessary protection against erosion.

6.4.4 ELECTRICITY

The Mossel Bay Airfield is located between the Duinzicht and Intake 66/11 kV substations. A 11 kV overhead line is feeding the airport. It is envisaged that with the Phase 1 runway development to accommodate small 20 seater scheduled flights the total power requirements will increased to 0.5 MVA and with the Phase 3 upgrade of the airport to accommodate larger aircraft the total power requirements will increased to 1 MVA. A Tie Feeder between Intake and Duinzicht substation needs to be built, with a switching substation at the Mossel Bay Airport.

6.5 MANAGEMENT OF HANGARS

The erection of hangars will be on-going and must be subject to proper management in terms of the zoning scheme as for any building in town.

The following recommendations are made, some of which should be incorporated in the zoning scheme:

- Place limitations on sites C8, D10 and D11 or redesign the layout as the taxiway is becoming too narrow at that point – see explanation in par 3.2.2.
- Re-survey all existing hangars and buildings and compile a new layout plan.
- A special zone for the land uses to be permitted on the airport should be created. Land uses must be clearly described to avoid misinterpretation. They could include storage of aircrafts and related equipment and implements, repair work to aircraft, training facilities and tourism related uses such as the Skydivers and other flying related tourism operations.
- Spaces inside buildings could include storage and work space, ablutions, limited office space related to the primary use, training and lecture rooms. Accommodation could be carefully considered but should be limited to only overnight sleeping by a night guard.
- The owner of a hangar must provide full information on the intended usage of a hangar when submitting building plan. When sold or sub-letting to successor, information on the new usage must again be provided. The Council may impose further conditions on the usage of the hangar.
- For formality and to avoid disputes, a declaration should be signed that the owner is aware of the conditions imposed and the stipulations of the zoning scheme.
- The development parameters would form part of the zone in the zoning scheme that is dedicated to uses and buildings on the airfield. The maximum size and height is important with regard to scale and visual impact. The following could be considered but may need further discussion with operators:

Maximum size: 900m²

Height: 8.5m

(Currently the two largest buildings on the airfield are between 700 and 800 m² in extent).

7. POTENTIAL IMPACT OF PROPOSED FUTURE AIRPORT OPERATIONS

7.1 ENVIRONMENTAL IMPACT

The future expansion of the Mossel Bay Airport and the surrounding area must take place in accordance with the applicable legislation at the time. Available data shows that the natural expansion and / or development of the

Mossel Bay Airport and the surrounding area should be undertaken towards the north and west of the airport. This is due to the fact that the natural valleys (aquatic features) and the N2 National Road create barriers towards the south while the existing Aalwyndal and Mossel Bay (Voorbaai area) create a barrier towards the east.

Development must however take into consideration the fine scale planning data for the Mossel Bay Municipality. According to the fine scale planning the areas towards the north and west consists of areas which have been mapped as either Critical Biodiversity Areas (CBA), Other Natural Areas (ONA) or No Natural Remaining (NNR). The CBAs are earmarked for rehabilitation and to maintain natural land, while the ONA and NNR indicate that those areas are land favoured for development. See the Fine Scale Planning Map for the Mossel Bay Airport and surrounding areas below.

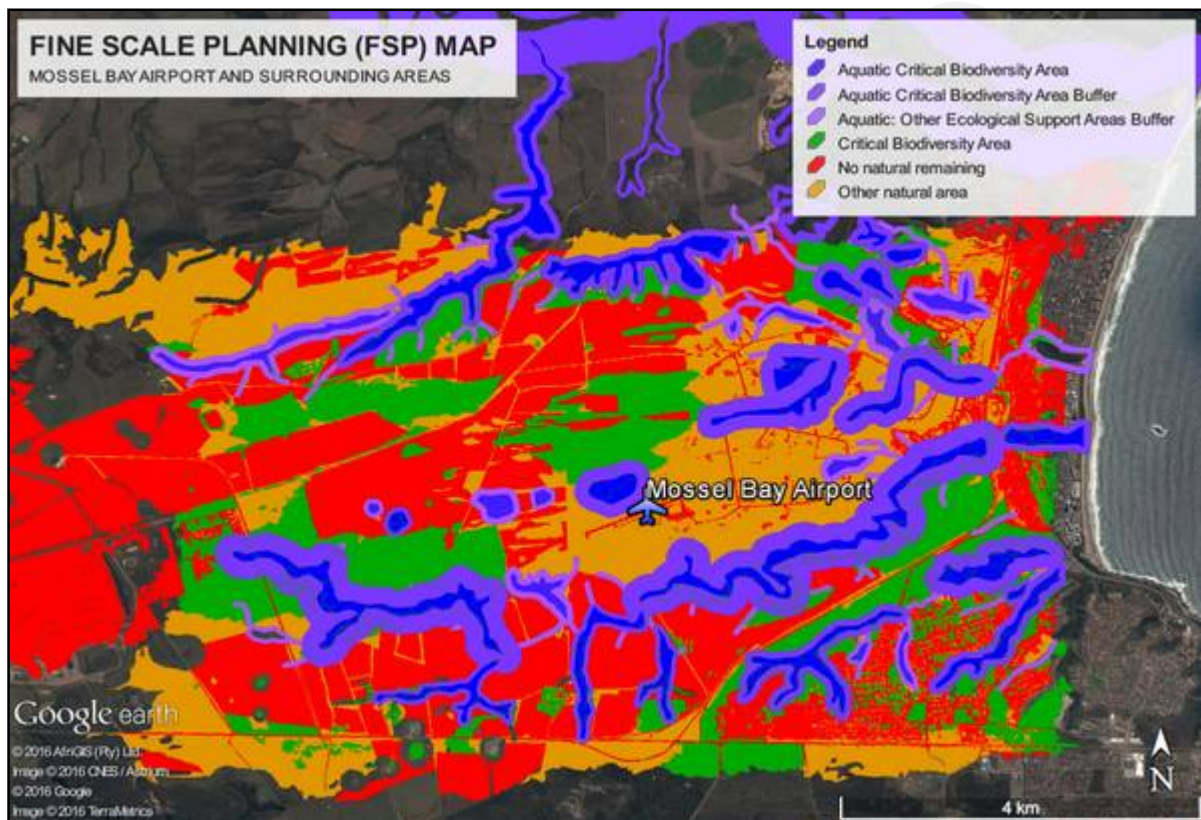


Figure 1: Fine Scale Planning map for the Mossel Bay Airport and surrounding Areas

The Environmental Impact Assessment (EIA) Regulations, 2014 (GN No. R 982-985 of December 2014 as amended), identify those activities ("Listed Activities") that require Environmental Authorisation before such activities can be undertaken, and also describes the environmental impact assessment process that must be followed to apply for Environmental Authorisation. The EIA Regulations make provision for two different EIA processes, namely (1) Basic Assessment and (2) Scoping & Environmental Impact Reporting (S&EIR) depending on which listed activities are triggered. Specifically the following listed activities must be considered.

LISTING NOTICE 1 (GN No. R983): Basic Assessment	
Activity #	Description of Activity

12	The development of- (vi) bulk storm water outlet structures exceeding 100 square metres in size;(x) buildings exceeding 100 square metres in size; (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs- within a watercourse; in front of a development setback; or if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;
19	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from- a watercourse; the seashore; or the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater but excluding where such infilling, depositing, dredging, excavation, removal or moving- will occur behind a development setback; is for maintenance purposes undertaken in accordance with a maintenance management plan; or falls within the ambit of activity 21 in this Notice, in which case that activity applies.
24	The development of – a road for with a reserve wider than 13.5 meters, or where no reserve exists where the road is wider than 8 metres but excluding – (b) where the entire road falls with the urban area
27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for - undertaking of a linear activity; or maintenance purposes undertaken in accordance with a maintenance management plan.
LISTING NOTICE 3 (GN No. R985): Basic Assessment	
7	The development of aircraft landing strips and runways 1.4 kilometres and shorter. (f) In Western Cape: (i) All areas outside urban areas.
19	The expansion of runways or aircraft landing strips where the expanded runways or aircraft landing strips will be longer than 1.4 kilometres in length. (f) In Western Cape: (i) All areas outside urban areas.
LISTING NOTICE 2 (GN No. R984): Scoping & Environmental Impact Reporting	
8	The development of - (i) airports, or (ii) runways or aircraft landing strips longer than 1.4 kilometres.
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – the undertaking of a linear activity; or maintenance purposes undertaken in accordance with a maintenance management plan

Note that other listed activities may also apply depending on the type of development or expansion proposed.

IMPACTS ASSOCIATED WITH THE EXPANSION OR DEVELOPMENT OF THE AREA:

- Increase in noise

Depending on the type of expansion or development, noise will increase as a result. Industrial uses will have a more significant impact compared to residential land uses. Expansion of the airport to accommodate bigger aircraft will also result in an increase in noise levels, depending of the type of aircraft – see par 7.2 below.

- Loss of vegetation

Any expansion or development will entail the clearance of vegetation. The vegetation however is not considered sensitive and forms part of the North Langeberg Sandstone Fynbos (FFs15) vegetation unit which has a conservation status of Least Threatened. A specialist botanical / biodiversity assessment may be required as part of an Environmental Impact Assessment, depending on the size of the area to be cleared. This may lead to areas being excluded from the development footprint.

- Aquatic impact

A number of aquatic features have been mapped in the vicinity of the Mossel Bay Airport. Towards the south these are mainly seeps (associated with the valleys below) and depressions towards the north and northwest of the Mossel Bay Airport. Expansion or development should aim to avoid these areas, if possible. The significance of the impact on the seeps are considered high while the significance of the impact on the depressions is considered medium, depending on the type of expansion or development. Depending of the type of impact an authorisation in terms of Section 21 the National Water Act, Act 36 of 1998, may be required. The competent authority in this regard is the Breede-Gouritz Catchment Management Agency.

- Socio-economic impact

Expansion or development of the airport and the surrounding area will lead to positive socio-economic impacts as a number of job opportunities will be created during the construction phase. The expansion of the airport will also have its positive spin-offs during the operational phase particularly with regard to the training of pilots and the number of event currently being held at the airport.

- Increase in traffic

A definite increase in traffic volumes will be experienced as a result of the possible expansion or development. Depending on the type and size of the land uses (e.g. residential, industrial, etc.) traffic may increase significantly. Mitigation will entail a new access road. – see par 6.3.

- Impact on heritage resources

Archaeological resources may be unearthed during construction activities. A Notification of Intent to Development (NID) must be submitted to Heritage Western Cape who will indicate whether further heritage related studies will be required. The NID must be submitted prior to any construction activities. A NID needs to be submitted if any of the activities as listed in Section 38(1) of the National Heritage Resources Act, Act 25 of 1999, is triggered.

- Visual impact

Except for the existing Mossel Bay Airport and the low density plots in Aalwyndal, there is little development in the area. Expansion or development in the area will therefore have a considerable visual impact. This is especially true if any development will take place towards the south as it will be closer to the N2 National Road. The visual impact is considered to be more significant at night due to the increased lighting of the area.

The above is a short summary of the various aspects which need to be considered if the airport is to be expanded. Due to the many “unknowns” of the possible expansion it is difficult to define exactly what the impact will be and its effect on the receiving environment.

7.2 SOUND LEVELS AND POTENTIAL NOISE

For a detailed analysis of the predicted noise levels , see Annexure A by Dr P Goldschagg as well as the report included in the SQ.

7.2.1 APPROACH

The Federal Aviation Administration’s (FAA) Integrated Noise Model (INM) Version 7.0d was used to calculate aircraft noise contours for Mossel Bay Airport. The applied methodology corresponds with the requirements of SANS 10117, SANS 10103, and third draft of the draft National Policy on Airport Noise and Emissions published in March 2005. Three scenarios were modelled and are discussed:

1. Scenario 1: Mossel Bay’s current runway and helipad layout, with a traffic usage of:
 - o 80 Helicopter circuits and 30 transit flights to the general flying training area per day
 - o 15 Single engine fixed wing circuits and five arrivals and departures per day
2. Scenario 2: Mossel Bay’s current runway, but with a training helipad relocated to slightly north of the threshold of runway 10 and the same traffic usage mix as Scenario 1
3. Scenario 3: Assumes a new 2000 meter long runway constructed parallel to the existing runway (which becomes a taxiway), 176 meters to the north. This runway option permits passenger airliner 50 seater aircraft operations. This option includes projected traffic of:
 - o 80 Helicopter circuits and 30 transit flights to the general flying training area per day
 - o 15 Single engine fixed wing circuits and five arrivals and departures per day
 - o Two Dash 8 and three CRJ regional airliner flights per day.

The calculated noise contours extend to the east and west from the airport in line with the extended runway centreline and are caused by aircraft and helicopters during the takeoff and landing stages of flight. To the north of the airport is a narrow elliptical lobe which aligns with flight paths followed by helicopters operating training flights in the elliptical training circuit and routing to and from the general flying training area. (Helicopter students initially fly a wider familiarisation circuit, followed by a tighter elliptical circuit once students have gained initial experience). The noise impact decreases with increasing distance from the airport to varying degrees. For land use planning, the day/night 50 L_{Rdn} contour is recommended as the reference contour for suburban districts with little road traffic as is the case in Aalwyndal. The 50 L_{Rdn} contour in all three scenarios extends in line with the runway’s orientation beyond the airport boundary into Aalwyndal by about 2500m, and is caused by aircraft and helicopters overhead during landing and taking off.

Should Aalwyndal develop into a residential area by means of densification as explained in par 3.3, the 55 L_{Rdn} will be become the ‘cut off’ line for residential uses. Inside this noise contour non-residential uses may be permitted.

To the north, the noise (caused by helicopters operating training circuits close to the ground) creates an elongated elliptical noise lobe. The Scenario 2 contour (based on a training helipad located near the threshold of Runway 10) resembles the Scenario 1 contour, but with a slight decrease in size of the noise contour to the east, and an increase to the west.

In both Scenario 1 and 2, to the north of the airport, the contour extends into a relatively undeveloped land area where helicopters would operate overhead regularly; to the south, sideline noise would be heard from helicopters and fixed wing aircraft landing or taking off.

In both scenarios, to the west of the airport, where the land is largely currently undeveloped, the 50 L_{Rdn} contour, lies approximately 2.6km beyond the current airport boundary.

The average-energy day/night contours represent an assumed annual average day of operations in the first two scenarios with the principal difference being a relocation of the helipad to the west. The third scenario represents a proposed new runway constructed 176 metres to the north, and parallel to the existing runway. The contours are not intended to illustrate noise generated by individual aircraft or aircraft which deviate from the generalised flight tracks, due to operational air traffic control requirements, adverse weather conditions or for any other reason. Additional modelling (not within the scope of this study) may be conducted in the future to illustrate individual aircraft maximum noise levels and possible alternative flight paths.

7.2.2 PROPOSALS FOR LAND DEVELOPMENT AROUND THE AIRPORT

Averaged noise contours are only a tool to illustrate the general size and extent of affected impact areas. To be of value for airport noise studies and land use planning, they should be applied with discretion and with attention to their nature, limitations and underlying assumptions.

The following recommendations for consideration regarding land zoning and development, based on SANS 10103 are made:

1. Further residential development of the land in the area enclosed by or immediately bordering the 50 L_{Rdn} contour should proceed with caution given the likely aircraft noise levels.
2. The land in the area enclosed by the 55 L_{Rdn} noise contour may be rezoned to Commercial / Industrial rights (assuming the residential development of Aalwyndal) with an allowed noise profile of greater than 65 L_{Rdn} to encourage gradual change away from residential occupation.

7.2.3 NOISE MITIGATING AND NOISE ABATEMENT PROCEDURES

Although there is currently no Air Traffic Control at the airport, in the future, controllers may enforce measures to lessen the impact of noise on the environment. The application of the noise mitigation procedures should be balanced against flight safety, costs, aircraft operator inconvenience and noise impact. These noise mitigation measures are discussed in the report. Scenario 2 with the relocation of the helipad for manoeuvring purposes will also lessen the impact of noise from these training aircraft.

7.3 TRAFFIC

When a new access road from the west is provided the traffic impact on the present road through Aalwyndal will be eliminated. This access should form part of the Phase 3 development.

7.4 ECONOMIC IMPACT

The implementation of the three phases will have the following impacts on the Mossel Bay economy:

- Construction Phase

The impacts during the construction of the various components will result in temporary impacts (i.e. only for the duration of the construction of the components). These impacts will mainly be linked to increased economic contribution (GGP), increased production (business sales), new job opportunities created and increased income. The economic sectors that will mainly be affected during this phase is construction and manufacturing.

- Operational Phase

During the operational phase the impacts of the expansion proposals will also be experienced through increased economic contribution (GGP), increased production (business sales), new job opportunities created and increased income. These impacts will be permanent in nature and will have a lasting effect on the Mossel Bay economy. As a result of these expansions it is also important to note that the following will be unlocked:

- a) Increased Tourism

Improvement of the functionality and safety of the Mossel Bay Airfield will increase opportunities to host events and attract more people to the broader area. Events have the opportunity to expand the tourism attraction of Mossel Bay, which will not only benefit the airport but the area as a whole. Once the airport is expanded it also allows Mossel Bay to become more connected i.e. the area as a whole will be better accessible and therefore more attractive to visit.

- b) Economic Stimulation

As indicated in the Economic Impact Report, the airport and its activities are driving growth in the leading economic sectors of the municipal area. These economic sectors include (1) financial insurance, real estate and business services, (2) wholesale retail and trade, catering and accommodation, (3) manufacturing sector, and (4) general government services. Therefore, by increasing the operational capacity of the airport this will also lead to increase in the major economic sectors of the municipality. Future expansion of the airport could also assist in expanding economic opportunities such as exporting produce.

8. BUSINESS PLAN

The execution of the various proposals in this report must be based on a thorough business plan that ranges from the broad principles to the finer detail. All actions need to be taken in co-ordination with each other with the long term objectives in mind and not as ad-hoc projects. In the table below all the actions and steps that are discussed in this report are listed with the action that needs to be taken by which stakeholder. The role of the private sector still has to be determined after marketing the concept to them.

There are however certain actions that could be taken immediately to impact the current situation. These are listed below to be perused before the action plan is introduced:

IMMEDIATE ACTIONS

No	Item	Stakeholders involved	Action to be initiated by whom
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1	Adopt proposals of the airport study	Council	Council
2	Establish a Steering Committee	Council, Aero Club, operators, Aalwyndal residents	Council
3	Workshop the best way to implement the plan and to address identified problems	Council, Aero Club, operators, Aalwyndal residents	Council
4	Compile a project plan for implementation of Phase 1	Council, Aero Club, operators, Aalwyndal residents	Council

As stated elsewhere the following Action Plan should form part of the Council's IDP and Budget.

ACTION PLAN

No	Item	Reference	Stakeholders involved	Action to be initiated by whom	Cost
PHASE 1					
1	Approve and adopt the airport proposals as part of the IDP and spatial planning objectives	Whole study on airport	Council, Aero Club, operators, Aalwyndal residents	Council	
2	Relocate helipad for maneuvering purposes		Aero Club, Starlite	Starlite	
3	Summit on future ownership and management of airport	5.1, 5.2	Council, Aero Club	Council	
4	Memorandum of Understanding on safety and communication	4.2.3, 4.2.4	Council, Aero Club, operators, Aalwyndal residents	Council	
5	Municipal By-law pertaining to airport	5.4	Council, Aero Club, operators	Council	
6	Appoint Air Control Officer and assistants	4.2.2	Council, Aero Club, Starlite	Aero Club	R 432 000
7	Revise site layout for hangars to allow for sufficient width for taxiway reserve	3.2.2	Council, Aero Club	Aero Club	
8	Acquire a public license to transport passenger and freight income from the CAA	5.5	Council, Aero Club	Aero Club	
9	Establish a liaison committee between ACSA and the Municipality to		Council	Council	

	explore joint opportunities between George and Mossel Bay				
10	Attract a small scheduled operator to start operating into the airport		Council	Council	
11	Budget for above actions		Council	Council	R 100 000
	TOTAL BUDGET PHASE 1				R 532 000
PHASE 2					
12	Budget for Phase 2 – upgrading of runway	Annexure B	Council, private sector	Council, private sector	R 11 089 027
113	Rehabilitate electrical installation	Annexure B	Council, Aero Club	Council	R 2 884 200
13	Investigate long term road access and land requirements for Phase 3	4.2.6, 6.3,	Council, Aero Club	Council	R 200 000
14	Acquire and install AFIS and weather control station (AWOS)	6.11	Council, Aero Club, Starlite	Council	(R 2m included in R 11.1 above)
	TOTAL BUDGET PHASE 2				R 14 173 227
PHASE 3					
15	Budget for Phase 3: new parallel runway, new apron and buildings	Annexure B	Starlite, Aero Club, Aalwyndal residents, Council	Starlite, private sector	R 116 880 798
	TOTAL BUDGET PHASE 3				R 116 880 798

The estimated costing for Phases 1, 2 and 3 are shown in Annexure B.

9. CONCLUSION

The study has shown that the Mossel Bay Airfield in its current capacity contributes significantly to the Mossel Bay economy and employment creation. This is displayed by the total impact of the airport (including direct, indirect and induced impacts). The growth of the Mossel Bay Airfield is mainly driven by the growth of the economic activities located at the airport which in return is driven by the locational attributes of the airport, the ability to unlock opportunities for niche markets and unlocking its full potential within the regional context of airports.

Therefore, by retaining and developing the airfield into an airport, it has the potential to remain and become a large economical asset for Mossel Bay with advantages for employment and job creation as well as investment from elsewhere into the town. Positive leadership from the decision makers will ensure a sustainable asset for generations to come.

REFERENCES

- South African Civil Aviation Act, Act 13 of 2009
- ICAO Annex 14 Standards and Recommended Practices volume 1 Aerodromes
- South African Civil Aviation Authority: Aeronautical information Publication October 2012

- South African Civil Aviation Authority: Aeronautical information Publication October 2012, revision in respect of
- Mossel Bay information, October 2013 regarding George information, January 2012 regarding Plettenberg Bay
- South African Weather Bureau
- ICAO Annex 14 Standards and Recommended Practices volume 1 Aerodromes
- South African Department of Transport: National Airports Development Plan
- ACSA website
- National Spatial Planning and Land Use Management Act, no 16 of 2013 (SPLUMA)
- Western Cape Land Use Spatial Planning Act, no 3 of 2014 (LUPA)
- Mossel Bay Spatial Development Framework, 2013
- Communications with officials, managers and consultants from the Worcester, Stellenbosch, Kitty Hawk and Wonderboom Airports

ⁱ ICAO Annex 14 Standards and Recommended Practices volume 1 Aerodromes

ANNEXURE A

MOSSEL BAY AIRPORT

REPORT ON PREDICTED NOISE CONTOURS

dr Paul Goldschagg

12 August 2016



EXECUTIVE SUMMARY

Mossel Bay Airport Noise Contours – Summary

The purpose of this document is to report on airport noise as a result of aircraft and helicopter operations around Mossel Bay Airport. The Federal Aviation Administration's (FAA) Integrated Noise Model (INM) Version 7.0d was used to calculate aircraft noise contours for Mossel Bay Airport. The applied methodology corresponds with the requirements of SANS 10117, SANS 10103, and third draft of the draft National Policy on Airport Noise and Emissions published in March 2005. Three scenarios were modelled and are discussed:

1. Scenario 1: Mossel Bay's current runway and helipad layout, with a traffic usage of:
 - o 80 helicopter circuits and 30 transit flights to the general flying training area per day
 - o 15 Single engine fixed wing circuits and five arrivals and departures per day
2. Scenario 2: Mossel Bay's current runway, but with a training helipad relocated to slightly north of the threshold of Runway 10 and the same traffic usage mix as Scenario 1
3. Scenario 3: Assumes a new 2000 meter long runway constructed parallel to the existing runway (which becomes a taxiway), 176 meters to the north. This runway option permits passenger airliner 50 seater aircraft operations. This option includes projected traffic of:
 - o 80 helicopter circuits and 30 transit flights to the general flying training area per day
 - o 15 Single engine fixed wing circuits and five arrivals and departures per day
 - o Two Dash 8 and three CRJ regional airliner flights per day.

The calculated noise contours extend to the east and west from the airport in line with the extended runway centreline and are caused by aircraft and helicopters during the takeoff and landing stages of flight. To the north of the airport is a narrow elliptical lobe which aligns with flight paths followed by helicopters operating training flights in the elliptical training circuit and routing to and from the general flying training area. (Helicopter students initially fly a wider familiarisation circuit, followed by a tighter elliptical circuit once students have gained initial experience). The noise impact decreases with increasing distance from the airport to varying degrees. For land use planning, the day/night 50 L_{Rdn} contour is recommended as the reference contour for suburban districts with little road traffic as is the case in Aalwyndal. The 50 L_{Rdn} contour in all three scenarios extends in line with the runway's orientation beyond the airport boundary into Aalwyndal by about 2500m, and is caused by aircraft and helicopters overhead during landing and taking off. To the north, the noise (caused by helicopters operating training circuits close to the ground) creates an elongated elliptical noise lobe. The Scenario 2 contour (based on a training helipad located near the threshold of Runway 10) resembles the Scenario 1 contour, but with a slight decrease in size of the noise contour to the east, and an increase to the west.

In both Scenario 1 and 2, to the north of the airport, the contour extends into a relatively undeveloped land area where helicopters would operate overhead regularly; to the south, sideline noise would be heard from helicopters and fixed wing aircraft landing or taking off.

In both scenarios, to the west of the airport, where the land is largely currently undeveloped, the 50 L_{Rdn} contour, lies approximately 2.6km beyond the current airport boundary.

The average-energy day/night contours represent an assumed annual average day of operations in the first two scenarios with the principal difference being a relocation of the helipad to the west. The third scenario represents a proposed new runway constructed 176 metres to the north, and parallel to the existing runway. The contours are not intended to illustrate noise generated by individual aircraft or aircraft which deviate from the generalised flight tracks, due to operational air traffic control requirements, adverse weather conditions or for any other reason. Additional

modelling (not within the scope of this study) may be conducted in the future to illustrate individual aircraft maximum noise levels and possible alternative flight paths.

Proposals for Land Development around the Airport

Averaged noise contours are only a tool to illustrate the general size and extent of affected impact areas. To be of value for airport noise studies and land use planning, they should be applied with discretion and with attention to their nature, limitations and underlying assumptions.

The following recommendations for consideration regarding land zoning and development, based on SANS 10103 are made:

1. Further residential development of the land in the area enclosed by or immediately bordering the 50 L_{Rdn} contour should proceed with caution given the likely aircraft noise levels.
2. The land in the area enclosed by the 50 L_{Rdn} noise contour may be rezoned to Commercial / Industrial rights with an allowed noise profile of greater than 65 L_{Rdn} to encourage gradual change away from residential occupation.

Noise Mitigating and noise abatement procedures

Although there is currently no Air Traffic Control at the airport, in the future, controllers may enforce measures to lessen the impact of noise on the environment. The application of the noise mitigation procedures should be balanced against flight safety, costs, aircraft operator inconvenience and noise impact. These noise mitigation measures are discussed in the report.

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1 LIST OF ABBREVIATIONS

SANS	South African National Standards
FAA	Federal Aviation Administration
INM	Integrated Noise Model
ICAO	International Civil Aviation Organisation
L _{Rdn}	Equivalent Continuous Day/Night Rating Level
LAMAX	Maximum Aircraft Noise Level
NM	Nautical Miles
MTOW	Maximum Take Off Weight
AMSL	Above Mean Sea Level
SID	Standard Instrument Departures
STAR	Standard Terminal Arrival Routes

2 INTRODUCTION

This section provides a background to the study, and describes the terms of reference requirements.

This study calculates the $L_{R,dn}$ airport noise contours for Mossel Bay Airport for three scenarios:

1. Scenario 1: Mossel Bay's current runway and helipad layout, with a traffic usage of:
 - o 80 helicopter circuits and 30 transit flights to the general flying training area per day
 - o 15 Single engine fixed wing circuits and five arrivals and departures per day
2. Scenario 2: Mossel Bay's current runway, but with a training helipad relocated to slightly north of the threshold of Runway 10 and the same traffic usage mix as Scenario 1
3. Scenario 3: Assumes a new 2000 meter long runway constructed parallel to the existing runway (which becomes a taxiway), 176 meters to the north. This runway option permits passenger airliner (up to 50 seater aircraft) operations. This option includes projected traffic of
 - o 80 helicopter circuits and 30 transit flights to the general flying training area per day
 - o 15 Single engine fixed wing circuits and five arrivals and departures per day
 - o Two Dash 8 aircraft and three CRJ's per day

Noise by definition is unwanted sound. In this report the two terms may be used interchangeably.

2.1 BACKGROUND TO THE STUDY

Mossel Bay Airport is situated to the west of the suburb of Aalwyndal in Mossel Bay. The airport has a 1000m long x 19m wide runway which is aligned on a magnetic heading of 100 degrees and a reciprocal heading of 280 degrees. For runway naming purposes as is convention in aviation, the last numeral is dropped from the headings to give the runway numbers – hence Runway 10 and Runway 28. The airfield has a disused dirt cross runway which was not incorporated into this study.

WM de Kock Associates were appointed to prepare a Master Plan in order to determine the future development possibilities for the airport. A situational analysis of the likely trends in air traffic, for both passengers and cargo, has been undertaken by the consultants. Traffic forecasts are made for three scenarios, and strategic runway options for the future Master Plan developed.

An indication of the noise contours likely to be associated with the predicted change in forecast aircraft and helicopter traffic, likely aircraft and helicopter types and runway and heliport infrastructure is required by the Mossel Bay Municipality, in order to understand the noise impact on the surrounding land users, and plan accordingly for the future. This study establishes where the predicted present and future noise impact from aircraft and helicopter operations is likely to occur. (For the rest of this report, the term aircraft may be used to describe both fixed wing and rotary wing or helicopters.)

2.2 TERMS OF REFERENCE

The requirement for the study was to establish and assess the 50dBA $L_{R,dn}$ outdoor equivalent continuous day/night rating level ($L_{R,dn}$) as calculated for an annual average condition, around the airport, for three scenarios according to the procedure as stipulated in South African National Standard (SANS) 10117 for the air traffic density currently using the airport, and for future growth with a planned runway relocation.

Information was sought (through discussions with the airport lessee (Mossel Bay Aero Club) and Starlite Aviation), to determine aircraft and helicopter movements and flight tracks which are required for noise modelling. Detailed recordkeeping of aircraft flight tracks is not presently maintained. However, the airport users are very familiar with aircraft

operations and their extensive knowledge and insight was incorporated into the study to design flight tracks and allocate aircraft flights accordingly.

3 AIRPORT BACKGROUND

Mossel Bay Airport is located in Mossel Bay in the Western Cape, and is surrounded by mixed low density suburban residential land (to the east) and undeveloped or agricultural land to the north, east and south. The airport is presently fairly quiet in terms of fixed wing flight movements but is fairly busy with helicopter training flights. A mix of general aviation, business aviation, skydiving and fixed wing and helicopter training flights comprise most flight operations.

The airport is unmanned meaning that air traffic is not regulated by local air traffic controllers (ATC). Pilots are responsible for maintaining safe operational procedures and aircraft separation. By agreement, helicopter operations take place to the north of the airport, and fixed wing operations to the south. There is a restriction on flights over the Mossdustria industrial complex between approximately 3 kilometres and 6 kilometres to the west. There are also altitude restrictions due to George Airport airspace to the east. Unnecessary low flying is discouraged due to ostrich farming and a horse riding school.

3.1 SCENARIOS CONSIDERED BY THE NOISE STUDY

Three scenarios were envisaged, namely the present contour as a baseline, and future predicted aircraft operational scenarios representing predicted operations for a relocated training helipad, and a new runway to be constructed parallel to, and 176 metres north of the existing strip.

3.2 FLIGHT FREQUENCY PREDICTIONS

Air traffic movement data are an important component of the noise modelling process. Traffic records for helicopter flight operations were provided by Starlight Aviation and the consulting team. Mossel Bay Aeroclub and Skydive Mossel Bay provided insights into flight operations and flight track details.

The air traffic data was processed and coded for capture into the aircraft noise modelling software. Operations were grouped according to aircraft type, runway used, operation type (takeoff, landing, circuit), and origin or destination of the flight.

4 GENERAL INFORMATION

4.1 CALCULATION OF NOISE LEVELS

The aircraft noise contours around Mossel Bay Airport were calculated with the latest available release (i.e. 7.0d) of the Integrated Noise Model (INM), maintained and distributed by the Federal Aviation Administration (FAA). The INM is prescribed in the South African National Standards document SANS 10117, '*Calculation and prediction of aircraft noise around airports for land use purposes*'. The INM incorporates a noise-power-distance database of performance related noise emission levels for a large variety of aircraft types, obtained from ICAO certification data. The model uses this data to mathematically estimate the noise level at grid points on the ground caused by an aircraft under specific operating conditions. The noise values at these grid points on the ground are scrutinised. Noise levels at points with the same values are identified, and lines representing the noise contours are used to join these points. The various factors that influence the propagation of sound energy, i.e. the directionality of noise emissions, distance of the aircraft from the point and meteorological conditions prevalent at the airport and the associated airspace are included in the calculation.

4.2 PARAMETERS THAT DETERMINE AIRCRAFT SOUND LEVELS

The modelled sound caused by an aircraft take-off or landing is mainly determined by the following parameters:

- The flight track of arriving and departing aircraft.
- The flight profile (height, configuration and power settings) of arriving and departing aircraft.
- The type of aircraft in terms of its aerodynamic characteristics.
- The weight of the aircraft (in the case of departures, quantified by the distance to destination).
- The manufacturer and type of the engines.
- The certified noise level of the aircraft.
- The time of arrival and departure.
- The wind direction and aircraft landing and departure routes.
- The meteorological conditions at the airport.

These properties are taken into consideration by the INM. There are a number of other localised effects, which may influence noise levels, but are not considered by the INM.

These include:

- The screening effect of buildings and other objects.
- The effect of topography on sound propagation.
- The contribution of other noise sources, e.g. road traffic, industry, etc.
- Localised specific weather phenomena

4.3 QUANTIFYING AIRCRAFT NOISE

4.3.1 The Equivalent Continuous Day/Night Rating Level (L_{Rdn})

Noise in general, and from aircraft in particular, has many dimensions that may influence the reaction of people. These reactions relate to the amplitude or 'loudness' of the noise, the sensitivity of the ear to different frequencies, the frequency of occurrence of noise intrusions, the time of day and overall number of those intrusions. Furthermore, research has shown that some people are more sensitive than others to an identical noise which may provoke a reaction not seen in those less sensitive.

However, for land planning purposes it is South African (and international) practice to express aircraft noise in terms of an integrated, or energy-averaged, noise level over a period of 24 hours. The noise level is determined for the typical operational conditions at the airport. The energy averaged noise contour has a weighting of 10dB applied to night flights which is intended to take into account the additional disturbance people experience from flights at these times. The energy averaged noise contour is therefore a type of Day-Night-Level.

In order to effectively integrate with other South African noise related documents, this Day-Night-Level is called the Equivalent Continuous Day/Night Rating Level (L_{Rdn}) in the South African context. 'Day' is defined as being from 06:00 to 22:00, and 'Night' from 22:00 to 06:00. A weighting of 10 dB is applied to flights during the night period. No night flights were foreseen in the present study or incorporated into the noise modelling.

4.4 THE SOUTH AFRICAN NATIONAL STANDARD

The methodology for calculating aircraft noise is laid down in the South African Bureau of Standards' South African National Standard SANS 10117:2008. Recommendations on land use and development in the vicinity of an airport with respect to aircraft noise are contained in the South African Bureau of Standards' South African National Standard SANS 10103:2008.

In this report, the following recommendations (extracted from SANS 10103) concerning the maximum yearly L_{Rdn} to which a particular type of district should be exposed are made:

- **$L_{Rdn} = 50$ dBA:** Should not be exceeded for suburban districts with little road traffic.
- **$L_{Rdn} = 55$ dBA:** Residential developments should not be allowed to fall inside the 55 dBA contour, i.e. the yearly noise level should not exceed 55 dBA. This includes other noise sensitive developments such as hospitals, educational facilities, conference facilities and places of worship.
- **$L_{Rdn} = 60$ dBA:** Commercial districts including retail shopping, offices, consulting rooms.
- **$L_{Rdn} = 65$ dBA:** Commercial/Industrial districts, i.e. central business districts, motor trade, warehousing, etc. Also agriculture (livestock and breeding) and cemeteries.
- **$L_{Rdn} = 70$ dBA:** Industrial activities, i.e. manufacturing, assembly, repairing, packaging, bus depots, builders yards, etc.
- **$L_{Rdn} = 75$ dBA:** Agricultural land tenure without livestock, picnic facilities, open spaces (vacant land).
- **$L_{Rdn} = 80$ dBA:** Forbidden area, i.e. no development of land to be permitted.

5 METHODOLOGY OF THE STUDY

5.1 SCENARIOS INVESTIGATED

This noise study constructs three average-energy scenarios:

- 1 Scenario 1. Noise contours at Mossel Bay Airport, current (2016) runway layout.
- 2 Scenario 2. Current runway layout but with a relocated training helipad, slightly to the north of the Runway 10 threshold. (At the time of writing, Starlite aviation were implementing this measure.)
- 3 Scenario 3. New 2000 metre runway to be constructed 176 metres to the north of the existing strip and the training helipad at the threshold of runway 10.

Throughout this report, an “average annual day” is used as the basis for calculating average-energy aircraft noise caused by aircraft operations at Mossel Bay Airport. The average annual day is the best representation of the typical long-term conditions at the airport, based on predicted operational data. These average conditions include the number and type of operations, time of operation, routing tracks, runway configuration, wind speed, humidity and temperature.

5.2 AIRPORT PARAMETERS

Latitude and longitude co-ordinates, and elevation data for the airport and planned runways were entered into the INM, as were annual average atmospheric pressure, humidity, wind speed and temperature (obtained from the South African Weather Bureau). The INM uses these variables when computing flight profiles.

The following assumptions based on data researched by the consulting team were made:

- Average annual temperature 23 °C
- Reference pressure 1013.2 kPa
- Elevation 166m
- Average wind 14.8 k/h

- Humidity 66%

5.3 AIRCRAFT TRACKS

Typical arrival, departure and training flight paths were prepared for the noise study. The procedures were based on consultation with the airport operators, and flight tracks which were developed from GPS based flight paths. These were used as the basis for the flight tracks.

The modelling assumed that the aircraft would follow these tracks in normal circumstances, although it is possible that other routings may also be used, due to weather or for other operational reasons. All movements were therefore assigned to the tracks appropriate to the origin or destination of the flight, the type of flight, and the runway in use at the time of the operation.

The majority of aircraft movements currently are helicopter training flights with a lower proportion of fixed wing single engine fixed wing aircraft being used for skydiving, training and general aviation purposes.

5.3.1 MOSSEL BAY AIRPORT RUNWAY AND TRACK DESCRIPTIONS

Mossel Bay Airport has one physical operational runway which may roughly be described as being aligned east – west. A disused dirt cross runway was not taken into account in the noise study since no aircraft use this runway. Runway thresholds are named 10 and 28. The current runway length is approximately 1 000m. For the first two scenarios, the existing runway was used. For Scenario 2, an additional training helipad was incorporated at the threshold to runway 10. For the new runway proposal in Scenario 3, a new runway of 2000 metres was incorporated. The centreline of this runway is 176m from the centreline of the existing runway with the eastern threshold positioned 450m from the fenced boundary. Runway usage was discussed with the operators and assumed to be split 50% in each direction. The tracks associated with these runway directions are shown in Figures 5.1, 5.2 and 5.3 which illustrate the noise contours. (The contours have also been made available in electronic format.)

5.4 TRAFFIC MOVEMENT ASSUMPTIONS FOR SCENARIOS INVESTIGATED

The traffic movement assumptions used as an input into the INM to model aircraft noise were supplied by airport operators and the consulting team. The distribution of aircraft types used in the modelling is provided in sections 4.4.1 – 4.4.3. For illustrations of aircraft, see Appendix A.

5.4.1 Scenario 1

Typical current operations.

From the flight movement assumptions for Mossel Bay Airport it is clear that the airport has relatively few fixed wing general aviation aircraft movements and a greater number of helicopter training flights.

Table 1: Scenario 1 flight movement summary

	General aviation Single engine fixed wing	Helicopter Training
Number of movements	20 arrivals and departures per day; 10 circuits per day.	80 training circuits per day; 30 transits to/from the general flying area per day.

5.4.2 Scenario 2.

Training helipad moved to slightly north of the threshold of Runway 10

Table 2: Scenario 2 flight movement summary

	General aviation Single engine fixed wing	Helicopter Training
Number of movements	20 arrivals and departures per day; 10 circuits per day.	80 training circuits per day; 30 transits to/from the general flying area per day.

5.4.3 Scenario 3

Proposed new runway, parallel to the existing runway, located 176m to the north

Table 3: Scenario 3 flight movement summary

	General aviation Single engine fixed wing	Helicopter Training	Scheduled airline
Number of movements	20 arrivals and departures per day; 10 circuits per day.	80 training circuits per day; 30 transits to/from the general flying area per day.	Two Dash 8 arrivals and departures Three Canadair RJ70 arrivals and departures

6 NOISE CONTOURS OVERLAID OVER LAND USE MAPS

For the purpose of this report, the noise contours were overlaid onto land use maps and are shown below in Figures 5.1 to 5.3. Electronic GIS shape files and AutoCAD dxf files were also provided to the consulting team.

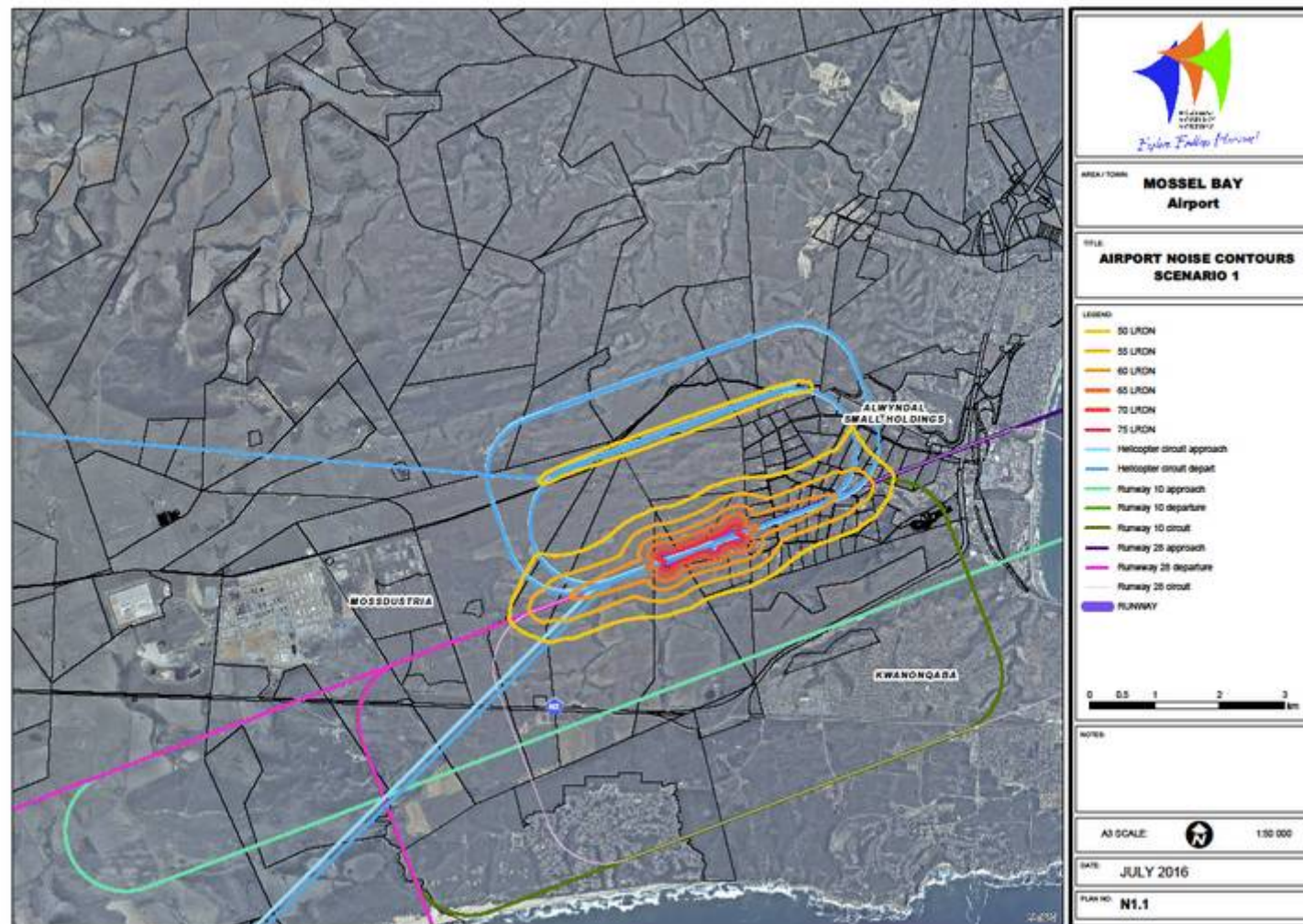


Figure 5.1: Scenario 1. 2016 noise contour

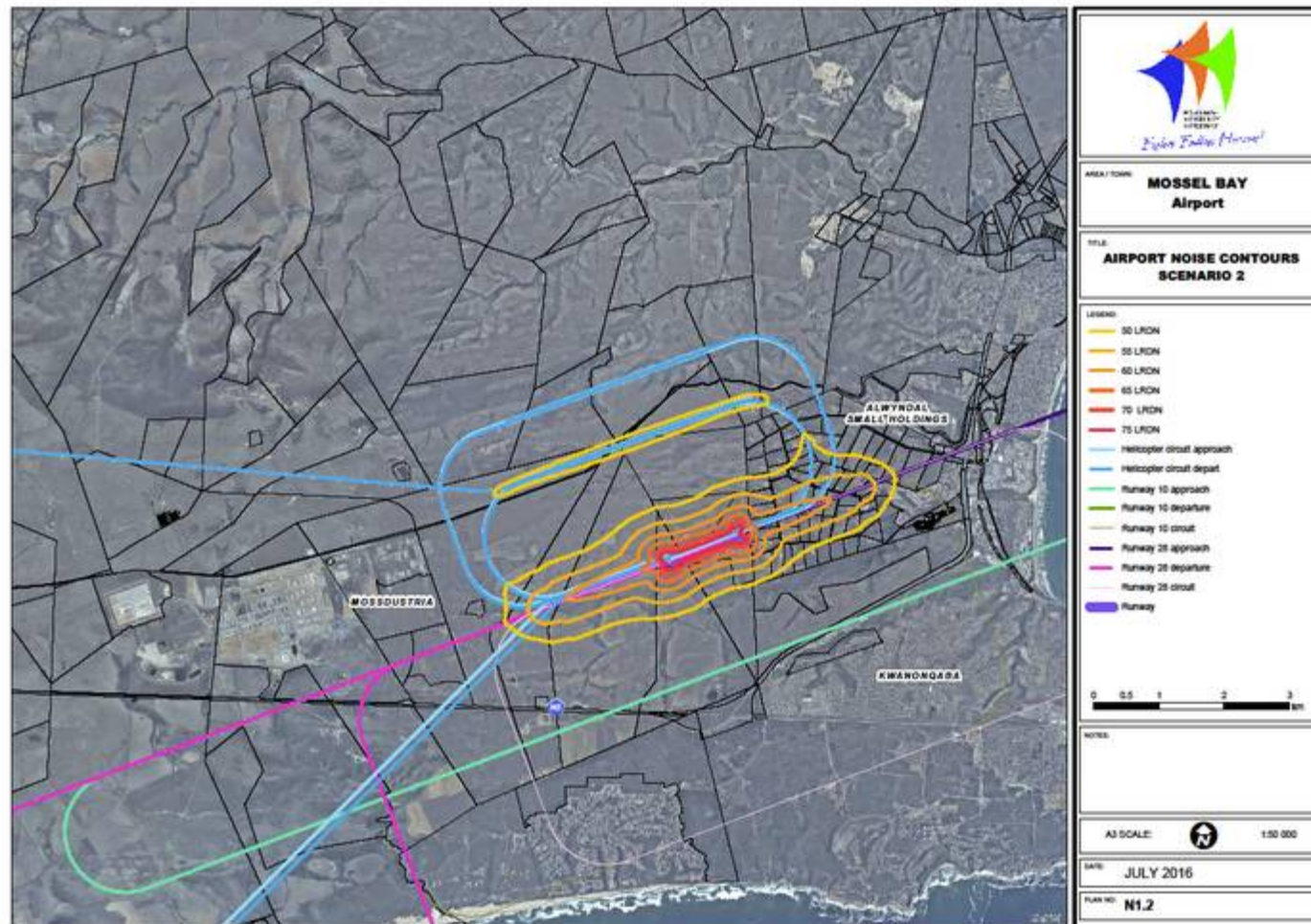


Figure 5.2: Scenario 2. Noise contour based on current runway, training helipad located just north of the threshold of runway 10

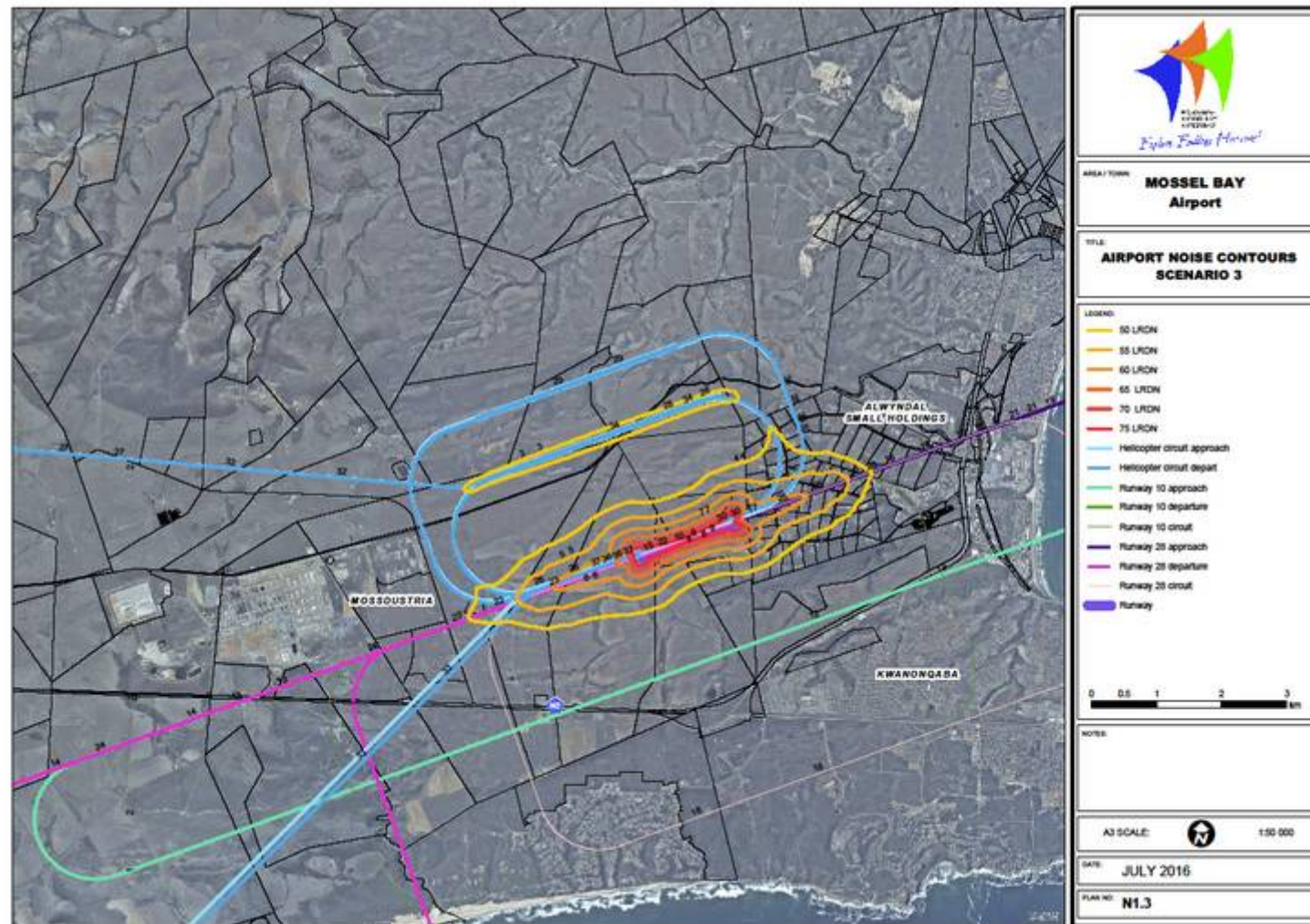


Figure 5.3: Scenario 3. Noise contour based on proposed new 2000 meter runway to be located 176 meters north of existing runway

7 SPATIAL IMPACT OF THE MODELLED L_{RDN} CONTOURS

7.1 SANS 10103 NOISE AND LAND USE GUIDELINES

It is generally accepted that in urban districts, people's homes, educational facilities, hospitals and clinics are the most sensitive to aircraft noise intrusions. Home is where everybody has to return to in order to rest and recuperate for work. In educational facilities the transfer of information and knowledge is of paramount importance, and in hospitals and clinics, patients need a quiet environment in order to rest and convalesce. In terms of this investigation the present and future location of the $L_{Rdn} = 50$ dBA contour is important for effective land use planning. SANS 10103:2008 recommends that suburban districts with little road traffic should not be exposed to noise levels in excess of the day/night $L_{Rdn} = 50$ dBA (SANS 10103:2008, page 16, Table 2.). An extract of this table is included below.

SANS 10103:2008
Edition 6

Table 2 — Typical rating levels for noise in districts

1	2	3	4	5	6	7
Type of district	Equivalent continuous rating level ($L_{Req,T}$) for noise dBA					
	Outdoors			Indoors, with open windows		
	Day/night $L_{R,dn}^a$	Daytime $L_{Req,d}^b$	Night-time $L_{Req,n}^b$	Day/night $L_{R,dn}^a$	Daytime $L_{Req,d}^b$	Night-time $L_{Req,n}^b$
a) Rural districts	45	45	35	35	35	25
b) Suburban districts with little road traffic	50	50	40	40	40	30
c) Urban districts	55	55	45	45	45	35
d) Urban districts with one or more of the following: workshops; business premises; and main roads	60	60	50	50	50	40
e) Central business districts	65	65	55	55	55	45
f) Industrial districts	70	70	60	60	60	50

Source: South African National Standard SANS 10103:2008

From Table 6.1 below, it is evident that the spatial extent of the 50 L_{Rdn} contour is the largest for each of the three scenarios. This noise level is lowest. The noise increases with

increasing proximity to the airport. This increase is represented by the 55, 60, 65, and 70 L_{Rdn} contours.

Due to the possible increase in frequency of air traffic from Scenario 1 and 2, to Scenario 3, there is a slight increase in the spatial extent of the contours.

Table 6.1 : The spatial extent of the contours (in square kilometres) for the Mossel Bay Airport scenarios under consideration.

	50 L_{Rdn} (km²)	55 L_{Rdn} (km²)	60 L_{Rdn} (km²)	65 L_{Rdn} (km²)	70 L_{Rdn} (km²)
Scenario 1	9.074	4.530	2.024	0.826	0.450
Scenario 2	9.045	4.521	2.022	0.833	0.446
Scenario 3	9.172	4.590	2.114	0.947	0.510

7.2 DISCUSSION OF NOISE SCENARIOS IN SCENARIO 1

The 50 L_{Rdn} contour in Scenario 1 extends about 2500 meters into Aalwyndal (caused by aircraft overhead during landing and taking off). To the northeast, the sideline and helicopter overflight noise (caused by aircraft on, or close to the ground during their landing and takeoff phases, and helicopters operating training flights) extends over the agricultural land.

About 1700 meters to the north of the airport, helicopters fly the downwind leg of their training circuits or join the circuit from the west. This portion of the flight path creates a narrow noise lobe about 160 meters wide and 1500 meters long.

7.3 DISCUSSION OF NOISE CONTOURS IN SCENARIO 2

In Scenario 2, the 50 L_{Rdn} contour extends for about 2300 meters into Aalwyndal (caused by aircraft overhead during landing and taking off). To the northeast, the sideline and helicopter overflight noise (caused by aircraft on, or close to the ground during their landing and takeoff rolls, and helicopters operating training flights) extends over the agricultural land. The noise lobe to the northeast caused by helicopters flying training circuits is slightly closer to the airport due to the relocation of the training helipad to the west. The effect of this relocation is a corresponding shift of the helicopter training flight track towards the west which shifts the noise contour too.

About 1700 meters to the north of the airport, helicopters fly the downwind leg of their training circuits or join the circuit from the west. This portion of the flight path creates a narrow noise lobe about 160 meters wide and 1500 meters long. This lobe is shifted about 1200 metres to the west, corresponding with the relocation of the training helipad.

7.4 DISCUSSION OF NOISE CONTOURS IN SCENARIO 3

The runway has been repositioned 176 meters to the north of, and parallel to the existing runway in this scenario. The 50 L_{Rdn} contour extends for about 2300 meters into Aalwyndal (caused by aircraft overhead during landing and taking off). To the northeast, the sideline and helicopter overflight noise (caused by aircraft on, or close to the ground during their landing and takeoff rolls, and helicopters operating training flights) extends over the agricultural land.

About 1700 meters to the north of the airport, the downwind leg which helicopters fly during their training circuits or when joining the circuit from the west also moved by 147

metres to the north. Similar to Scenario 2, this portion of the flight path creates a narrow noise lobe about 160 meters wide and 1500 meters long. This lobe is shifted about 1200 metres to the west, corresponding with the relocation of the training helipad.

7.5 TYPICAL NOISE REDUCTION STRATEGIES BEST PRACTICABLE ENVIRONMENTAL OPTION

The effective management of aircraft noise is an important component of an airport's environmental responsibility. Starlite Aviation have implemented a number of noise limiting measures in response to concerns raised by the surrounding community. For example, these measures include a replacement of the helicopter fleet from Robinson R22 and R44 helicopters to quieter Guimbal Cabri helicopters, modifying flight routes and procedures to reduce noise, and limiting the number of night and weekend flights.

In the scenarios presented in this report, the 50 L_{Rdn} contour extends for about 2300 meters in line with the runway to the east and west, and by about 600 metres to 1200 meters to the north and south, parallel to the runways

The following noise abatement measures can be implemented:

- Low circuits not permitted
- Visual approaches, at night, not permitted below 2500 ft. AMSL
- Noise abatement arrivals – approach noise can be reduced by applying procedures to keep aircraft higher for longer, use continuous descent profiles and fly slightly steeper approach profiles.
- Design flight routes with a minimum noise impact goal
- Use full runway length (restrict intersection departures) for take-off to ensure sufficient altitude is gained in order to cross built up areas with minimum noise
- Turnouts immediately after take-off must as far as possible be avoided and runway heading maintained until an altitude corresponding with reduced noise is attained
- Where possible, aeroplanes must climb at the best angle of climb after take-off and this must be maintained until all built up areas have been overflown, or the desired altitude has been attained.
- Test and run-ups of aeroplane engines must as far as possible be avoided during the period 10pm to 6am

- Reverse thrust discouraged at night - landings limited to flight idle unless required for flight safety

8 CONCLUSIONS

Based on the results of this investigation the following conclusions are drawn:

8.1 LAND USE PLANNING GUIDELINES FOR AREAS AROUND MOSSEL BAY AIRPORT

8.1.1 General

The noise contours produced in this report may be used to guide future land use planning around the airport. Since there is no certainty currently regarding the position of a new runway or future aircraft movements, the 50 L_{Rdn} contour boundary of all three scenarios may be used to evaluate land use planning decisions.

8.1.2 Rezoning of land – restriction for commercial / industrial use

Further residential development of the land in the area should be viewed with caution due to the predicted noise impact. A possibility may be to advise that as per the SANS 10103 guideline that the land in the area enclosed by the 50 L_{Rdn} contours in the three scenarios could be rezoned to Commercial and / or Industrial rights (with an allowed noise profile of higher than 65 L_{Rdn} to allow for a gradual shift away from residential occupation. Since the time frame during which noise levels around the airport are expected increase, or the proposed runway be constructed is not known, immediate measures are not required, but this zoning change should result in a natural migration away from residential to commercial and / or industrial use.

8.1.3 Areas requiring immediate attention

At present, based on the current contour, in terms of SANS 10328, it is unlikely that any urban areas adjacent to the airport require immediate attention. However, current airport noise complaints which have been submitted may contradict this view. Investigation of noise complaints has revealed that complaints centre around three common areas:

- **Night and weekend training circuits flown by helicopters.** More people are at home during the evenings and at weekends, and perceive the noise to be disruptive. Starlite Aviation have restricted night flights to end by 10 pm, and limit weekend circuit flying when possible. A further measure which has

positive outcomes in terms of reducing noise is the replacement of the Starlite fleet of Robinson helicopters with Guimbal Cabri helicopters.

- **Large helicopters, for example from the Bell Uh-1 family.** These helicopters are much larger than the two and four seater helicopters used for training. They are infrequent visitors to the airport, but due to their large size and rotor configuration, are much noisier.
- **Helicopter pilots unfamiliar with, or disregarding agree minimum-noise profiles.** Starlite Aviation and Mossel Bay Aerodrome have implemented flight routes designed to minimise noise. When these are disregarded by pilots, or not adhered to by pilots unfamiliar with the airport, complaints are made by residents affected.

ANNEXURE B

MOSSEL BAY AIRPORT

COSTING OF ITEMS FOR DEVELOPMENT PHASES

L de Swardt, Tuiniqua
Engineers, CvW Electrical

August 2016



ANNEXURE B: COSTING OF ITEMS FOR DEVELOPMENT PHASES

PHASE 1					
Phase 1 : Relocate heli-pad, appoint air control officer					
No	Description	Unit	Quantity	Rate	Amount
1	Relocate heli-pad				Cost to Starlite
2	Appoint Air Control officer	Per month	R 20 000	R 20 000	R 240 000
3	Assistants to ACO	Per hour	R 400	40 hours per month	R 192 000
4	Negotiations and administration of Phase 1				R 100 000
TOTAL					R 532 000
PHASE 1 TOTAL BUDGET					R 532 000

PHASE 2					
Phase 2(a): Rehabilitate the existing runway					
No	Description	Unit	Quantity	Rate	Amount
1	Preliminary and General				R 1,000,000.00
2	Seal cracks in runway				R 50,000.00
3	Relocate runway edge lights				R 100,000.00
4	Excavation	m ³	3,000	R 50.00	R 150,000.00
5	Bedding preparation and compact to 90%	m ²	6,000	R 8.00	R 48,000.00
6	Selected layer	m ³	900	R 350.00	R 315,000.00
7	C4 Stabilised subbase	m ³	900	R 650.00	R 585,000.00
8	G2 base	m ³	900	R 600.00	R 540,000.00
9	Prime	litre	5,700	R 15.00	R 85,500.00
10	Patching deficiencies on runway	m ²	1,000	R 400.00	R 400,000.00
11	Rejuvenator	litre	21,000	R 15.00	R 315,000.00
12	Tack	litre	10,000	R 15.00	R 150,000.00
13	Slurry	m ²	27,000	R 45.00	R 1,215,000.00
14	Patch deficiencies in taxiway	m ²	600	R 400.00	R 240,000.00
15	Rejuvenator	litre	6,000	R 15.00	R 90,000.00
16	Tack	litre	2,400	R 15.00	R 36,000.00
17	Slurry	m ²	6,000	R 45.00	R 270,000.00
18	Paint markings				R 100,000.00
19	AFIS & AWOS				R 2,000,000.00
Subtotal					R 7,689,500.00
10% contingencies					R 768,950.00
Subtotal					R 8,458,450.00
15% professional fees					R 1,268,767.50
Subtotal					R 9,727,217.50
14% VAT					R 1,361,810.45

ANNEXURE B: COSTING OF ITEMS FOR DEVELOPMENT PHASES

TOTAL	R 11 089 027.95
--------------	------------------------

Phase 2(b): Rehabilitate Electrical Installation					
No	Description	Unit	Quantity	Rate	Amount
1	Lighting	SUM	SUM	SUM	R 500,000.00
2	Reticulation	SUM	SUM	SUM	R 1,500,000.00
Subtotal					R 2,000,000.00
10% contingencies					R 200,000.00
Subtotal					R 2,200,000.00
15% professional fees					R 330,000.00
Subtotal					R 2,530,000.00
14% VAT					R 354,200.00
TOTAL					R 2 884 200.00

Phase 2(c): Investigate access routes and land requirements					
No	Description	Unit	Quantity	Rate	Amount
1	Investigate access routes to airport and land requirements for next phase		Lump sum for fees, etc		R 200 000
TOTAL					R 200 000
PHASE 2 TOTAL BUDGET					R 14 173 227.95

ANNEXURE B: COSTING OF ITEMS FOR DEVELOPMENT PHASES

PHASE 3					
Phase 3(a): New parallel runway 1500 long and 23m wide - civil					
No	Description	Unit	Quantity	Rate	Amount
1	Preliminary and General				R 8,000,000.00
2	Grass V drain in middle of runway	m	1,500	R 200.00	R 300,000.00
3	600mmØ Culverts at taxiways		250	R 2,000.00	R 500,000.00
4	30MPa Concrete wing walls	number	10	R 5,000.00	R 50,000.00
5	Clearing and grubbing	ha	40	R 9,000.00	R 360,000.00
6	Mass earthworks	m ³	200,000	R 50.00	R 10,000,000.00
7	Bedding preparation and compaction to 90%MOD AASHTO density	m ³	46,000	R 8.00	R 368,000.00
8	G7 selected layer	m ³	7,000	R 350.00	R 2,450,000.00
9	C4 subbase layer	m ³	7,000	R 650.00	R 4,550,000.00
10	C2 Base layer	m ³	7,000	R 600.00	R 4,200,000.00
11	Prime	litre	46,000	R 15.00	R 690,000.00
12	Tack	litre	18,000	R 15.00	R 270,000.00
13	40mm Medium grade asphalt	m ²	46,000	R 260.00	R 11,960,000.00
14	Paint markings: 300mm white	m	500	R 50.00	R 25,000.00
15	Paint markings yellow 150 mm	m	500	R 30.00	R 15,000.00
16	Thresholds	m ²	500	R 180.00	R 90,000.00
17	Finishing off flight strips	m ²	350	R 30.00	R 10,500.00
18	Fencing	m	4,000	R 550.00	R 2,200,000.00
19	Simple approach lights				R 15,000,000.00
Subtotal					R 61,038,500.00
10% contingencies					R 6,103,850.00
Subtotal					R 67,142,350.00
15% professional fees					R 10,071,352.50
Subtotal					R 77,213,702.50
14% VAT					R 10,809,918.35
TOTAL					R 88 023 620.85

ANNEXURE B: COSTING OF ITEMS FOR DEVELOPMENT PHASES

Phase 3(b): New parallel runway 1500 long and 23m wide – electrical					
No	Description	Unit	Quantity	Rate	Amount
1	SUBSTATION	SUM	SUM	SUM	R 8,000,000.00
2	CABLING	SUM	SUM	SUM	R 2,200,000.00
3	Simple approach lights - Cabling	SUM	SUM	SUM	R 1,500,000.00
Subtotal					R 11,700,000.00
10% contingencies					R 1,170,000.00
Subtotal					R 12,870,000.00
15% professional fees					R 1,930,500.00
Subtotal					R 14,800,500.00
14% VAT					R 2,072,070.00
TOTAL					R 16 872 570.00

Phase 3(c): Apron 100x40m for five Beech 1900 aircraft					
No	Description	Unit	Quantity	Rate	Amount
1	Preliminary and General				R 300,000.00
2	Clearing and grubbing	ha	1	R 9,000.00	R 5,400.00
3	Mass earthworks	m ³	1,600	R 50.00	R 80,000.00
4	Bedding preparation	m ²	2,000	R 8.00	R 16,000.00
5	G7 selected layer	m ³	300	R 350.00	R 105,000.00
6	C4 base layer	m ³	300	R 650.00	R 195,000.00
7	Interlocking block pavement	m ²	4,000	R 400.00	R 1,600,000.00
8	Paint markings yellow 150 mm wide	m	300	R 30.00	R 9,000.00
Subtotal					R 2,310,400.00
10% contingencies					R 231,040.00
Subtotal					R 2,541,440.00
15% professional fees					R 381,216.00
Subtotal					R 2,922,656.00
14% VAT					R 409,171.84
TOTAL					R 3 331 827.84

ANNEXURE B: COSTING OF ITEMS FOR DEVELOPMENT PHASES

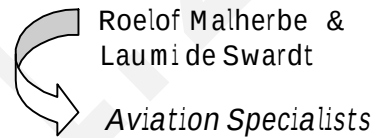
Phase 3(d): Buildings					
No	Description	Unit	Quantity	Rate	Amount
1	Terminal Building	m ²	150	R 8 000.00	R 1 200 000.00
2	Tower	m ²	50	R 12 000.00	R 600 000.00
Subtotal					R 1 800 000.00
10% contingencies					R 180 000.00
Subtotal					R 1 980 000.00
15% professional fees					R 297 000.00
Subtotal					R 2 277 000.00
14% VAT					R 318 780.00
TOTAL					R 8 652 780.00
PHASE 3 TOTAL BUDGET					R 116 880 798 .69

2016

MOSSEL BAY AIRFIELD STATUS QUO REPORT DRAFT 1.2 OCTOBER 2016



Prepared for the Mossel Bay Municipality



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ACRONYMS USED REPORT	
Aeronautic	
ACN	Aircraft Classification number, (A classification system consisting a series of alpha-numerical and numerical characters indicating the load of an aircraft on a pavement, also refer to definition of PCN)
ACSA	Airport Company of South Africa, a state owned Company who owns and operated George Airport
AIP	South African Aerodrome Information Publication
ATNS	Air Traffic and Navigations Company, a state owned Company responsible for air traffic control and navigation services in South Africa
CAA	South African Civil Aviation Organization
FOD	Foreign Objects which could damage aircraft engines
GA	General Aviation
LCN	Load classification number (older terminology used to indicate the strength of an airfield pavement.
NADP	National Airports Development Plan
PCN	Pavement classification number (A series of alpha and alpha-numerical characters indicating the strength of a pavement eg a PCN of 70 means that the pavement's remaining lifespan can accommodate 100 000 coverages of an aircraft with an ACN of 70. Should lighter aircraft use the pavement more coverages can be expected? If heavier aircraft use the pavement less coverages could be expected provided that the pavement is not damaged by an aircraft which is too heavy to operate into the airport)
ICAO	International Civil Aviation Organization
TMA	Terminal Control Area
Other	
LUPA	Land use Spatial Planning Act Act 3 of 2014
SPLUMA	National Spatial Planning and Land Use Management Act Act 16 of 2013

ANNEXURES AND PLANS THAT FORM PART OF THE STATUS QUO REPORT

Annexure A: Environment

Annexure B: Sound levels

Annexure C: Economic impact

Plan no	Area
1	AIRFIELD AREA BROAD SPATIAL PATTERNS
2	MOSSEL BAY AIRFIELD LAYOUT

1. BACKGROUND

1.1 INTRODUCTION

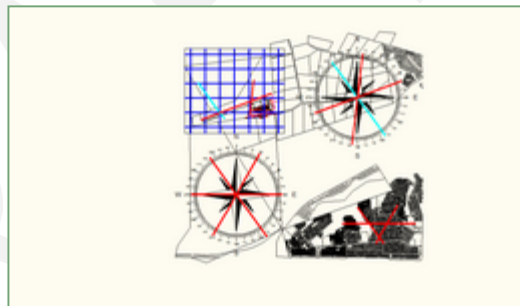
The activities of the Mossel Bay airfield have developed over the past years to such a level that it became a cause for concern because of its location from land use point of view and because of the perceived level of noise created by certain aircraft.

As the municipality has to take steps to ensure a proper and compatible land use pattern for the future, this study was commissioned to the professional team as indicated on page 2 of this report. The objectives of the investigation is to:

- establish and analyse the status quo of the airport and all its activities
- to consider alternative locations for the airport and/or some of its activities
- to recommend guidelines and to make proposals for its future management and use

1.2 HISTORY OF THE AIRFIELD

The original location of the Mossel Bay airfield was in the area which is now as Asla Park, Kwanonqaba. It had to be relocated after that land was required for a low cost housing scheme in the late 1990's. The Council acquired the properties known Klein Zuirkop to build a new airfield and facilities, This land is leased to the Mossel Bay Aero Club.



The electrical infrastructure to the Mossel Bay Airport were developed during 1996 with the development of the Aalwyndal Phase 2/3 smallholding development. A 100 kVA Transformer were installed at the Airport Site via a 11 kV Line that is being fed from the Intake Substation.

1.3 STAKEHOLDERS

Several stakeholders are affected by activities on or proposals for the airport. These are:

- The Municipality of Mossel Bay, the land owner and lessor;
- The Mossel Bay Aero Club, the lessee and administrator and manager of airport activities
- Operators on the airport
- Surrounding land owners from Aalwyndal
- Civil Aviation

1.4 PROPERTY DESCRIPTION

The property on which the airport is situated is described as Farm 336, which is 66,4083 ha in size.

2. LOCATION AND CONTEXT

2.1 DESCRIPTION

The Mossel Bay Airport is a privately licensed airport, owned by the Mossel Bay Municipality and managed by the Mossel Bay Aero Club. It specializes as a location for businesses related to pilot training, provides a base to tourism related businesses and recreation as well as hanger facilities for private aircrafts owners. The Airports' private licensing prevents any passenger or freight transportation, for revenue purposes, to be undertaken at the Airport. Furthermore, the maximum take-off mass of an aircraft permitted to operate from a private licensed airport is 5 700 kg.ⁱ A typical aircraft falling within this specification is a Beachcraft King Air.



Source Beachcraft Corporation website

The Airport has two runways, of which only the main runway is operational. The main runway is 1 143 m long and 18 m wide and orientated 10/28 (east west). This orientation is in the prevailing wind direction. A 7.5 m wide taxiway connects the runway with the hangar facilities. The runway system can be classified as a Code 1A in terms of ICAO classification system. This restricts the aircraft size using the airport to aircraft with a maximum wingspan of 15 metres and an outer main gear wheel span up to, but not, including 4,5 metres.ⁱⁱ Rescue and Fire Fighting is classified as a Category 1ⁱⁱⁱ which restricts usage to aircraft with a maximum fuselage length of 9 metres and fuselage diameter of 2 metres. The secondary runway is not maintained and not listed in the current version of the South African Aerodrome Information Publication (AIP).

2.2 STUDY AREA AND LOCATION

This sub-section will illustrate the location of Mossel Bay Airport within the Mossel Bay Municipal area.

Map 1 illustrates the economic impact study area, defined as per boundaries of the Mossel Bay Municipal Area.

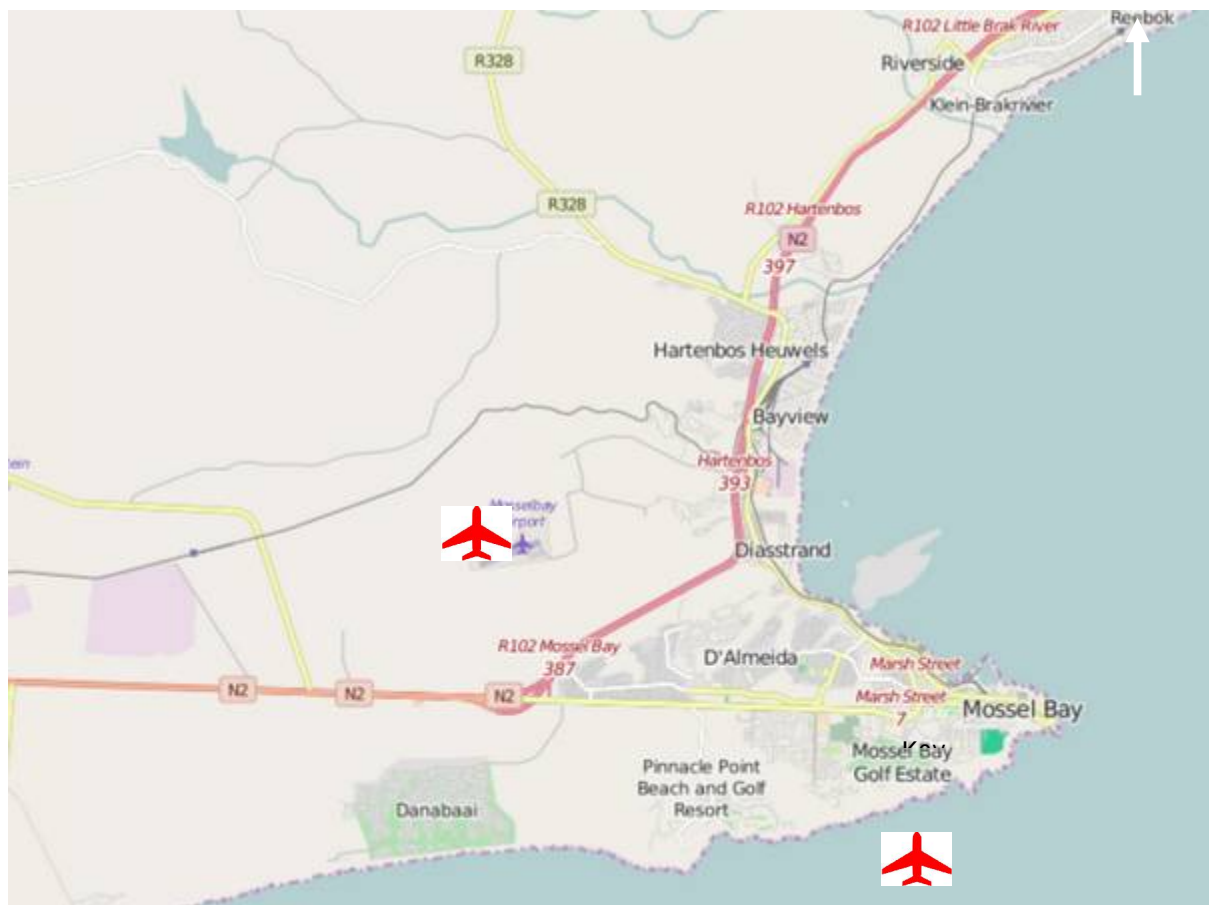
Map 1: Mossel Bay Municipal Study Area



Mossel Bay Local Municipality It is located in the Edén District Municipal Region and forms part of the Western Cape Province of South Africa. It is located 400km on either side between Cape Town and Port Elizabeth, within the Garden Route tourism region, and on the boarder of the Karoo region. Mossel Bay is classified as a holiday and port town, and is located close to the towns of Swellendam, Oudtshoorn, Plettenberg Bay and Knysna.

The location of Mossel Bay Airport, within the Mossel Bay Local Municipal area is Illustrated in Error! Reference source not found. below.

Map 2: Location of Mossel Bay Airport



Source: Esri ArcGIS (2016).

Mossel Bay Airport is located 7 km north west north of Mossel Bay Town. Co-ordinates of the airport are: S34°09'25" E 022°03'41". It has an elevation of 526' (160 m) and has a reference temperature of 23.9 °C^{vi}.

Error! Reference source not found. illustrates the location of the other airports in relation to the Mossel Bay airport



Map 3: Airports in Close Proximity to Mossel Bay Airport

Mossel Bay Airport is the only airport in the municipal area of Mossel Bay and one of four airports in the Eden District. It is located in close proximity to the George Airport, in neighbouring Municipal area of George.

2.2 LEGAL CONTEXT

2.2.1 AVIATION LEGISLATIVE FRAMEWORK

Aviation in South Africa is controlled by the Civil Aviation act (Act 13 of 2009). Furthermore, South Africa is a signatory to the ICAO Convention on Civil Aviation. The 18 Annexures to this convention provides the rules for the regulation of aviation worldwide and need to be adhered to in terms of the above Act. Of particular importance in the design of airport facilities are Annex 14, Volume 1: Aerodromes Standards and Recommended Practices as well as Volume 2 dealing with the facilities for Helicopters. Reference will be made to these standards in the adjudication of facilities at Mossel Bay Airport as well as other Airports in the region.

2.2.1.1 NATIONAL AIRPORTS DRAFT DEVELOPMENT PLAN (NCAP, (DRAFT, 2015)

The Department of Transport have published a draft National Airports Development Plan which provides further guidance on the provision of airport facilities in South Africa. This Plan makes provision for three major International Airports viz. Cape Town, Durban (King Shaka) and Johannesburg (OR Tambo) with adequate facilities to accommodate wide body aircraft being used on intercontinental journeys. Furthermore, there are seven other airports with international status (one in each of the remaining provinces plus Lanseria in Gauteng which has Customs and Immigration facilities to accommodate aircraft from neighbouring countries. The Airports Company of South Africa (ACSA) a government owned company owns and manages all the larger airports in South Africa which were served originally by the South African National Carrier South African Airways

(SAA) in a previous Government dispensation. The National Airports Development Plan protects the interests of these state owned airports and provides guidance on the further development of airports in South Africa.

Mossel Bay Airport is not mentioned in the draft National Airports Development Plan. (NADP) Issues of importance relating to Mossel Bay Airport from the National Airports Development Plan includes:

- *"Existing infrastructure capacity should be optimised to deal with activity levels, including by: a) prioritising alternative approaches to addressing capacity pressures rather than major infrastructure expansions or green-field investments (such as reviewing aircraft mix, improving airspace management and design, refining infrastructure to speed up throughput); b) proactive identification of capacity gaps; and c) the use of Planning Activity Levels."* From the above it can be noted that the NADP is not in favour of developing greenfields airports and that all possibilities should first be exploited to determine if the existing infrastructure could not be optimized. Secondly, it is not favourable to mix small low performance aircraft with larger high performance aircraft as such an aircraft mix influences the airside and airspace capacity of the airports negatively. George airport accommodates scheduled aircraft operations (large high performance aircraft) whilst Mossel Bay Airport accommodates flying schools and leisure activities by the skydivers. These activities cannot be accommodated on the same airport, thus there is a niche market for each airport to serve and one airport can not accommodate both.
- *"Airport development should not be considered in isolation, but be integrated into all national, provincial and municipal economic and spatial development initiatives. At the same time, airport development should also meet the social needs and objectives of local communities. There should therefore be synergy between airport development and the development strategies of all spheres of government"*
- **"General Aviation (GA) is a large and important part of airport activity, and contributes significantly to air traffic movements. GA is defined in the NCAP as "all flying operations, except those performed by the military and the scheduled commercial airline operators. Based on 2014 data from ATNS, nearly 50% of all aircraft movements in the South African airports network were General Aviation flights. The vast majority of airports in the country interact only with GA. GA traffic is significantly less concentrated. Based on the 2014 ATNS data, the "big 3" airports represent less than 13% of total GA movements and ACSA airports as a whole, less than 20%. Adding in training and recreational flights beyond the ATNS network, GA is likely to account for at least two-thirds of all aircraft movements in the country"** From the above the importance of General Aviation cannot be underestimated. If we do not support GA and the flying schools commercial aviation will have no pilots and can thus not operate in isolation.
- *"Flight training is concentrated in airports that serve as the bases for flight training schools. Similarly, airports that are the base for aeroclubs typically have higher recreational general aviation activity."* In this regard specific reference should be made of the activities of Starlite and their contribution not only to the economic growth in the Mossel bay area but their contribution to safety and security in Southern Africa. Refer to details of their client base in the economic impact report
- The following table on page 15 of the NDP illustrates the ownership of airports in South Africa:

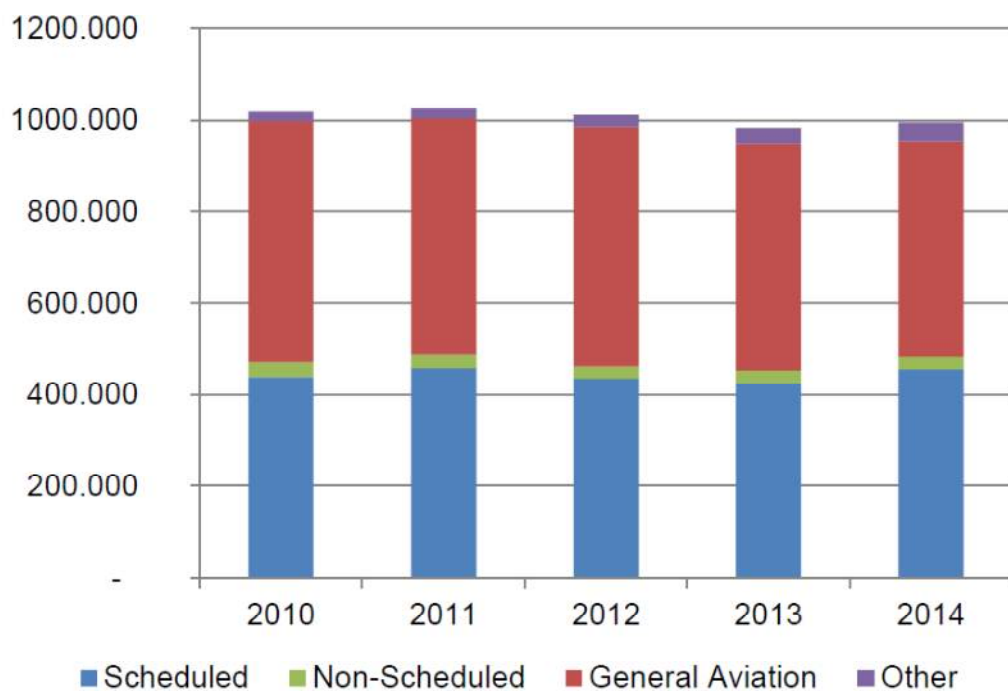
Table 5: Ownership of airports

	Licensed	Unlicensed	Registered
ACSA	9	0	
Provincial government	5	4	
Local government	75	25	
Military	0	33	
Private	46	125	Approx. 50
Unknown (assumed private)	-	Approx 1,400	

From the above it can be noted that local government is the largest owner of licensed airports in South Africa, Mossel Bay is thus not an unique position to own an airport. Furthermore, although not mentioned in the NADP a fairly large number of unlicensed airports are also been owned by Local Government.

- The following graph illustrates air traffic movements in South Africa

Figure 9: Air traffic movement estimates based on ATNS data, 2010-2014³



- From the above it can be noted that the number of aircraft movements by GA exceeds the number of aircraft movements in Scheduled operations
- "All green-field airports will be required to obtain airspace approval from NASCOM prior to commencement of any construction activities. In particular, proposals for airports within 1 nm of the geographical footprint of any Terminal Area (TMA), or within 10nm of the lower airspace (CTR) of an existing licenced airport, must be evaluated in order to determine the potential interference with existing established procedures regarding controlled airspace in accordance with the Civil Aviation Regulations, 201151.

- *Green-field developments should ideally be planned for outside the CTR of existing airports and preferably outside the TMA. It is noted that airports can co-exist within close proximity; however, the impact on existing established procedures regarding controlled airspace must be considered and could impact on the operations of such airports”* Mossel Bay Airport as well as the entire airspace surrounding Mossel Bay falls under this limitation. It would thus be difficult to obtain approval to develop an alternative airport should the existing Mossel Bay airport need to be closed down. The following capacity constraints are listed in the NADP regarding George airport:
 - o Runway capacity up to Code E aircraft
 - o ATM capacity declaration of 30 movements per hour, potential extendable to 40/hour.
 - o Aircraft parking – currently only 6 aircraft parking bays on the apron

From the above it can be noted that George Airport is already being operated at capacity and should thus not be able to accommodate the traffic from Mossel Bay should Mossel Bay Airport be closed down.

2.2.2 SPATIAL PLANNING AND LAND USE MANAGEMENT

2.2.2.1 WESTERN CAPE LAND USE SPATIAL PLANNING ACT, NO 3 OF 2014 (LUPA)

The principles of LUPA is derived from the Constitution and SPLUMA, the National Spatial Planning and Land Use Management Act, no 16 of 2013. Principles that have to be taken note of when considering spatial planning proposals around the airfield are:

- Densification of urban areas at higher densities
- Spatial sustainability
- Spatial justice
- Spatial resilience
- Efficiency

These principles have to be expressed in any future SDF or local spatial development or precinct plan.

2.2.2.2 MOSSEL BAY SPATIAL DEVELOPMENT FRAMEWORK (MSDF)

The SDF for Mossel Bay has been reviewed a few times and the latest document is the 2013 MSDF. The area north of the N2 surrounding the airport has been referred to only in broad terms. It is not included in the urban edge nor has any suggestions been made about the future of this area. The future spatial pattern of Aalwyndal and the area surrounding the airport will have to be addressed more specifically in the new SDF that is currently being compiled.

2.2.2.3 ZONING SCHEME

Erf 336 on which the airport is situated is zoned. In terms of the new zoning by-law that is being promulgated it is Agriculture with an airfield as a Consent Use.

2.2.2.4 MUNICIPAL BY-LAW

There is no municipal by-law pertaining to the airport and related activities.

2.2.3 LEASE AGREEMENT

The airport is currently been leased out to the Mossel Bay Aero Club. Any developments undertaken on the airport should thus be done taking cognisance of the contents of this agreement. As regards the practical and physical management of the airfield, the following salient points in the lease can be taken note of with the view to future land use and management proposals for the airfield:

- a long term lease, terminating in 2055, at a nominal rent,
- buildings and structures can only be used for the purposes for which they were erected,
- the written consent of the lessor must be obtained for the erection, additions and improvements as well as for substantial variations and alterations on the land,
- access shall only be by means of the existing access road,
- the municipality may have two representatives on a Board of Control, Management Board or Executive Committee.
- all landing fees must be levied in accordance with a tariff approved by the lessor.

2.3 AIRFIELD DESCRIPTION

2.3.1 PHYSICAL DESCRIPTION

The airport has two runways. The main runway orientation is 10/28 (thus east west). The runway is 1 143 m long and 18 m wide. If the correction factors are applied for temperature and elevation the runway reference length is 1 004 m and the runway should thus theoretically be classified as a Code 2 runway. However, the runway width is only 18 m and the taxiway width is 7.5 m which downgrades the classification to a Code 1A. Operations to the airport are thus restricted to aircraft with a maximum wingspan of 15 m and an outer main gear wheel span up to but not including 4,5 m.^{vii} The secondary runway is not maintained and not listed in the current version of the AIP. The main runway as well as the taxiway surface is very dry and FOD is visible on both. The runway has edge, end and threshold lights which are switched on by means of a photocell as the ambient light level decreases. The following obstructions are noted in the AIP:

- A farm shed on the extended centreline of the runway 510m from threshold 27.
- High Ground with an altitude of 900 feet 1,2nm north west of threshold 09.
- A building with a height of 30 feet 400m south of threshold 27
- Powerlines parallel to the runway along the old road to Mossel Bay.

The fire fighting and rescue facilities on the airport are classified as Category 1 by the CAA and is provided by the Mossel Bay Municipality. Only fire extinguishers, fire hydrants and fire hoses are provided and it is not manned on a permanent base. The fire fighting and rescue component limits the aircraft size that can use Mossel Bay Airport to aircraft with a maximum fuselage length of 9 m and fuselage diameter of 2 m.

The airport is licenced Private. Thus passengers or freight may not be transported for revenue to and from Mossel Bay Airport and the maximum permissible aircraft take-off weight is 5 700 kg.

2.3.2 ACCESS

The airport is reached from the main access road(Rooikat street) through Aalwyndal, taking the Mussel Creek Interchange from the N2 and the directions are well signposted.. The alignment if these roads, especially at the bends, are not ideal for heavy commercial and tourist traffic such as buses carrying the skydivers.

2.3.3 AIRPORT MANAGEMENT

The airport activities and maintenance is run by the committee of the Aero Club with two employees. There is no trained and permanent flight information officer. This sometimes causes the arrival of uncontrolled aircraft that do not follow the determined flight patterns.

2.3.4 AVIATION LIMITATIONS

The limitations of the airfield are:

Table 1: Maximum characteristics of largest aircraft that can be accommodated on Mossel Bay Airport	
Wingspan	15 m
Fuselage length	9 m
Outer main gear wheel span	4.5 m
Fuselage diameter	2 m

3. REGIONAL AVIATION CONTEXT

3.1 AIR SPACE

The airspace allocation in Mossel Bay is indicated in the following figure where the airspace allocation have been superimposed on a Google Earth Image of the area.



Map 4: Mossel Bay Airspace allocation

SOURCE: ATNS

From the above the following should be noted:

Three major airspace corridors intersect one another at George airport. George Airport has a manned control tower and the influence of the terminal control area around George Airport is indicated in a number of concentric circle segments originating at George Airport. The most important one of these, whilst zooming in on Mossel Bay Airport is TMA₁, under which the Mossel Bay Airport is located. This area is indicated on the above chart in a light blue/grey colour and is controlled between flight level 145 (14 500 feet) and an altitude of 3500 feet. If an aircraft takes off at Mossel Bay it needs to obtain permission from the tower at George to enter this area. One of the major complaints from the residents in Alwyndal is that aircraft are flying too low. The possibility to raise this level was discussed with ATNS in George but they indicated that it would have a negative influence on the operations at George and could thus not be considered. A second important point to note is the area indicated in light green which falls under the control of Bredasdorp / Overberg Military Airport.

The Department of Transport compiled a National Airports Development Plan^{viii} which regulates the development of airports in South Africa. On page 49 this document it stipulates the following issue which is very important regarding the Mossel Bay Airport. *"All greenfields airports will be required to obtain airspace approval from NASCOM prior to commencement of any construction activities. In particular proposals for airports within 50nm of the geographical footprint of any Terminal Area (TMA), or within 10nm of an existing licensed airport, must be evaluated in order to determine the potential interference with established procedures regarding controlled airspace in accordance with the Civil Aviation Regulations 201151."* The Airports Development Plan further stipulates "Greenfield developments should ideally be planned outside the CTR of existing airports and preferable outside the TMA. From the above it can be noted that the entire area around Mossel Bay has air space restrictions which need to be considered should the alternative be considered to develop an alternative airport to supplement / replace the existing Mossel Bay airport.

The current working relation between Mossel Bay Airport and George Airport was also discussed with ACSA as well as ATNS. Staff of both these state owned companies indicated that the co-operation between Mossel Bay and George airports are very good and none raised any concerns regarding the operations at Mossel Bay Airport.

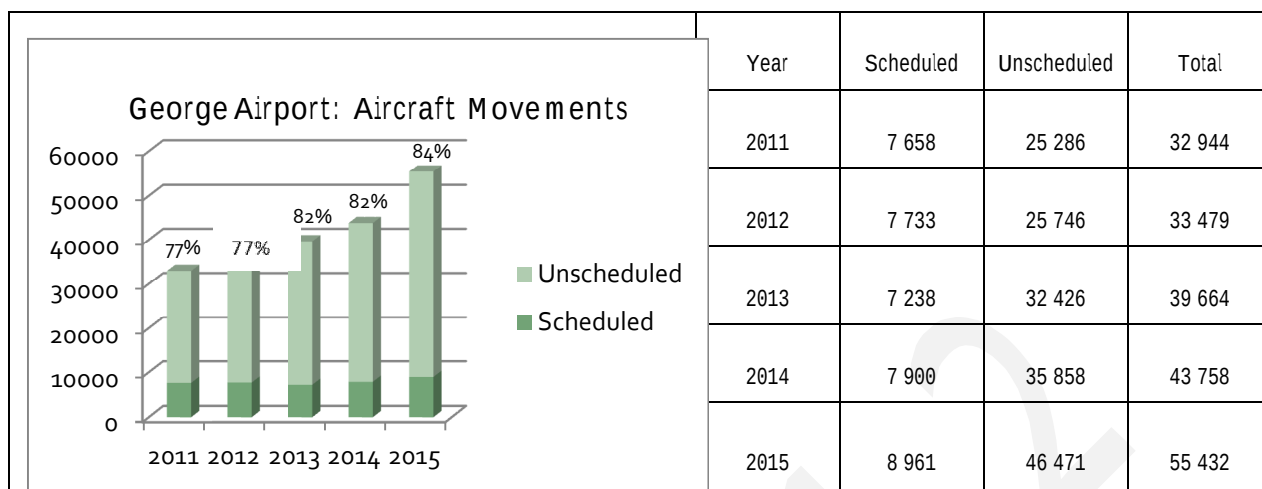
3.2 REGIONAL AVIATION CONTEXT

3.2.1 GEORGE AIRPORT

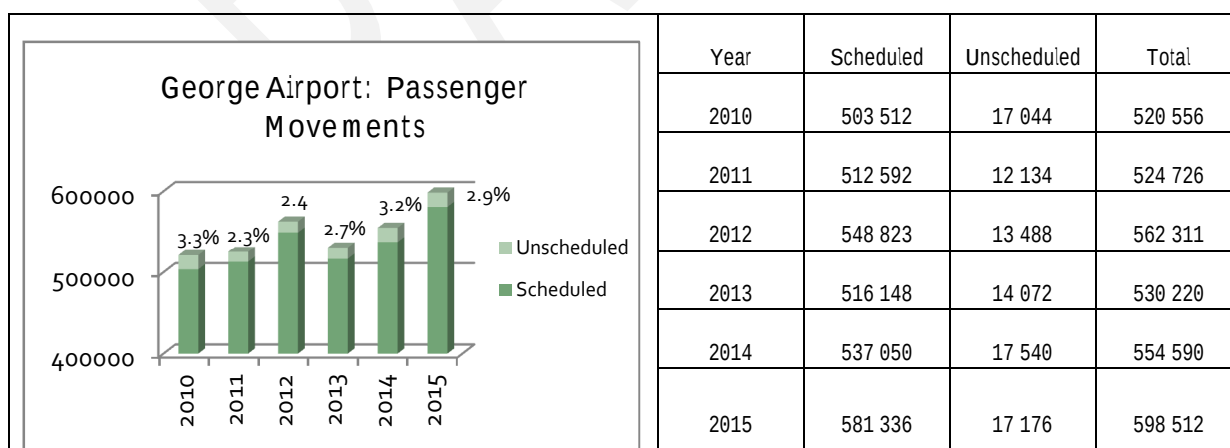
This section sketches limited information regarding George Airport which is relevant to the study regarding the Mossel Bay Airport and does not cover a comprehensive analysis of the available facilities at George Airport.

George is a National Airport which is owned and managed by ACSA. The airport is adjacent to the N2 close to the intersection of R404 and the N2, approximately 6 km from the CBD and 43km by road from the Mossel Bay Airport. Co-ordinates of the airport reference point are: S34°00'24" E 022°22'41". The airport elevation is 648' (197m) and the airport reference temperature is 26°C.

Regular Scheduled flights are available from major domestic destinations in South Africa to George Airport by various airlines including by SA Airlink, Mango and Kulula.com. George is also a deviation airport for domestic flights to Cape Town International Airport as well as Port Elizabeth Airport. Traffic volumes at George are indicated on the underneath figures and tables^{ix}:



From the above it can be noted that the majority of aircraft movements at George Airport are unscheduled and the relative percentage unscheduled movements to scheduled movements increased from 77% of the total movements to 84% of the total aircraft movements over the past five years. Discussions with ACSA revealed that should Mossel Bay Airport be closed they can accommodate all the aircraft users which are currently operating from Mossel Bay Airport. The practicality of this statement should be questioned as Mossel Bay's largest two operators are training activities by Starlite and the sky diving club. It is NOT feasible to mix large high performance aircraft with low performance aircraft on an airport. Secondly, training pilots could have a negative effect on the punctuality of scheduled operations and it will be dangerous and is NOT encouraged to have a large number of parachutes in the air if a large scheduled aircraft need to take-off or land. If George expands and the traffic grow at George Airport, ACSA will most probable introduce minimum performance specifications and or minimum landing fees which will result in the closure of these two businesses.



This pattern differs substantially from the previous graph and figures. From the above it can be noted that the largest percentage unscheduled passengers to scheduled passengers was only 3,3%. As a Company ACSA should be profit driven, which emphasizes the point should the unscheduled operations have any negative effect on ACSA's bottom line they will be forced out by means of tariff adjustments which will make it financially impossible for them to operate from George Airport.

George airport has a single runway with Orientation 11/29. The runway length is 2000 m and the width is 45 m and the pavement strength (PCN) is 49/F/B/Y/U/ASPH. The runway can thus be classified as a Code 4C, which can accommodate aircraft with wingspans up to 36 m and an outer main gear wheel span up to but not including 9 m. Typical aircraft in this category are the Airbus A 320 family and Boeing 737 family of aircraft. From the above it can be noted that the airport was initially designed to accommodate narrow body jet engine aircraft. Without going into specific details the airport has CAT 1 Instrumentation and a full set of approach lights for aircraft touching down on threshold 29.

The National Airports Development Plan makes provision for George Airport to be upgraded to accommodate up to Code E aircraft (Wide bodies such as the Airbus A 340 and Boeing 747).

3.2.2. OUDTSHOORN

At the time of writing the Oudtshoorn airfield is being contemplated to be relocated to a site where it could be substantially enlarged. Alternative sites are being investigated. The intention is that it would have a strong military function.

3.2.3 PLETTENBERG BAY AIRPORT

Plettenberg Bay Airport is located 5km west of Plettenberg Bay and 130 km from Mossel Bay. Access to the airport can be obtained from the road leading to Robberg. The airport reference points co-ordinates are S340513.37E0231943.02 The airport elevation is 465' (140 m) and the airport reference temperature is 26°C.

Plettenberg Bay Airport is licensed for public usage and Cemair operates five scheduled flights per week between Johannesburg and Plettenberg Bay. The airport is managed on a concession base.

Plettenberg Airport has a single runway with orientation 12/30 which is 1240m long and 20m wide. The airport is open 24 hours. Should Mossel Bay Airport be closed certain operators such as the Sky Divers and Starlite could most probable be accommodated on Plettenberg Bay Airport but this will mean that their contribution to the Mossel Bay economy is lost.

3.2.4 STILBAAI LANDING STRIP

Stilbaai has a small landing strip but it is not licensed by the CAA. The strip is 950m long and 15m wide and there is no facilities available at the landing strip. The orientation of the strip is 09/27 and it is owned by local government. The strip is approximately 70km west of Mossel Bay but cannot be considered as an alternative for Mossel Bay Airport.

3.2.5 OVERBERG AIRPORT

Overberg is an unlicensed military airport near Bredasdorp, thus 250 km from Mossel Bay. The coordinates of the airport reference point are: S343329.22 E0201456.84. The airport elevation is 52' (16 m) and the reference temperature is 24°C. The airport has two runways. Runway 35/17 is 3 115 m long and 46 m wide and has a pavement strength (LCN) of 70 and runway 28/10 is 2 111 m long and 40 m wide and has the same pavement strength. The airport has a category 8 FFR facility. This airport can be utilised by wide body aircraft should they have to deviate from Cape Town International Airport although limited terminal facilities are available. The

reason why Overberg's information is provided in this document is to indicate that an alternative airport is available in emergencies should Cape Town International Airport need to be closed or cannot accommodate a flight en-route to the mother city. The necessity to upgrade George for deviation from Cape Town International Airport thus declines and it would only be necessary to upgrade George for the above should the traffic at George warrant such large aircraft to utilise the airport or if Overberg is closed down as a result of downscaling operations by the South African Air Force. It could thus be assumed that George Airport will be able to accommodate a fairly large number of the operations currently using Mossel Bay Airport should it be necessary to seek alternative accommodation for tenants currently using Mossel Bay Airport. However, the economic impact of such a decision including damages suffered by people to compensate them for improvements made on Mossel Bay airport should be taken into account prior to making any decisions in this regard.

4. NATURAL ENVIRONMENT

The Mossel Bay Airport, in its current location, was established in 1998 before the Environmental Impact Assessment legislation was in place. The property on which the airport is situated is Farm 336, situated in Aalwyndal and outside the urban edge. The property is zoned for agricultural use with the purpose of using it as an airfield.

The topography of the site is relatively flat, ranging between 161m amsl in the south and 168m amsl in the north. The underlay rock formations consists of the rocks from the Table Mountain Group and the Bokkeveld Group of the Cape Supergroup.

The vegetation on the property, according to the South African Vegetation Map, has been mapped as North Langeberg Sandstone Fynbos which has a Conservation Status of Least Threatened. The unit does not appear in the National List of Ecosystems that are Threatened and in need of Protection (Government Notice No. 1002 of 9 December 2011). On a finer scale (Gourits Vegetation Map) the vegetation has been mapped as Herbertsdale Renoster Thicket which is endemic to the Gourits area and assigned a Conservation Status of Endangered.

The airport is mapped as No Natural Area (NNA) and the surrounding area as Other Natural Area (ONA) according to the Fine Scale Planning data for the Mossel Bay Municipality terrestrial Critical Biodiversity Area (CBA) information. These areas have been identified as areas favoured for development within general rural land-use principles. According to the aquatic CBA information a number of aquatic features are present in the vicinity of the airport. These aquatic features are mainly wetlands in the form of depressions, flats, seeps and channeled valley-bottom wetlands. The classification of these wetlands range from Condition AB (Natural or Good) to Condition Z₁ (heavily to critically modified). These features are however not impacted by activities at the Mossel Bay Airport.

The main impact of the airport on the environment is mainly the noise generated by the activities at the airport that are dealt with separately below.

5. METEOROLOGY

Although no data could be obtained regarding the weather conditions in Mossel Bay, the town is regarded as one of the destinations in the world with the most favourable weather conditions. It is understood from Starlite, the largest operator on the airport, that this was their motivation why they established themselves on Mossel Bay Airport. The fact that the secondary runway is not maintained by the Aero Club is also an indication that it is not needed and the east west orientation of the main runway which is parallel to the coastline is correctly orientated.

6. NOISE LEVELS

Aircraft noise was assessed in terms of the guidelines for typical rating levels for noise contained in SANS 10103. Guidelines for rural districts are a day/night LR,dn of 45 and for suburban districts with little road traffic, a day night level LR,dn of 50. Twenty four hour measurements were carried out at two sites, producing results of 45.5 LR,dn and 44.5 LR,dn. These results correspond well with the guidelines for rural districts and suburban districts with little road traffic.

Shorter spot measurements were carried out at a further nine sites. The results varied from a low of 37.1 Leq to a high of 64.9 Leq. The quieter areas are situated away from human induced noise sources such as aircraft and motor vehicles. Noisier areas are situated closer to busy roads and in particular Rooikat Road which is the only access road to Aalwyndal suburb and the airport. These short duration measurements provide some insight into the sound levels which can be encountered in areas surrounding the airport. The comparatively harsh sounds of cars, motor bikes and aircraft are distinctly audible in this environment, which consists mostly of natural sounds.

Frequency of occurrence of flights – especially pilot training taking place in the circuit, their repetitive nature, and rapid increases in power after engine failure training all contribute to the noise environment. The maximum sound levels of these flights can exceed the residual levels substantially. Depending on slant distance from the receiver, aircraft and helicopter sounds will be audible and may be disturbing to residents.

7. ECONOMIC IMPACT

7.1 GROSS GEOGRAPHIC PRODUCT (GGP)

The leading contributing sectors to Gross Geographic Product (GGP) for the Mossel Bay Local Municipal (MBLM)economy, according to 2013 current prices, found to be similar to of the Regional, were:

- Financial insurance, real estate and business services - 25.4%,
- Wholesale retail and trade, catering and accommodation - 20.4%
- Manufacturing sector -15%
- General government -13.7%

However, the fastest growing sectors in MBLM's contemporary economy, calculated over a four-year average, in the era 2010 to 2014, were:

- General government services (9.5%)
- Manufacturing (7.9%)
- Wholesale and trade, catering and accommodation (7.8%)
- Finance, insurance and real estate and business (4.8%) together with community, social and personal services (4.2%).

7.2 FORMAL EMPLOYMENT

Economic sectors that had (in 2013) the highest contribution to formal employment for the MBLM area were:

- Wholesale and retail and trade, catering and accommodation sector (23%),
- Financial services (15.4%),
- Community, social and personal services (15.1%)
- General government services (14.8%).

The MBLM economy has experienced a 2.4% decline in overall employment, mostly from employment loss in the mining and quarrying (-30%) and construction (-6.1%) sectors. However, despite the overall negative employment growth, tertiary and secondary sectors in the MBLM economy, have experienced some positive employment growth (between 2010-2014), led by:

- general government (6.9%)
- financial services (2.5%)
- wholesale and retail, catering and accommodation (2.1%)

7.3 TOURISM

The tourism industry in Mossel Bay is a significant contributor to the local economy. Further analysis into Mossel Bay's tourism market trend, revealed that Mossel Bay's tourism niche is in providing a sporting spectacular travel destination for domestic travelers, and extreme sporting for international travelers. As such MBLM has become known for these activities and is becoming increasingly important to the region's tourism market due to the niche tourist activities it supplies.

7.4 AIRPORT USES AND ACTIVITIES

Investigation of activities currently taking place at Mossel Bay Airport found that it largely acts as a base for aircraft training, extreme sporting (skydiving) and touring operation businesses, as detailed in the Table 1 below.

Table 1: Description of Operator Activities Based at Mossel Bay Airport

Operators	Description of Activities	Growth in Activity
Starlite Aviation	Operates Starlite International Helicopter Training Academy: • which specialises in helicopter training and fixed wing training of pilots and engineers, and recognised by the South African CAA and other international end users. ▪ Starlite operate a fleet of 17 helicopters and 2 fixed wing aircraft out of Mossel Bay training purposes. ▪ 10 x CabriG2 2 seater Piston Helicopters ▪ 5 x Robinson R22 2 seater Piston Helicopters ▪ 1 x Robinson R44 Piston Helicopter, ▪ 1 X R66 Robinson 5 seater Turbine Helicopter ▪ 1 x Cessna C152 2 seater piston fixed wing ▪ 1 X Jabiru 2 Seater piston fixed wing. ▪ Procedural IF training is conducted on 2 x certified EASA/JAA/FAA/SACAA approved FNPTII MCC FSTD-H Simulators for both Helicopter and Fixed Wing Instrument Training. ▪ It trains both Military and Civilian Ab Initio Helicopter Pilots, and has trained over 2000 AB Initio helicopter pilots, more than 300 Commercial and over 70 Instructor Helicopter Pilots since its conception in 1999, totalling in excess 100 000 hours of instruction. ▪ Averaging in excess of 7000 helicopter flying hours per	Has been operational for 6 years and provides training to an average 75 to 100 students per annum.

Operators	Description of Activities	Growth in Activity
	annum, the training school utilises Guimbal Cabri G2's, Robinson R22's, R44's, the turbine R66 and assorted other single and twin turbine powered helicopters depending on the clients training requirements.	
Starlite Maintenance	Provides maintenance services - to Starlite Africa on their fleet of R22, R44, R66 and Cabri training helicopters, - as well as R22, R44 and R66 helicopters operated by other operators/privateers within the area. - Occasionally carry's out maintenance on Bell 212 helicopters operated by Starlite Operations on the South Africa Agulhas supply ship.	Have been operational for less than 2 years and have seen an increase from 2 customers in 2014 to 5 in 2015.
Skydive Mossel Bay	Adventure sport centre, providing: - Tandem skydiving to tourists - A club for experienced sports jumpers - As well as a school offering courses to students aspiring to become sports skydivers.	Customers, including tourists and trainees, have doubled in the past five years, from 1500 in 2011 to 3000 in 2015
Southern Exploration Surveys	- Undertake equipment maintenance and general paperwork for the Civil Aviation Authority (CAA) - Aircraft and equipment are based at their hanger at Mossel Bay Airport.	Have experienced a change in customer composition, from 25 customers in 2011 to 10 larger ones in 2015
Tours for SA	Operate the largest touring operations on the garden route area, Based in Mossel Bay they operate a national servicing charter section, with 26 vehicles(sedans) from Mercedes-through to 48 full luxury coaches.	Have experienced increased touring, operations, from 4000 in 2011 to 5000 in 2015
Freelance Fixed Wing Instructors	Provides freelance Part Time Instruction, providing: - Initial tail wheel training and conversion to the type Cubby (X 285). - Conversion to type on Cessna 172 RG provided for commercial pilot students - Instrument training for both Night Rating as well as Cessna 172RG and Cessna 150. - Private Pilot renewals or Competency Checks services, on either the school's aircraft of pilot's own aircraft.	Students trained have increased from 4 in 2012 to 7 in 2015
Heli-Aircraft Maintenance Organisation	Provides maintenance and repairs to helicopters	Customers have increased form 7 in 2012 to 19 in 2015

These various business operations (including aircraft training school and tandem skydiving) at the Airport, hosting of sporting spectacular events and providing of landing, refuelling, maintenance and hanger facilities, were found to unlock various direct and indirect local tourism activities. This was through attracting domestic and international travellers to the area, that not only utilised the range of services supplied by the Airport, but other tourism related services in the economy. The impact of the above discussed activities on the MBLM economy were quantified using the SAM model.

8. INFRASTRUCTURE

8.1 SEWAGE

Sewage is presently handled by a combination of suction and septic tanks with soak-aways (french drains). There are suction tanks at the clubhouse, Skydive Mossel Bay, Heli Air, at the back of hangers A1 and A2, between hangers A4 and B6 and at hangers C14/C15 which gives a total of 6 tanks. Starlite is serviced by a septic tank and soak-away.

8.2 WATER

The property is serviced by a 50mm metered connection from a 110mm municipal water main. This should be sufficient for the domestic water requirements of the existing buildings. The size and routes of the internal water pipes on the premises could not be determined.

There are a total of 7 fire hydrants on the premises at the following positions:

- Between hangers A3 and A4
- Between hangers A7 and A8
- Between hangers C6 and C7
- Next to hanger C1
- Next to hanger C13
- Next to the footpath from the public parking to the clubhouse
- Next to the fuel bay

There is also a fire hose at the back of the kitchen at the clubhouse.

The area is classified as a moderate-risk area with regard to the provision of water for fire-fighting and a minimum design flow of 6,000 l/min for a duration of 4 hours is required. Hydrants should be provided of mains not smaller than 75mm diameter and spaced maximum 180m apart. A minimum hydrant flow rate of 1,500 l/min and residual head of 15m is required.

To comply with these fire-fighting requirements at least a 75mm diameter fire main with 3 hydrants will be required. The sizes of the pipes feeding the hydrants, the residual head and hydrant flow rate should be checked on site to determine if this complies with the regulations.

8.3 STORM WATER

All the storm water is presently diverted via the paved road and runway surfaces to the surrounding veld. There are no storm water channels or underground pipes.

8.4 RUNWAY

The runway was apparently constructed in 2001 with a gravel surface which was later covered with a bituminous surfacing seal in 2004 or 2005. Multiple cracks which consist mostly of crocodile cracks but also included some transverse and block cracks are visible in isolated parts of the runway but mostly on the south-western end. Isolated areas of raveling and small potholes were also noticed during our inspection. A fair amount of reinstatement by patching has been done and according to the Mossel Bay Aero Club this is an ongoing process. The cracking can probably be attributed to fatigue of the pavement surface under traffic which is worsened by the ingress of rainwater through the cracks. The surfacing seal is also very dry and the binder is hard (brittle) and not flexible. Inadequate surface and subsurface drainage can also attribute to the localized distressed areas.

The runway layer works should be exposed at a few positions and the layer thickness should be measured and the materials tested to determine if it complies with the requirements for the present traffic loads. A contour survey of runway should also be done to determine if the geometric design and surface drainage is adequate. Based on a visual inspection of the runway the vertical alignment does not comply with ICAO standards and the runway width is substandard.

8.5 TAXIWAYS AND ROADS

Internal roads and accesses to hangers and buildings are a combination of gravel and bituminous surfacing. The bituminous surfacing is generally in a poor conditions with multiply cracks and various small potholes visible. Apparently the Mossel Bay Aero Club intends to reseal the approach road to the runway in the near future. Based on the layout plan of the airport the distance between hangar C8 and the erven boundary of stand D11 is only 23.31 m, thus the distance between the taxiway centerline and the building is 11.65m, whereas the ICAO standard between a taxiway centerline and any object should be at least 16.25m for a code A which is the smallest aircraft category. Note this is the distance between the actual building (Hangar C8) and not between the stand boundaries which are less.

The gravel access road to the airport property is generally in a poor condition probably due to the increase in traffic to the airport over the last couple of years and lack of maintenance.

8.6 ELECTRICITY

The Bulk Supply of electricity to the Mossel Bay Airport is via a 11 kV Overhead line with a 100 kVA Supply. There is spare capacity at Intake Substation from Eskom if there is a need to upgrade this supply.

Area lighting is available for ancillary infrastructure.

9. CONCLUSION

9.1 ECONOMY

During operation (2016) the current airfield activities contributed with the following, to the local Mossel Bay economy:

- Estimated additional R 122.65 million in direct new business sales
- Estimated additional R 51.10 million in direct GGP

- Estimated additional 73 direct employment opportunities

The study found that economic activities currently facilitated by the existence of the airfield contributed to tourism through:

- attracting a significant number of travellers to the Mossel Bay area for the main purpose of attending sporting spectacles, which are hosted by Mossel Bay Airfield.
- attracting travellers from all over South Africa through providing travellers visiting the area- usage of private plane landing and storage facilities, evident in the significant proportion of airfield hangar utilisers and owners from outside Mossel Bay.
- Business operations at the airport, including Starlight Aviation, Skydive Mossel Bay and Tours contribute to the Mossel Bay tourism industry through stimulating related economic activities, such as the provision of accommodation, restaurants, transports and other leisure related services.

These economic activities at the airfield stimulate economic activity in the sectors that currently drive growth and employment in the Mossel Bay economy.

The upgrading of physical infrastructure by the Airfield had a significant temporary impact on construction and manufacturing sectors in the local economy. The continued operation of the Mossel Bay Airfield port was found to have significant indirect and induced impacts on the local economy, seen in the multiplier effect of the Airfield on employment and GGP in the municipal area and the notably high indirect and induced effects of its operation. The Airfield was found to have a sustained impact on the transport and storage, trade and accommodation and real estate and business services economic sectors, currently leading economic growth in the municipal area.

The Airfield induced employment creation in the local economy that has a range of positive spill over effects, which include increased household income and concurrent spending power in the local economy, thus stimulating smaller retail businesses and service providers.

The study found that airfield's spill over effect into the Mossel Bay economy has overall improved standards of living, which has added social impacts such as reduced crime and better access to education in the area.

9.2 NOISE LEVELS

The noise levels are generally at levels normally associated with an airport of this nature. There are however, certain noise levels associated with the training activities that could be mitigated.

9.3 LOCATION IN TERMS OF AIR SPACE

The airfield has a limited air space allocation but functions well in the context of the regional air space. The limitations on the air space the airfield cannot be relocated elsewhere.

9.4 LOCATION IN TERMS OF REGIONAL CONTEXT

The airfield is well situated from a spatial and environmental point of view with no impact on the physical environment. It is also well located from an aeronautical and meteorological points of view.

9.5 AIR FLIGHT CONTROL

The movement of aircraft could be improved by more control in the tower and to this end a management model between the municipality and the Aero Club has to be developed.

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ACSA website

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Mossel Bay Spatial Development Framework, 2013

ⁱ South African Civil Aviation Act, Act 13 of 2009

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ⁱⁱⁱ South African Civil Aviation Authority: Aeronautical information Publication October 2012

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^{vi} South African Weather Bureau

^{vii} ICAO Annex 14 Standards and Recommended Practices volume 1 Aerodromes

^{viii} South African Department of Transport: National Airports Development Plan

^{ix} ACSA website

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ENVIRONMENTAL STATUS QUO REPORT

FOR THE

MOSSEL BAY AIRPORT ON FARM NO. 336

AALWYNDAL, MOSSEL BAY

PREPARED FOR: WM de Kock Associates
PO Box 9934
George
6530

DATE: 3 March 2016

REPORT NO: 17/ESQ/MBA/03/16

-
- Environmental Impact Assessments • Basic Assessments • Environmental Management Planning
 - Environmental Control & Monitoring • Public Participation • Broad scale Environmental Planning



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Project Ref. No:	17
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ABBREVIATIONS

amsl	ABOVE MEAN SEA LEVEL
CBA	CRITICAL BIODIVERSITY AREA
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
FSP	FINE SCALE PLANNING
ICAO	INTERNATIONAL CIVIL AVIATION ORGANISATION
Ma	MILLION YEARS
NEMA	NATIONAL ENVIRONMENTAL MANAGEMENT ACT (1998), NO. 107 OF 1998, AS AMENDED
NFEPA	NATIONAL FRESHWATER ECOSYSTEM PRIORITY AREA
NNA	NO NATURAL AREA
ONA	OTHER NATURAL AREA
SANBI: BGIS	SOUTH AFRICAN BIODIVERSITY INSTITUTE: BIODIVERSITY GIS
SES	SHARPLES ENVIRONMENTAL SERVICES CC

1. INTRODUCTION

Sharples Environmental Services cc has been tasked to determine the environmental *status quo* of the Mossel Bay Airport. The scope of the report is limited to a desktop analysis rather than a detailed field investigation.

The airport, in its current location, was established in 1998 (gravel runway) on the initiative of private individuals after the original location (in Kwanonqaba) was earmarked for low-cost housing. Since the airport was established before Environmental Impact Assessment (EIA) legislation, no EIA was required at the time. In 2001 the runway was sealed but only the 6m wide centre strip. Currently there are 38 hangars at the airport. The airport property (Farm 336) is owned by the Mossel Bay Municipality which leases it to the Mossel Bay Aero Club. The airport is managed entirely by the Aero Club. However the Mossel Bay Municipality has assisted financially and with maintenance over the past 10 years.

2. MOSSEL BAY AIRPORT ENVIRONMENTAL STATUS

2.1 Property Zoning

The airport is situated on Farm 336 which is currently zoned for agricultural purposes with the purpose of using it as an "airfield". The property is situated outside the urban edge.

2.2 Topography

The landscape in which the Mossel Bay Airport is situated is relatively flat with a slight slope from north to south. The highest point in the vicinity of the airport is 188m approximately 1.7km northwest of the runway. The elevation of the airport is 166m amsl. Refer to Figure 1 below.

The International Civil Aviation Organisation (ICAO) recommends that the runway reference length should be decreased for 7% for each 300m elevation. The percentage that the effective runway length is thus shorter, as a result of the airports elevation, is 3.9%. The effective runway length due to the elevation is thus 1100m. Furthermore, based on the site visit and data obtained from 1:50 000 topographical maps no topographical obstructions exists in the approach or take-off paths at the airport (de Swardt, 2016).

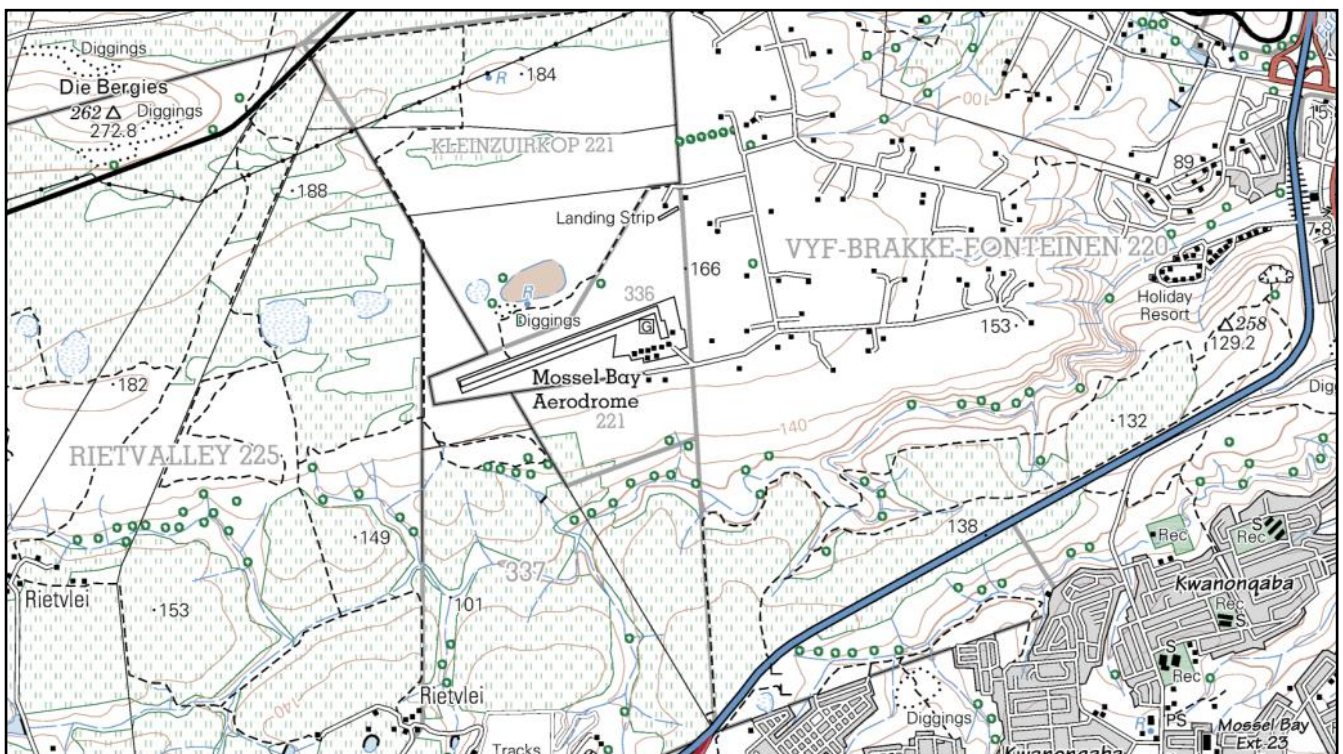


Figure 1: Topographic map (1:50 000) of the Mossel Bay Airport and surrounding area

2.3 Geology

Parsons and Veltman's study (cited in Botha & Veltman 2007) indicates that the general geology underlying the Mossel Bay consists of the Table Mountain Group and the Bokkeveld Group of the Cape Supergroup. The study indicates that these rocks were deposited between 500 and 340 Ma ago in the Agulhas Sea and underwent deformation during the Cape Orogeny some 280 to 220 Ma ago, and during the breakup of Gondwana 170 to 130 Ma ago.

2.3.1 The Table Mountain Group

According to Parsons and Veltman (2006) as cited by Botha and Veltman (2007) the Table Mountain Group was deposited directly on granites of the Cape Granite Suite. The group comprises 5 principal units in the southern and eastern cape, namely the Peninsula, Cedarberg, Goudini, Skurweberg and Baviaanskloof Formations. The rocks of the Table Mountain Group form the Langeberg and Outeniqua Mountains, which lie to the north of the site, as they are resistant to weathering.

2.3.2 Bokkeveld Group

The Bokkeveld Group consists of the basal Ceres Subgroup and the Tarka Subgroup of which only the Ceres Subgroup outcrops in the study area. Since the Bokkeveld Group is more erodible than the Table Mountain Group it forms valleys instead of mountains / koppies. Shales and mudstones of the Bokkeveld Group underlie most of the area between the N2 national road and the Langeberg Mountains between Riversdale and Mossel Bay (Parsons & Veltman (2006) as cited by Botha & Veltman (2007)).

2.3.3 Geological map

According to the Geological Map of the Republic of South Africa and the Kingdoms of Lesotho and Swaziland (1997) the lithology consist mainly shales (Db) and quartzitic sandstone, shale and tillite (Sn).

2.3.4 Other studies

According to a study done for the fuel tanks by Du Plessis (2015) the geology at the Mossel Bay Airport consists mainly of light-grey quartzitic sandstone (Ss) with subordinate shale and pebble layers from the Skurweberg Formation of the Table Mountain Group. Also present is feldspathic sandstone, feldspathic quartzitic sandstone with sandy clay (Db). This belongs to the Baviaanskloof Formation, also from the Table Mountain Group. The Baviaanskloof Formation is overlying the Skurweberg Formation. Shale and sandy shale (Dc), also of the Table Mountain Group, is overlying the Baviaanskloof Formation.

None of the lower Table Mountain Group Formations (Skurweberg -, Goudini- or Peninsula Formations) are present. Also absent are all the Formations of the Uitenhage Group and the Bokkeveld Groups. Both the Uitenhage- and Bokkeveld Formations are of a younger age than the Table Mountain Group. All these Formations are overlain by the Quaternary age gritty sand and debris of the Bredasdorp Group (Du Plessis, 2015).

From the above it can be noted that the material properties whereon the airport is founded is sound. No difficulties should be experienced to obtain construction material should the master plan indicate the feasibility to relocate or lengthen the runway (de Swardt, 2016).

2.4 Vegetation Description

2.4.1 South African Vegetation Map (2006)

According to the South African Vegetation Map on the South African Nation Biodiversity Institute: BiodiversityGIS (SANBI: BGIS) website, the vegetation has been mapped as North Langeberg Sandstone Fynbos (FFs 15) (Mucina and Rutherford, 2006). See Figure 2. According to Mucina and Rutherford (2006) this vegetation unit has a Conservation Status of Least Threatened which means that it is considered to have a low risk of extinction as a result of being widespread and abundant. As a result this vegetation unit does not appear on the NATIONAL LIST OF ECOSYSTEMS THAT ARE THREATENED AND IN NEED OF PROTECTION published in terms of Section 52(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (Government Notice No. 1002 of 9 December 2011).

The vegetation unit is found on the northern slopes of the Langeberg from the Keerom Mountains near Worcester in the west to Cloete' Pass north of Albertinia in the east. Along the interior it is found on the Waboomsberg and Warmwaterberg Mountains north of Montagu and Barrydale and Aasvoëlberg hills from Albertinia to Mossel Bay. The altitude at which this unit is found, range from 100-1000m amsl.

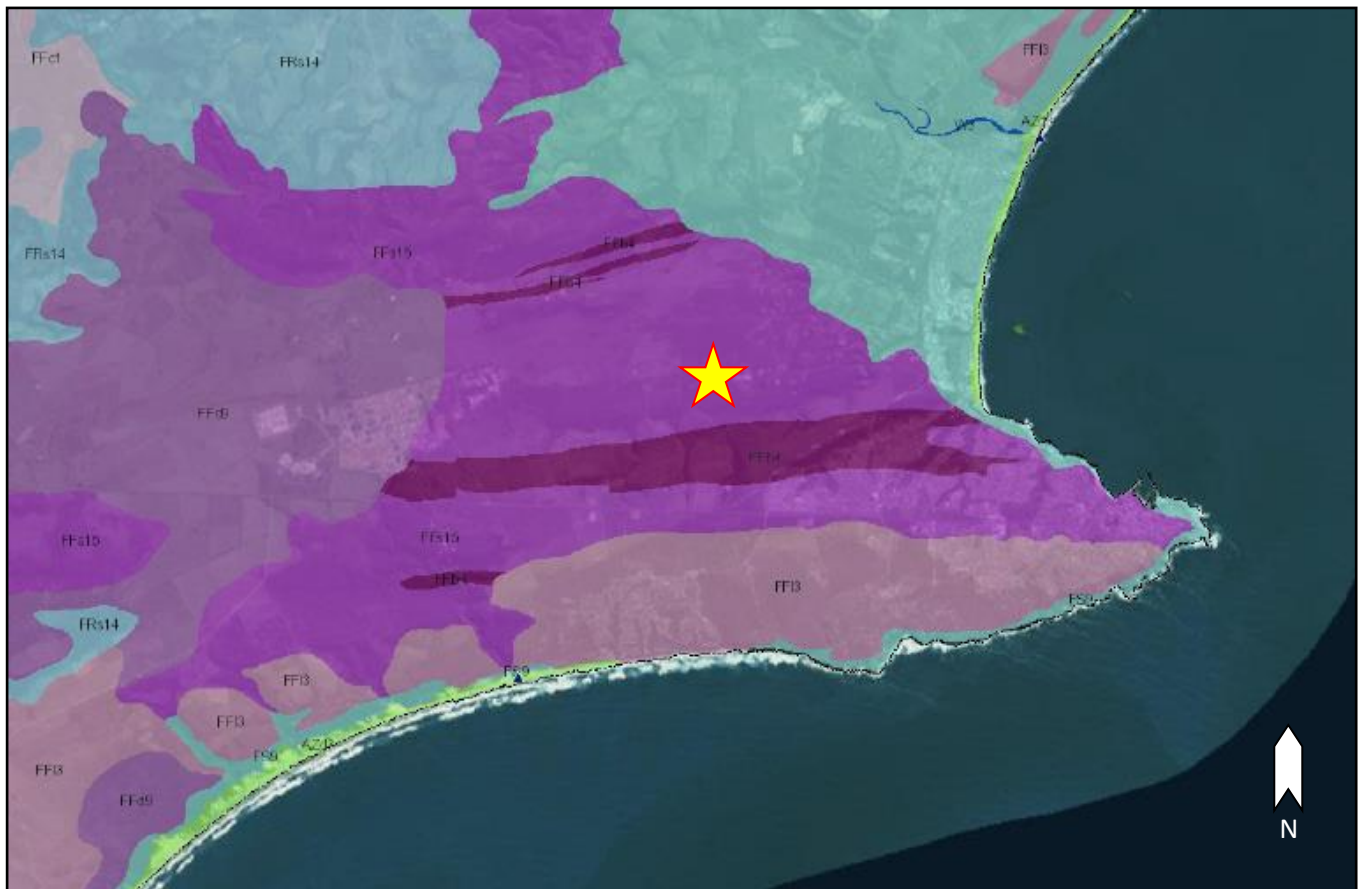


Figure 2: South African Vegetation Map for the Mossel Bay airport. Yellow star indicates location of the Mossel Bay Airport (map courtesy of SANBI: BGIS)

2.4.2 Gourits Vegetation Map (2004)

According to the Gouritz Vegetation Map the vegetation is mapped as Herbertsdale Renoster Thicket (see Figure 3 below). This vegetation is endemic to the Gourits area and has been assigned a conservation status of Endangered. Approximately 41% of the vegetation unit still remains (1998) but none of the vegetation type has been conserved in "Type 1" conservation areas.



Figure 3: Aerial photograph depicting Gouritz vegetation units

2.5 Fine Scale Planning

2.5.1 Terrestrial

The following data was extracted from the Mossel Bay Municipality terrestrial Critical Biodiversity Area (CBA) information. CBA's represent areas that are required to meet biodiversity pattern targets and ecological and ecological process objectives. Therefore the loss of a single site would compromise meeting the targets and objectives of the site. It is therefore recommended that the site is managed in a manner compatible with biodiversity conservation, and ultimately remain in, or be restored to, a natural state. The ecological composition structure and function of the site must be preserved.

The surrounding area of the airport is mapped as OTHER NATURAL AREA (ONA) (see green shaded area in Figure 4). The airport property itself has been mapped as NO NATURAL AREA (NNA). The management objective of the airport and the surrounding area is for sustainable development and management of the area within general rural land-use principles. It is also listed as land favoured for development. Therefore according to the biodiversity planning of the site, the airport and surrounding area may be developed if the need arises.

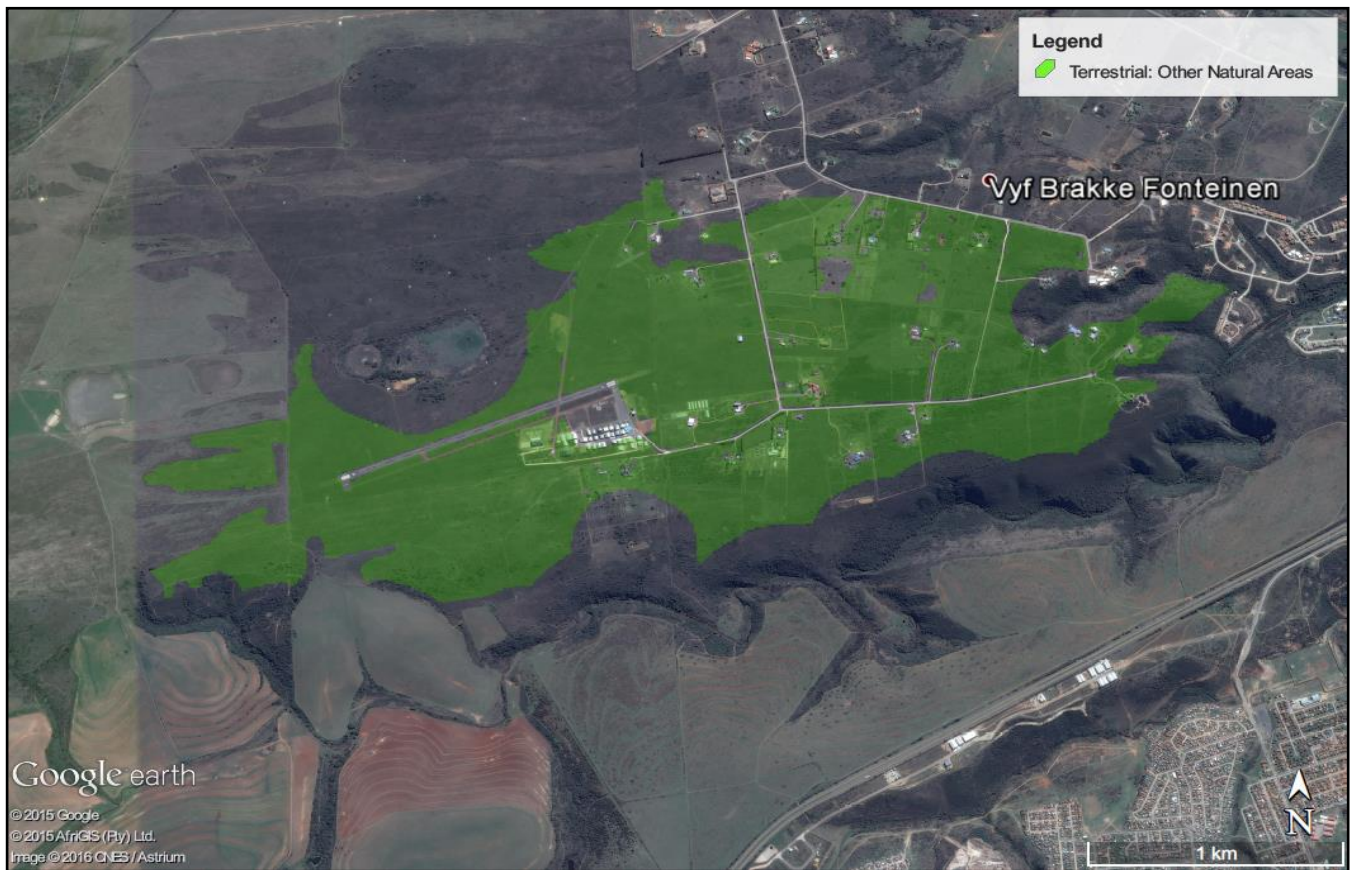


Figure 4: Aerial photograph depicting the terrestrial CBA surrounding the airport (Google Earth, 2015)

2.5.2 Aquatic

The aquatic FSP indicates that there are aquatic features i.e. Critical Biodiversity Areas (CBAs) and CBA Buffer in the vicinity of the airport. The management objectives of the CBAs and the CBA Buffers are to maintain natural land and to rehabilitate degraded areas to natural or near natural condition and manage those areas to prevent degradation. See Figure 5 below for the aquatic CBA's in the vicinity of the airport.

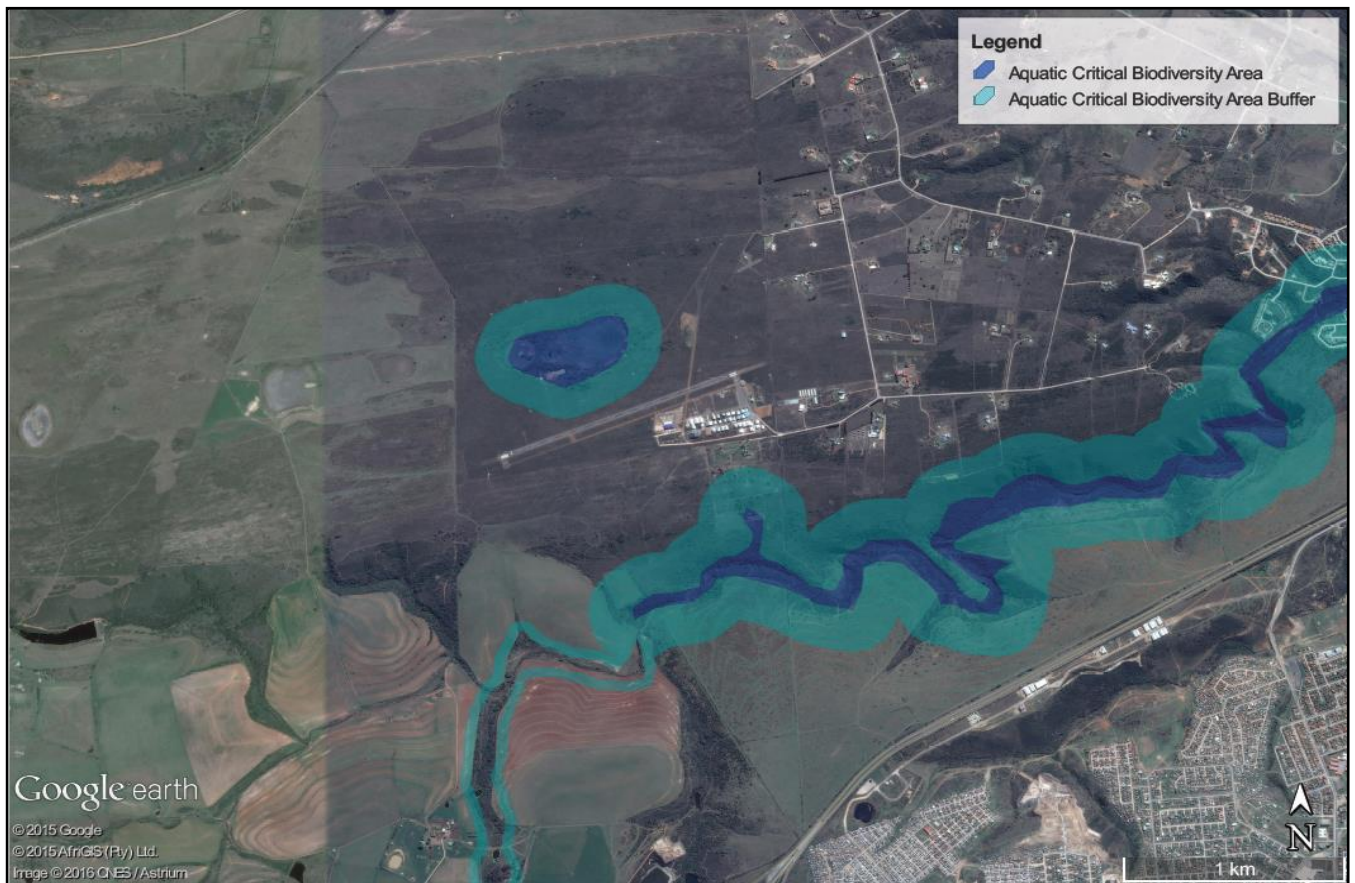


Figure 5: Aerial photograph depicting the aquatic CBA surrounding the airport (Google Earth, 2015)

2.6 National Freshwater Ecosystem Priority Areas

The National Freshwater Ecosystem Priority Areas (NFEPA) project identifies a number wetlands in close proximity to the airport (refer to Figure 6). According to the NFEPA Technical the NFEPA project provides strategic spatial priorities for conserving the country's freshwater ecosystems and supporting sustainable use of water resources.

The wetland north of the runway has been mapped as a Natural Southern Sandstone Fynbos Depression (landform) and a NFEPA Condition of AB (Natural or Good) has been assigned to the wetland. This means that the percentage of natural land cover of the wetland is equal to and greater than 75%.

The two wetlands northwest of the runway have been mapped as Southern Sandstone Fynbos Flat and Southern Sandstone Fynbos Depression respectively. According to data provided by SANBI: BGIS these wetlands have been heavily to critically modified and therefore a NFEPA condition of Z1 has been assigned to each.

There are also channelled valley bottom wetlands present towards the south of the airport. These wetlands have been moderately modified (NFEPA condition: C). These wetlands are and will not be impacted by activities associated with the Mossel Bay Airport.

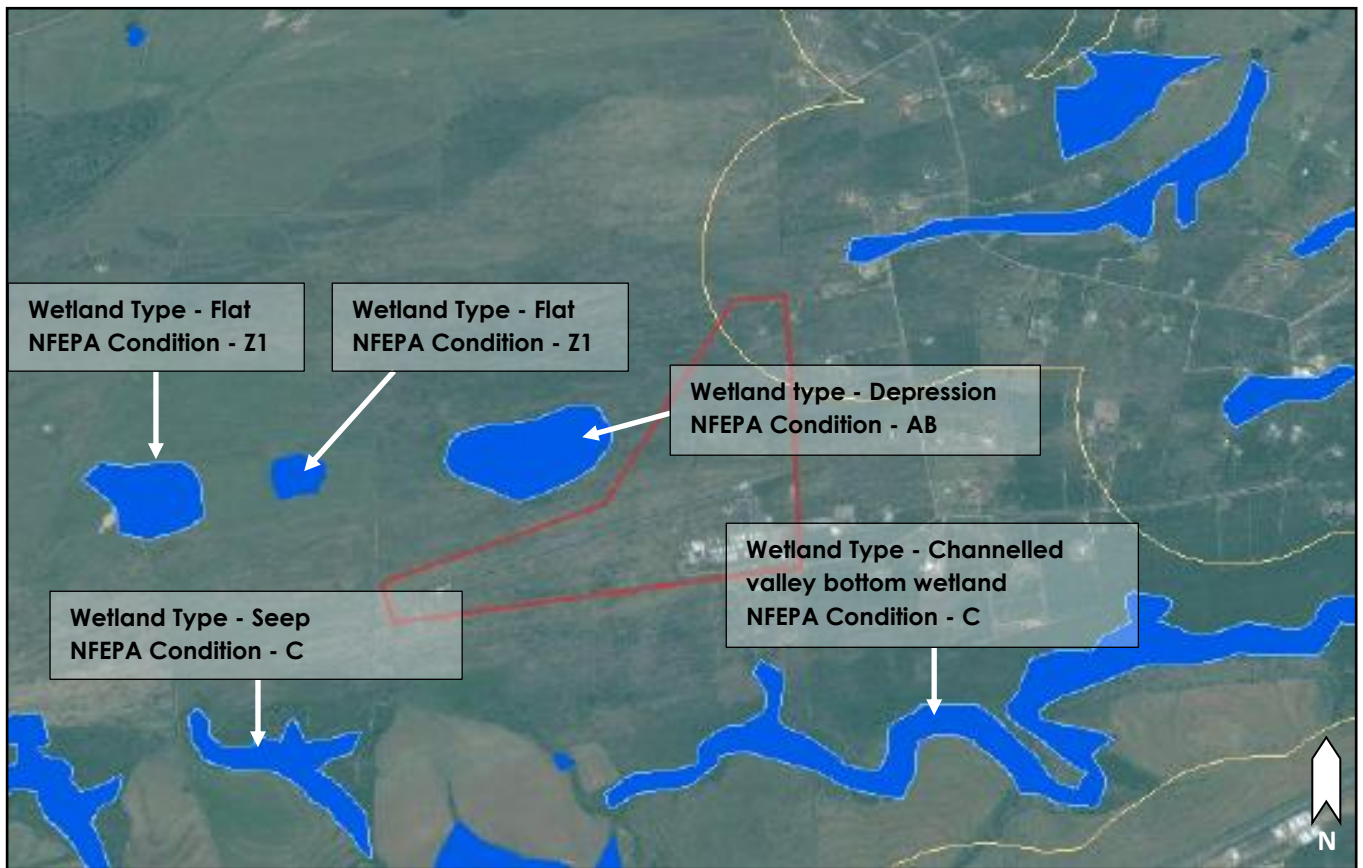


Figure 6: NFEPA wetlands map (SANBI: BGIS, 2015)

3. PRESENT ENVIRONMENTAL IMPACTS

3.1 Noise

Noise is currently the major impact the airport has on the residents of the surrounding area. Many of the complaints have been submitted to the Mossel Bay Municipality. A noise level assessment has been undertaken as part of the broader study and a number of noise level tests have been undertaken since the commissioning of this study. Please refer to Annexure B for the noise level report.

3.2 Impact on vegetation

The Mossel Bay Airport was established at this location in 1998, before the advent of EIA legislation. Impact on the vegetation has been limited to the runway, cross runway and the hangar area establishment. These have all been undertaken on the airport property. Aerial photography over the past ten years indicates that apart from addition of more hangars, little impact on vegetation has occurred.



Figure 7: Aerial photograph of Mossel Bay Airport on 12 March 2005 (Google Earth, 2015)

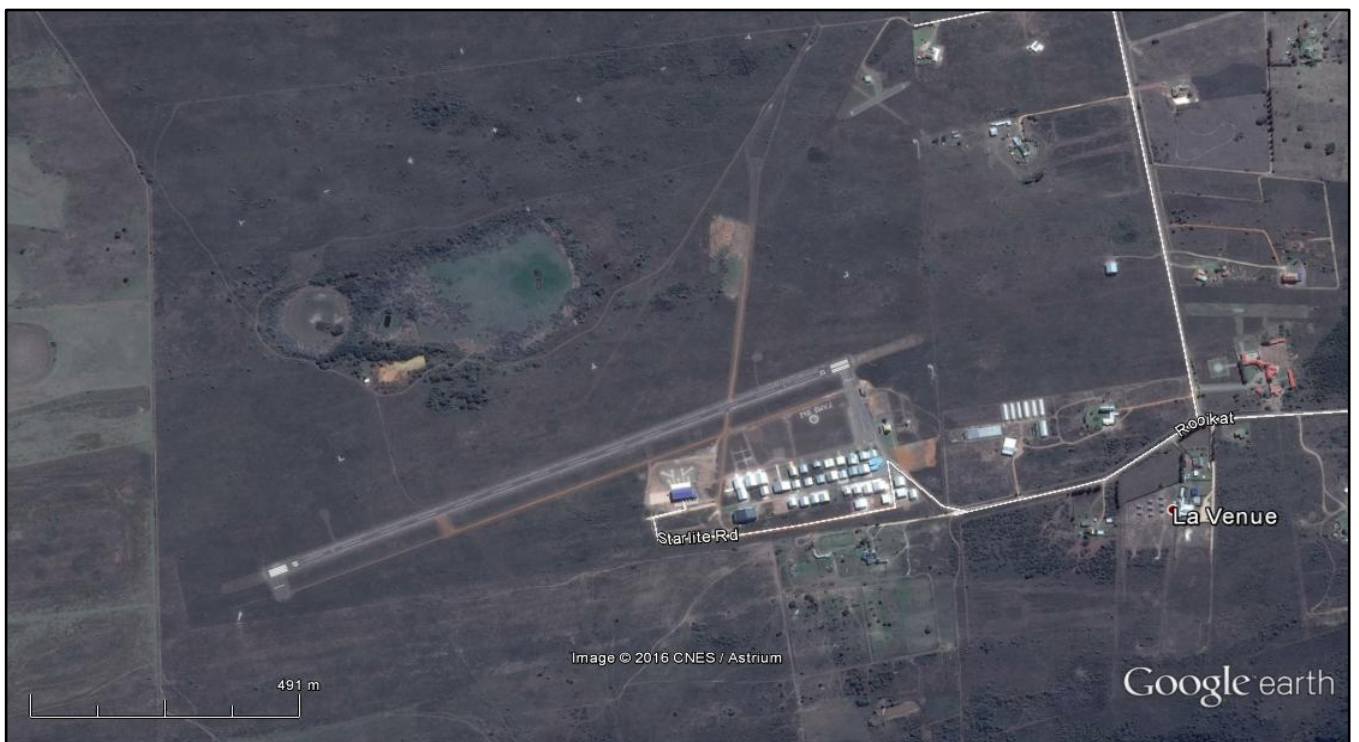


Figure 8: Aerial photograph of Mossel Bay Airport on 21 January 2014 - Note additional hangars (Google Earth, 2015)

3.3 Impact of freshwater resources

There are a number of wetlands in the vicinity of the airport. These wetlands are however all situated on adjacent properties and do not appear to have been impacted by any activities associated with the airport. Figures 7 and 8 above indicate that the wetland north of the runway has change little of the course of the nine years the photographs were taken.

4. CONCLUSION

The property on which the Mossel Bay Airport is situated is located outside the urban edge and has been zoned for airport use on agricultural land. The topography of the site is relatively flat ranging 168m amsl in the north of the property and 161m amsl in the south. The difference in elevation between the north-eastern end of the runway (168m amsl) and the southwestern end of the runway (165m amsl) is 3m. The highest point in the vicinity of the airport is 188m which is situated approximately 1.7km northwest of the runway.

The underlying rock formation of the site consists of rocks from the Table Mountain Group and the Bokkeveld Group of the Cape Supergroup while the lithology consists mainly of shales (Db) and quartzitic sandstone, shale and tillite (Sn) from these two groups.

The vegetation of the area has been mapped as North Langeberg Sandstone Fynbos by Mucina and Rutherford (2006) and as Herbertsdale Renoster Thicket in the Gouritz Vegetation map (2004). Mucina and Rutherford indicates that the unit has a Conservation Status of Least Threatened and therefore does not appear on the National list of ecosystems that are threatened and in need of protection in terms of NEMBA (GN. No. 1002 of 9 December 2011).

In terms of the Critical Biodiversity Area information the area surrounding the airport has been mapped as Other Natural Area and the area where there are infrastructure, No Natural Area. These areas have been identified for sustainable development and management within general rural land-use principles. Aquatic features are also present in the vicinity of the airport but it is unlikely that they will be affected by activities associated with the airport operations. These aquatic features have also been identified in the National Freshwater Ecosystem Priorities Areas project and range from wetlands in good condition (condition AB) to heavily and critically modified (condition Z1). However as indicated these features are and will not be impacted by activities at the airport.

The main impact associated with the airport is the noise being generated. The noise levels are being assessed by a noise specialist and forms part of the overall study. Other impacts include the impact on vegetation over the past 10 year which aerial photography shows have been limited and only relates to the erecting of additional hangars.

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Mossel Bay Airport Status Quo Noise Report

10 March 2016



Runway 28 threshold at Mossel Bay Airport

Report produced by: ANLUM

Prepared for: WM de Kok Associates

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Summary of Findings

Aircraft noise was assessed in terms of the guidelines for typical rating levels for noise contained in SANS 10103.

Guidelines for rural districts are a day/night $L_{R,dn}$ of 45 and for suburban districts with little road traffic, a day night level $L_{R,dn}$ of 50.

Twenty four hour measurements were carried out at two sites, producing results of 45.5 $L_{R,dn}$ and 44.5 $L_{R,dn}$. These results correspond well with the guidelines for rural districts and suburban districts with little road traffic.

Shorter spot measurements were carried out at a further nine sites. The results varied from a low of 37.1 Leq to a high of 64.9 Leq. The quieter areas are situated away from human induced noise sources such as aircraft and motor vehicles. Noisier areas are situated closer to busy roads and in particular Aalwyn Road which is the only access road to Aalwyn suburb and the airport.

These short duration measurements provide some insight into the sound levels which can be encountered in areas surrounding the airport. The comparatively harsh sounds of cars, motor bikes and aircraft are distinctly audible in this environment, which consists mostly of natural sounds.

Frequency of occurrence of flights – especially pilot training taking place in the circuit, their repetitive nature, and rapid increases in power after engine failure training all contribute to the noise environment. The maximum sound levels of these flights can exceed the residual levels substantially. Depending on slant distance from the receiver, aircraft and helicopter sounds will be audible and may be disturbing to residents.

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1. Introduction

Mossel Bay Municipality is currently undertaking an investigation to update the Spatial Development Framework which will shape the future urban development pattern of the Mossel Bay Area. A component of this investigation includes Mossel Bay Airport. The purpose of the present report is to study and report on the noise impact from aircraft operations at Mossel Bay Airport. This report is part of a detailed investigation, and will assist with the process of determining the future optimal location and utility of the airport.

To achieve this, this study will be conducted in three phases:

- Conduct a status quo assessment of normal everyday ambient environmental sound levels around the airport, as well as current maximum noise levels produced by aircraft;
- Determine future noise levels based on:
 - Demand forecasting of aircraft movements,
 - Changes in aircraft types,
- Produce contours of equal aircraft noise levels to be used to guide spatial planning.

This report presents the first phase of the study outlined above, namely a status quo assessment of ambient sounds, and aircraft noise levels. The report is structured as follows:

Background to sound and noise

Airport noise studies in South Africa

Mossel Bay Airport operations

Mossel Bay Airport operators

Relations between the Aerodrome, and local residents

Complaint handling

Helicopter noise certification levels

Sound level measurement points, and measurement results

Discussion of measurement results

2. Background to Sound and Noise

Noise, defined as unwanted sound, is one of the most persistent urban pollutants and most urban dwellers are subjected to noise pollution. Possible adverse effects of noise include annoyance, sleep disturbance, health problems, disruption of television viewing and other entertainment, effects on job performance, and property value reductions. Serious noise nuisance can be created between multi-occupancy buildings such as flats and offices. Outdoor sources of noise include construction and industry, but the most persistent is transportation noise which includes road, rail and noise from aircraft landing and taking off. Resolution of the aircraft noise problem requires a combination of technical improvements to aircraft airframes and engines, incorporation of noise abatement flight procedures, insulation of dwelling units near flight paths, and land-use planning informed by accurate delimitation of aircraft noise exposure zones. Noise is made by aircraft engine run-ups and taxiing on the ground, during take-off and landing, and en-route between destinations. Take-off and landing operations when aircraft are being operated at high power settings and are close to the ground create the most noise problems.

Noise disturbance is not limited to large airports from where passenger jets fly. If there are sufficient numbers of light aircraft movements, and if the airport's neighbours are sufficiently bothered by noise to complain to the authorities about it, then it is a problem.

Mossel Bay airport is bordered by Aalwyndal suburb in a quadrant which stretches roughly from the northeast to the southeast of the airport. Open farmland borders the airport to the north, west and southwest. This study investigates noise impact from aircraft operations in the areas surrounding Mossel Bay airport, and reports on the current status quo.

3. Airport Noise in South Africa

In South Africa the South African Bureau of Standards (SABS) have devised a number of codes of practice for noise investigations. In these documents, **residual noise** is the term used to describe the totally encompassing sound in a given situation excluding the noise under investigation, whilst **ambient noise** is the term used to describe the totally encompassing sound in a given situation, including the sound under investigation.

For the measurement of environmental noise, South African National Standard (SANS) SANS 10103 is used. This document also contains details of typical rating levels for noise in districts, and has been extracted into Figure 1.

1	2	3	4	5	6	7
Type of district	Equivalent continuous rating level ($L_{Req,T}$) for noise dBA					
	Outdoors			Indoors, with open windows		
	Day/night $L_{R,dn}^a$	Daytime $L_{Req,d}^b$	Night-time $L_{Req,n}^b$	Day/night $L_{R,dn}^a$	Daytime $L_{Req,d}^b$	Night-time $L_{Req,n}^b$
a) Rural districts	45	45	35	35	35	25
b) Suburban districts with little road traffic	50	50	40	40	40	30
c) Urban districts	55	55	45	45	45	35
d) Urban districts with one or more of the following: workshops; business premises; and main roads	60	60	50	50	50	40
e) Central business districts	65	65	55	55	55	45
f) Industrial districts	70	70	60	60	60	50

Figure 1: Rating levels for noise in districts, extracted from SANS 10103, Table 2.

Since noise is annoying and otherwise intrusive, the probable community or group response to the excess of ambient noise over residual noise is also published in SANS 10103 – Figure 2.

1	2	3
Excess ($\Delta L_{Req,T}$) ^a dBA	Estimated community or group response	
	Category	Description
0 to 10	Little	Sporadic complaints
5 to 15	Medium	Widespread complaints
10 to 20	Strong	Threats of community or group action
>15	Very strong	Vigorous community or group action

Figure 2: Categories of community response, extracted from SANS 10103, Table 5.

For airport noise studies, SANS 10117 specifies the calculation method for predicting aircraft noise around airports. The noise calculation refers to average energy aircraft noise representations which are produced as noise contours around the airport. These contours are to be used for long-term planning of land uses around the airport, for existing as well as future developments. The document recommends calculating noise contours for particular milestones in the development of an airport.

In this status quo report, the emphasis was placed on measuring residual noise levels in Aalwyndal. The noise modelling methodology according to SANS 10117 will be used in the subsequent investigation of future scenario planning.

SANS 10328 is the guideline document which details methods for environmental noise impact assessment. Included in this document is reference to noise from airports, or heliports in the vicinity of the target area. Examples of situations that could have acoustical implications are presented:

- if any landing strip, airport, or heliport is planned, or to be altered, in the proximity of a noise-sensitive development;

- if a noise-sensitive development is to be established within the appropriate limit contour of an airport;

Pertinent questions posed in SANS 10328, and which will be addresses in this study include:

- Where a landing strip, airport or heliport, is planned, or is to be altered, will this planned activity be such that the calculated appropriate limit noise contour for the full planned use of the activity fall inside the boundaries of any residential area or any piece of land zoned for residential purposes?
- Where a residential area is planned or a piece of land is to be zoned for residential purposes, will the evaluated appropriate limit noise contour for the full planned use of the landing strip, airport or heliport fall inside the boundaries of the residential area or the piece of land zoned for residential purposes?

4. Mossel Bay Airport Operations

The airport has two runways. The main runway is tarred and has an orientation of 10/28 (roughly east west). This runway is 1 143 m long and 18 m wide. There is a secondary gravel runway which is not maintained and seldom used. The gravel runway is not listed in the current version of the AIP.

A gravel taxiway provides aircraft access to the tarred runway 10/28 (Figure 3).

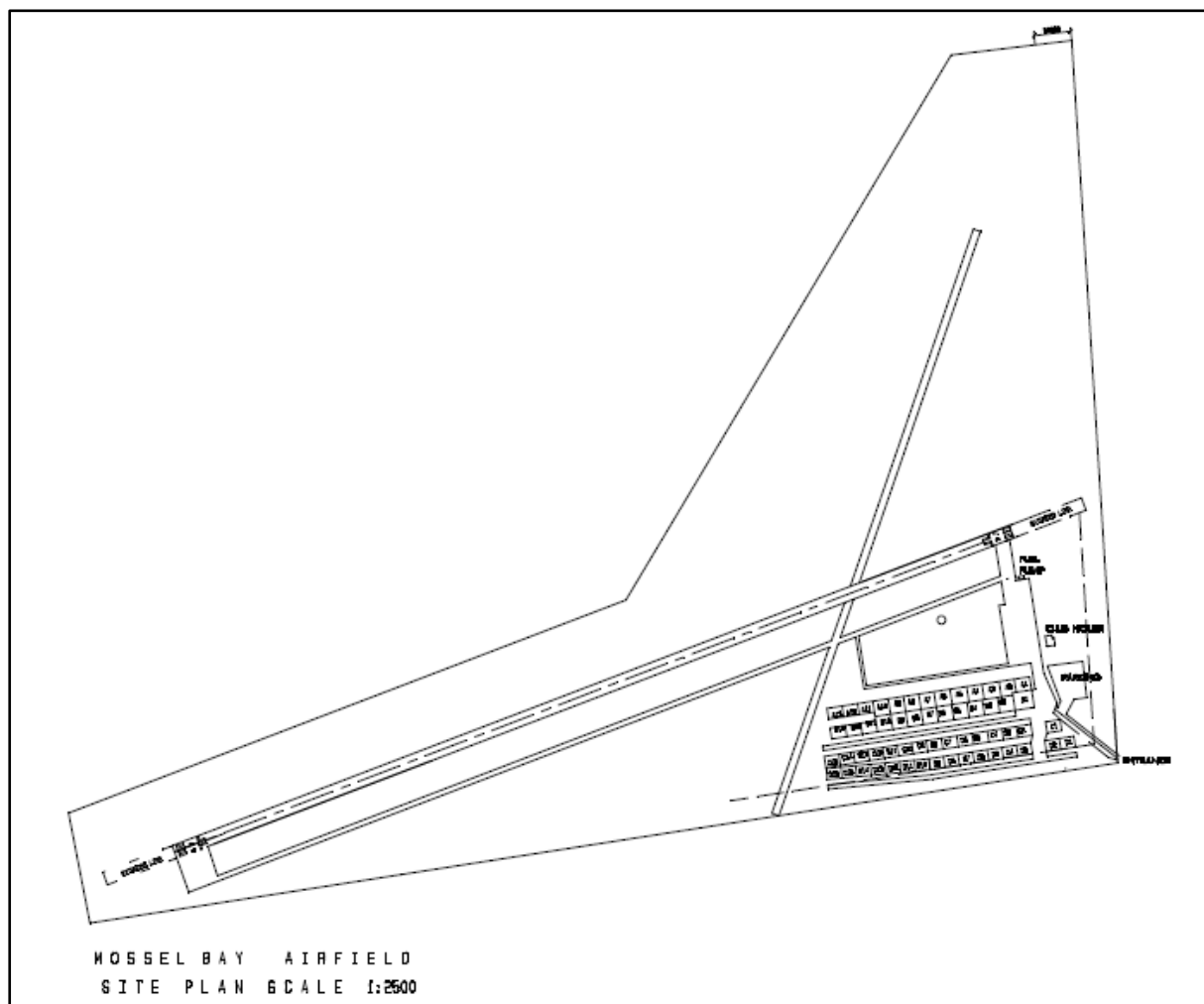


Figure 3: Mossel Bay Airport Layout

The airport has an apron, fuel refilling facility, clubhouse and hangars. All of these facilities are located to the south of the threshold of Runway 28 (Figure 4).



Figure 4: Mossel Bay Airport view showing the runway, apron, clubhouse and hangars. This view is to the southwest. The triangular flare is caused by the helicopter's windshield reflection.

There is currently no air traffic control service, or aircraft movement monitoring service available at the airport. All landing and takeoff operations are regulated by the pilots as per unmanned airfield operating procedures. Pilots are required to listen in on the published airport radio frequency, and announce their intentions. Safe separation of aircraft is the responsibility of the pilots.

Aircraft arriving at the airfield follow unmanned airfield operational procedures, which require the aircraft to approach overhead the airfield, then turn left or right to join the circuit for landing. By agreement, fixed wing circuits are flown to the south of the airfield. Helicopter circuits are flown to the north. This arrangement is in place for safety reasons, and assists with separating faster aircraft from slower helicopters.

5. Operators

Mossel Bay Airport is primarily a general aviation facility. There are no scheduled airline or charter flight operations and no passenger or cargo handling facilities. Most of the aircraft using the airfield are piston engine, propeller, fixed wing light aircraft, and piston engine helicopters. An occasional light business jet or turboprop aircraft visits the airfield. The number and type of aircraft operations at the field, and runway used has not been established, since accurate records of aircraft movements are not available.

There are currently three main operators using the airfield, who make up most of the observed aircraft movements:

Skydive Mossel Bay is a skydiving company who operate Cessna 182 aircraft for the purpose of ferrying skydivers to altitude for their skydiving experience. The parachute drop and landing zone is located on the airfield. Although the company has few aircraft in number, they use these intensively from dawn to dusk, and seven days a week. After take-off, the aircraft climb to the drop altitude (usually 10,000 to 12,000 feet). Once the skydivers have left the aircraft, it returns directly to the airfield for the next load. No detailed information on flight frequencies is available, but about three flights per hour per aircraft are feasible.

Mossel Bay Aero Club hold a contract with the municipality and are the current airfield operators. Members of the aero club may own aircraft which are hangared at the airfield. Other aircraft are also hangared there, but no detailed information of these aircraft is available.

Starlight Aviation has a flight training school at Mossel Bay airport, focussing mostly on helicopter training, although some fixed wing training may also be undertaken. Helicopter training principally comprises landing and takeoff, hovering, handling engine failures (autorotation) and cross country flying.

6. Relations Between the Aerodrome, and Local Residents

Mossel Bay municipality has been made aware of problems which Aalwyndal residents have with noise from certain aircraft and helicopter operations. The frequency of complaints from Aalwyndal residents corresponds with certain operations, and a relatively low number of helicopter flights can provoke a reaction. Complaint handling and resolution is covered in the next section, but there is anecdotal evidence passed along verbally during conversations regarding airport / resident relations.

Aircraft operators home based at the airport are generally quite aware of the noise issues, and are cooperative in operating in such a way as to reduce disturbance. Upon investigation, noise complaints have been shown to be linked to flights into and out of the airport by pilots who are unfamiliar with local operational practices, and flight by Bell Huey family helicopters. Noise issues then become generalised from a few non-resident aircraft to the general aircraft population.

7. Complaints

The three key airport operators were asked to provide details of noise complaints, and how these were handled.

Skydive Mossel Bay

Skydive reported no noise complaints

Mossel Bay Aeroclub

Mossel Bay Aeroclub reported no noise complaints.

Starlight Aviation

Starlight Aviation were able to provide a detailed record of the process for handling noise complaints, the nature of the complaints, and how these were handled. In this section, flight operations are described, followed by a discussion of complaints.

For the purpose of this report, the complaints have been divided into complaints against noise from:

- helicopters on training flights,
- infrequent or unusual helicopter operations
- fixed wing aircraft complaints.

Helicopters fly circuits to the north of the airfield; fixed wing aircraft fly circuits to the south. Helicopters taxi to either the taxiway or the main runway, and takeoff on the runway heading, 28 or 10 depending on wind direction.

Training Flights

Starlight Aviation operates primarily Guimbal Cabri G2 helicopters (Figure 5), and Robinson R22 helicopters (Figure 6) for training. Students are allocated two-hour training slots, of

which one hour is usually spent airborne. In summer time slots run from 6am to 6pm, and in winter from 8am to 4pm under normal conditions.



Figure 5: Guimbal Cabri helicopter as used by Starlight Aviation for training



Figure 6: Robinson R22 helicopter

Up to eight helicopters may be used per slot. Helicopters will be flown to the general flying area to the west of the airfield where training exercises will be held. Later on in the middle phase of their training, they concentrate on flying circuits, and towards the end of the training, they return to the general flying area, as well as conducting long navigations away from the airfield.

Training is usually completed on weekdays. If the flying is behind schedule, catch up training may be conducted on Saturdays from 8am to 1pm.

Students are required to complete a night flying phase of five hours per student. Night flying starts after twilight, and ends by 10pm.

As part of their training, students are taught to be aware of noise sensitive land users, and are required to sign declarations of awareness that they may not fly over game farms, horse farms and households in the Aalwyndal area from where noise complaints have originated. In the flying school, this is referred to as the Red Tag System.

Unusual and Infrequent Events

Bell Huey family helicopters operate training flights for short window periods during the year – usually two weeks. These helicopters are noisy as indicated in the record of complaints provided by Starlight, particularly characterised by a prominent blade slap sound which travels for long distances ahead of the helicopter's track.

Other helicopters may be used for training from time to time. These include Robinson R66, Oryx, BK117 and Dauphin types.

Complaints receiving, handling and actioning.

When complaints are received from the general public, they are recorded on a Hazard Reporting Form, and may be given a Red Tag. The Red Tag System is part of Starlight's Manual of Procedures, and is explained thus:

“feedback to flying personnel on all relevant management, environmental, safety or operational information are issued as Red Tags on the noticeboard, depending on importance.” Red Tags are placed into a file and pilots are alerted to the events

pertaining to the Red Tag alert, and resolution thereof. Red Tags are discussed in monthly Starlight meetings to ensure the information is current in everyone's minds.

8. Helicopter noise certification noise levels

Manufacturers of modern aircraft and helicopters are required to submit their products to a detailed scrutiny of and certification process. Noise certification is part of that process, where the sound levels of aeroplane and helicopters are checked to verify that they meet required standards. The noise certification levels tabulated below are sourced from the European Aviation Safety Agency (EASA) Type-certificate Data Sheets for Noise, conducted according to International Civil Aviation Organisation document ICAO Annex 16, Volume I, Chapter 11.

The most common helicopters types currently operating at Mossel Bay are tabulated along with their respective sound levels.

Table 1: Comparison of certification noise levels for the three most common helicopters operating at the airport

Helicopter type	Ch11 limit (SEL)	Helicopter certification level	Margin below limit
Cabri	82	75.7	6.3
Robinson R22	82	78.2	3.8
Robinson R44	83.4	81.9	1.5

The Cabri helicopter achieves the lowest certification level of the three most common helicopters and under normal operational conditions would be the quietest. This helicopter incorporates several noise reduction measures into its design. The main rotor comprises three blades resulting in a reduced disc diameter and corresponding slower rotor tip speeds which produce less noise. The tail rotor is an enclosed Fenestron design (Figure 7) which reduces outward dispersion of noise from the blade tips.



Figure 7: Enclosed Fenestron tail rotor on Cabri helicopter

9. Sound Measurement Location Points and Results

Sound measurements were made with a Svan 955 sound level meter, equipped with an outdoor kit and mounted on a tripod at a height of 1.5m (see Figure 8). All measurements were checked with an acoustic calibrator before and after the measurements were made. Further details including calibration information may be found in Appendix A.



Figure 8: Sound level meter field installation

Sound measurement sites were selected to cover the residential suburb of Aalwyndal and provide insight into ambient noise levels in the area (Figure 9 and Figure 10).

Sound level measurements were made over a 24 hour period at Site 1 and Site 2. Shorter duration spot measurements were made at Sites 3 to 11. At sites 3 -5, detailed observations were kept of helicopters and aeroplanes operating in the vicinity, since these sites are closest to the observed flight paths. At sites 6 – 11, ambient sound measurements were made which could have included more distant aircraft and helicopter noise if these were present.

This strategy enabled a picture to be built up of the average sound levels in the study area, as well as typical maximum noise levels attributable to aircraft and helicopter flights.

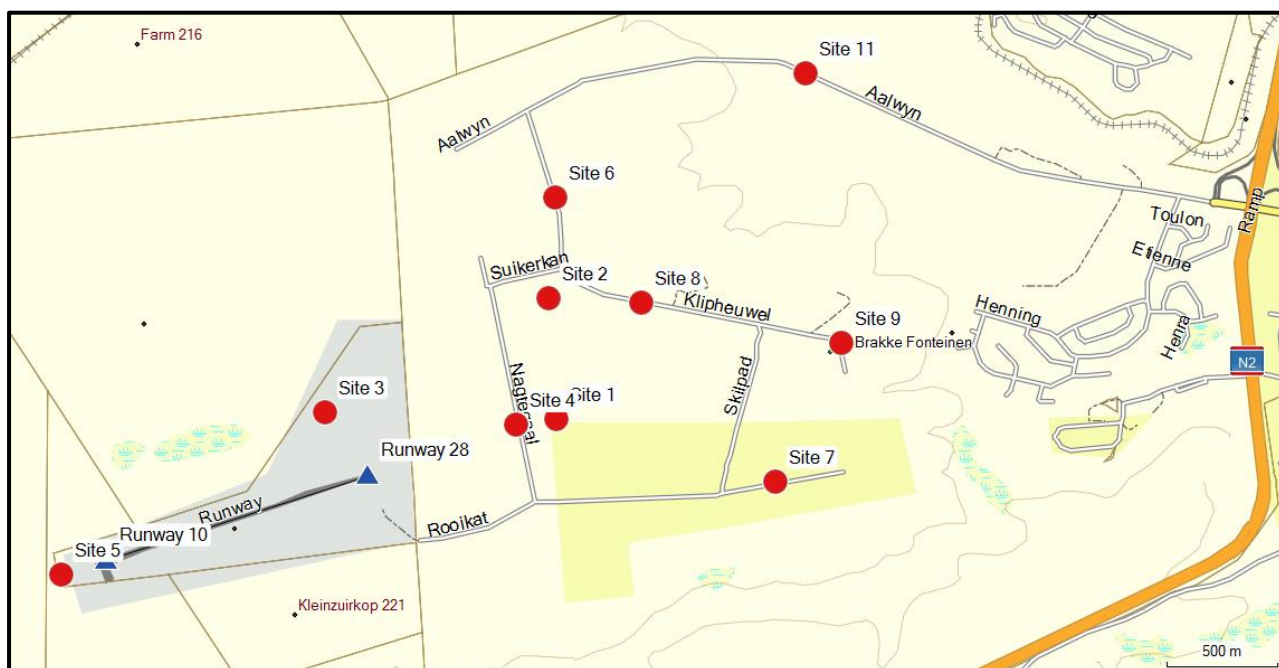


Figure 9: Sound measurement point locations to the east of the airport

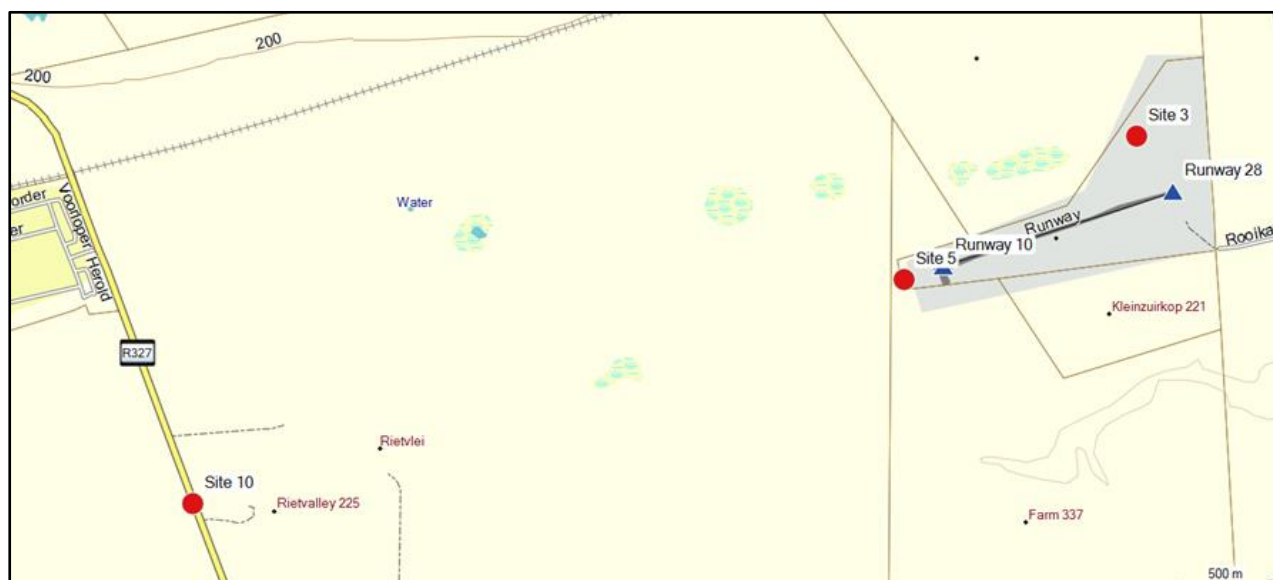


Figure 10: Sound measurement point locations to the west of the airport

Site 1

A 24 hour sound measurement was made at this site (see sound plot in Figure 11). This site is in line with the extended runway centreline and lies about 780m from the threshold of Runway 28. It was selected for its close proximity to the airport. Most fixed wing aircraft and many helicopters fly over the site after takeoff from runway 10, and during their approach to landing on runway 28.

Sounds heard during the measurement included aircraft, dogs barking, motor vehicles and birds.

Table 2: 24 hour average sound level at Site 1

Site Number	24 hour Leq	8 hour night Leq (10pm to 6am)
Site 1	Leq 45.5	Leq 38.4

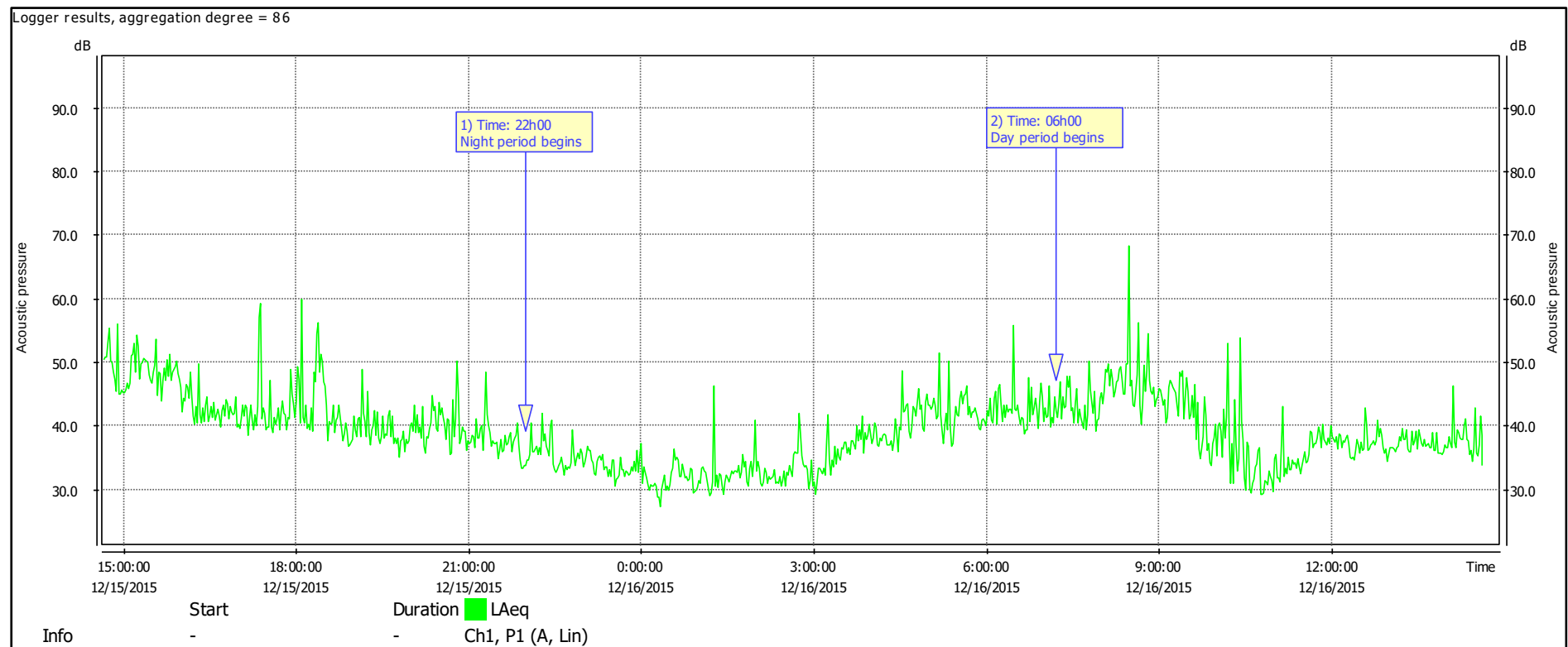


Figure 11: Example of the sound level profile as measured at Site 1 over 24 hours

Site 2

A 24 hour measurement was made at this site (see sound level plot in Figure 12). This site lies about 1,100m to the northeast of the threshold of Runway 28. It was selected for its proximity to aircraft and helicopters flying training circuits nearby overhead.

Sounds heard during the measurement included aircraft, dogs barking, motor vehicles and birds. At night, nocturnal insects and frogs were vocalising, and distinctly audible, which resulted in a night Leq of almost six decibels higher than the night level for Site 1.

The 24 hour Leq measurements corresponded closely for both sites.

Table 3: 24 hour average sound level at Site 2

Site Number	24 hour Leq	8 hour night Leq (10pm to 6am)
Site 2	Leq 44.5	Leq 44.2

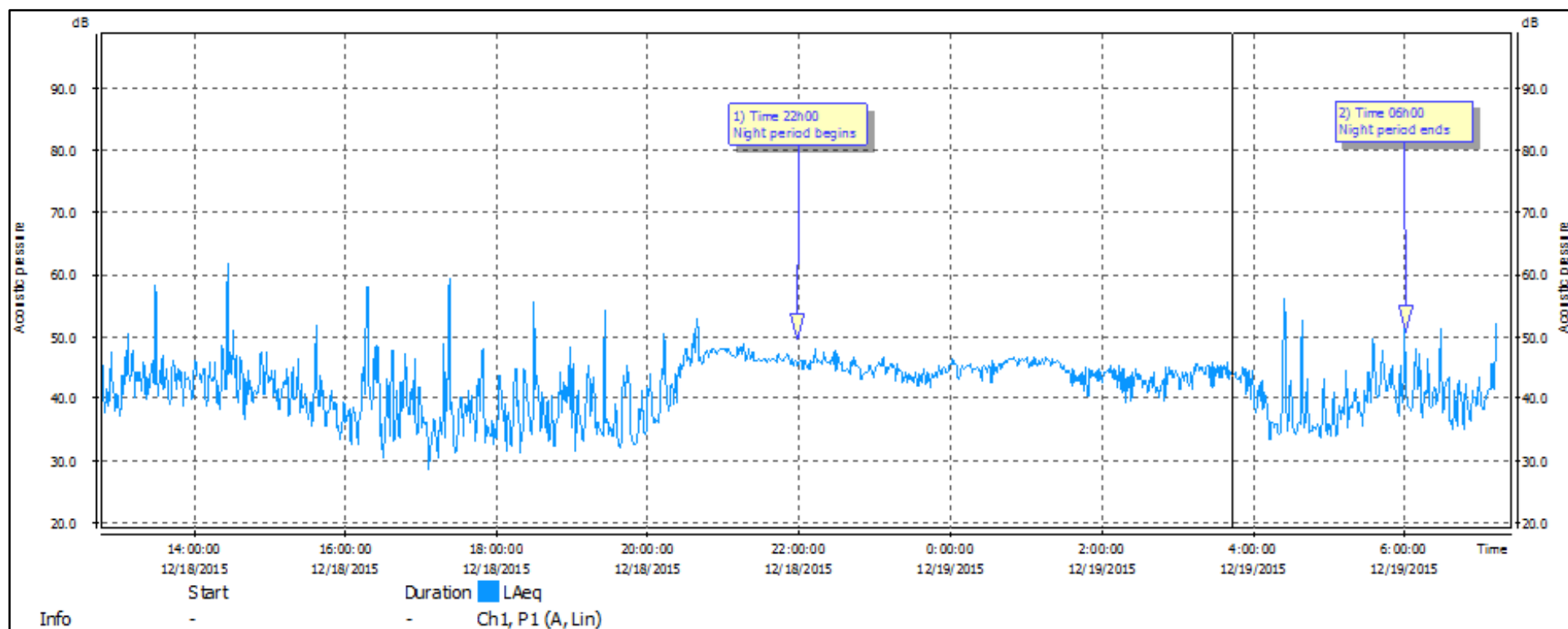


Figure 12: Example of the sound level profile measured at Site 2.

Site 3

Site 3 is located about 350m north northwest of the threshold of Runway 28. Maximum sound levels for each recorded overflight are presented in Table4.

Helicopters operating training flights fly circuits in and around this area.

Fixed wing aircraft joining the field overhead for landing may overfly this site, or be audible as they land and takeoff.

The average sound level measured was an Leq of 49.6.

Table 4: Spot measurements made at Site 3.

Helicopter / Aircraft Type	Sound Level L _{max}	Flight phase
Cabri	69.8	Circuit flyby
Cabri	65	Circuit flyby
Cabri	65.5	Circuit flyby
Cabri	70.8	Circuit flyby
Cabri	71.6	Circuit flyby
Cessna 182	63.8	Takeoff flyby
Cessna 182	64.3	Takeoff flyby

Site 4

Site 4 is in line with the extended runway centreline, and is located about 600m east of the threshold of Runway 28. This site was selected due to the frequency of overflights of aircraft landing and taking off, and helicopters operating nearby. During the writer's time in the field conducting measurements, all fixed wing aircraft landing on runway 28, and taking off from runway 10 were observed to fly directly over this site. Helicopters may overfly the site on approach or takeoff, but were most frequently observed to the northeast and northwest when training circuits were flown.

Maximum sound levels for each recorded overflight are presented in Table 5.

Helicopters operating training flights fly circuits in and around this area.

Fixed wing aircraft landing on Runway 28 or taking off from Runway 01 overfly this site.

The average sound level measured was an Leq of 64.9.

Runway 10 was in use for departures when these measurements were made.

Table 5: Spot measurement made at Site 4

Helicopter / Aircraft Type	Sound Level Lamax	Flight phase
Cessna 172RG	84.3	Takeoff
Cessna 182	81.9	Takeoff
Cessna 172RG	58.9	Join overhead runway for landing
Cessna 172RG	99.7	Simulated engine failure
Cabri	70.9	Takeoff
Cabri	77.7	Takeoff
Cabri	57.6	Takeoff
Cabri	61.1	Takeoff
Cabri	72.3	Takeoff
Cabri	61.7	Takeoff

During the period of these measurements, a detailed record was kept of the sounds heard, and the corresponding maximum sound levels noted (see Figure 13). This site is adjacent to the road leading to the airport. During the measurement the following noise events were observed:

- 23 cars passed by the site
- One motorbike passed by the site
- Three fixed wing aircraft flew directly over the site as they took off. One fixed wing aircraft overflew the airfield in the distance, then turned away to join the circuit for landing from the opposite direction
- Six Cabri helicopters flew past the site to the north.

A representative selection of these noise events have been labelled in Figure 13 to illustrate the environmental sounds encountered. This site is comparatively speaking, possibly the noisiest in Aalwyndal due to the number of vehicles, aircraft and helicopters passing by.

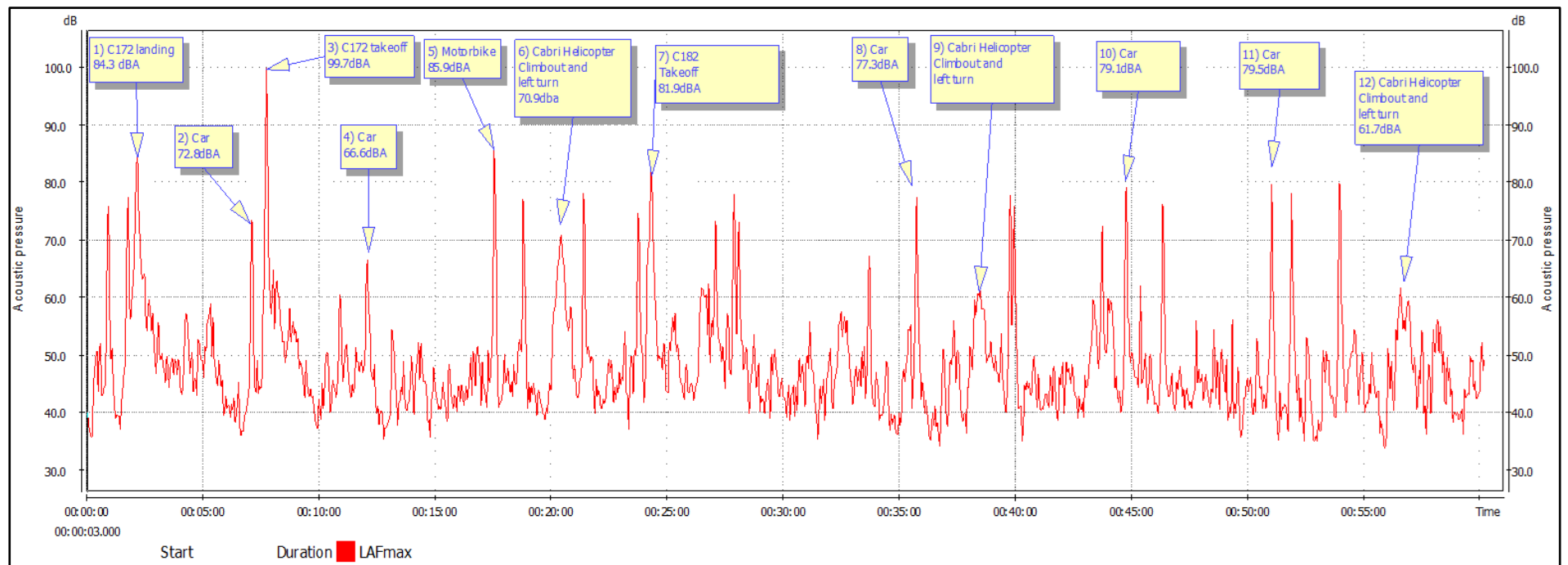


Figure 13: Example of maximum noise levels measured at Site 4. A selection of pertinent noise events have been labelled for clarity.

Site 5

Site 5 is located in line with the extended runway threshold, about 200m from the threshold of Runway 10. There are presently no buildings or dwellings to the west of this site.

Maximum sound levels for each recorded overflight are presented in Table 6.

Helicopters operating training flights fly circuits in and around this area.

Fixed wing aircraft landing on Runway 01 or taking off from Runway 28 overfly this site.

Runway 28 was in use for departures when these measurements were made.

The average sound level measured was an Leq of 63.0.

Table 6: Site 5, departure end of Runway 28

Helicopter / Aircraft Type	Sound Level L _{max}	Flight phase
Non-type certified single engine high wing	70.9	Takeoff
Gyrocopters	67.8	Takeoff
Non-type certified single engine high wing	81.2	Takeoff
Cessna 182	79.0	Takeoff
RV 6	84.9	Takeoff
Beechcraft Baron B58	96.4	Takeoff

Site 1 – LAMAX measurements

This site is at the same position where the 24-hour measurements were made at Site 1. The site is in line with the extended runway centreline and lies about 780m from the threshold of Runway 28. It was selected for its close proximity to the airport. Most fixed wing aircraft and many helicopters fly over the site after takeoff from runway 10, and during their approach to landing on runway 28.

Sounds heard during the measurement included aircraft, dogs barking, motor vehicles and birds.

Table 7: Noise levels of aircraft on approach to Runway 28

Helicopter / Aircraft Type	Sound Level Lamax	Flight phase
Cabri	79.6	Low level approach
Cirrus	70.9	Landing
Beechcraft Bonanza	77.9	Landing
Robinson R44 helicopter	74.7	Landing
Cessna 182	72.2	Landing
Cessna 172	72.9	Landing
RV-6	70.7	Landing
Baron B58	80.7	Landing

Site 6

Site 6 is located about 1.4km northeast of the threshold of runway 28.

The average sound level measured was an Leq of 57.9.

Sounds heard included cars, distant helicopters and birds.

Site 7

Site 7 is located about 1.6km east of the threshold of runway 28.

The average sound level measured was an Leq of 41.4.

Sounds heard included distant cars, dogs barking.

Site 8

Site 8 is located about 1.3 km east northeast of the threshold of runway 28.

The average sound level measured was an Leq of 37.1.

Sounds heard included distant dogs barking and birds.

Site 9

Site 9 is located about 2 km east of the threshold of runway 28.

The average sound level measured was an Leq of 40.5.

Sounds heard included distant lawnmower and birds.

Site 10

Site 10 is located about 4 km west of the threshold of runway 10.

The average sound level measured was an Leq of 58.0.

Sounds heard included cars.

Site 11

Site 11 is located about 2.5 km northeast of the threshold of runway 28.

The average sound level measured was an Leq of 51.7.

Sounds heard included cars.

10. Discussion of measurement results

This section of the report will concentrate on measured results and provide an interpretation of these in terms of SANS 10103 and 10328. Modelling will be employed in a future version of this report, once additional information from the other team members becomes available.

Residual neighbourhood sound levels are low, and correspond with the sparse residential dwelling density, absence of main roads nearby, no industry nearby, etc. The sounds which are audible are typical of both rural communities, and a suburban community with little road traffic – see Table below.

Table 8: Comparison of measured 24 hour and night 8 hour sound levels with corresponding SANS guidelines

SANS Guideline / Location	24 hour Day / Night Level	8 hour night level
Rural districts	45	35
Suburban districts with little road traffic	50	40
Site 1	45.5	38.4
Site 2	44.5	44.2

When interpreting the SANS guideline for classifying districts for recommended sound levels in districts, it was not possible to easily classify Aalwyndal into either “rural districts”, or “suburban districts with little road traffic”, since both could apply to parts of the district. Hence it was decided to include guidelines for both, and compare the measured levels accordingly.

Regarding the 24 hour guideline level for rural districts, Site 1 is 0.5 dBA above the guideline of 45 dBA, and Site 2 is 0.5 dBA below. These differences are negligible.

Both sites are 4.5 to 5.5 dBA below the guideline for suburban districts with little road traffic.

Night time sound levels were higher at both sites for both the rural district and suburban district with little road traffic guidelines. Site 1 was 3.4 dBA above the rural district level, but 1.6 dBA below the level for suburban districts with little road traffic. Site 2 was 9.2 dBA above the rural district level, and 4.2 dBA above the level for suburban districts with little road traffic. These observations were different to what would be expected for these districts. Field observations revealed that the night time sounds were caused by nocturnal insects and frogs which were vocalising for much of the night. These are the sounds of the natural environment, and must be accepted as such.

The shorter duration sound levels fall into the following categories:

Sites 1, 7 and 9 fall into the “rural districts” category,

Site 4 falls into the “suburban districts with little road traffic” category,

Site 5 falls into the “urban districts” category,

Sites 6 and 7 fall into the “urban districts with one or more of the following: workshops; business premises; and main roads” category,

Sites 8 and 9 fall into the “Central business districts” category.

These short duration measurements provide some insight into the sound levels which can be encountered in areas surrounding the airport. The comparatively harsh sounds of card, motor bikes and aircraft are distinctly audible in this environment, which consists mostly of natural sounds.

Frequency of occurrence of flights – especially pilot training taking place in the circuit, their repetitive nature, and rapid increases in power after engine failure training all contribute to the noise environment. The maximum sound levels of these flights can exceed the residual levels substantially. Depending on slant distance from the receiver, aircraft and helicopter sounds will be audible and may be disturbing to residents.

11. List of abbreviations

Ambient Noise: The composite of all sounds from sources close by and further away. The normal day to day existing level of environmental sounds at a given location.

A-weighted sound level: The human ear does not respond equally to all audible sound frequencies. The A frequency weighting is a filter used for the measurement of sound pressure levels designed to reflect the ear's perception of sounds. Denoted with an A to distinguish it from other weightings. See also deciBel below.

deciBel dB(A): A commonly applied unit of sound level measurement, using the A weighted sound pressure level.

Equivalent continuous day/night rating level (LR,dn): Equivalent continuous A-weighted sound pressure level ($L_{Aeq,T}$) during a reference time interval of 24 h, plus specified adjustments for tonal character, impulsiveness of the sound and the time of day

Equivalent continuous rating level (LReq,T): The equivalent continuous A-weighted sound level ($L_{Aeq,T}$), measured or calculated during a specified time interval T, to which adjustments are added for tonal character, impulsiveness of the sound and the time of day.

Leq: Equivalent continuous sound pressure level of a steady state sound that has the same sound energy as that contained in the actual time-varying sound being measured over the specified time.

LAm_{ax}: Maximum sound pressure level with 'A' frequency weighting.

LR_{dn}: Equivalent continuous Day-Night rating level

Residual sound: Sound in a given situation at a given time that excludes the noise under investigation but encompasses all other sound sources, both near and far.

SABS: South African Bureau of Standards

SANS: South African National Standard.

Appendix A

Measuring instrument details

Sound level meter:

Svan 955

Serial number 11188

Calibration certificate number 2015-0208

Calibration date 11/02/2015

Acoustic calibrator:

Rion NC74

Serial number 34283657

Calibration certificate number 2015-0236

Calibration date 13/02/2015

2016

Mossel Bay Airport Economic Impact Assessment

Economic Impact Assessment Report

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Section 1: Introduction

1.1 Scope of the Study

Urban-Econ has been appointed as part of a project team, led by W M de Kock Associates to investigate the economic value of the Mossel Bay Airport. The broader study is aimed at guiding the upcoming Spatial Development Framework that intends to reshape the urban pattern of the Mossel Bay area. The purpose of the study is to assist in determining the optimum location and utility of the Mossel Bay Airport, to the Mossel Bay community, whether it entails retention of the current Airports location or relocation to an alternative site in the long run. To archive this, the study will be conducted in four phases. These phases are listed as such:

- Conducting a status quo economic assessment of the Airport
- Determining future use of the airport
 - o Demand forecasting based on national and local economic potential
 - o Analysis of different scenarios about the location of the Airport and the various operators based at the Airport.
- Development plans
 - o Current and future use of the airport
 - o Impacts on occupants given the various scenarios
- Business Plan
 - o Stakeholder analysis to improve economic development and to utilise the airport as a catalyst

This report only presents the first phase of the study outlined above. The purpose of this phase is to conduct an economic impact assessment of the Mossel Bay Airport on the Mossel Bay Municipal Economy. The objectives of the study are outlined as follows, to determine:

- The existing land uses of the Airport
- The economic value of the existing Airport operations
- The economic profile of the Mossel Bay Municipal Area
- The economic impact of the airport on the Mossel Bay Municipal Economy

1.2 Background

The Mossel Bay Municipality owns the Mossel Bay Airport, but it is managed by the Mossel Bay Aero Club and privately licenced. The Airports' private licensing categorization prevents any passenger or freight transportation, for revenue purposes, to be undertaken at the Airport as well as the limits the maximum take-off mass of any aircraft utilising the Airport at 5 700 kg. As such the Airport specialises as a location for businesses related to aircraft training, provides a base to tourism related businesses and supplies hanger facilities for private aircraft owners.

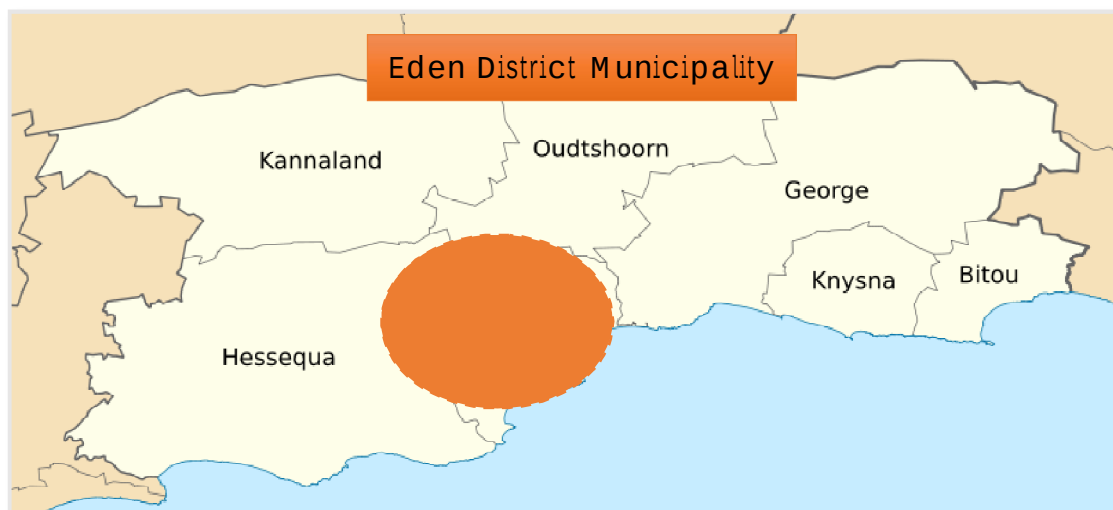
The Airport has two runways, of which only the main runway is operational. The main runway is 1 143 m long and 18 m wide, and the taxiway width is 7.5 m. The runway is orientated 10/28 (east-west). It is classified under Code 1A, which restricts operations to the airport to aircraft with a maximum wingspan of 15 metres and an outer main gear wheel span up to, but not, including 4 metres. The Rescue and Fire Fighting equipment available at the Airport is of Category 1, which further limits the usage to aircraft to a maximum fuselage length of 9 metres and fuselage diameter of 2 metres.ⁱ The secondary runway at the Airport is not listed in the current version of the South African Aerodrome Information Publication (AIP) and is currently unmaintained.

1.3 Study Area and Location

This sub-section will illustrate the location of Mossel Bay Airport within the Mossel Bay Municipal area.

Map 1 illustrates the economic impact study area, defined as per boundaries of the Mossel Bay Municipal Area.

Map 1: Mossel Bay Municipal Study Area



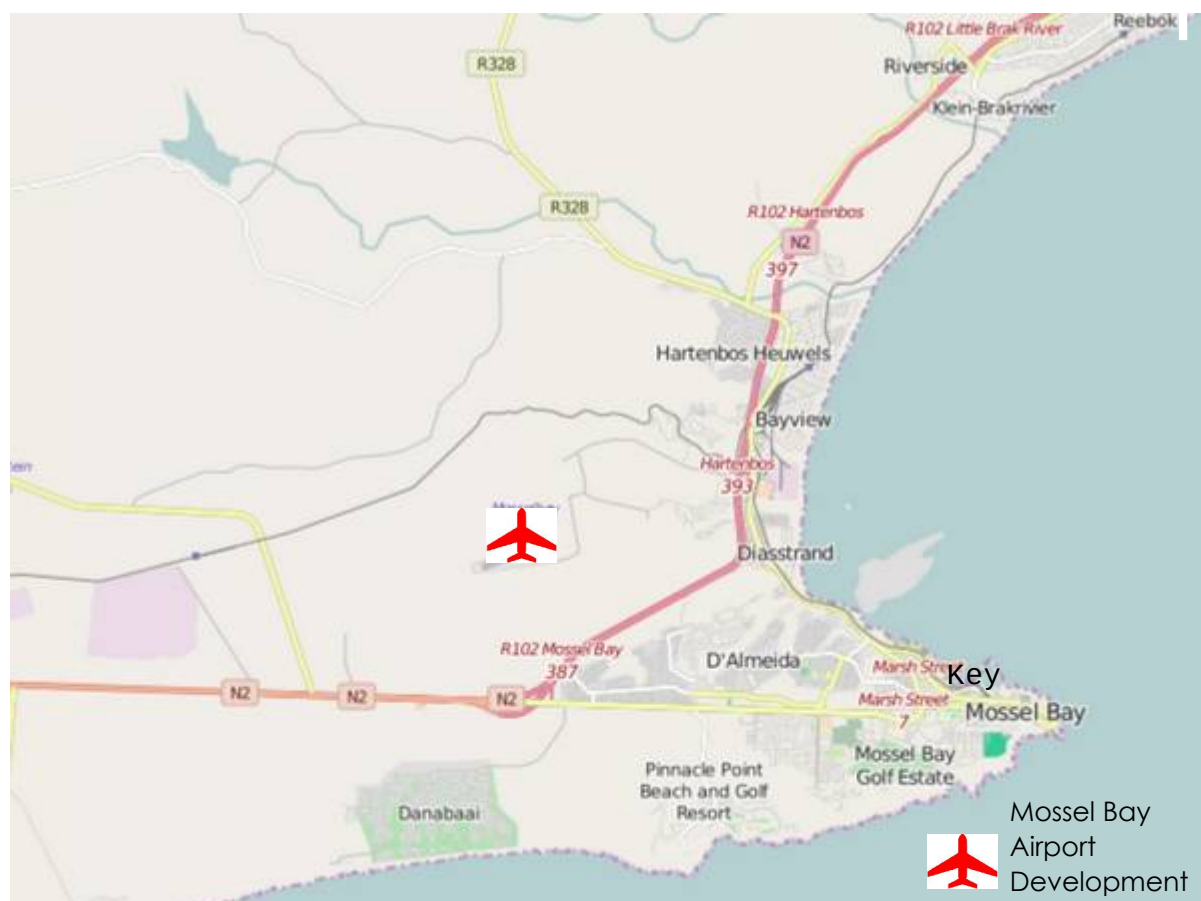
Mossel Bay Municipality is located in the Eden District Municipal Region and forms part of the Western Cape Province of South Africa. It is located 400km on either side between Cape Town and Port Elizabeth, within the Garden Route tourism region,

and on the border of the Karoo region. Mossel Bay is classified as a holiday and port town and is close to the towns of Swellendam, Oudtshoorn, Plettenberg Bay and Knysna.

The location of Mossel Bay Airport, within the Mossel Bay Municipal area, is illustrated in Map 1, below.

N

Map 2: Location of Mossel Bay Airport



Source: Esri ArcGIS (2016).

Mossel Bay Airport is located 7 km North West of Mossel Bay Town. Co-ordinates of the airport are S340925 E 0220341ⁱⁱ. It has an elevation of 526' (160 m) and has a reference temperature of 23.9°Cⁱⁱⁱ.

Map 3 illustrates the location of the other airports in relation to the Mossel Bay Airport

Map 3: Airports near Mossel Bay Airport

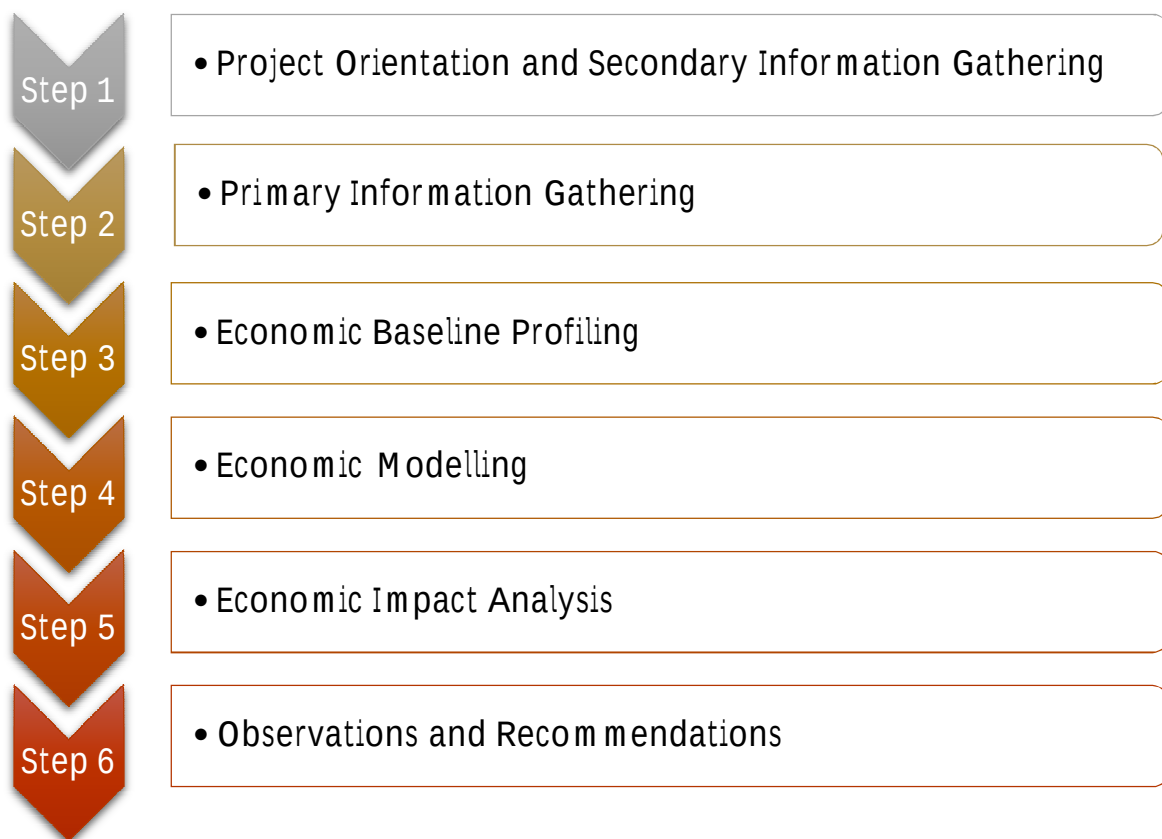


Mossel Bay Airport is the only airport in the municipal area of Mossel Bay and one of four (airports) in the Eden District. It is located near the George Airport, in the neighbouring Municipal area of George.

1.4 Methodology

Figure 1 illustrates the methodology followed to complete the study.

Figure 1: Economic Impact Assessment Methodology



Step 1: Project Orientation and Secondary Information Gathering

The purpose of this step was to gather necessary secondary data to provide an overview of the existing use of the Airport and its economic functions.

Step two: Primary Information Gathering

This step involved conducting surveys with relevant stakeholders, including all businesses currently operating at Mossel Bay Airport.

Step Three: Economic Baseline Profiling

This step involved an assessment of the current Mossel Bay Municipality and Eden District Region economies.

Step Four: Economic Modelling

This step conducts economic modelling of the various impacts of the Airport on its local economy. It utilises the Social Accounting Matrix (SAM) model, which is based on primary and secondary information gathered.

Step Five: Economic Impact Analysis

This step presents the SAM modelling results, detailing how Mossel Bay Airport's current operations affect the Municipal Economy. The economic impacts were measured utilising economic indicators: Gross Geographic Product (GGP), jobs, production and income.

Step six: Observations

The purpose of this step was to provide a summary of findings on the economic impact of the Mossel Bay Airport on the Mossel Bay Municipal Economy.

1.5 Report Outline

The report is outlined as follows:

Section 2: Broad Overview of the Mossel Bay Municipal Economy

This section of the report provides the economic base line context of the study area, Mossel Bay Municipality.

Section 3: Mossel Bay Airport Activities

This section provides an overview of the economic activities at the Mossel Bay Airport.

Section 4: Economic Modelling Approach

This section presents the findings of the SAM modelling Process.

Section 5: Economic Impact Assessment

This section assesses the economic impact of Mossel Bay Airport, taking into account the base line economic status of Mossel Bay and Sam model outcomes.

Section 6: Conclusion

This section provides a summary of the findings of the report.

Section 2: Broad Overview of the Mossel Bay Municipal Economy

2.1 Introduction

This section outlines the structure of Mossel Bay Municipal (MBM) economy and its key economic characteristics. This overview provides a baseline profile from which the economic impact of Mossel Bay Airport's current activities can be quantified.

The economic overview of the area is discussed based on the municipal area as well as for the region (Eden District Municipal area). The overview is presented through the discussion of the following:

- The GGP Growth profile of MBM and its contribution to the regional Eden District Municipal economy
- The economic structure and sectoral performance of Mossel Bay's economy and
- Sectoral employment profile and growth trends for the area

2.2 GGP Growth Profile for Mossel Bay Municipal Economy

The economic structure of an economy is a function of the sum of all the different economic activities in the geopolitical boundaries of the area. The sum of all these different economic activities for Mossel Bay Municipal area are presented in this section.

Box 1: Standard Industrial Classification (SIC)

The main categories of the South African Standard Classification of all Economic Activities (SIC) of 1993 (CSS, 1993) are utilised for this purpose. A total of nine sectors is distinguished. The nine economic sectors are defined as follows:

✓ **Agriculture**

The agriculture sector incorporates establishments and activities that are primarily engaged in farming activities, but also includes establishments focusing on commercial hunting and game propagation and forestry, logging and fishing.

✓ **Mining**

This sector includes the extracting, beneficiating of minerals occurring naturally, including solids, liquids and crude petroleum and gases. It also includes underground and surface mines, quarries and the operation of oil and gas wells and all supplemental activities for dressing and beneficiating for ores and other crude materials.

✓ **Manufacturing**

This sector is broadly defined as the physical or chemical transformation of materials or compounds into new products and can be classified into ten sub-groups of which the most relevant are:

- Fuel, petroleum, chemical and rubber products.
- Other non-metallic mineral products (e.g. glass).
- Metal products, machinery and household appliances.
- Electrical machinery and apparatus.

✓ **Utilities (generally referred to as "electricity")**

This sector includes the supply of electricity, gas and of water, the production, collection and distribution of electricity, the manufacture of gas and distribution of gaseous fuels through mains, supply of steam and hot water, and the collection, purification and distribution of water.

✓ **Construction**

This sector includes the site preparation, building of complete constructions or parts thereof, civil engineering, building installation, building completion and the Renting of construction or demolition equipment with operators.

✓ **Trade**

The trade sector entails wholesale and commission trade, retail trade, repair of personal household goods, sale, maintenance and repair of motor vehicles and motorcycles, hotels, restaurant, bars, canteens, camping sites and other provision of short-stay accommodation.

✓ **Transport, storage and communication**

Transport as an economic sector refers to activities concerned with land transport, railway transport, water transport, transport via pipelines, air transport, activities of travel agencies, post and telecommunications, courier activities, as well as storage and warehousing activities.

✓ **Financial and business services**

This sector includes inter alia financial intermediation; insurance and pension funding, real estate activities, renting or transport equipment; computer and related activities, research and development, legal, accounting, bookkeeping and auditing activities, architectural, engineering and other technical activities, and business activities not classified elsewhere.

✓ **Social and community services**

This sector includes public administration and defence activities, activities of government, government departments and agencies, education, public and private, health and social work, sewerage and refuse disposal, sanitation and similar activities, activities of membership organisations, recreational, cultural and sporting activities, washing and dry-cleaning of textiles and fur products, hairdressing and other beauty treatment, funeral and related activities.

✓ **General Government**

Activities of a governmental nature that are normally carried out by the public administration, including the enactment and judicial interpretation of laws and their pursuant regulation; the administration of programmes based on them; legislative activities; taxation; national defence; public order and safety; immigration services; foreign affairs; and the administration of government programmes.

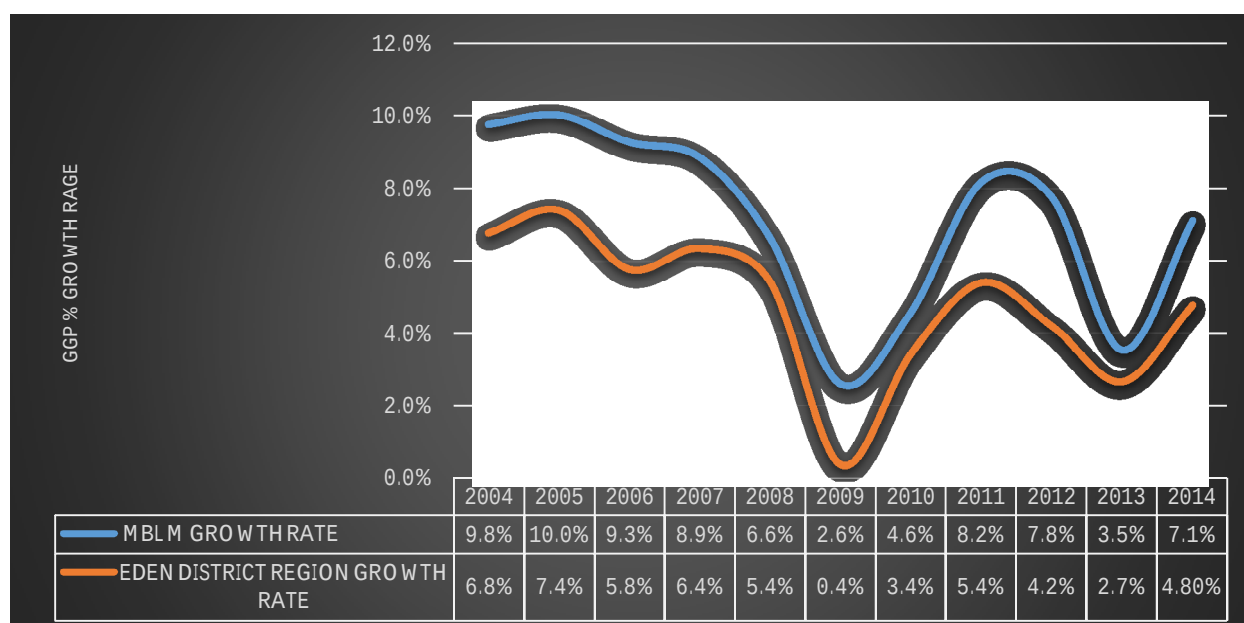
A frequently asked question, for example, is into which sector tourism falls? The tourism industry spans across the economic sectors, ranging from accommodation and catering, retail and wholesale, manufacturing, business services and social services. Activities such as sport are included under the community services' sector.

The Gross Geographic Product (GGP) is a widely accepted measure used to portray the profile of the economy and it is defined as: "the total value of the final goods and services produced in the specific geographic area".

Figure 2 presents the Municipality's overall sectoral growth profile¹ for the past ten years, 2004 to 2014. The sub-section provides an overview of the Mossel Bay Municipal Economy for the past decade, with the aim of creating a foundation for a further detailed investigation into the performance of the Municipality's various economic sectors, presented in the sub-sections to follow.

Figure 2: Overview of the MBM Economy (GGP Growth 2004-2014)

¹ GGP growth for the past ten years (2004-2014) is averaged across all economic sectors in the Municipal Economy and calculated on constant prices.



Source: (Urban-Econ, 2016) Calculations based on Quantec Research Database (2016)

The MBM economy is one of the most important municipalities for the economic growth of Eden District's regional economy. It is the second highest contributor to the Eden District Regions' GGP (Gross Domestic Product) with 26%, after George (30.7%). These percentages based on 2013 GGP contributions. MBM's GGP stood at R 8922.129 million in 2013² and although the Municipality has experienced fluctuating GGP growth over the past ten years, it exhibits a high average GGP growth rate of 7.1% for the period (2004 to 2014). The negative GGP growth from 2008 – 2009 can be attributed to the global economic recession.

2.3 Economic Structure of Municipal Area

This sub-section provides an economic performance review of the MBM economy, executed through an investigation into the following:

- Analysis of the structure of Mossel Bays' economy, illustrating the output of the various sectors that encompass the Municipal economy at 2013 current prices.
- Followed by a more historical investigation, into the proportional contribution of the various sectors to the Municipal aggregate economy from 2010 to 2014.

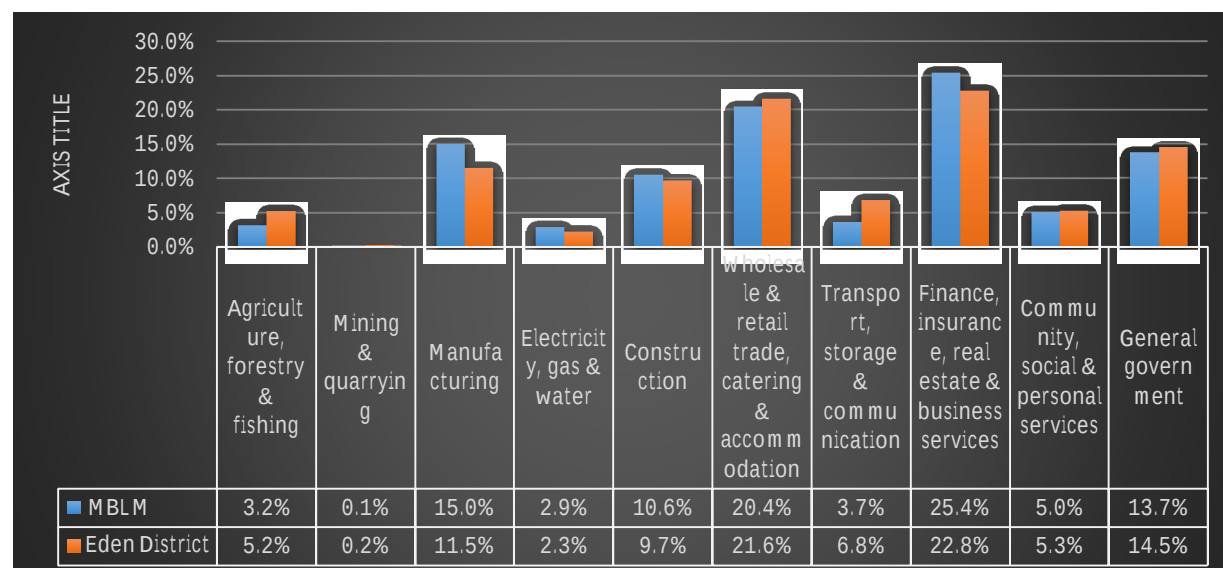
2.3.1 Structure of the MBM economy

Figure 3 illustrates the structure of the MBM economy, detailing the contribution of the various sectors at 2013 current prices in comparison to the larger Eden District area. The purpose of this is to illustrate the contribution of the different sectors in the

² Given at 2013 Current price.

MBM economy, revealing their relative importance to the Municipal economy and regional District growth.

Figure 3: Structure of the MBM Economy



Source: (Urban-Econ, 2016) Calculations based on Quantec Research Database (2016)

Some critical observations can be made from the figure above, the most important being that the main contributing sectors to GGP were:

For the Eden District Municipal Economy:

- Financial insurance, real estate and business services – 22.8%
- Wholesale Retail and Trade, Catering And Accommodation – 21.6%
- General Government - 15.4%
- Manufacturing sector - 11.5%

For the Mossel Bay Municipal Economy:

- Financial Insurance, Real Estate and Business Services - 25.4%,
- Wholesale Retail and Trade, Catering and Accommodation - 20.4%
- Manufacturing sector -15%
- General Government -13.7%

The prominent sectors in for the Mossel Bay Municipal Economy are similar to those of the regional Eden District area.

Table 1 below illustrates the growth rates of these different sectors in Mossel Bay's Municipal economy from 2010 to 2014.

Table 1: Sectoral Performance of the Mossel Bay Economy (2010-2014)

Economic Sectors	Growth 2010-2014
------------------	------------------

General government	9.5%
Manufacturing	7.9%
Wholesale & retail trade, catering & accommodation	7.8%
Finance, insurance, real estate & business services	4.8%
Community, social & personal services	4.2%
Construction	3.5%
Transport, storage & communication	2.0%
Electricity, gas & water	1.9%
Agriculture, forestry & fishing	1.5%
Mining & quarrying	-2.8%
AVERAGE GGP GROWTH RATE	4.0%

Source: (Urban-Econ, 2016) Calculations based on Quantec Research Database (2016)

Table 1 above illustrates that economic growth in the MBM area in the 2010 to 2014 period has been led by:

- General Government Services (9.5%)
- Manufacturing (7.9%)
- Wholesale and Trade, Catering and Accommodation (7.8%)
- Finance, Insurance and Real Estate and Business (4.8%) together with Community, Social and Personal Services (4.2%) also illustrates the relatively significant contributors to the growth of the MBM economy in the era 2010-2014.

When comparing sectoral growth rates of the MBM economy to its current structure, the following is evident. Firstly, that although the finance sector has the highest GGP share according to 2013 current prices, as illustrated in Figure 3, it has experienced slower growth (4.8%) in the past three years leading up to 2014 when compared to the share of competing, second and third ranking GGP sectors. More specifically, it is evident that the faster-growing sectors in the MBM economy are general government services, Manufacturing and Wholesale & retail trade, catering & accommodation, which have experienced a 4.7%, 3.1% and 3.0%, respectively, faster GGP growth than the currently leading (with the largest share) economic sector, finance. This, therefore, demonstrates that the sectors above are imperative to the growth of the Municipal economy, despite their lagging GGP share.

Overall the MBM economy has experienced positive growth over the past ten years, which has been led by general government, manufacturing and wholesale and retail trade sectors in the last four years to 2014.

2.4 Sectoral Employment

The growth trend of the MBM economy has a significant effect on employment within the municipal area, as does employment on inducing the sectoral economic activity discussed above. Employment is essentially demand driven; therefore, an increase in employment is an indication of an increase in economic activity caused by increased demand for commodities. This subsection, after the above-discussed GGP growth trends, provides an overview of the equally important employment trend in the MBM area. It is structured as follows;

- Firstly, provisioned is an overview of the employment profile of the MBM area.
- Then analyse the sectoral employment growth for the period 2010-2014, as the above performed, for GGP growth.

2.4.1 Mossel Bay Municipal Employment Profile

Table 2 illustrates the proportion of the employment in the Mossel Bay area. It provides the basis for the discussion of employment trends in the area, in detailing the size of the population that is formally employed. The levels of employment per sector for the MBM economy are discussed in the paragraphs to follow.

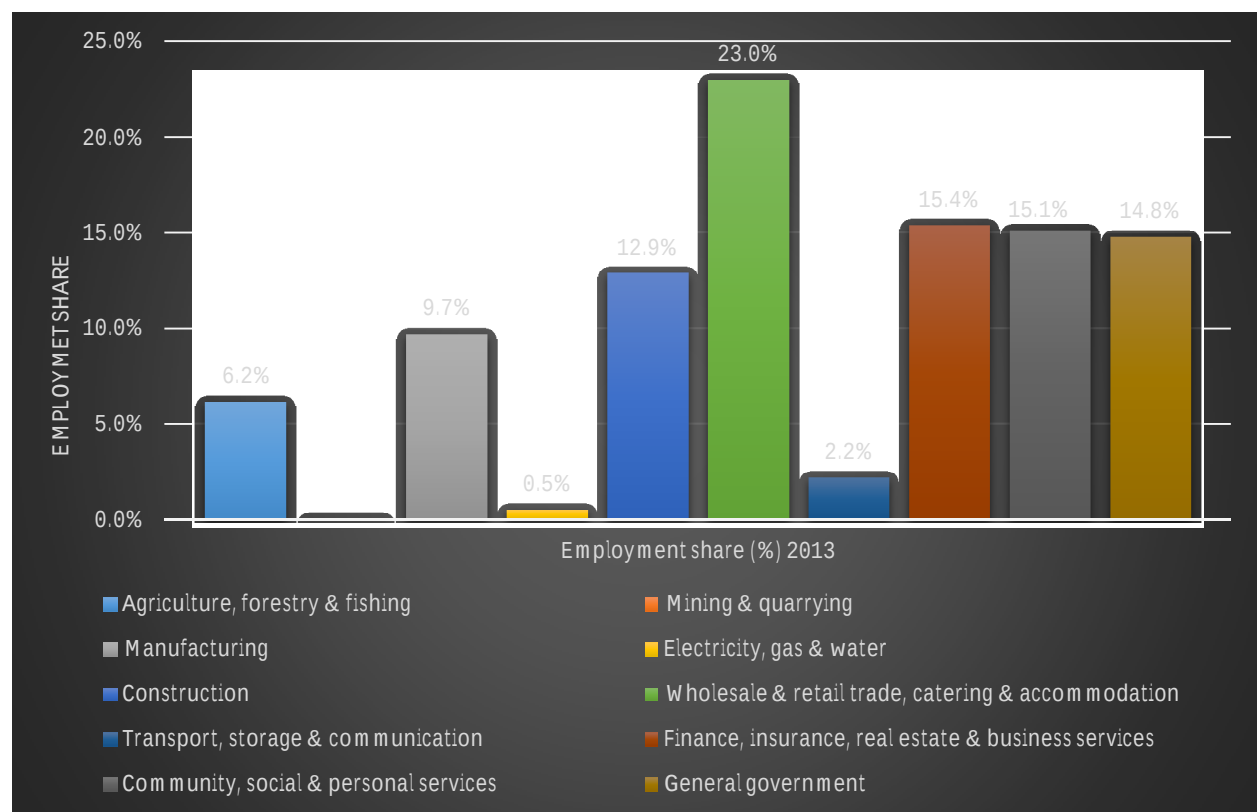
Table 2: Employment Numbers for the Mossel Bay Municipal Area 2013

Employment Profile	2013
Total employed (informally and formally)	43,106
Formally employed	32,178
Informal employed	10,928
Unemployed	12,056

Source: (Urban-Econ, 2016) Calculations based on Quantec Research Database (2016)

Figure 4 below presents the proportional employment levels per sector in the MBM economy. It illustrates that the highest labour-absorbing sectors in the Municipal economy in 2013.

Figure 4: Overview of Employment in the Mossel Bay Municipal Area 2013



Source: (Urban-Econ, 2016) Calculations based on Quantec Research Database (2016)

Figure 4 indicates that the following economic sectors contribute greatest to the total formal employment in MBM:

- Wholesale and retail and trade, catering and accommodation sector (23%),
- Financial services (15.4%),
- Community, social and personal services (15.1%)
- General government services (14.8%).

When comparing the importance of sectors in the MBM economy, it can be observed that the largest contributor to the Municipal economy, in terms of GGP, namely financial services, only employed 15.4 % of the population in 2013, while contributing to over quarter of the Municipal economy (25.4%) in the same year. Wholesale and Trade, Catering and Accommodation, Community, Social and Personal Services and General Government sectors, on the other hand, illustrate not only high relative labour abortion in the Municipal area, but also rank highly Municipal economic contribution, as well as exhibit a faster economic growth rate.

2.4.2 Sectoral Employment Growth Trend

The following sub-section provides an overview of growth in sectoral employment. The purpose of this section is to present an indication of the magnitude of the employment within the different sectors, to give a more detailed understanding of their relative importance to the MBM economy.

Table 3 illustrates the average employment growth rate between 2010 and 2014 for the Mossel Bay's economic sectors. In this period, the MBM economy overall exhibited a significant decline in labour abortion; with a negative average growth rate of -2.5%. This means that the economy experienced a decline in employment in the period (2010-2014).

Table 3: Sectoral Employment Performance for Mossel Bay (2010-2014)

Sectors	2010-2014
General government	6.9%
Finance, insurance, real estate & business services	2.5%
Electricity, gas & water	2.4%
Wholesale & retail trade, catering & accommodation	2.1%
Transport, storage & communication	1.9%
Community, social & personal services	-0.6%
Manufacturing	-0.9%
Agriculture, forestry & fishing	-2.6%
Construction	-6.1%
Mining & quarrying	-30.8%
Average Formal Employment Growth Rate	-2.5%

Source: (Urban-Econ, 2016)adapted from Quantec Data (2016)

Table 3 illustrates that loss of employment for the Municipal area has been highest in:

- The Mining and Quarrying sector (-30%),
- Followed by the Construction sector (-6.1%).

The above indicates significant formal job losses for the unskilled to semi-skilled and skilled population that mostly dominate these primary sectors jobs in the MBM area. However, it should be noted that the Mining sector has a low contribution towards the total MBML economy.

However, despite the overall negative growth of employment in the MBM economy, certain sectors of the municipal economy have experienced positive employment growth (between period 2010-2014). These are as follows:

- General Government (6.9%)
- Financial services (2.5%)
- Wholesale and Retail, Catering and Accommodation (2.1%)

These sectors, highlighted in Table 3, are therefore of great significance to contemporary employment growth and income generation within the Municipal economy. Economic activities that stimulate growth amongst the above-discussed sectors are therefore imperative for Municipal economic growth. In MBM, tourism is one of these imperative growth stimulating economic activities. Its contribution is cross cutting through the various service sectors in the municipal economy, that from the above analysis, have revealed to be both increasingly high economic contributors and employment absorbers, within the MBM economy.

A frequently asked question for example, relates to into which sector tourism is represented. The tourism industry generally spans across the economic sectors, ranging from accommodation and catering retail and wholesale trade, manufacturing (e.g. arts and craft), finance and business services (including real estate, and thus as a spin-off, the construction sector), transport and communication and social services. It is important to note that the region has been experiencing growth in tourism and, as tourism is not classified as a sector on its own, this growth is reflected in the strength of the other economic sectors.

2.5 Tourism in Mossel Bay and Eden District Region

This sub-section presents an overview of the tourism industry in the MBM area. The purpose of this is to illustrate the relative importance of tourist activities to the Municipal economy.

The section is structured as follows:

- Firstly, an overview of Mossel Bay's tourism trends within its more well-known tourist district, the Garden Route is provided.
- Subsequently, an overview of tourism in Mossel Bay' is provided
- The airport (George Airport) currently servicing the majority of individuals travelling into Mossel Bay is discussed, lastly.

2.5.1 Municipal Level Tourism Trends

MBM with regards to tourism is marketed under the internationally acclaimed brand of the 'Garden Route (Eden District) and Klein Karoo' tourism region. Popular activities undertaken by tourists in this area include cultural and heritage activities, scenic drive and wine tasting and outdoor activities.

The Garden Route and Klein Karoo's tourism trends are of importance to the Mossel Bay Airport because the Airports' services supply tourist's activities within the area. Additionally, this overview serves to illustrate the already available tourism potential MBM could capture more off, with increased activities that attract travellers to the Airport.

The 'Garden Route' is known as the adventure capital of South Africa. It attracts a significant share of both international and domestic tourists to the District. MBM, part of the Garden Route and Klein Karoo area, is a popular tourist destination, with both, international tourists' from Germany, United Kingdom and the Netherlands and domestic travellers from within the Western Cape, Gauteng and other provinces. However, over the past five years, the district has experienced a higher percentage of domestic visitors than overseas visitors and shortening of the duration of travellers' stays in the area. This, however, has been a national trend for South Africa.

Description of Tourism Activities in MBM.

MBM is a holiday destination, which, as discussed attracts both local and international tourist. Mossel Bay features in the Guinness Book of Records as having the mildest all-year climate in the world, second only to Hawaii. Add to this the long stretch of beaches, the warm waters of the Indian Ocean, a championship golf course or two and Mossel Bay becomes an ideal retreat for both summer and winter. Some of the attractions offered by Mossel Bay are as follows:

1. Rich Heritage
 - a. There are a number of historic houses in Mossel Bay that are worthwhile to visit
 - b. The Mossel Bay CBD area also offers a large number of historic stone buildings. The Tourism Bureau has also developed a Heritage Walk through the CBD area offering visitors an opportunity to see the historic buildings and gain a better understanding of the background of each of the buildings.
2. Ocean and Water Sports
 - a. Mossel Bay is famous for its mussels and oysters (one of the only places that still has wild oysters)
 - b. Largest catches of tunny and black marlin are made on the Mossel Bay coast
 - c. Deep sea fishing
 - d. Learn to surf – Mossel Bay is seen as important as Jeffery's Bay as a surfing node
 - e. Water Resorts
 - f. Sailing and Pleasure Cruises
 - g. Shark Cage Diving
3. Beaches
4. Bird watching
5. Game viewing and Game Sanctuaries
6. Golf
7. Hiking
8. Shopping
9. Guided Tours
10. 4x4 and Quad Biking

11. Wine Route

12. Tourist Attractions

- a. Diaz Museum
- b. Post Tree
- c. The Granery
- d. The Cultural Museum
- e. The Maritime Museum
- f. Shell Museum and Aquarium
- g. The Padro
- h. The Spring
- i. The Munrohoek Cottages

The tourism market in Mossel Bay is however very seasonal (mainly during the holiday season between December and February and Easter holiday in March/April).

Tourism Market in MBM

The split between international and domestic tourist visiting MBM is different to the average for the region. Most visitors visiting MBM (85%) are of foreign origin. The main source markets of international tourist in MBM are Germany, United States, United Kingdom, The Netherlands and Belgium.

The domestic tourist market in MBM is very small and mainly consists of travellers originating from Gauteng. A reason for this small domestic tourist market could be the current marketing strategy employed that does not focus on the domestic market. It is, however, important to understand the value of the domestic tourist (specifically in current market conditions where families rather travel more often, for shorter periods of time, domestically, due to the financial constraints).

Table 4 illustrates the main purposes domestic tourists visit the Eden District and MBM areas.

Table 4: Main Purpose for visit to Eden and MBM 2013

Main Purpose for Visit	Eden	District share%	MBM	Municipal share%
Total respondents	1,122,774		26,8146	
Leisure/vacation/holiday	271,441	24.2	95,025	35.4
Shopping - business	36,683	3.3	1,980	0.7
Shopping - personal	209,900	18.7	19,709	7.4
Sporting spectator	92,865	8.3	68,909	25.7
Business or professional trip	31,729	2.8	8,516	3.2
Business conference	21,516	1.9	-	-
Medical	20,622	1.8	1,785	0.7
Study/educational trip	7,416	0.7	-	-
other	346,576	30.9	72,222	26.9

Source: (Urban-Econ, 2016) adapted from Easy Data (2016)

The primary purpose of the majority of domestic tourists that visit the MBM; 35% of respondents reported that their main reason for visiting Mossel Bay was to partake in tourist activities. Table 4, above, illustrates that MBM is particularly attractive as a leisure (35.4%) and sporting spectacular destination (25.7%). From this research, it can, therefore, be deduced that over 50% of the people that visit MBM do so to partake in tourism related activities, with a significant proportion of travellers also visiting the Municipality for personal shopping (7.4%) and business purposes (3.2%).

2.5.4 Airport Servicing Travellers to and from MBM

Tourists entering the MBM area via aircraft, are serviced by George airport, situated approximately 6 km from the Mossel Bay CBD and 43km east of Mossel Bay Airport. The airport is adjacent to the N2, close to the intersection of R404 and the N2. Coordinates of the airport reference point are S340024 E 022222.41. The airport elevation is 648' (197m) and the airport reference temperature is 26°C.

The George Airport serves as an important gateway to the Cape Garden Route & Klein Karoo region, as the major airport in the Eden District. It offers scheduled flights to and from Cape Town International Airport, Durban's King Shaka International Airport, and Johannesburg's O.R. Tambo International Airport. Other airports in the region are at Plettenberg Bay, Stilbaai Landing Strip and Overberg Military Base.

George Airport is owned by Airport Company South Africa. Unlike Mossel Bay Airport, which will be discussed in the next section, George Airport is a commercially licensed mainly operates commercial flights. Situated in the Garden Route tourist region, it handles over 600,000 passengers each year. It operates domestic flights to various destinations, including Johannesburg, Cape Town and Durban and the majority of its arrivals are received during December, with another peak in February. It is also a national distribution hub for cargo such as flowers, fish, oysters, herbs and ferns.

Since 2008 arrivals at the George Airport have been in decline, however in 2011 it showed the first signs of increased visitors and has shown fluctuation since, illustrating the most recent peak in 2014. These fluctuations can be attributed to fluctuation in the macroeconomic environment and changes in disposable income which affects leisure travel trends.

2.6 Conclusion

The economic context of Mossel Bay Municipality, which falls within the Eden District Municipality, was analyzed in this section of the report, followed by MBM tourism

trends. From this it can be concluded that:

- MBM economic growth is concentrated in the Finance and Government Services Sector and Wholesale and Retail, Catering and Accommodation for Employment. The Manufacturing and Community, social & personal services sector also contribute significantly to economic growth and employment opportunities.
- The tourism industry in Mossel Bay is a significant contributor to the Municipal economy. This is evident in the diversity of activities undertaken by tourists in the area and their average daily expenditure.
- Mossel Bay's tourism niche is in providing a sporting spectacular travel destination (compared to the regions' speciality as an adventure capital) for domestic travellers, that are increasingly becoming important to the regions'

Section 3: Mossel Bay Airport Activities

This section provides an overview of the activities undertaken at Mossel Bay Airport. It further provides an analysis of tourism activities unlocked by the Airport for the MBM economy. It is structured as follows:

- The Airport's functions are discussed,
- An overview of all the operators at the Airport is provided, detailing the activities of the various operators at the Airport for the past five years.
- This is followed by an analysis of tourism activities unlocked through the Airport
- The section concludes by discussing the Airport's activities that support other local economic activities.

This provides basis to the following section, which then quantifies how Airport activities contribute to the Municipal economy.

3.1 Mossel Bay Airport Functions

The Mossel Bay Municipality owns the Mossel Bay Airport. It is, however, managed and financially maintained by the Mossel Bay Aero Club members. Management activities performed by the Aero Club are detailed as follows:

- Operation of Airport flight traffic: this includes management of the airport and aviation services. A committee, duly elected as per the constitution,

manages the airfield.

- Leasing of plot rights: to Aero Club members for the purpose of building hangers utilised for the storage of their aircrafts.
- Selling of fuel at the Airport: Fuels sold include Avgas; Jet A1 and “Mogas” fuels. On average 14 556 litres of fuel are sold per month and in the last financial year (2015) 174 666 litres were sold.
- Repairs and maintenance of airport infrastructure: including Apron, Runway and Runway lighting upkeep, as well as Fuel Bay Jet A system repairs.
- Providing Airport security: utilising a combination of a Biometric security system to monitor the apron and fuel bay areas and an alarm system to monitor the clubhouse.

Provides Private Landing Facilities

Mossel Bay Airport provides aircraft landing and taking-off services. On average four private aircraft use the airport per day for recreational purposes, and four aircraft per week for business purposes. However, a percentage of the flights undertaken for recreational purposes are by the Mossel Bay Sky Divers and Starlite taking tourists on scenic flights over the Garden route.

Hosts Sporting Spectaculars

The Aero Club also specialises in hosting sporting spectaculars as Mossel Bay Airport, which has shown to attract a significant number of tourists to the area as discussed in section 3.4 and illustrated in Table 6. In the past ten years, it has held important sporting events including skydive Boogies, Annual Poker Rally, Annual Spring Navigation Rally, the World Aerobatic Championships, Western Cape Provincial Regional Aerobatics, National Aerobatics and the Dias Festival AIR Show 2014, 2015 and 2016.

Provides Hanger Facilities

The popularity of Aero Club membership, as well as demand for hanger facilities in Mossel Bay, has shown a steady increase in the past five years. This is evident in the growing membership numbers, from 43 members in 2011 to 77 in 2015 and increased leasing of hangers', from 31 hangers in 2011 to 40 in 2015. Most members were found to be from the Mossel Bay area (58%), with 10% from the Eden District Region area, 12% from Gauteng province and 7% from the North West. From the above it is evident the Mossel Bay Airport is a significant hanger facility provider in the local area and for other domestic aircraft owners.

Provides Public Services

Mossel Bay Airport also contributes to emergency public service provision. It is utilized by public service providers that include, Air Ambulance Services, the Police Wing and a Fire Aircraft is currently being worked on.

3.2 Operators Based at Mossel Bay Airport

In addition to utilization by Aero Club members and Public services provides, the Airport provides a base for educational, tourism and maintenance aircraft operators. Mossel Airport is the base to a total of eight commercial operators. These include:

- Starlite Aviation
- Starlite Maintenance
- Skydive Mossel Bay
- Southern Exploration
- Tours S.A
- R.G Brink, Freelance Fixed Wing Instructors
- Helicopter AMO and a
- Restaurant

Table 5, below, present's descriptions of activities undertaken by the above-listed operators, based at Mossel Bay Airport. It provides a more detailed overview of the operators and activities managed by the Aero Club in addition to its own club activities, discussed above.

Table 5: Description of Operator Activities Based at Mossel Bay Airport

Operators	Description of Activities	Growth in Activity
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Operators	Description of Activities	Growth in Activity
Starlite Aviation	Operates Starlite International Helicopter Training Academy: • which specialises in helicopter training and fixed wing training of pilots and engineers, and recognised by the South African CAA and other international end users? ▪ Starlite operates a fleet of 17 helicopters and two fixed-wing aircraft out of Mossel Bay training purposes. ▪ 10 x CabriG2 2 seater Piston Helicopters ▪ 5 x Robinson R22 2 seater Piston Helicopters ▪ 1 x Robinson R44 Piston Helicopter, ▪ 1 X R66 Robinson 5 seater Turbine Helicopter ▪ 1 x Cessna C152 2 seater piston fixed-wing ▪ 1 X Jabiru 2 Seater piston fixed-wing. ▪ Procedural IF training is conducted on 2 x certified EASA/JAA/FAA/SACAA approved FNPTII MCC FSTD-H Simulators for both Helicopter and Fixed Wing Instrument Training. ▪ It trains both Military and Civilian Ab Initio Helicopter Pilots, and has trained over 2000 AB Initio helicopter pilots, more than 300 Commercial and over 70 Instructor Helicopter Pilots since its conception in 1999, totalling in excess 100 000 hours of instruction. ▪ Averaging more than 7000 helicopter flying hours per annum, the training school utilises Guimbal Cabri G2's, Robinson R22's, R44's, the turbine R66 and assorted other single and twin turbine powered helicopters depending on the client's training requirements.	Has been operational for six years and provides training to an average 75 to 100 students per annum.
Starlite Maintenance	Provides maintenance services • to Starlite Africa on their fleet of R22, R44, R66 and Cabri training helicopters, • as well as R22, R44 and R66 helicopters operated by other operators/privateers within the area. • Occasionally carry's out maintenance on Bell 212 helicopters operated by Starlite Operations on the South Africa Agulhas supply ship.	Have been operational for less than two years and have seen an increase from 2 customers in 2014 to 5 in 2015.

Operators	Description of Activities	Growth in Activity
Skydive Mossel Bay	Adventure sports centre, providing: • Tandem skydiving to tourists • A club for experienced sports jumpers • As well as a school offering courses to students aspiring to become sports skydivers.	Customers, including tourists and trainees, have doubled in the past five years, from 1500 in 2011 to 3000 in 2015
Southern Exploration Surveys	• Undertake equipment maintenance and general paperwork for the Civil Aviation Authority (CAA) • Aircraft and equipment are based at their hanger at Mossel Bay Airport.	Have experienced a change in customer composition, from 25 clients in 2011 to 10 larger ones in 2015
Tours for SA	Operate the largest touring operations on the garden route area, • Based in Mossel Bay, they operate a national servicing charter section, with 26 vehicles (sedans) from Mercedes- through to 48 full luxury coaches.	Have experienced increased touring, operations, from 4000 in 2011 to 5000 in 2015
Freelance Fixed Wing Instructors	Provides freelance Part Time Instruction, providing: • Initial tail wheel training and conversion to the type Cubby (X 285). • Conversion to type on Cessna 172 RG provided for commercial pilot students • Instrument training for Night Rating as well as Cessna 172RG and Cessna 150. • Private Pilot renewals or Competency Checks services, on either the school's aircraft of pilot's own aircraft.	Students trained have increased from 4 in 2012 to 7 in 2015
Heli-Aircraft Maintenance Organisation	▪ Provides maintenance and repairs to helicopters	Customers have increased from 7 in 2012 to 19 in 2015

Source: Urban Econ.

From Table 5 above, detailing the different operators based at the Airport and the services they provide, it is evident that the airport largely provides a base for aircraft training schools and extreme sport (skydiving) services. These activities, taking place at Mossel Bay Airport, have significant direct and indirect impacts on the tourism industry for MBM area and this is discussed in detail in the section that follows.

3.4 Tourism Activities Unlocked through the Airport

The purpose of this sub-section is to provide an analysis of the tourism activities unlocked through the Mossel Bay Airport. The analysis is based on previously discussed, in Section 2.5 tourism trends for the MBM area and the above-detailed activities currently taking place at the Airport.

It will discuss how tourism is directly and indirectly stimulated through its membership, the events it hosts and its business operations.

Membership

As indicated above the Airport is managed by Aero Club Members. The majority of Aero club members are from the Mossel Bay area (58%), however, a significant number of these members from outside Mossel Bay, namely, Gauteng (12%), the North West (7%) and the Northern Cape (3%) and Free State (3%). This 42% membership share by non-Mossel Bay residents, illustrates that the Airport contributes to tourism through providing travellers visiting the area, with the convenient usage of private aircraft landing and storage facilities. The availability of these facilities at the Airport attracting travellers from all over South Africa to utilise its services, therefore, contributes to local tourism and implicates on the Municipal economy through the range of economic activities travellers undertaking during their visit in the area.

Events

Tourists trends, discussed in Section 2.5 revealed that the primary purpose of travellers visiting MBM was to partake in leisure activities (35.4%) and attend sporting spectacles (25.7%). Mossel Bay Airport's impact on this trend is that it organizes and hosts a significant number of these sporting spectacles that are stimulating travel to the area. These sporting spectacles are detailed in Table 6 below.

Table 6 below illustrates the sporting spectacular events hosted by Mossel Bay Airport and the number of people it attracts per day.

Table 6: Sporting Spectacular Events Organised and Hosted by Mossel Bay Airport and Attendance Numbers

Events Hosted the Aero Club	Number of Visitors Attracted
The World Aerobatic Championships	300- 400 people per day over 14 days.
Skills Navigational Rally	12-20 persons/6-10 aircrafts
Poker Rally	16-30 persons/ 10-20 aircrafts
Mossel Bay Air Race	7-10 aircrafts
Western Province Regional Aerobatic Championship	12-14 aircrafts

Source: Urban-Econ (2016) data sourced from Aero Club Mossel Bay

These sporting spectacles have shown to attract a significant number domestic tourism to MBM, contributing to why the area is popular as a sporting spectacles destination. It is evidenced by the 25.7% of people who were found to travel to the area for this purpose.

Business Operations: Starlite Aviation and Skydive Mossel Bay

From the Table 5 above, detailing the Airports various activities, it is evident that Mossel Bay Airport is a strategic location for operators providing aircraft and Skydiving training. As such the Airport has become known for its aviation training facilities and attracts a significant amount of people to the area to enrol in the Aircraft schools based at the Airport.

The origin of students participating in aircraft training at Mossel Bay Airport is illustrated in Figure 5 shows, in the highlighted cells, the share of domestic aircraft educational travellers attracted to Mossel Bay and the rest of the cells illustrate the higher percentage of international students Mossel Bay Airport attracts.

Figure 5: Origin of Travellers Attending to Mossel Bay Based Training Schools

School	Origin	Percentage (%)
Starlite Aviation	Kenya (Kenyan Army)	14
	SA (Air Force)	14
	SA (Transnet National Port Authority)	14
	SA (private students)	14
	Tanzania (TNZ Ministry of Defence)	15
	Kenya (Kenya Police)	9
	Kenya (Air Force)	9
	Botswana (Police and Air Wing)	4
	Namibia (Police and Air Wing)	4
	SA (Police and Air Wing)	4
Mossel Bay Skydive	India	65
	Europe	20
	SA	10
	USA	5
	South America	4
	Israel	1

Source: Urban-Econ (2016)

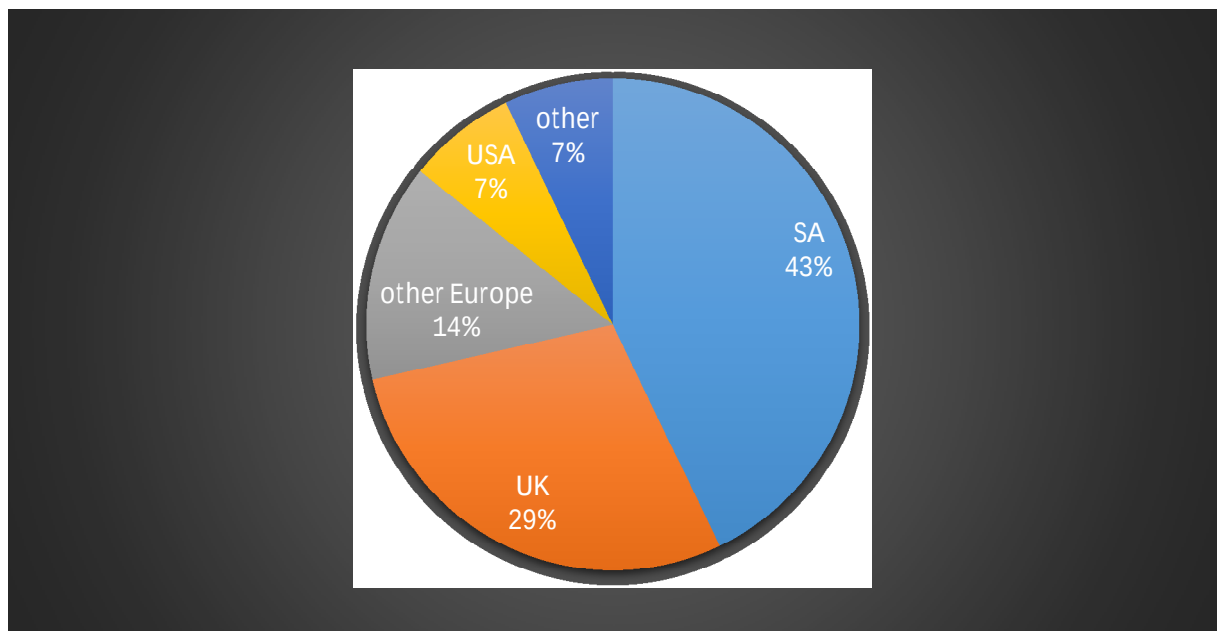
The implication of this is that domestic and international students are travelling into MBM, to attend Starlite Aviation, and tourist partaking in tandem Skydiving at Sky Dive Mossel Bay, spend on other supporting facilities in the area. This includes expenditure on visitor attractions, restaurants, accommodation and transporting, thus contributing to a range of tourism related sectors in the MBM economy.

This spillover effect is significant to the contribution of the tourism industry to the MBM economy, as on average tourist spend between R501-R1000 per day in the Western Cape, on local services, with international tourist spending more, in this expenditure bracket, (45%) than domestic tourists (30.5%).

Regional Tourism trends further revealed that tourists contribute to related tourism businesses as the used rental cars (73.6%) and tour buses (9.3%) to travel within the province, while domestic tourists largely used their own vehicles (72%) but also utilised a significant proportion of rental cars (22.2%).

The implication of this trend, is that Mossel Bay Airport provides a base to Tours SA, which has the largest touring operations in the garden route area, with over 40 luxury coaches (detailed in section 3.2) and vehicles. Consultation with Tours SA revealed that the majority of travellers utilising their services were of International origin (50%),, also serviced a significant share of the domestic market (43%). This is illustrated in Figure 6 below.

Figure 6: Origin of Tour SA Customers



Source: Urban-Econ (2016)

The discussion of these findings serves to illustrate the importance of Mossel Bay Airport as a location provider for businesses that facilitates tourism in the area and allows for the capturing of traveller (both international and domestic) expenditure by the Mossel Bay Municipal economy.

3.3 Linkages to Municipal Economic Activity

This subsection provides an overview of how, the above discussed, Mossel Bay

Airport activities are linked to local economic activities in the Mossel Bay Municipal Area.

Table 7 illustrates the origin of most of the inputs utilised by the different operators at Mossel Bay Airport

Table 7: Input Sources for Airport Activities

Operator	Product	Origin
Starlite Aviation	Fuel and Oil	Mossel Bay
	Student accommodation	Mossel Bay
	Food and meals	Mossel Bay
	Aircraft Maintenance	Mossel Bay
	Stationary	Mossel Bay
Starlite Maintenance	Helicopter spares	USA, Durban and France
	Consumables and tools	Mossel Bay and George
	Accommodation	Mossel Bay
Skydive Mossel Bay	Fuel	Mossel Bay
	Aircraft maintenance	George
	Aircraft parts	George
	Parachutes	Durban
	Parachute maintenance	Mossel Bay/Pretoria
Southern Explorations Surveys	Aircraft Maintenance	Gorge
	Electronic Items	Mossel Bay
Tours for SA	Fuel	Mossel Bay aero club
	Aircraft maintenance	Mossel Bay aero club
	aircraft and helicopters	Mossel Bay
	hire in aircraft	Cape Town
	hire of helicopters	George
Freelance Fixed Wind Instructors	Aircraft maintenance	Gorge Airport
	Avionic repairs	Cape Town (Flight Avionics)
	Instrument Repairs	Cape Town (Aircraft Instruments)
	Courier Services	Mossel Bay
	Hangar Maintenance	Mossel Bay
Heli-Air Aircraft Maintenance Organisation	Helicopter spares	Richards Bay, Johannesburg, Potchefstroom

Source: Urban-Econ.

From the above table, it can be observed that a large proportion of the inputs utilised by the different operators, based at Mossel Bay Airport, for their respective activities are sourced locally, from within MBM. This illustrates the linkage the Airport has in supporting economic activities locally. This is in addition to money induced into the Municipal economy from the various operations at the Airport and students and tourist participating in aircraft training, and tandem skydiving.

3.5 Conclusion

The activities undertaken by Mossel Bay Airport were analysed in this section and the following can be concluded:

- The Airport is a significant contributor to tourism in the area, in that it attracts a significant number of tourists through organising and hosting sporting spectacles.
- It also contributes to tourism through providing a variety of other niche private aircraft services, including private landing facilities, hanger facilities, aircraft fuel sales and maintenance. The availability of these services at the airport attracts travellers from all over South Africa, who go on to utilise other leisure services in the area.
- Mossel Bay Airport specialises as a location for operators providing aircraft educational training and has become known for this; as such it attracts a significant amount of international and domestic travellers, contributing to tourism in the area.
- Additionally, the operations at the Airport also stimulate other economic activities in the local area, through sourcing the majority of their inputs locally, as well as through money injected into the economy from the various operations at the Airport, students and Aero club members' expenditure in the area.

Section 4: Economic Impact Modelling Approach

The purpose of this section is to develop a better understanding of the approach utilised in determining the economic impacts of the Mossel Bay Airport on the Mossel Bay Municipal area. It will first discuss how the SAM model works and then present results of the modelling exercise for Mossel Bay.

4.1 Introduction

Economic impact refers to the effect on the level of economic activity in a given area as a result of some form of external intervention in the economy. In the case of this study, the local impacts will be assessed on a municipal level. These impacts are measured as a result of the capital investment and operational expenditure of the Mossel Bay Airport. The analysis focuses on the changes that have occurred in the economy and community as a result of the Mossel Bay Airport operation which will be estimated by using a technique called the Social Accounting Matrix (SAM) model (discussed below).

4.2 Understanding the SAM Model

While there are many methods of regional economic impact analysis, the SAM modelling approach has proven to be a particularly effective method for evaluating the implications of introducing an exogenous change to the economy. The modelling approach is recognised and accepted both nationally and internationally. The model utilised as part of this report was based on the national model and it has been adapted to reflect local economic dynamics and local forward and backward linkages.

A SAM represents flows of all economic transactions that take place within an economy (regional or national). It is at the core, a matrix representation of the National Accounts for a given country, but can be extended to include non-national accounting flows, and created for whole regions or areas, as has been done for the study area.

SAMs refers to a single year providing a static picture of the economy, based on national accounting statistics and input-output tables that are compiled and published by Statistics South Africa (Stats SA), using primarily South African Reserve Bank Accounts data. The sectoral parameters utilised in the model are therefore

strictly compatible with the macro national accounting data published by the South African Reserve Bank and Stats SA on a regular basis. However, the model has been amended to include the local conditions and importantly, it is the matrix that can be derived from the model that are used as instruments for economic analysis.

Two types of economic impacts can be measured, namely, direct and indirect impacts:

- ❑ **Direct Impacts** – changes in local business activity occurring as a direct result or consequence of public or private sector capital expenditure. Direct economic effects are generated when the new business creates new jobs and purchases goods and services to operate the new facility. Direct impacts result in an increase in job creation, production, business sales, and household income.
- ❑ The effects can be grouped into two distinct effects, namely:
 - ✓ **Indirect Impacts** – occur when the suppliers of goods and services to the new business experience larger markets and potential to expand. Indirect impacts result in an increase in job creation, GDP, and household income.
 - ✓ **Induced Impacts** – represent further shifts in spending on food, clothing, shelter and other consumer goods and services as a consequence of the change in workers and payroll of directly and indirectly affected businesses. This leads to further business growth/decline throughout the Municipal economy. Examples include the income of employees and shareholders of the project as well as the income arising through the backward linkages of this spending in the economy. The impact is sometimes confused with the forward linkages of a project.

Figure 7: Direct, Indirect and Induced Impacts

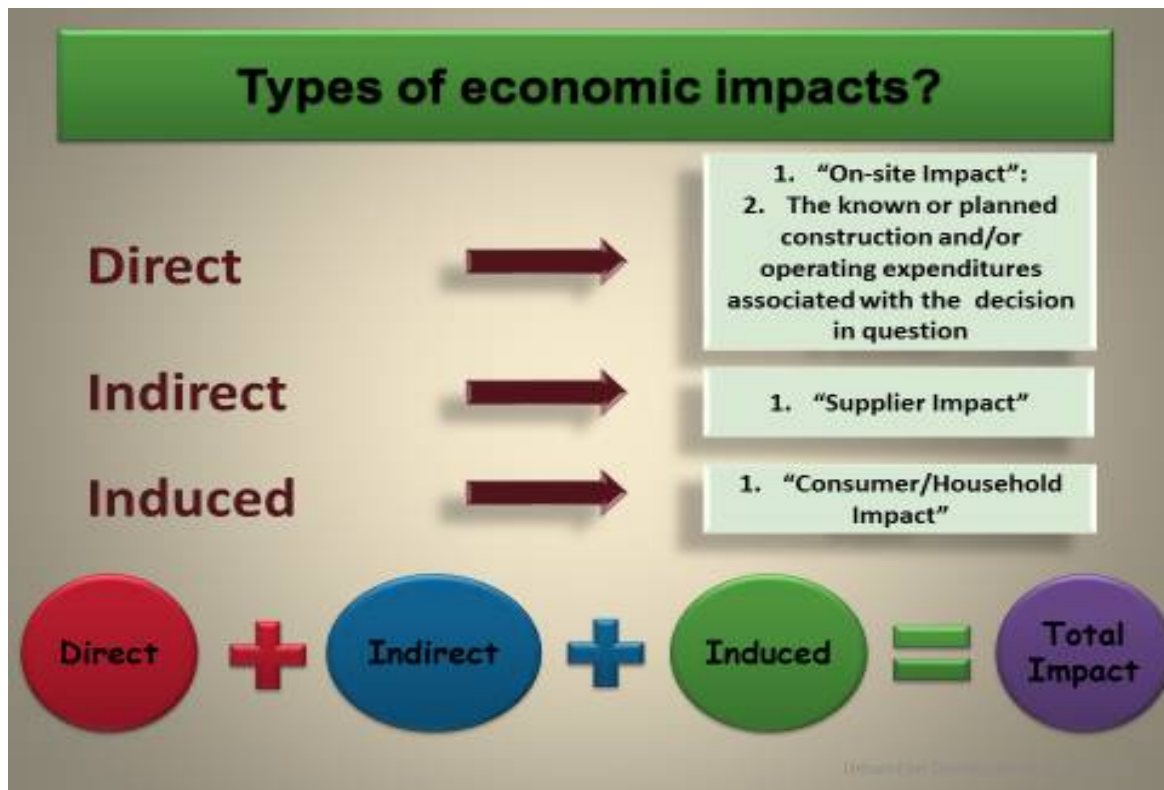
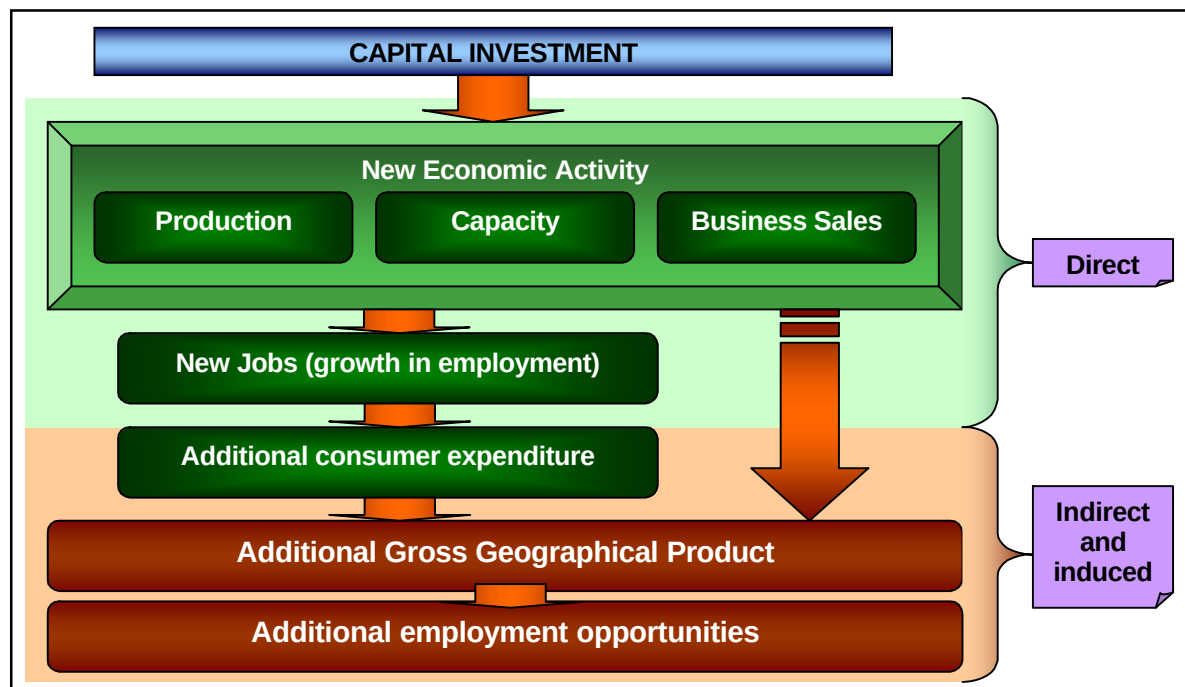


Figure 8: Impact of Capital Investment



Economic impacts can also be viewed in terms of their duration, or the stage of life

cycle in which the development takes place, (1) the construction phase (CAPEX) and (2) the operational phase (OPEX). Due to the duration of these phases, the impacts are, therefore, separated into those observed during the construction phase and those experienced during the operational phase. The construction phase economic impacts are of a temporary nature, they have, therefore, a temporary effect. On the other hand, the operational phase of the Airport would last decades; hence, the impacts during this stage would be of a sustainable nature.

The economic impacts during construction and operational phases can be viewed in terms of a change in the following:

- ❑ **Job creation** – the number of additional jobs created by economic growth. This includes jobs in planning and constructing the facility, and sustainable jobs at the facility once it is operational. Indirect and induced job creation will also occur as a result of direct job and income creation.
- ❑ **Value-added (or GGP)** – the value of all final goods and products produced during the one-year period within the boundaries of a particular area, as a direct, indirect and induced result of activities for/at the precinct during planning, construction and operation.
- ❑ **Business output (or sales volume)** – the value of all inter- and intra-sectoral business sales generated in the economy as a consequence of the planning, construction and operation of the development.

Any of these measures can be an indicator of improvement in the economic well-being of residents, which is generally the goal of any investment project. The net economic impact is usually viewed as the expansion or contraction of an area's economy, resulting from the induced changes. The precise quantum of these impacts will be influenced by changes in the project (such as precise land-use mix, imported versus. local goods and services, timing and funding options, amongst others) and changes in the project environment (such as property market cycles, interest rates, legislation, the structure of the economic sectors primarily influencing and affected by the development and the labour market, amongst others).

4.3 Project Assumptions

Economic Modelling Assumptions

The fundamental assumptions with regards to the model, as well as the use of this model for analytical purposes, are:

- ❑ Production activities in the economy are grouped into homogeneous sectors.
- ❑ The mutual interdependence of sectors is expressed in meaningful input functions.
- ❑ Each sector's inputs are only a function of the specific sector's production.

- ❑ The production by different sectors is equal to the sum of the separate sectors of production.
- ❑ The technical coefficients remain constant for the period over which forecast the projections is made.
- ❑ There will be no major change in technology.

It should also be noted that:

- ❑ All the Rand values in this section of the report represent 2015/2016 Rand values (cost excluding 14% VAT).
- ❑ The different measures of economic impact (jobs, GGP and business revenue) cannot be added together and should be interpreted as separate economic impacts.
- ❑ The model quantifies direct and indirect economic impacts for a specific amount of time. Therefore, the estimates that are derived do not refer to gradual impacts over time.

4.3.1 Details on Primary Data collected and Model Inputs

As indicated in the methodology section, primary data was collected from the relevant stakeholders. A concise questionnaire was developed which assisted in both better understanding the Airports functions, presented in the previous section, as well as receiving critical data to enable a relevant assessment of the economic impacts. Specifically, for the purpose of this initial phase of the Economic Impact Study, this was executed through the conduction of surveys with the Aero Club (which currently manages the Airport) and all eight of the operators (discussed in the previous section) currently operating at Mossel Bay Airport.

As part of these surveys, the various operators were asked to provide detailed information with regards to the following:

- Turnover
- Total capital expenditure, including expenditure on:
 - o Buildings
 - o Infrastructure and services
 - o And expenditure on employment during this phase
- Total operational costs, including their ongoing expenditure on:
 - o Expenditure on rental,
 - o Retail goods,
 - o Accommodation,
 - o Transport,
 - o Security,
 - o Maintenance,
 - o Services,
 - o Rates and taxes,

- o And management and business services,
- o As well as expenditure on employment and how people are currently employed by each operator at the airport.

The above-listed factors, from all the operators at the Airport, were inputted into the SAM model to determine the Airports' direct, indirect and cumulative impacts on the Municipal economy, regarding employment and new business sales.

4.3.2 Handling of Primary Data

Urban-Econ is aware that some of the above-listed information requested from the various operators and management of Mossel Bay Airport is sensitive and therefore the following measures were put in place to protect each of the stakeholders:

1. Urban-Econ has agreed to confidentiality terms with each of the surveyed stakeholders and as such all information gathered was treated as confidential.
2. The raw data was provided to Urban-Econ directly
3. The information provided by the various operators is utilised in a disaggregated manner to determine the statistically significant contribution of the Airport. Additionally, study results will be presented in such a way so as to ensure the anonymity of individual participating operators.

For this reason, the data does not provide specific results for each of the participants, but rather an overall overview of the Mossel Bay Airport.

4.4 SAM Model Findings

This section provides basis for this economic impact discussion of the airport, to follow in Section 5 of this report, by presenting findings of the total capital economic and operational impact of the airport from the SAM model. As previously mentioned the economic implications of the airport will be measured utilising production, GGP, employment and income indicators. The Airports' economic impact both from expenditure on physical assets (CAPEX) and operation of the Airport (OPEX) will be measured following these factors.

4.4.1 Findings during CAPEX

This sub-section focuses on the economic impacts of the CAPEX phase of the existing Airport development. It is important to note that CAPEX impacts are for the duration of construction and development processes of any development, including potential leverage effects. This implies that the impact during the construction phase will fade once the development has been completed. However, in the case of Mossel Bay Airport, that is already in existence and has been operational for years, expenditure on construction and development implies expenditure on upgrading

and extending existing physical assets at the Airport that is only experienced during these upgrades.

Table 8 indicates the results of the impact modelling exercise for the expenditure on physical assets by the Airport, as collected for 2016.

Table 8: Economic Impact of the Airports' Expenditure on Upgrading Physical Assets

	Unit	Direct	Indirect	Induced	Total
Production	<i>Rands million</i>	R25.91	R19.15	R9.08	R54.14
GDP	<i>Rands million</i>	R5.80	R5.54	R3.96	R15.31
Employment	<i>Jobs (number)</i>	18	39	8	55
Income	<i>Rands million</i>	R3.38	R2.57	R1.60	R7.55

Table 8 the following can be concluded for 2015/2016:

- Impact on Production: The total estimated impact of the Airports' current capital expenditure on production is valued at R54.14 million. This encompasses direct production impact on the economy valued at R25.92 million, an indirect production impact valued at 19.15 million and induced impact valued at R9.08 million.
- Impact on GGP: In terms of GGP, the direct effect of the Airport on the economy was found to be equal to R5.80 million. While the indirect and induced effect are estimated to equal R5.54 million and R3.96 million, respectively. The total estimated GGP effect is, therefore, equal to R15.31 million.
- Impact on Employment: Based on the direct capital production value of the Airport, estimated at R25.92 million, the direct employment impact is estimated to be the creation of 18 employment opportunities. Indirect and induced effects, on the other hand, of 39 and 18 jobs, respectively, bring the total employment impact of current capital works or upgrades at the Airport to 55 jobs. Alternatively put, this means there are 55 jobs created throughout the economy as a result of the current capital expenditure at the Airport.
- Impact on Income: The direct effect on income is estimated to equal R3.38 million. While the indirect and induced effects of R2.57 and R1.06 million, respectively, bringing the total income impact of the Airports' current expenditure on physical assets to R7.55 million.

As a result of the existence and the continued upgrading of physical assets at the Airport, the Municipal economy has experienced the above discussed various effects (i.e. the direct, indirect and induced effects) from the capital expenditure required to do so.

4.4.2 Findings during OPEX

It is known that after expenditure on upgrading physical assets such as buildings and other infrastructure, on-going economic impacts (expenditure, output and job creation) will be sustained following the commencement of economic activities on the site. These activities expand the markets for goods and services, increase the labour market and serve as an impetus for new commercial developments. The economic impact of these activities is determined by the level of economic activity generated or lost as a result of development that will require and/or induce on-going operational and maintenance activities. These are known as inter-linkages and knock on effects.

This sub-section, as with the CAPEX phase, assesses the Airport regarding continued business sales, GGP and employment opportunities generated from its operation.

Table 9 indicates the results of the impact modelling exercise for the current operation of the Airport. The results are given for 2015/2016.

Table 9: Airports' Operational Economic Impact

Impact	Unit	Direct	Indirect	Induced	Total
Production	<i>Rm</i>	R122.65	R95.93	R73.74	R292.32
GGP	<i>Rm</i>	R51.10	R48.54	R32.34	R131.97
Employment	<i>Jobs</i>	73	246	144	326
Income	<i>Rm</i>	R19.27	R21.28	R13.03	R53.58

From **Table 9**, above, the following can be concluded:

- Impact on Production: The current operations at Mossel Bay Airport generate R 292.32 million in total business sales. These encompass a direct contribution of R 122.65 million, indirect contribution of R95.93 million and induced contribution of R73.74 million.
- Impact on GGP: Mossel Bay Airports' current production output contributes gross value added to the value of R131.97 million to the MBM economy. Regarding GGP, the direct effect of the Airport is equal to R51.10 million. Where else, the indirect and induced contribution is estimated to equal R48.54 million and R32.34 million, respectively.
- Impact on Employment: The operation of Mossel Bay Airport currently contributes a total of 326 jobs to the MBM economy. Although it only creates 73 direct jobs, it is more effective as a job multiplier to the Municipal economy, evident in that the majority of the jobs created by the Airport are indirect (246) and induced (144).

- **Impact on Income:** The direct effect on income of the operation of Mossel Bay Airport is estimated to equal R19.27 million. Where else, the indirect and induced effects of R21.28 million and R13.03 million, respectively, results in the total income contribution of R43.58 million.

As a result of the continued operation of Mossel Bay Airport it is evident that the Municipal economy has experienced various effects (i.e. the direct, indirect and induced effects, discussed above) although the above discussed only presents the effects of the current operation of the Airport.

4.4.3 Findings on the Impact on Economic Sectors during OPEX and CAPEX

Table 10: Impact on Each Sector

Sectors	Total Impact on Production	Total Impact on GGP	Total Impact on Employment	Total Impact on Income
CAPEX				
Agriculture	1.1%	1.7%	0.6%	1.0%
Mining	0.1%	0.1%	0.1%	0.1%
Manufacturing	23.8%	18.4%	28.9%	17.1%
Electricity	0.4%	0.8%	0.4%	0.6%
Water	0.2%	0.2%	1.9%	0.2%
Building and Construction	58.5%	46.4%	37.5%	54.7%
Trade and accommodation	4.7%	8.3%	1.4%	8.1%
Transport and storage	2.8%	4.2%	3.7%	3.2%
Financing	2.0%	5.2%	2.6%	3.6%
Real estate and business services	6.5%	10.2%	22.7%	7.1%
Government and social/personal services	0.0%	4.4%	0.3%	4.5%
OPEX				
Agriculture	1.5%	1.5%	0.7%	1.1%
Mining	0.0%	0.1%	0.0%	0.0%
Manufacturing	10.3%	5.5%	22.7%	6.2%
Electricity	0.6%	0.6%	0.4%	0.6%
Water	0.3%	0.2%	2.3%	0.2%
Building and Construction	1.6%	0.8%	0.6%	1.2%
Trade and accommodation	22.6%	26.0%	6.5%	30.6%
Transport and storage	49.3%	45.6%	30.6%	42.2%
Financing	2.8%	4.5%	3.3%	3.8%
Real estate and business services	11.0%	11.8%	32.5%	9.9%

Sectors	Total Impact on Production	Total Impact on GGP	Total Impact on Employment	Total Impact on Income
Government and social/personal services	0.0%	3.5%	0.4%	4.3%

Source: Urban-Econ Calculations (2016)

Based on the table above, it is evident that:

The Mossel Bay Airport has the greatest sustained impact on the following economic sectors (the operation of the Mossel Bay Airport):

- Transport and Storage
- Trade and Accommodation
- Real Estate and Business Services
- Manufacturing

Moreover, that the Airport has the most significant temporary (limited to the duration of physical asset upgrades taking place at the Airport) impact on the following economic sectors (the upgrades conducted at the Mossel Bay Airport):

- Building and Construction
- Manufacturing
- Real Estate and Business Services and
- Trade and Accommodation

In conclusion, this section has explained how the SAM model works and how it has been applied to the Mossel Bay Airport to derive its economic impacts. This has been followed by the presentation of the results of the SAM modelling exercise.

Section 5: Economic Impact of Mossel Bay Airport

The purpose of this section is to outline the impacts of the Mossel Bay Airport on the MBM economy. This is executed through presenting the multiplier effect the Airport on the MBM economy and discussion of the above-outlined findings of the Mossel Bay Airport Impact on the Municipal economy. The section is structured as follows:

- Impact on new business sales
- Impact on GGP
- Impact on employment
- Impact on Economic Sectors

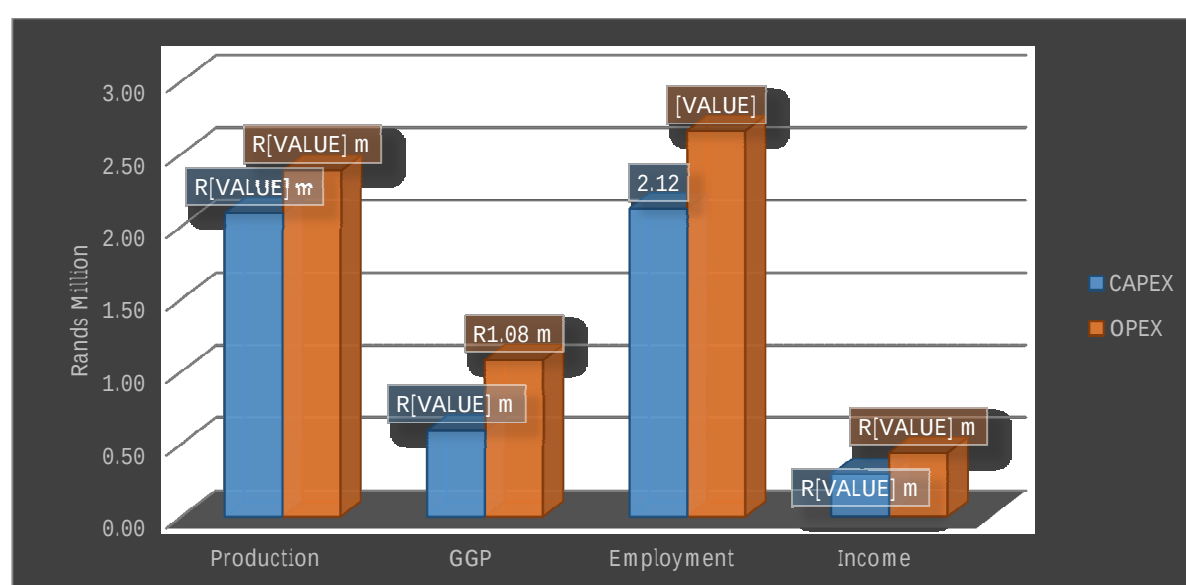
- Impact on Tourism

5.1 Multiplier Effect of the Airport

As a result of the Mossel Bay Airport the MBM economy experiences various effects (i.e. The direct, indirect and induced effects as discussed in the previous section) presented in section 4 above. To better understand these impacts, their multiplying effects on the economy has been calculated to illustrate the effect of every R1 million spent by the Airport on the MBM economy.

Figure 9 s the multiplying effect of the Mossel Bay Airport.

Figure 9: Multiplier Effect of the Airport to the Mossel Bay Municipal Economy



Source: Urban-Econ calculations (2016)

Based on the calculations done, it is estimated that the value of the operation of Mossel Bay Airport is R122.65 million.

5.2 Economic Impact of the Mossel Bay Airport

Economic impact refers to the effect on the level of economic activity in a given area as a result of some form of external intervention in the economy. In the case of this study, the local impacts will be impacted on a Municipal level (the Mossel Bay Municipal Area). These impacts are measured as a result of the capital and

operational (on production, GGP, employment and income) investment of the development.

5.2.1 Impact of New Business Sales and Increased Standards of Living

New Business Sales refers to the value of all inter- and intra-sectoral business sales generated in the economy as a consequence of the introduction of an exogenous change to the economy. Explained more simply, new business sales equates to additional business turnover as a result of the introduction of a change in the economy.

The impact of new business sales is an indication of the stimulation of existing local businesses and/or the demand for growth of new businesses which are established due to an increased demand for business services in the area. As indicated in Section 5 of this report, Mossel Bay Airport has had an estimated additional R25.92 million in direct new business sales during this stage.

The impact of the Mossel Bay Airport's new business sales on the MBM economy would be two-fold, namely, the impact during physical infrastructure upgrades and the impact during operation. It is important to note that the impacts during infrastructure upgrades would only be temporary while the impacts during operation would be long-term sustainable benefits for the MBM area.

During physical infrastructure upgrades, there was mainly economic stimulation for existing local industries and/or new industries relating to building and construction industries. More specifically, the Mossel Bay Airport had the most significant impact on the Building and Construction sectors (58.5%), followed by Manufacturing (23.8%) and Real Estate and Business Service (6.5%). Additionally, the positive local impact is currently felt in MBM, due to increased local shopping requirements of construction staff during the physical asset upgrading stages. The injection of employment and money into the local community will be beneficial to the area as a whole.

As a result of money invested during the operation of the Mossel Bay Airport, a significant amount of revenue is generated due to the multiplier effect in the different sectors of the economy. The sectors that will experience the highest demand for additional output are manufacturing (i.e. manufacturing and supply of building materials), trade (i.e. supply of final goods and services), finance, real estate and business services (i.e. professional services). As indicated in Section 5 of this report, Mossel Bay Airport has had an estimated additional R122.65 million in direct new business sales. With the most significant Impact experienced by Transport and Storage (42.2%), Trade and Accommodation (30.6%) and Real Estate and Business Services (9.9%) sectors in the MBM economy.

From the above it is evident that the impact of the Mossel Bay Airport has a

significant impact on new business sales of the area.

5.2.2 Impact on GGP

The impact of the Mossel Bay Airport on GGP would also be twofold namely the impact during physical infrastructure upgrades and the impact during operation. As with new business sales the impacts on GGP during infrastructure upgrades would only be temporary whereas the impacts during operation would be long term.

Using annual GGP for 2013 as the baseline for calculating the impact of the Airport, it was found that the Mossel Bay Airport has 0.07% impact on the GGP of the MBM area during the stage of physical infrastructure upgrading. Although this impact will fade in the long run with the completion of renovations and extensions, the operation of Mossel Bay Airport was found to have an impact of 0.57% on MBM's GGP which can be sustained with continued operation of the Airport.

5.2.3 Impact on Employment

The impact of Mossel Bay Airport, on employment, would also be twofold, namely, impacts during the physical infrastructure upgrade stage and impacts during operation. As with new business sales and GGP the impacts on employment during physical infrastructure upgrade stage would only be temporary whereas the impacts during operation would be long term.

Utilising the number of formally employed persons in the MBM in 2013 as a baseline, the contribution of the Airport to MBM employment was calculated. It was found that during physical infrastructure upgrades Mossel Bay Airport directly contributed 0.06% to formal employment in the MBM area. While the continued operation of Mossel Bay Airport, contributes to 0.23% of formal employment in the MBM area. The majority of Mossel Bay Airport's (operational) contribution to formal employment (in MBM) has been in the Transport and Storage, Trade and Accommodation and Real Estate and Business Services sectors. These sectors are also the highest growing labour-absorbing sectors in the MBM economy as discussed in Section 2.4 of this report. Therefore it is evident that the operation of Mossel Bay Airport makes a significant employment contribution, to the sectors currently driving employment growth for the Municipality, in a time where the area is experiencing job losses (seen in the negative employment growth rate of MBM, discussed in section 2.4).

The above discussed creation of employment/decrease in unemployment implies a better quality of life for the individuals receiving an income and/or a higher income as a result of the development. Therefore, the current jobs created by Mossel Bay Airport result in income generation, which has a positive impact on poverty in the area. Individuals benefiting from the direct, indirect and induced employment created by the Airport can now better support their families, resulting in decreased dependence on the state for grants and other social services. Further, employment

is linked to increased efficacy and general psychosocial wellbeing. This results in overall social upliftment for the whole community which also leads to economic improvements. The continued operation of the Airport, and attraction of travellers to utilise its services will further stimulate entrepreneurship and SMME opportunities for related services provision within the tourism industry. This has a knock-on effect on creating employment in the MBM area and increasing incomes for individuals in the area.

The increased employment also impacts positively upon the regional and Municipal economy. With the increased employment as a result of the existence of the Airport, there is a subsequent increase in monthly income and business opportunities. As such increased employment is associated with increased income and consequently with increased buying power in the area, thus the Airport has contributed to raising the standards of living of the area.

5.2.4 Impact on economic sectors

The impact of Mossel Bay Airport, on MBM's economic sectors, would also be twofold, namely, impacts during the physical infrastructure upgrade stage and impacts during operation, as illustrated in Table 10, in the previous section presenting findings. As with new business sales, GGP and employment the impacts on the different economic sectors during physical infrastructure upgrade stage would only be temporary whereas the impacts during operation would be long term.

Operation of the Mossel Bay Airport was found to have a sustained contribution to the following MBM economic sectors (arranged by order of importance in terms of largest contributing first):

- Transport and storage
- Trade and Accommodation
- Real Estate and Business Services
- Manufacturing

As indicated in Section 2.3 of this report, discussing the baseline economic structure of the MBM economy, the most important sectors for economic growth (arranged by order of importance in terms of largest contributing first) were:

For GGP economic growth:

- General government services
- Manufacturing
- Wholesale and trade, catering and accommodation
- Finance, insurance and real estate and business
- together with community, social and personal services

For employment growth:

- General government
- Finance, insurance, real estate & business services

- Electricity, gas & water
- Wholesale & retail trade, catering & accommodation

It is evident that from the findings discussed in Section 4.4.3. that operation of the Mossel Bay Airport has a sustained contribution on the leading economic growth sectors of the MBM economy. General government and electricity and water are an exception to this as, linkages to these sectors with the type of services provided by privately licensed Mossel Bay Airport are limited.

5.2.5 Impact on Tourism

As discussed in Section 2.5 and 3.4 of this report, George Airport, the main commercial flight airport servicing Mossel Bay, handles over 600,000 passengers each year. Of these passengers, those travelling to Mossel Bay mainly did so to partake in leisure and tourist activities. Mossel Bay Airport, although not the main gateway for tourist travelling into and out of the area, largely, directly and indirectly, contributes to local tourism through providing niche aircraft tourism services. Directly the Airport contributes to local tourism largely through, providing private landing and hanger facilities, tandem skydiving and sporting spectacles that attract both domestic and international travellers to the MBM area. Indirectly, it contributes to tourism in the area through attracting students (to Starlite Aviation), that utilise other tourism related services in the area, including accommodation and restaurants, (detailed in Section 3.4).

As a product (direct and indirect) of the existence and operation of Mossel Bay Airport, travellers consequently spend on leisure services including, restaurants, accommodation, transport and other related retail services. This directly effects the MBM economy through stimulating economic activity in these various sectors. Evident in the Airports sustained contribution to the Transport and Storage, Trade and Accommodation, Real Estate and Business Services and Manufacturing (which supplies inputs to the range of sectors) sectors, discussed in subsection 5.2.5 above.

This increased economic activity has an induced effect in creating demand for employment for the local population to work in these sectors, thus contributing to employment in the area and conversantly the spending power of these individuals. This effect is evident in the significant indirect and induced impacts, particularly high for employment and GGP, of the operation of Mossel Bay Airport on the MBM economy, as detailed in Section 4.4.2 of this report.

Therefore Mossel Bay Airport plays a critical role to harnessing more tourism and related economic activity to the area, as revealed in the Quantec tourism survey data analysis, that it is one of the most important tourism attractions for Mossel Bay Area

Section 6: Conclusion

This section provides a conclusion of the reports' findings on the status quo economic impact of the Mossel Bay Airport on the MBM economy.

The report has provided an overview of the key economic characteristics of the MBM and Eden District Region Economies. From this baseline, it is evident that the relevant sectors in the MBM economy are, wholesale and retail, catering and accommodation for employment and General Government sectors, Financial services and Community, social and personal services, regarding contribution to economic growth. Finding that tourism which is a crosscutting contributor to these sectors, to be increasingly important with regard to economic production as well as job creation in the MBM economy. This importance is reflected in the fact the wholesale and retail trade; catering and accommodation, largely tourism related sectors are the ones leading contemporary Municipal economic growth.

The economic activities taking place at Mossel Bay Airport were then economically modelled (using the SAM method) to provide a better understanding of their potential economic impacts on the MBM economy. The Airports' economic impacts were assessed for two phases, namely the Capital Expenditure phase (i.e. during Airport physical assets upgrades) and the subsequent operation phase (i.e. the sustained functioning of the Airport), to reflect more sustained and temporary effects of the Airport. The output of this exercise provided an indication of the impacts the Airport has during operation and physical upgrading phases, on New Business Sales, GGP and Employment. These are summarised as follows; direct impacts were identified:

During upgrading of existing physical assets at the Airport, the Current Airport development contributed with the following, to the MBM economy and:

- Estimated additional R 25.91 million in direct new business sales
- Estimated additional R 5.80 million in direct GGP
- Estimated additional 3.38 direct Employment opportunities

During Operation (in the year 2016) the Current Airport activities contributed with the following, to the MBM economy:

- Estimated additional R 122.65 million in direct new business sales
- Estimated additional R 51.10million in direct GGP
- Estimated additional 73 direct employment opportunities

These outputs were then further assessed on their impact on the following (in the MBM economy):

- Impact on tourism
- Impact on new business sales
- Impact on GGP
- Impact on employment

The study found that economic activities currently facilitated by the existence of the Airport contributed to tourism through:

- Attracting a significant number of travellers to the MBM area for the main purpose of attending sporting spectacles, which are hosted by Mossel Bay Airport.
- Attracting travellers from all over South Africa through providing travellers visiting the area- usage of private aircraft landing and storage facilities, evident in the significant proportion of Airport hangar utilisers and owners from outside Mossel Bay.
- Business operations at the airport, including Starlite Aviation, Skydive Mossel Bay and Tours contribute to the MBM's tourism industry through stimulating related economic activities, such as the provision of accommodation, restaurants, transports and other leisure-related services.

These economic activities at the Airport stimulate economic activity in the sectors that currently drive growth and employment in the MBM economy.

The study further analysed the Airports impact on production, which revealed that the upgrading of physical infrastructure by the Airport had a significant temporary impact on construction and manufacturing sectors in the MBM economy. The continued operation of the Mossel Bay Airport, on the other hand, was found to have significant indirect and induced impacts on the MBM economy, seen in the multiplier effect of the Airport on employment and GGP in the MBM area and the notably high indirect and induced effects of its operation. The Airport was found to have a sustained impact on the Transport and Storage, Trade and Accommodation and Real Estate and Business Services economic sectors, currently leading economic growth in the municipal area.

Analysis into the effect of the above discussed on employment was also conducted. Results revealed that significant benefits arise from continued employment with the operation of the Airport and additional employment as a result of physical assets upgrades being undertaken. This Airport induced employment creation in the MBM economy has a range of positive spillover effects, which include increased household income and concurrent spending power in the Municipal economy, thus stimulating smaller retail businesses and service providers.

The study, therefore, found that Airport's spill over effect into the MBM economy has overall improved the standard of living which has added social impacts such as reduced crime and better access to education.

Section 7: References

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Tourism office Mossel Bay Municipality. 2016.

WCGPT .2014. *Socio-Economic Profile Mossel Bay Municipality*. Western Cape Government Provincial Treasury.

WESGRO. 2014. *Western Cape Tourism Trends*.

WESGRO. 2015. *Cape Garden Route and Klein Karoo Tourism Trends*.

WESGRO. 2015. *Eden Tourism Trends*.

ⁱ ICAO Annex 14 Standards and Recommended Practices volume 1 Aerodromes

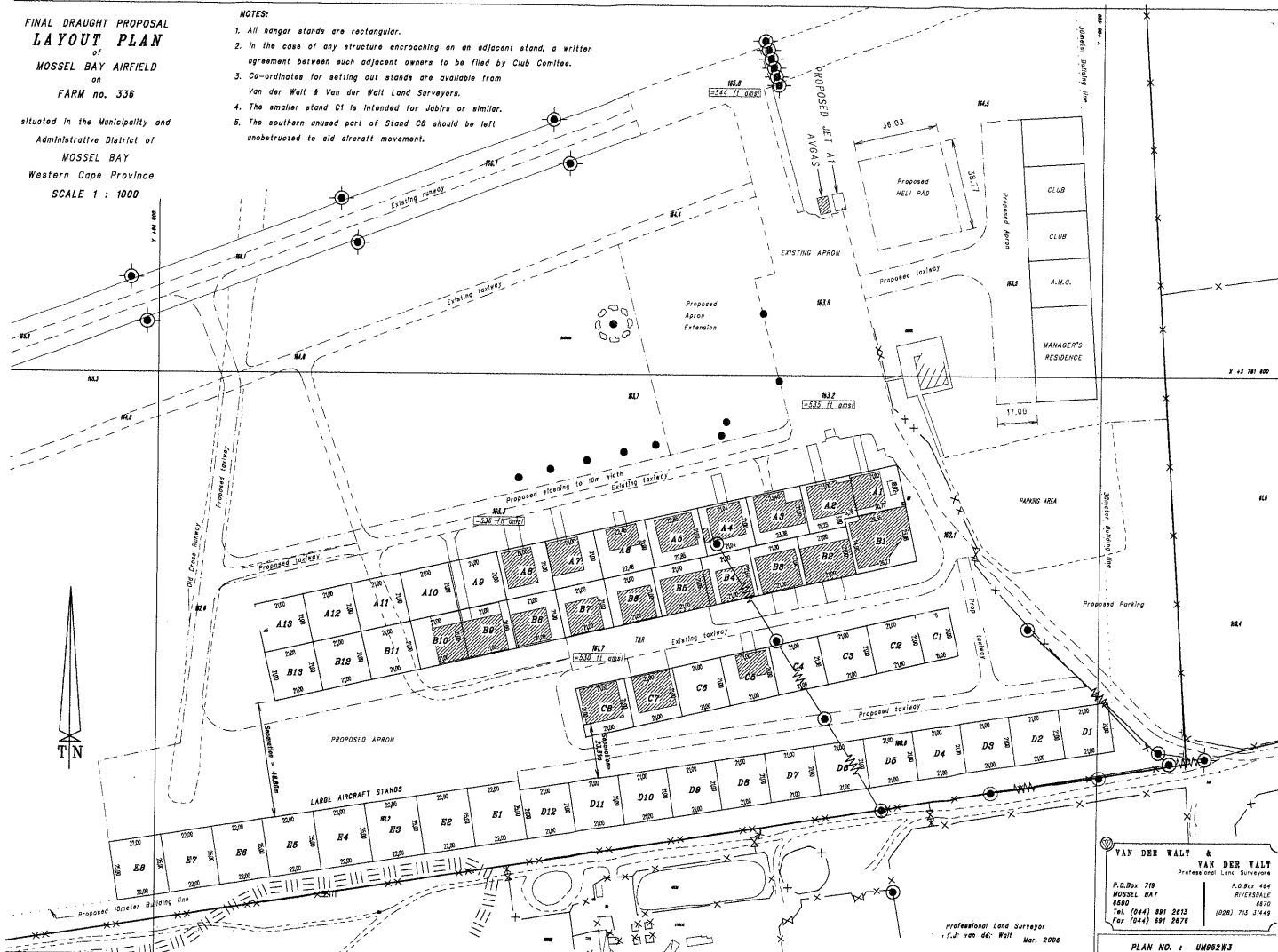
ⁱⁱ South African Civil Aviation Authority: Aeronautical Information Publication October 2012, revision in respect of Mossel Bay information, October 2013 regarding George information, January 2012 regarding Plettenberg Bay

ⁱⁱⁱ South African Weather Bureau

**FINAL DRAUGHT PROPOSAL
LAYOUT PLAN**
of
MOSSSEL BAY AIRFIELD
on
FARM no. 336
situated in the Municipality and
Administrative District of
MOSSSEL BAY
Western Cape Province
SCALE 1 : 1000

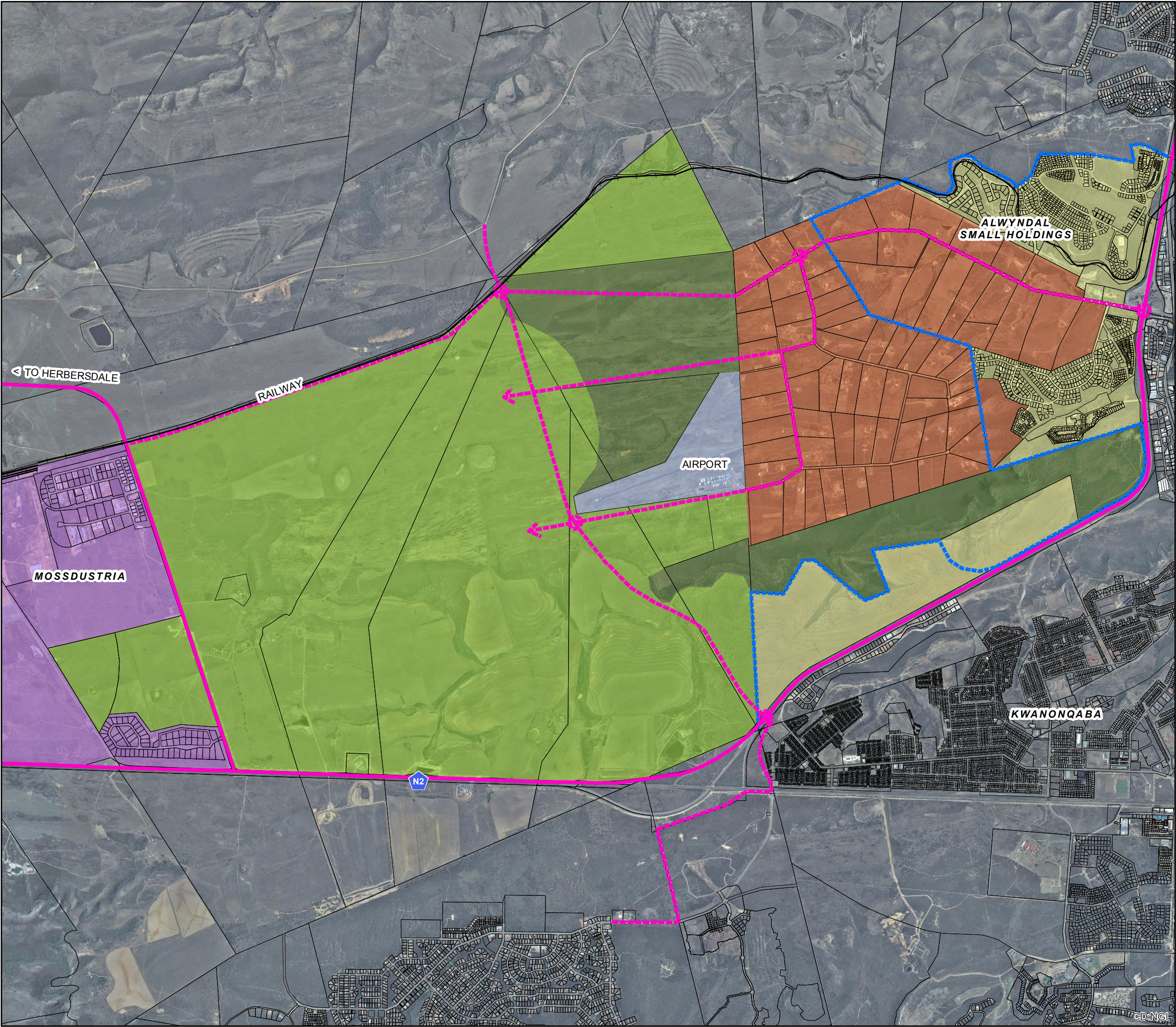
NOTES:

1. All hanger stands are rectangular.
2. In the case of any structure encroaching on an adjacent stand, a written agreement between such adjacent owners to be filed by Club Committee.
3. Co-ordinates for setting out stands are available from Van der Walt & Van der Walt Land Surveyors.
4. The smaller stand C1 is intended for Jabiru or similar.
5. The southern unused part of Stand C8 should be left unobstructed to aid aircraft movement.



VAN DER WALT & VAN DER WALT
Professional Land Surveyors
P.O.Box 719
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6600
Tel: (044) 891 2812
Fax: (044) 891 2876
P.O.Box 484
RIVERSDALE
6670
(028) 715 3149

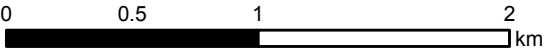
PLAN NO. : UM952W3



AREA / TOWN: **MOSSSEL BAY
Airport**

TITLE: **BROAD
SPATIAL PATTERN**

- LEGEND:
- MAJOR ROADS
 - MAJOR ROAD PROPOSALS
 - URBAN EDGE
 - RESIDENTIAL
 - SMALLHOLDINGS
 - NATURAL AREA
 - AGRICULTURE
 - INDUSTRIAL
 - AIRPORT

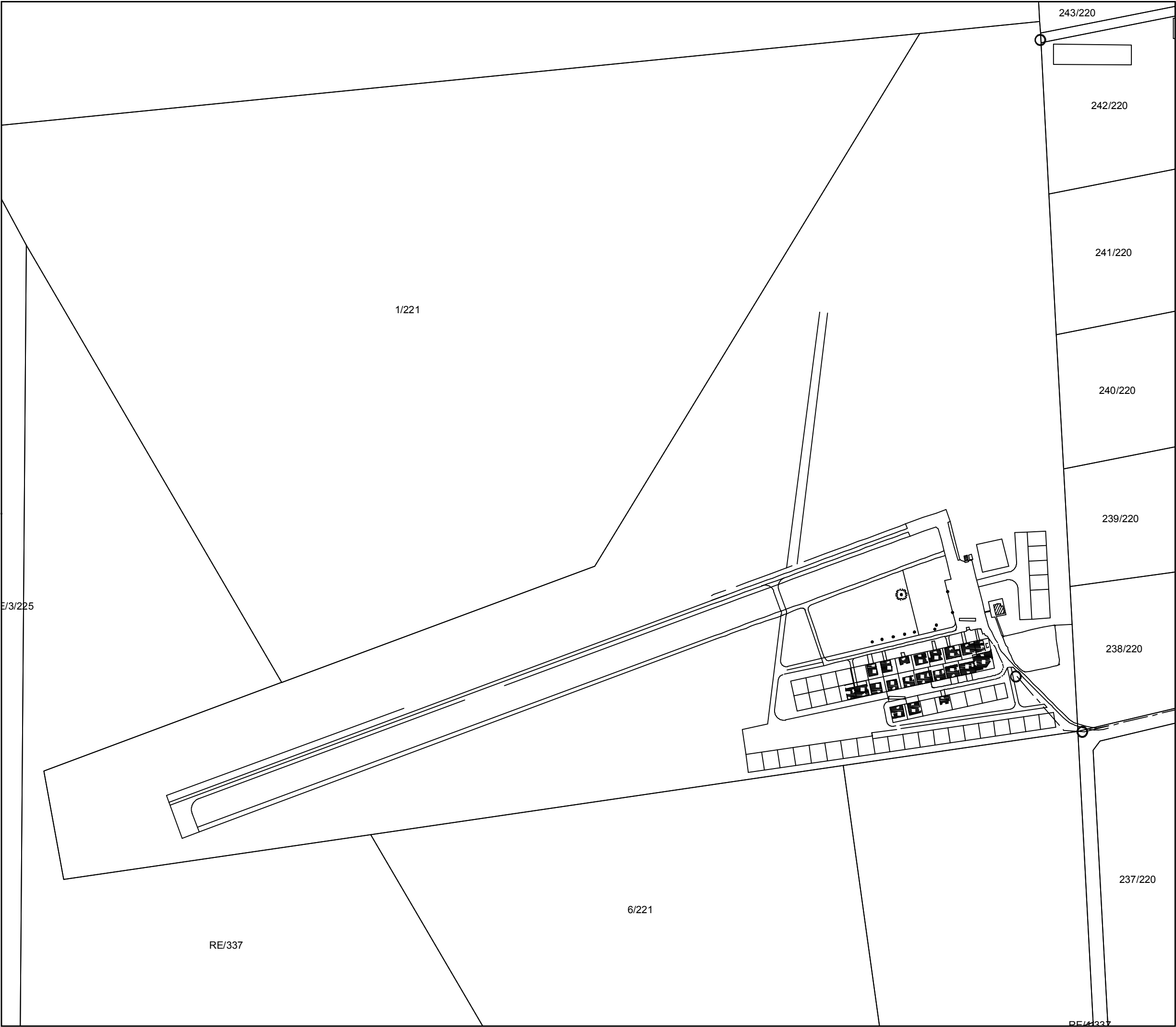


NOTES:
Proposals are taken from Mossel Bay 2008 and 2013 SDF's and Roads Master Plan. For full details, these documents should be studied.

A3 SCALE:  1:30 000

DATE: **JULY 2016**

PLAN NO: **1.0**



AREA / TOWN: **MOSEL BAY
Airport**

TITLE: **AIRPORT LAYOUT**

LEGEND:

0 50 100 200 300 m

NOTES:

A3 SCALE:  1:5 000

DATE: **JULY 2016**

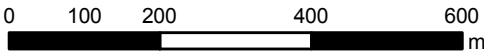
PLAN NO: **2.0**



AREA / TOWN: **MOSEL BAY
Airport**

TITLE: **LONG TERM POSSIBILITIES
OF AN EXTENDED AIRPORT**

- LEGEND:
- PHASE 3
 - FUTURE EXTENSION
 - FUTURE EXTENSION

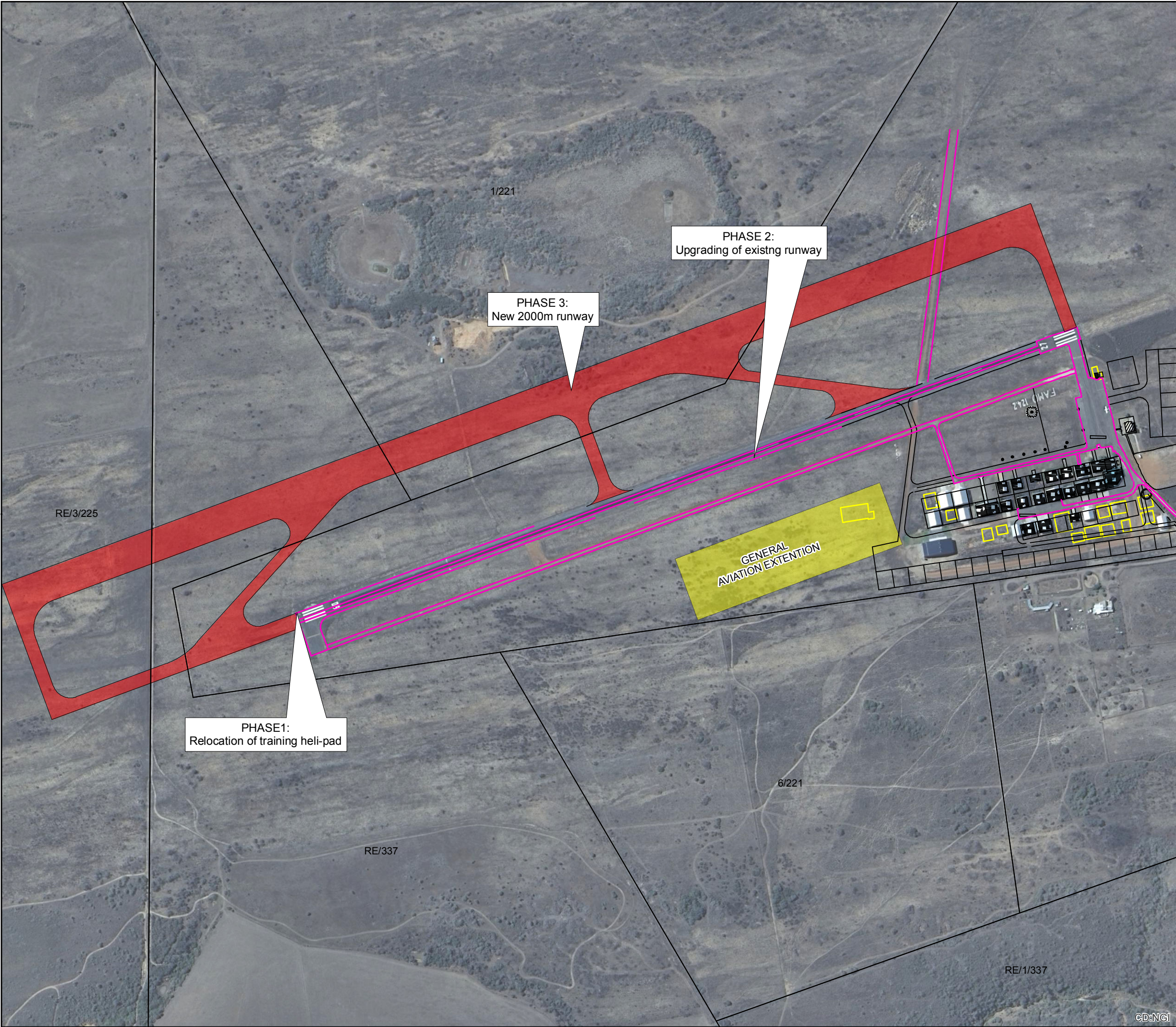


NOTES:

A3 SCALE:  1:10 000

DATE: **JULY 2016**

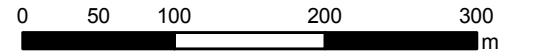
PLAN NO: **3.1**



AREA / TOWN: **MOSELL BAY
Airport**

TITLE: **AIRPORT
EXTENSION PHASES**

LEGEND:
FOR FULL EXPLANATION OF THE
PHASES, SEE REPORT

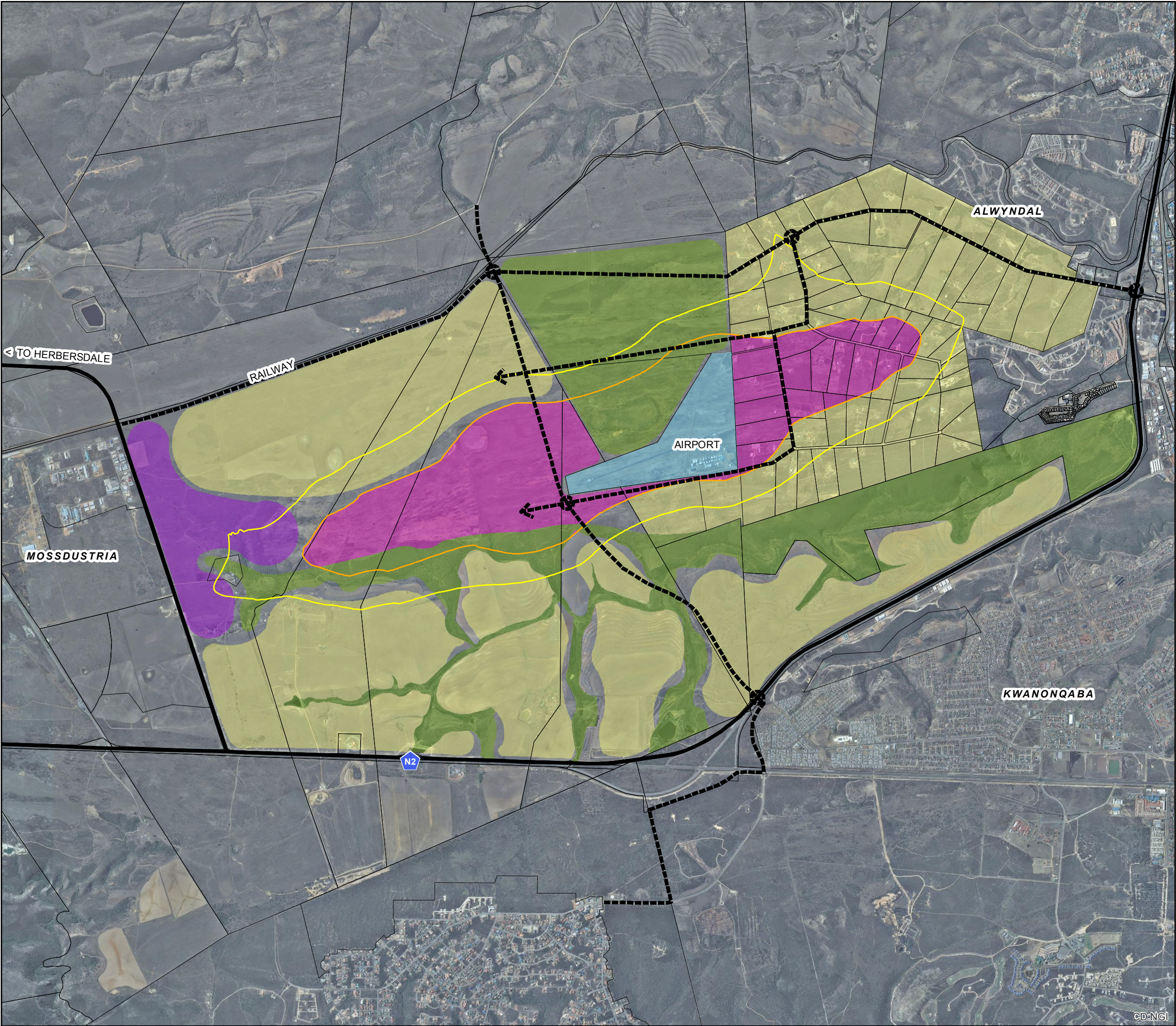


NOTES:

A3 SCALE:  1:5 000

DATE: **JULY 2016**

PLAN NO: **4.1**

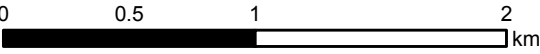


MOSSBAAI
MOSSSEL BAY
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AREA / TOWN:
**MOSSSEL BAY
Airport**

TITLE:
**PROPOSED FUTURE SPATIAL
PATTERN FOR SURROUNDINGS**

- LEGEND:
- RESIDENTIAL
 - NON RESIDENTIAL
 - AIRPORT
 - INDUSTRIA
 - NATURE AREA
 - MAJOR ROADS
 - MAJOR ROAD PROPOSALS
 - 50 LRDN
 - 55 LRDN

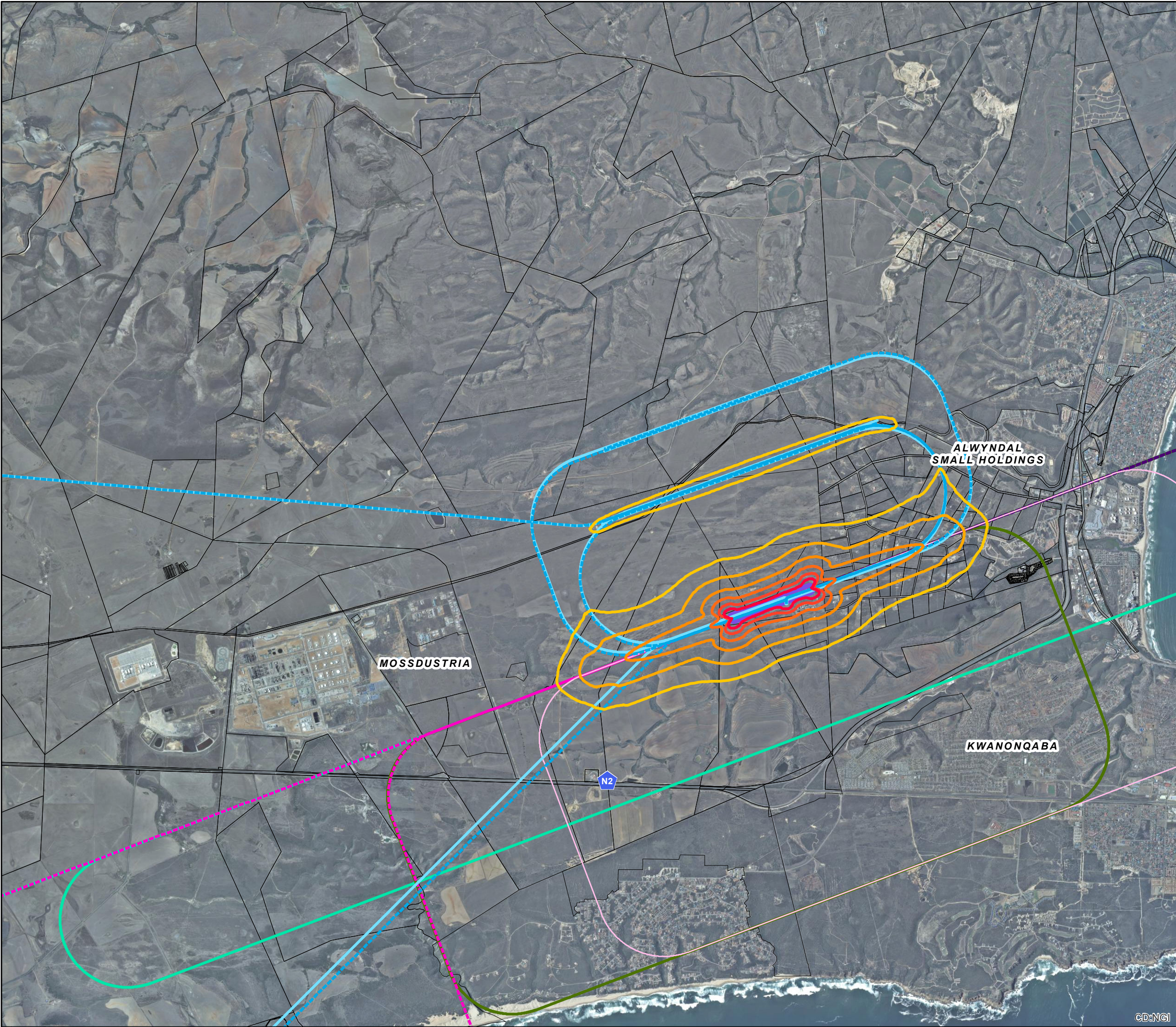


NOTES:

A3 SCALE:  1:30 000

DATE: JULY 2016

PLAN NO: 5.1



AREA / TOWN: **MOSEL BAY
Airport**

TITLE: **AIRPORT NOISE CONTOURS
SCENARIO 1**

LEGEND:

- 50 LRDN
- 55 LRDN
- 60 LRDN
- 65 LRDN
- 70 LRDN
- 75 LRDN
- Helicopter circuit approach
- Helicopter circuit depart
- Runway 10 approach
- Runway 10 departure
- Runway 10 circuit
- Runway 28 approach
- Runway 28 departure
- Runway 28 circuit
- RUNWAY

0 0.5 1 2 3 km

NOTES:

A3 SCALE:  1:50 000

DATE: **JULY 2016**

PLAN NO: **N1.1**



AREA / TOWN: **MOSEL BAY
Airport**

TITLE: **AIRPORT NOISE CONTOURS
SCENARIO 2**

LEGEND:

- 50 LRDN
- 55 LRDN
- 60 LRDN
- 65 LRDN
- 70 LRDN
- 75 LRDN
- Helicopter circuit approach
- Helicopter circuit depart
- Runway 10 approach
- Runway 10 departure
- Runway 10 circuit
- Runway 28 approach
- Runway 28 departure
- Runway 28 circuit
- Runway

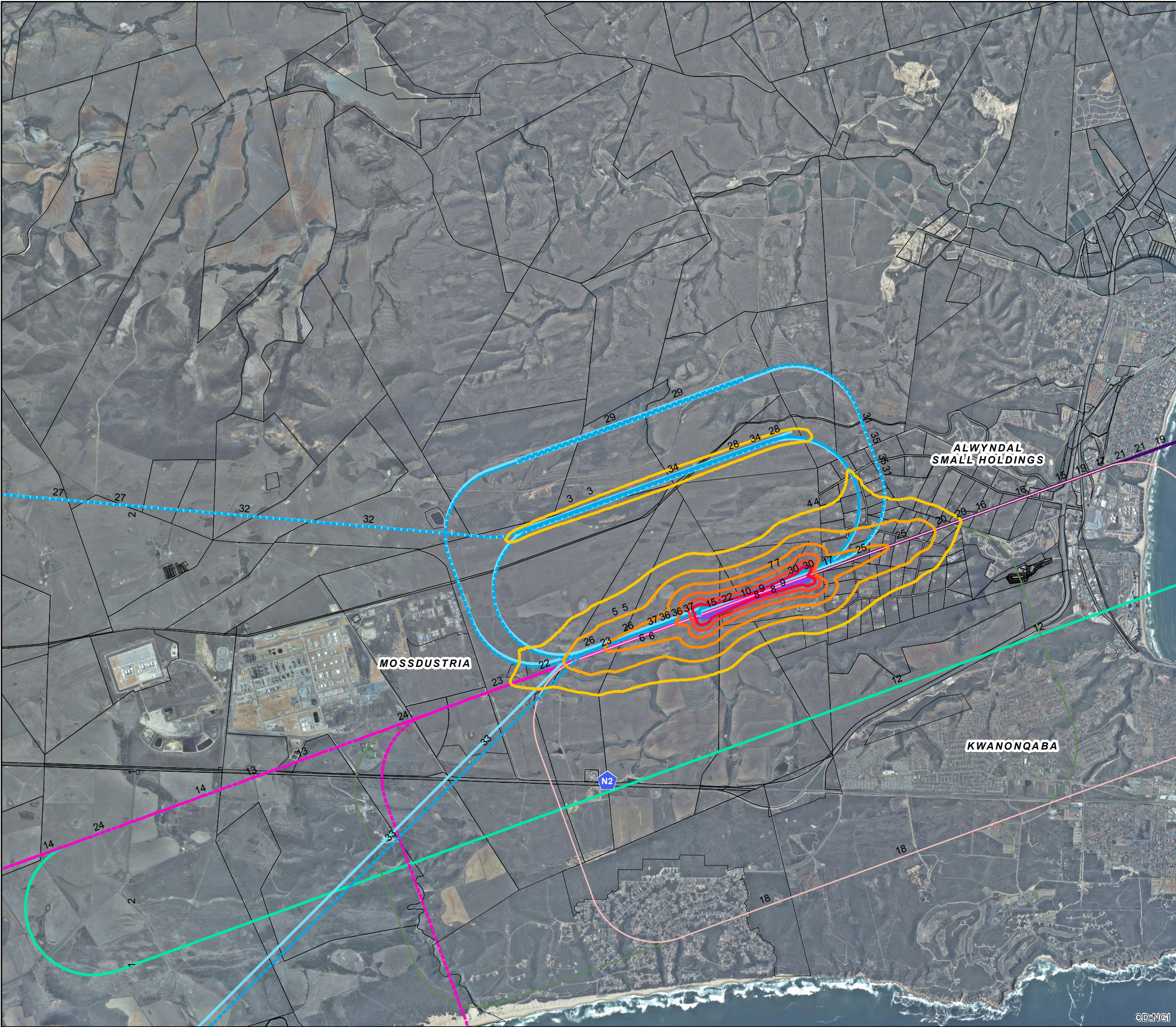
0 0.5 1 2 3 km

NOTES:

A3 SCALE:  1:50 000

DATE: **JULY 2016**

PLAN NO: **N1.2**

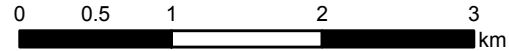


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AREA / TOWN: **MOSEL BAY
Airport**

TITLE: **AIRPORT NOISE CONTOURS
SCENARIO 3**

- LEGEND:
- 50 LRDN
 - 55 LRDN
 - 60 LRDN
 - 65 LRDN
 - 70 LRDN
 - 75 LRDN
 - Helicopter circuit approach
 - Helicopter circuit depart
 - Runway 10 approach
 - Runway 10 departure
 - Runway 10 circuit
 - Runway 28 approach
 - Runway 28 departure
 - Runway 28 circuit
 - Runway



NOTES:

A3 SCALE:  1:50 000

DATE: **JULY 2016**

PLAN NO: **N1.3**

2017

STAKEHOLDER PARTICIPATION

MOSSEL BAY AIRPORT STUDY



STAKEHOLDER PARTICIPATION

Consultations were held with all stakeholders from time to time. An Open Day was held on 2 November 2016. After consultation with the Aeroclub their inputs were still awaited at the time of submitting this document. Their inputs will be dealt as a separate document.

A summary of the inputs received after the Open Day are shown hereunder. Copies of the written inputs are also attached.

Stakeholder	Input / comments	Remarks
Aalwyndal Home Owners Association	• Move the Starlite landing pads 900m to the west • No training over Aalwyndal • Restrain flying over Aalwyndal • Restrict and control Starlite training hours • Extend Aalwyndal road to provide new access	These mitigation measures are being implemented. The relocation of the access to Aalwyndal could be considered as one of the actions to be taken.
C Violente	• Restrict Starlite operations as above • Control the airspace after hours for uncontrolled and unknown flights • Provide access from the extension of Aalwyndal road. • Maintain the airstrip to be used mainly for fixed wing recreational use.	As above. It would be impractical to maintain the airstrip 'mainly' for fixed wing aircraft.
Starlite	• In favour of the proposals to expand the airfield. • Extensive correspondence on their efforts to abate noise. • Explanation of their plans to provide student accommodation	Noise mitigation is constantly being implemented. Student accommodation must be deal with as a rezoning and the Aalwyndal Precinct plan may assist in giving direction.
C Kruger	• Skuif die toegangspad na Aalwynstraat verlenging • Beheer oor wie en wat by vliegveld land en ingebring word • Beheer oor die vlugte van alle vaartuie • Verbeter alle beheer met die oog op groter vliegtuie • Gebruiksregte in Aalwyndal moet	These are all practical proposals that form part of the implementation.

STAKEHOLDER PARTICIPATION

	ook aandag kry • Positief oor uitbreidings maar bekamp klank en veiligheid	
D Manley	• Move road access to the side from Aalwyn street • Too much traffic through Aalwyndal already • Direct access from N2 will provide security problems for Aalwyndal	Relocation of road access form part of Roads Master Plan and will be implemented.
E Enslin	Omvattende beskrywing oor die wenslike ruimtelike patroon en padstelsel vir die gebied	The proposals form part of the Roads Master Plan
D Norval	Uitgebreide klagtes oor insidente waar vliegtuie die reëls oortree en oor Aalwyndal vlieg	This have received attention.
A van Vuuren	Anomalies and inaccuracies in report Certain statutes ignored Inputs from government departments and ACSA are absent Full EIA required Airfield is in a CBA area Cost versus benefits is non-viable More communication is required	The inaccuracies have not been specified and cannot be attended to unless specifically described. The respondent confuses the report which was an investigation with a formal application for the expansion of the airfield. This will only happen when the council so decides and then a formal process will be followed. The location in a CBA is incorrect – see the environmental report in the study.
F du Plessis	Verbied vliegtuie bo Danabaai en die see wat maneuvers daar doen.	Impractical and would contravene air flight rules and legislation.

Note:

The above is merely a summary of the points raised and the reader is advised to read the inputs themselves to fully understand the points of view.



'n Vergadering sal vanaf 12:00 op 2 November in die Hartenbos-raadsaal plaasvind om terugvoer te gee oor die bevindinge van die navorsing oor die Mosselbaai-vliegveld. Foto: Google Images

Terugvoer oor vliegveld

■ Nickey le Roux

Die Mosselbaai Munisipaliteit se studie na die huidige gebruik en potensiaal van die Mosselbaai-vliegveld is pas voltooi en die langverwagte resultate sal bekend gemaak en aan die Raad voorgelê word vir oorweging. Willem de Kock, die raadgewende stadsbeplanner van WM de Kock Town Planners wat vir die Raad die studie gelei het saam met, onder meer, deskundiges op die gebied van lugvaartkunde, geraasvlakke, stedelike ekonomie, omgewing en

ingenieurswese, berig dat 'n opedag op Dinsdag, 2 November, in die Hartenbos-raadsaal gehou sal word om die publiek insae in die bevindinge te gee.

Langtermyn

Die konsultante se aanbevelings behels onder meer die vermindering van die geraasvlakke en meer effektiewe bestuur van die landing en opstyg van vliegtuie deur 'n lugvaartbeheerbeampte aan te stel. Daar is bevind dat die onderskeie bedrywye op die vliegveld soos Starlite, die Skydivers

en ander 'n groot bydrae tot die plaaslike ekonomie deur hul investering en die mense wat van hulle dienste gebruik maak, lewer.

Aanbevelings vir langtermynontwikkeling van die vliegveld tot 'n volwaardige lughawe word gemaak. Op daardie stadium sal die Raad 'n bestuursmodel moet vind wat voorsiening maak vir 'n vennootskap met die privaatsektor.

Die opedag op 2 November in die Hartenbos-raadsaal sal vanaf 12:00 tot 18:00 duur met geleentheid vir bespreking teen beide 13:00 en 17:00.

FISIOTERAPIE
HESTER SMIT
GEREGISTREERDE FISIOTERAPEUTE

Hester Smit
B.Sc.Fisio (Stell)
082 8241 248

Ansa van Niekerk
B.Sc.Fisio (UWS) OMT
076 1299 274

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KEEP OUT THE UNINVITED

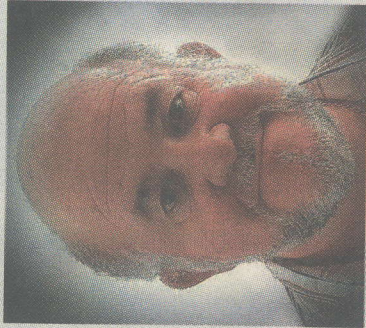
15 VIA APPIE STREET, VOORBAAL, MOSSEL BAY

Ronald Phillipson oorlede

Ronald Phillipson (60), bekende inwoner van Mosselbaai is op 27 Oktober 2016 na 'n kort siekbed oorlede. Ronald was 'n baie bekende musikant in die Suid-Kaap en ook 'n bekende in makelaarkringe.

Hy is in Mosselbaai gebore en was 'n oud-leerder van beide Laerskool Park en Hoërskool Punt. Reeds van 'n jong ouderdom af was hy bekend vir sy musiek talent. Hy het reeds van skooldae af in verskeie dansorkeste gespeel wat oral in die Suid-Kaap by verskeie funksies en troues opgetree het.

Ronald is ongeveer drie maande gelede met 'n gewas op die brein gediagnoseer. Na twee breinoperasies - Augustus in Panorama Hospitaal, Kaapstad



Ronald Phillipson

en September in Bayview - het sy toestand egter stelselmatig agteruitgegaan en is hy uiteindelik na sy Hemelse Vader toe.

Sy opgewekte persoonlikheid, staaltjies, stories en altyd 'n grappie gaan gemis word. "Sy liefde vir musiek en unieke speelstyl agter die klavierbord sal bly voortleef in die harte van ons gemeenskap. Menige lied sal ons altyd aan hom herinner."

Ronald word oorleef deur sy vrou, Minnie, dogters Romé en Minaldi en skoonseun Mario Meyer. Sy dogter, Romé, sal voortgaan met sy besigheid.

Poppy Day collections on 12 November

The time of year has come to recognise all those who died during the First World War.

Remembrance Day, also known as Poppy Day, marking the day World War One ended in 1918, is on Friday, 11 November, with Poppy Day collections taking place on Saturday, 12 November, in South Africa. In South Africa, Remembrance Day is commemorated on the nearest

Sunday to Poppy Day.

There will be a Remembrance Day Parade on Sunday, 13 November, commencing at 10:30 at the Mossel Bay Point Cenotaph below the Lighthouse opposite the Point Hotel. All those veterans and members of the public who wish to acknowledge the sacrifice made by brave soldiers are welcome to attend and may lay a wreath if they so wish.

Vliegveld-verslag: opedag trek belanghebbendes

■ Conelle Carsten

Belanghebbendes het Woensdag, 2 November in groepe byeengekom om die opedag by te woon, waartydens die langverwagte resultate van 'n studie oor die huidige gebruik en ontwikkelingspotensiaal van die Mosselbaai-vliegveld bespreek is. Die opedag is gehou in die Hartenbos-raadsaal en is aangebied vanaf 12:00-18:00, met spesifieke besprekingsessies om 13:00 en 18:00.

Willem de Kock, die raadgewende stadsbesplanner van WM de Kock Town Planners, wat die studie vir die Mosselbaai Munisipaliteit gelei het, het Woensdag se aanbieding hanteer. Die studie het insae van deskundiges op die gebied van lugvaartkunde, geraasvlakke, stedelike ekonomie, omgewingsake en ingenieurswese bevat.

Lede van die Mosselbaai Aeroklub, asook inwoners van veral Aalwyndal waar geraasvlakke gereeld huiseienaars se bloeddruk opjaag, het tydens die 13:00-sessie aktief aan die ope bespreking deelgeneem, wat die aanbieding van die verslag gevolg het. De Kock het die belanghebbendes herhaaldelik aangemoedig om hulle bydraes op skrif te stel sodat dit verder kan dien tot die ontwikkeling van 'n sinvolle plan rakende verandering en ontwikkeling wat die vliegveld betref.

Die vertrekpunt van sy verslag was die status quo soos die situasie tans daar uitsien, waarna die toekomstige opsies bespreek is. Wat die toekoms betref sluit die opsies in om die status quo te behou; die vliegveld te skuif; minimale opgradering te doen; of die vliegveld op te gradeer na 'n volwaardige lughawe.

Die enigste lewensvatbare opsie, aldus De

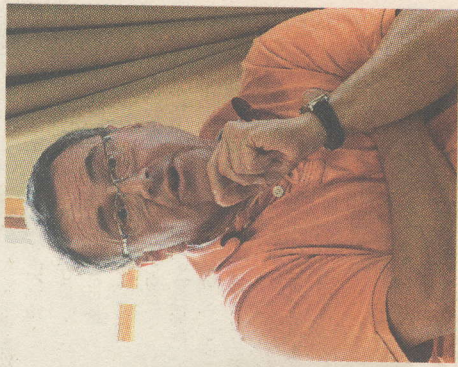


Willem de Kock tydens sy aanbieding rakende die toekoms van die Mosselbaai-vliegveld.

Kock, is om opgradering van die vliegveld te oorweeg. Dit, volgens die verslag sluit drie moontlike fases in wat voorlopig by beraming tussen R532 000 en R117 miljoen sal beloop.

In kort behels die fase een onder meer aanpassings soos om die landingsplek wat meestal deur student-vlieëniers gebruik word te skuif, asook die aanstel van 'n persoon verantwoordelik vir lugvaartbeheer.

Fase twee sluit onder meer die opgradering en standaardisering van die aanloopbaan in, terwyl die langtermynontwikkeling van fase drie, 'n vennootskap met



Hartog Blok, sekretaris van die Mosselbaai Aeroklub het aktief aan die bespreking deelgeneem.

beleggers in die privaatsektor sal behels om 'n volwaardige lughawe te skep.

Om self die verslag te sien, gebruik die volgende skakel op Dropbox <https://www.dropbox.com/sh/r2wce1su8abpnnz/AACy9cmieYzTV4oaalMcTAgEa?dl=0>

Enige navrae oor die verslag kan gerig word aan Willem de Kock by wmdek@lantic.net of Jaco Roux by jroux@mosselbay.gov.za

Insette op die verslag moet op skrif gestel word en na dieselfde adres gestuur word teen 2 Desember.

Foto's: Cornelle Carstens

MOSSEL BAY AIRPORT PRESENT AND FUTURE DEVELOPMENT STUDY
PRESENT AT AS MEETING ON 12-11-2015 **AEROCLUB**

	Name	Organization	Address	e-mail	Tel / cell no
1	Nicanda vd Westhuizen	Urban-Econ	Cape Town	nicanda@urban-econ.com	082 306 9213
2	Steve Kleinheins	SES	George	stave@sesec.net	064 873 4923
3	Dan Drooper	SES	George	info@sesec.net	044 873 4923
4	Paul Goldschagg	Amum/Vietnam	Randburg	paul@goldschagg.com	082 855 7263
5	Lee Vergottini	Club.	M'Kay	lee@idhweb.com	082 4616 981
6	CARLO VAN WILK	CVW	M'BAY	CVW@CVW-e.com	082 550 0613
7	Laurin de Swardt	Laurin de Swardt	Pretoria	laurin.deswardt@amwari.com	072 437 0060
8	ROGER G. BEINE	Mosser Bay Aero	M. Bay	ROGER.BEINE@MOSSE.CO.ZA	082 577 100
9	Carol du Toit	Aero Club.	SMSB	Carol@duitoitprok.com	082 047 1704
10					
11					
12					
13					
14					

MOSSEL BAY AIRPORT PRESENT AND FUTURE DEVELOPMENT STUDY
PRESENT AT AS MEETING ON(3-11-2015).....STARLITE

	Name	Organization	Address	e-mail	Tel / cell no
15	W M de Kock				
16	W de Swardt	} Planning Team			
17	N de Westhuizen				
18	P Goldsthygg				
19	C van Wyk				
20	ANDRÉ MIDDEN				
21	MARIO FISSANO			MARIO@TOURS4SA.com	082-498 4027
22	K. Odendaal				
23					
24					
25					
26					
27					

MOSSEL BAY AIRPORT PRESENT AND FUTURE DEVELOPMENT STUDY
PRESENT AT MEETING ON 25 NOVEMBER 2015 – ALWYNDAL PROPERTY OWNERS

	Name	Organization	Address	e-mail	Tel / cell no
1	Mike Bosq		20 Klipheuwel str	michaelbosq@hotmail.com	074 861 7436
2	Wesley Mestek		20 Klipheuwel str	D. Pienaar@Telkomsa.net	082 809 2908
3	CLAUDE VLAARTE		16 KUPSTEWER	vasbyt.v@telkomsa.net	082 779 1047
4	Van Roooy		21 Klipheuwel	jan@koraanboerdery.co.za	082 495 9411
5	TERENY BATES-SMITH		23 "	BATES-SMITH@TELKOM.NET	082 771 6583
6	Wolke Grundlingh		Plot 34 Achterwiel	wolke.g@voda-mail.co.za	082 418 4068
7	Anton Vorster		HOMESTEAD STABLES	anton.vorster@yahoo.co.uk	082 569 1467
8	Dik Kotze	MBM	38 Nigtegelyks	clr.kotze@gmail.com	083 275 0033
9	Jaco Roux	MBM	MBM	jroux@mosselbaygaza	083 740 6898
10	CARLO VAN WYK	CVW	24 BLANK STREET	CVW@CVW-COM	082 550 0613
11					
12					
13					
14					

MOSSEL BAY AIRFIELD

Attendance at an open day at Hartenbos municipal offices – 2 November 2016

Name	Address	Representing which organization	Cell no	e-mail address
Corene Kruger	Rooikant 40, Aalwyndal	Aalwyndal	082 923 1633	corene.kruger@gmail.com
Charlene Barnard	Rooikant 40, Aalwyndal	Aalwyndal	061 719 0000	barnardcharlene2@gmail.com
JOHN SCHOEMAN	NAGTEGAL 29	✓	082 926 8068	VALERIE.SCHOEMAN@VADAMAIL.CO.ZA
TREVOR YOUNG	Mossburn	Mac Young	082 556 6361	Ayoung@mtel.com.co.za
ROBERT LEATH	9 E. COLLIERA ST SANDHURST	Private Forum	08126 00711	robertb6@vodamail.co.za
DAVID MAULEY	47 ROOIKANT ST	PRIVATE	0824771813	d.m.mauley@gmail.com
Thomas Blok	33 Leersburg Way, GBR	MBAC	0832616300	habe@barac.co.za
Ben Bouwer	15 PLANTERIA ST	MBAC FMSA	0825531101	info@jdubocher.co.za
Carel Kruger	2 Paardokke, Hartenbos	MBAC Ltd	083 277 9900	cary@withuis.co.za
Peter Kruger	17 Sands Rd WILDERNESS	MBAC Member	083 251 1298	pkruiger1990@gmail.com
Joy Louis Cook	# Whale-Phin Ct	Private	082 493 3251	jog@whalephin.co.za
Louis Cook	Reebok	AfriForum	082 097 4560	Louis@whalephin.co.za
Cornelle Coetzee	Kennedyst 9	Mossel Bay Harbour	082 356 3664	cornelle@groupedlites.co.za
MICHAEL CARMAK	82 NIELANDS RD SANDHURST	PRV	076 446 5902	MICHAEL CARMAK 7477@G.MAIL.CO.ZA
Jaco Roux	MBM	MBM	083 740 6898	jroux@mossellay.gov.za

MOSSEL BAY AIRFIELD

Attendance at an open day at Hartenbos municipal offices – 2 November 2016

Name	Address	Representing which organization	Cell no	e-mail address
Charl de Wet	Robertson Street Little Brak River	Starlite	082 882 4726	charldewet@artistic.net
Arthur Vuurman	Franshoek	ANV Properties	082 333 7418	arthurvanvuurman@gmail.com
J.E.H. ENSLIN	HARTENBOS	Rivierat	082 436 7651	elienslin@gmail.com
J. Bales-Smith	23 Klipheuwelst Aalwynsdal	OWN PROP.	084 573 7747	bales-smith@telkomsa.net
J. Bales-Smith	" "	" "	082 771 6583	"
CHARLO VAN WIL	15 JONASGRABERD BAYVIEW, JHB	C.V.W.	082 550 0653	cvwme@nwob.co.za
DANIE ACKER	VERKSTR. 10, MSB AALWYNSDAL	Private Pilot	082 570 1101	danie@rgprok.co.za
RIKA PRETORIUS	19 KLIPHEUWELST AALWYNSDAL	OWN PROP.	082 809 3112	rp Pretorius 399@gmail.com
Karen Koo	21 " "	Aalwynsdal	083 253 4455	jim@kannabosday.co.za
Jan Koo	" "	" "		"
Pieter Louw	3 Aalwynstr. Aal	Aalwynsdal	082 568 9632	pieter@hope.co.za
Renee Louw	" "	" "	072 760 2522	renee@hope.co.za

MOSSEL BAY AIRFIELD

Attendance at an open day at Hartenbos municipal offices – 2 November 2016

Name	Address	Representing which organization	Cell no	e-mail address
Claudio Violante	Klipheuwelsr. Hartweg 164a	Voorsitter Hartwegdaal Heis E. Verburg	082 779 1047	vasbyto v@telkomsa.net.
ARNIE JANSEN	LOT 33 Aankompad	owner	082 563 1924	ARNIE JANSEN@GMAIL.COM (RED BULLS@MWSB.CO.ZA.
M. Griffioen	Virginia Freestate	N/A	0825687790	griffio@2mail.co.za
Katbe Odendaal	Hanger A, Mossel Bay Airport	Starlite	08255522061	kateo@starliteaviation.com
Klara Fouche	"	"	0833248530	klara f@starliteaviation.com

The "Starlite Flight Training" saga

To who it may concern;

As inhabitants /owners, thus ratepayers of Aalwyndal we regrettably; strongly -disapprove the current state of affairs at the airfield , as also reflected in our many letters to the council and meetings with various stakeholders directly and indirectly.

Therefore we would like to express our dismay and at the same time betrayal by our local authority -be noted, to not act in time, or through possible neglect, allowed Starlite to root it's feet on the Airfield which was intentionally reserved and build only for **recreational purposes and not commercial.**

Now after so long, we all had to endure the constant **annoyance and inconvenience it caused to our area- and ambiance of Aalwyndal**, not to say the indirect effect of lowering the property value caused by the spreading of their expansion rumours. The threat by there many requests to expand and other demands put to the municipality, is no re-assurance !

However;

After our many meetings and discussions as well as on request of the now appointed investigating team, and in the spirit of "Live and let Live" we would like to propose the next points- as we believe to be the only viable, practical solution to the problem, considering all parties involved as well as the financial implications it may incur, all this under strict conditions :

Now (..... after visiting the site ; airfield and its borders) we suggest :

- To physically move at least the paved landing pads/strips , if not also the hanger itself, at least 900 meters in a direct westerly direction (Refer Plan A) (also suggested by Mr. Matt Hayes – previous Head Instructor- Starlite) resulting them to do their circuitry flying much further away and if any ,flying over Aalwyndal at all !

We believe this would address at least 60% of all the annoyance caused !

- To ^{em}lessen- and not intensify their flying over Aalwyndal, taking into consideration that according to Civil Aviation – **no training** should take place **over a residential area**, due to obvious risk of falling and consequent danger to human life and fire caused, also insurance that we financially have to provide for just that.
- As with # 2, to restrain from flying/training over Aalwyndal by routing most of it towards Kleinberg where they already successfully apply it, also making use of more simulators, and changing the type of helicopter to the less noisy types, as they proudly mentioned it some time ago in the local newspapers.
- Taking the **Spatial Development Plan** into consideration – to upgrade and extend the existing Aalwynroad towards the Herbertsdale road and then link it directly to the foreseen new position of the training facility (refer plan B) resulting in lesser strain and traffic danger on the now very under- developed

infrastructure provided to the inhabitants of Aalwyndal which we all must admit is not always properly maintained.

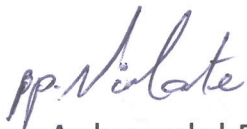
- Restrict and properly control their flying hours, so that we appreciate at least part of the ambiance of Aalwyndal had offered us before Starlight came to light. Also strictly not allow any foreign/alien flying fraternity or private pilots especially flying constantly in night time. We know it is an uncontrolled airspace and it became a tendency to abuse it.

LAST BUT NOT LEAST :

We see Airshows and similar events as entertaining as it intends to offer – we still have to consider and obey Aalwyndal existence as set out above. We therefore request our local authority and the custodians of the airfield to restrain of just organizing and inviting random events.

In conclusion- we hereby appeal to all parties involved and set out herein to adhere to our reasonable demands and consider/accept our proposal to the benefit of us all.

Thank you



Aalwyndal Residents, Landowners and Ratepayers.

STEEL & PIPES

Registration No: 1999/027065/07

Mossel Bay
(PTY) LTD



8 Industria Road
Voorbaai
Mossel Bay 6500
P.O. Box 1504
Mossel Bay
6500

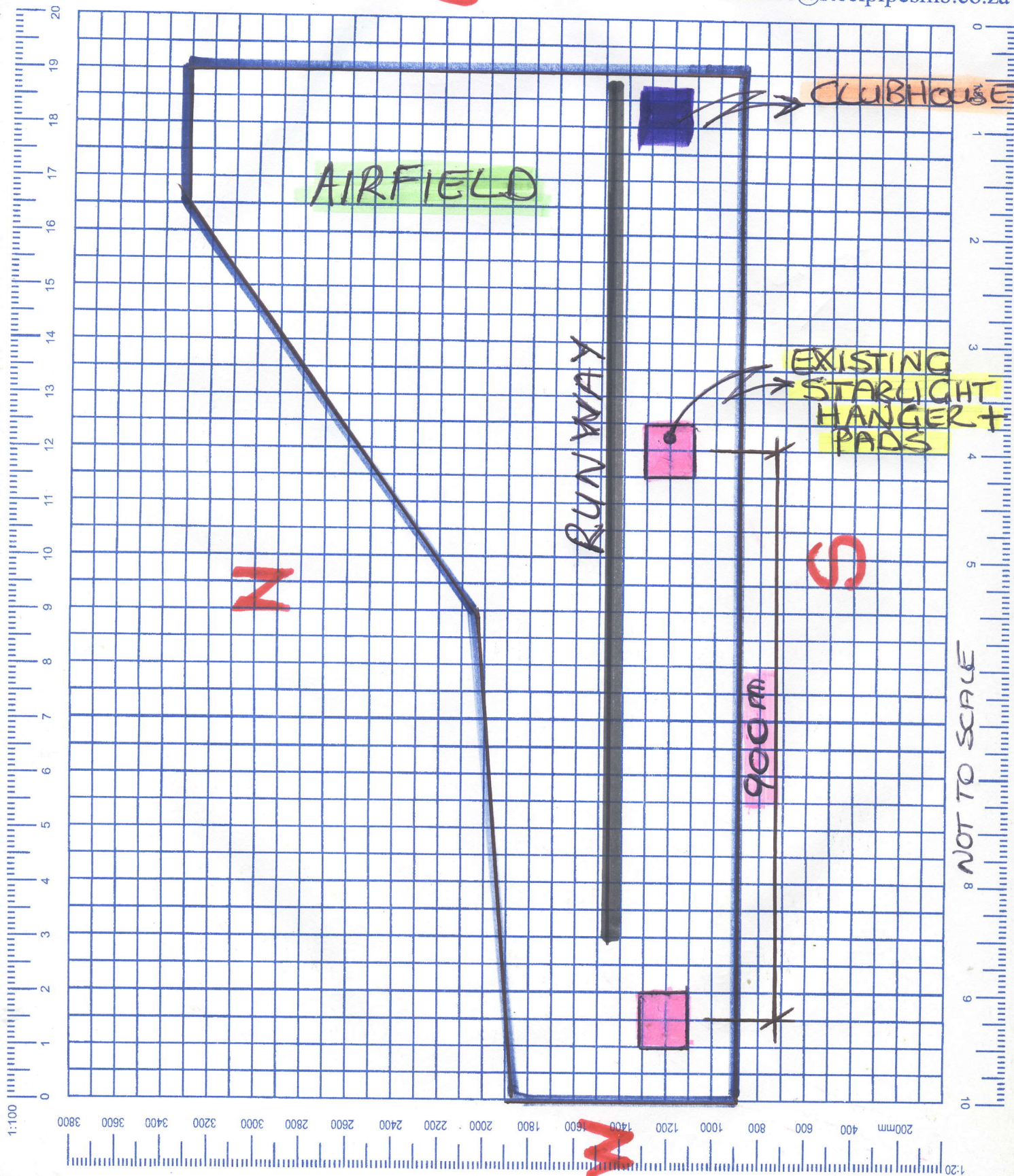
Tel: (044) 695 0163

Fax: (044) 695 1745

email: bernice@steelpipesmb.co.za

PLAN A

W



STEEL & PIPES

Registration No: 1999/027065/07

Mossel Bay
(PTY) LTD



8 Industria Road
Voorbaai
Mossel Bay 6500
P.O. Box 1504
Mossel Bay
6500

Tel: (044) 695 0163

Fax: (044) 695 1745

email: bernice@steelpipesmb.co.za

PLAN B:

N2

AALWYN ROAD

AALWYNDAAL

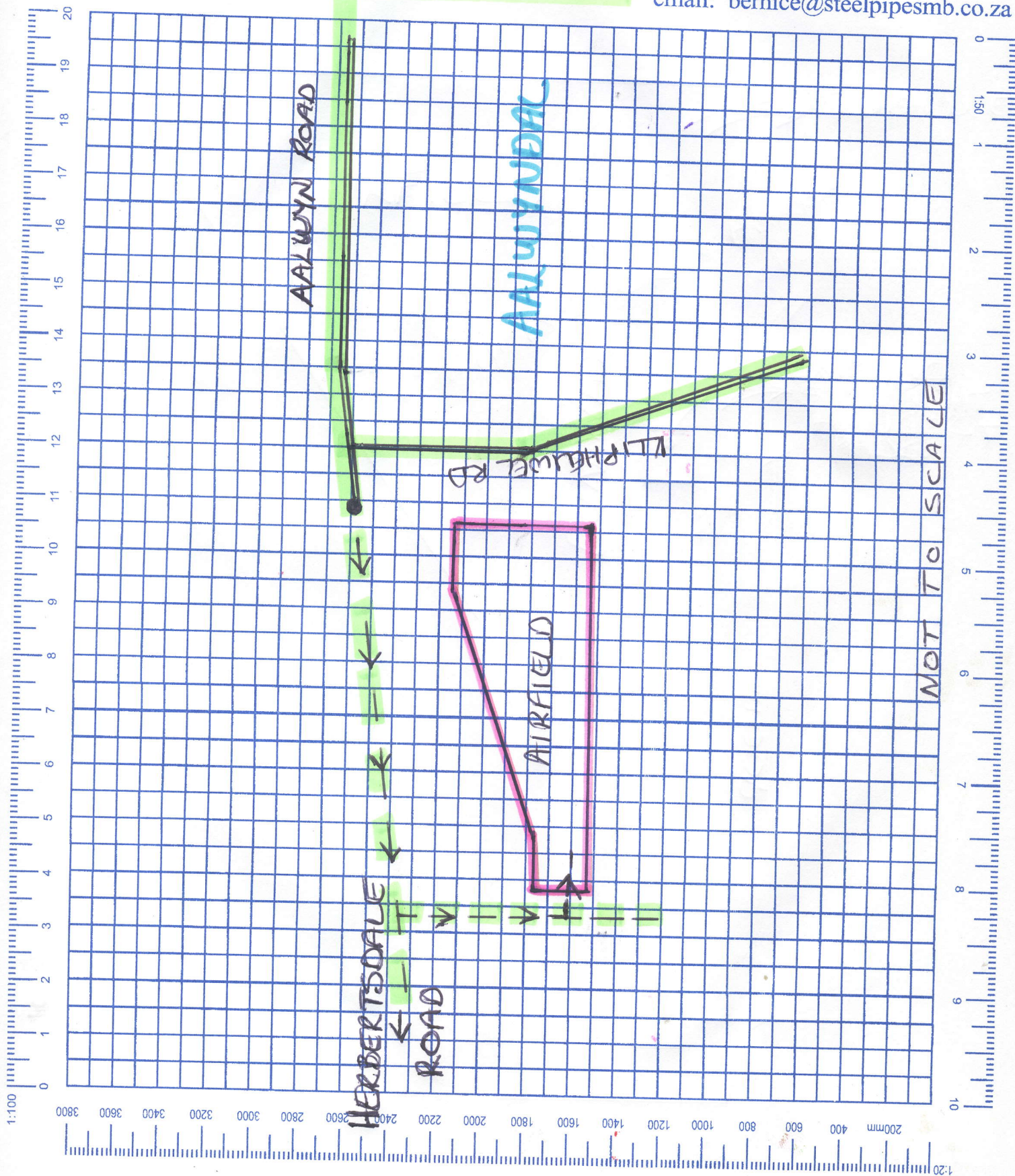
VLIPHAUSE RD

AIRFIELD

HERBERTSDALE

ROAD

NOT TO SCALE



From: Claudio [cvearthworks.mb@gmail.com]
Sent: 04 November 2016 08:58 AM
To: wmdek@lantic.net
Cc: jroux@mosselbay.gov.za; vasbyt.v@telkomsa.net
Subject: Mossel Bay Airfield
Attachments: Starlite Sage.docx

Dear Willem and Jaco,

In my personal capacity and as Chairperson of the Aalwyndal Homeowners Association, the following :

Refer above attachment – you would recall, it was presented to your investigating team some time ago, when on your request ,we as concerned residents of Aalwyndal put heads together to raise our concerns. The full content (word by word) of this report still applies now and after the Public participation meeting on 2 November 2016 in my view ; a few mentionable misconceptions was raised as I made notes during the presentation –

1. "Starlight presence made/makes **no impact on the environment**" – so far from the truth (noise, risk, devaluation of property value to the irreversible "damage", to mention but a few)
2. Due to the training fartenity/ambiance, other alien flying schools also conveniently use/abuse the Mossel bay airfield (especially after hours and disregarding Aalwyndal's present's totally)

1

3. Aalwyndal seen as a "**rural area**" although lower densed as in CBD -town ,we are zoned residential and pay taxes accordingly
4. ...to name a but few

Much more can be said but my general view and recommendations were/is :

1. Starlight (rumours allow this now) shifts their take-off/landing pads a 900 m in a westerly direction as to the hopefull intention of shifting their flying circuit out of Aalwyndal
2. They must/should not enlarge/expand their fleet as to increase their already annoyance
3. Do much of their training elsewhere of which already is taking place, also simulators ect.
4. Do not fly weekends and after hours except when needed, then do it away from Aalwyndal with their take-off and landings would result strictly in/out of a westerly direction
5. Have the airspace controlled even after hours when "illegal" flying is taking place : to eliminate danger/risk, keep away "aliens", adhere to the rules set out by Civil Aviation, ect
6. Allow and prioritise the expansion of Aalwyn road as to link the airfield directly and therefore lowering the traffic volume in Aalwyndal itself
7. Keep/maintain the airstrip as it is, and for the use mainly as recreation purposes (mainly fixed wing aeroplanes) as it was intended to be right from the start
8. Due to the proposed densification of Aalwyndal- foreseen via the spatial development plan, all the "wrongs" of now would be then more of an issue to deal with later
9. Just **rightfully** acknowledge Aalwyndal and it's inhabitants existence !

I hope dearly that this short but serious thought`s/remarks/comments, would be considered rightfully and applied to the benefit of all parties involved, it is- and should at least allow positive short , medium and long-term solutions to these problem/s

Regards

Claudio Violante

PS : (16 Klipheuwel road, Aalwyndal, Mosselbay- owner as from 1996, bought from the Phase 2 plan, when this was still a farm and totally undeveloped, even surveyor hasn't put out the borders marks yet.)



This email has been checked for viruses by Avast antivirus software.

www.avast.com

From: Corene Kruger [corene.kruger@gmail.com]
Sent: 09 November 2016 10:29 AM
To: Willem de Kock
Cc: jscheepers@mosselbay.gov.za
Subject: Re: Mosselbaai vliegveldstudie dokumente

Goeie dag Mnr De Kock .

Baie dankie vir die link om die dokumente te kan verkry.

Soos u weet is ons 'n inwoner en eienaar van eiendom in Aalwyndal, Rooikat 40. Ons het die inligtings sessie bygewoon en het na die voorlegging sekere bekommernisse wat ons graag onder u aandag wil bring.

1. Toegangs pad

Die toegangs pad is 'n groot probleem, agv baie swaar voertuie wat vliegtuig brandstof kom aflewer . Soos julle weet is Rooikat straat 'n baie nou enkel baan pad, daar is geen straatligte ook nie. Die slaggate en agteruitgaan van die paaie is agv van swaar aflewerings voertuie wat grootendeels ry tot by die vliegveld.

1

Daar ry ook groot toerbusse en klomp taxies wat die studente daagliks kom op en af laai... Soos ons verstaan is dit nie vir daardie doel nie, die vliegveld het wel 'n toegangs pad wat hulle nie gebruik nie. Dit sou dalk die ideale oplossing wees om die pad reg deur by Aalwyn straat regop en agter om die inwoners te laat omry. Dit sal die druk van die verkeer baie verbeter in en om die wonings tot by die vliegveld. Die pad sal ook moet aandag kry, dalk om dit breër en veiliger te maak. Hier is ook besoekers wat die pad gebruik oor vakansie tye wat die druk ook meer maak .

2. Beheer oor die bestaande vliegveld

Daar is wel bekommernis oor die toegang en beheer in en uit die vliegveld totaal ons inwoners se veiligheid in gevaar stel. Hier is baie ongewenste elemente wat sonder beheer, in en uit by die vliegveld, en pakkies kom afhaal sonder dat iemand die beheer bevraagteken. Ons is almal bewus van misdaad wat in die wyse van smokkel en vervoer van moontlike dwelms, diamante, of enige onwettige verspreiding daarvan. Dit is 'n realiteit in vandag se tye. Misdaad is oral en die vliegveld wat hier is , is die ideale plek want hier word absoluut geen beheer toegepas nie. Die heining is van so 'n aard, dat daar geen afskrik middel of beperkte toegang tot die perseel kan verkry word nie.

3. Beheer van die vliegtuie, helikopters en die Girokopters.

Die mense wat Girokopters kom vlieg waar hulle wil en wanneer hulle wil. Volgens van die vliegveld het hulle "free flying space" tot op 3000ft en hulle kan vlieg waar hulle wil, wat ons privaatheid en

veiligheid in gedrang bring. U kan vir uself indink, dat u buite sit en braai en die Girokopters kom vlieg en sirkel bokant jou huis oor 'n naweek... daar moet tog seker reëls wees. Indien daar reëls is, word dit nie onderhou nie en ook nie toegesien dat dit by gehou word nie.

Die Helikopters vlieg ook baie laag oor die huise en "hovver" bokant die huise en dit is groot steurnis vir die inwoners om nie eers van die nagvlugte te praat nie. Daar is geen rekord van wie dit is wat vlieg deur die dag of nag nie. Die mense ry enige tyd daar in en uit en vlieg soos hulle wil.. maw.. voel dat hulle nie beheer word nie.

Die vliegtuie, sirkel ook bokant die huise en partykeer baie laag.

4. Toekomstige beplanning om nog groter vliegtuie.

Sou voorstel dat daar definitief gekyk word om die ligging heelwat weg te skuif om die impak van klank te beperk en ook die toegang heeltemaal weg van die huise in Aalwyndag te lei. (maw regop in Aalwyn straat op) dan verminder dit die verkeer heeltemaal in die woongebied van Aalwyndal.

5. Veiligheid oor die algemeen van die inwoners

Al die inwoners raak bang vir die onbeheersde gevliegery bo ons eiendom.. Dit voel kompleet asof daar wanorde heers tans. Die vliegtuie skakel hulle vliegtuie af, lyk asof hulle uit die lug gaan val en dan sit hulle weer aan... dit is baie angswekkend vir ons wat hier bly. Met die studente wat tans opleiding kry, is

3

daar al twee voorvalle wat in koerant verskyn het waarvan ons kennis dra. Wie gaan die verantwoordelikheid dra sou daar skade aan eiendom of aan lewens wees. ?

6. Die gebruik of gebruiksreg van die vliegveld

Die gebruik van die vliegveld soos ons verstaan is vir die gebruik van ontspanning. Tans is hier 'n opleidings plek (Starlight) wat studente oplei. Hier is ook heelwat van die inwoners wat ook wil hersoneer of dan aansoek doen vir gebruiksreg afwyking. Volgens inligting is die munisipaliteit besig met 'n gebiedsplan vir Aalwyndal en dit gaan eers teen Maart volgende jaar klaar wees.

Hier is reeds 'n paar gastehuise, en met die te kort aan akkommodasie oor die algemeen in Mossel Baai. Weens die ekonomie is ons almal genoodsaak om iets te doen om ons inkomste te vergroot om te kan oorleef.

Ons is besig met ons aansoek vir hersonering vir ons eiendom vir La Venue. Ons doen troues en funksies en wil weet of die hele aangeleentheid ons kanse gaan belemmer. Daar is tans nie baie venues in Mosselbaai nie en ons het die ideale ligging en spasie om iets vir die gemeenskap van Mosselbaai te bied.

Net soos enige persoon wil ons graag vooruitgaan sien vir Mosselbaai. Die grond hier is baie klipperig en nie geskik vir landbou nie, en moet instandgehou word soos bv met brandstroke.

My persoonlike gevoel oor die uitbreidings van die vliegveld. en vergroting daarvan.

My gevoel is baie positief oor die uitbreiding en die groot lughawe vir Mosselbaai. Indien ons internasionale vlugte vanuit Mosselbaai kan kry sal dit 'n ongelooflike inspuiting wees vir ons inwoners veral die besighede in Mosselbaai. MAAR,..., dan moet dit meer wegskuif van die bestaande plek om ook die eienaars van Aalwyndal se eiendomme nie negatief te beïnvloed nie. Die eiendomme se waarde sal baie negatief wees indien hier probleme met klank en veiligheid is. Ons het hard gewerk vir die eiendomme wat ons tans besit en wil nie enige waardevermindering ervaar agv van die uitbreiding van die lughawe nie.

Ons is belastingbetalers en woon in Aalwyndal. Die negatiewe impak gaan nie die inwoners in Mosselbaai self raak soos vir ons nie.

Dit sal net regverdig wees om die inwoners die geleentheid te gun word om ook te kan hersoneer of gebruiksreg afwykings te kan kry om ook voordeel uit die ontwikkeling in Aalwyndal, hetsy hoe digtheids woongebied te kry.

Ek hoop dat my bydrae tot die werklike situasie wat tans heers hier in Aalwyndal, vir u van hulp gaan wees.

Ek sou voorstel dat julle al die inwoners van Aalwyndal bymekaar kry . Ek weet daar het nie veel opgedaag nie en dat julle nie almal se insette gekry het van die voorstel nie. Dalk vir Claudio (voorsitter van Aalwyndal) nader om datum vas te stel. Daar is baie van die inwoners wat die vergaderings bywoon, en sal dan meer betrokke ^{is} se insette kry.

5

Baie dankie vir die geleentheid om my opinie te kan lug.

Vriendelike groete
Corene Kruger
sel : 082 923 1633

2016-11-06 18:35 GMT+02:00 Willem de Kock <wmdek@lantic.net>:

<https://www.dropbox.com/sh/r2wce1su8abpnz/AACy9cmieYizTV4oaeMcTAgEa?dl=0>

Hi almal

Hierbo is die dropbox link na die dokumente van die vliegveldstudie. As jy 'n dropbox rekening op jou rekenaar het, kan jy net klik op die link en dit behoort op die dokumente oop te maak.

Onthou om enige kommentaar na my en/of Jaco Roux by jroux@mosselbay.gov.za te e-pos voor of op 2 Desember.

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From: Klara Fouche [KlaraF@starliteaviation.com]
Sent: 28 March 2017 04:56 PM
To: Willem de Kock
Cc: Cassie Nel
Subject: Starlite's position
Attachments: Starlite Mossel Bay Expansion Plan.pdf

Good Afternoon Willem,

I would like it to be noted that Starlite is in favour of the proposed spatial development of the Mossel Bay Airfield

Attached please find a brief on how Starlite would like to expand on its current operation.

Kind Regards

Klara

Klara Fouché
MANAGING DIRECTOR

1

Starlite Africa Aviation (Pty) Ltd
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From: Cassie Nel [CassieN@starliteaviation.com]
Sent: 22 July 2016 02:58 PM
To: Willem de Kock; 'Paul Goldschagg'
Subject: FW: Re Training on NOTAM Mossel bay
Attachments: TS-MB-RT- 80 Noise Abatement (3).pdf; FAMOAD2.pdf

Dear Willem and Paul

My call yesterday from Paul has reference.

If nobody has told you, or you do not know – we already have noise abatement procedures in place since last year.

This confirms that we really try and void flying over residents 's houses.

You will also see below an email from the CAA confirming that we indeed conform to our own rules.

I hope you find this of help – specifically the way we do the runway displacement to the west.

Thank you and kind regards,

1

Cassie Nel

Head Of Training & Quality Manager
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From: Cassie Nel

Sent: 06 April 2015 10:30

To: Brenton Smyth <SymthB@caa.co.za>

Cc: Stefan Fouché <stefanf@starliteaviation.com>; Mark Swarts <SwartsM@caa.co.za>; Johannes Mulder <MulderJ@caa.co.za>; Roger Brink <rogerbrink@mweb.co.za>; John Boucher <info@johnboucher.co.za>; John Boucher <jb.brokers@gmail.com>; meg@aifa.co.za; tobie@aifa.co.za; Karl Kebert <karl@montic.co.za>; Hartog Blok <hab@habac.co.za>; Lee Vergottini <lee@idhweb.com>; Pierre Du Plessis <pierre@aifa.co.za>; Henk van Wyk (henk@skydivemosselbay.com) <henk@skydivemosselbay.com>

Subject: RE: Re Training on NOTAM Mossel bay

Dear Mr. Smyth,

Reported Incident :

It is 3-4 weeks since Mr. Blok reported the "incident" (described below) to the SACAA, and 2 weeks ago since he "registered a difference" with you.

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We have red tagged every notice / Notam / complaint as we have done and as you have asked us to do.
Could you advise as to what we do next, or different please?

Since the Notam and **FAMO AD2** (attached) was implemented, numerous transgressions has been observed by Starlite staff members. This includes Training Schools, local operators and Mossel Bay Aero club members. Other than a Safety member on duty or ATC / Unmanned controller on the Air Field I cannot foresee how this issue will be solved unless all pilots adhere to FAMO AD2. We, as the largest operator advise as best as we can, and plan accordingly when an incoming or outgoing flight transgresses, but it must be noted that we are an ab-initio flight training school with at least 18 students going for the first solo within the next 2-3 weeks. Although we fully brief them on the possibility of transgressions, and we have an instructor with a radio on standby this is and remains a serious safety issue when aircraft bumbles or transgresses into / out of the circuit.

Noise Abatement :

Since our meeting and last Red Tag, we had yet another complaint from someone just off the centreline of final approach runway 27 (now 28) who still could not figure out that they bought a plot next to an airfield. (see attached red tag)

It should be noted that Starlite are the only operator at the Airfield between the hours of 0730 and 1800 – Monday to Friday, so it is logically the complaints centre for each and every flight on the airfield.

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On this day another local helicopter operator bumbled 4-6 times in and out of FAMO without the correct procedures being followed. (This was witnessed by the Border Police (SAPS) who was on a regular visit and inspection.) Sadly Starlite are seen as the transgressors when he clearly in full view of spectators approached over the horse farm and banged his R22 down on a trailer between hangars. (This was witness to anther SACAA inspector on another SACAA visit before – Mr. Jack Daniels) .

Even so, we Aviate and display Airmanship as best as we can within the laid down rules and regulations as imposed by the SACAA, MBAC and ourselves.

As requested please find attached Red Tag 80 for your information.

Kind regards and best wishes,

Cassie Nel
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From: Hartog Blok [<mailto:hab@habac.co.za>]

Sent: 26 March 2015 13:55

To: Brenton Smyth

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From: David Norval [david@norval.org]
Sent: 01 December 2016 09:32 PM
To: 'Roux, Jaco'
Cc: 'Venter, Carel'; 'Hill, Harry'; 'Willem de Kock'
Subject: RE: Vliegveld Verslag - Vir Aandag die Munisipale Bestuurder

Jaco,

1. Wanneer het julle die Aeroclub en Skydivers ingelig oor hulle "onwettige approaches" want hulle het dit nogsteeds heeldag vandag gedoen?

David Norval
Alloy Solidification Process Technologist
Cell +27 83 442 6666
Fax +27 86 630 0628

From: David Norval [mailto:david@norval.org]
Sent: Thursday, 01 December 2016 2:36 PM
To: 'Roux, Jaco'
Cc: 'Venter, Carel'; 'Hill, Harry'; 'Willem de Kock'
Subject: RE: Vliegveld Verslag - Vir Aandag die Munisipale Bestuurder

1

Jaco,

1. Dit is my probleem dat as ek nie julle aandag vestig op die "wettelose" vlugte wat teenstrydig is met die verslag nie, kry julle 'n bywet wat gebasseer is op onwerklikhede en nie wat werklik hier gebeur nie en julle dwing dit af.
2. Baie dankie vir die inligting oor wie ek kan kontak maar alhoewel my klagtes alreëde deur julle aan die betrokke persone gestuur is wil ek net julle daarop wys dat Skydivers ZS EJO het, kan mens amper sê met opset, gister laer en laer en korter en korter ingedraai die hele dag, totaal en al van Suid af, selfs Wes van die Oostelike einde van Rooikatstraat, ingedraai om dus teen 'n steil hoek te kom land.
3. Wat gebeur in so geval waar geen ag geslaan word op protocol deur die verantwoordelike vlieëniers en hul klubs nie?

David Norval
Alloy Solidification Process Technologist
Cell +27 83 442 6666
Fax +27 86 630 0628

From: Roux, Jaco [mailto:jroux@mosselbay.gov.za]
Sent: Thursday, 01 December 2016 2:13 PM
To: David Norval

2

E. Enslin

Die beplanning van die huidige lughawe en verdere toekomstige verstedeliking (Uittreksels uit 'n memorandum gedurende Julie 2011 toe na op informele vlak na verstedeliking en die beplanning van toegang en vervoerroetes vir die langer yermyn gekyk is)

1. Die voorstelle soos vervat in die Verslag ter sprake word ondersteun. **Bykomend** is daar egter die aspek van toeganklikheid en verkeersvloei van en na die lughawe wat ondergetekende as aanvullende aanbevelings wou voorstel:

1. Sover dit waargeneem is, word daar nie enige nuwe voorstelle ten opsigte van beter toegang na en van die lughawe voorgelê nie. Op die aangehegte kaart word 'n alternatiewe toegang, wat na mening 'n aansienlike beter toegang sal wees, en ook reeds beskikbaar is, voorgestel. Kyk die straatgedeelte soos in die rooi omringde gebied. Hierdie voorstel sal baie minder hoewe-bewoners affekteer sover dit verkeersvolumes en geraas sal kan impliseer. Verder is dit 'n meer direkte toegang wat 'n logiese benutting van toegang tot die lughawe sal verseker.
2. Die bestaan en toekomstige bedryf van die lughawe op sy huidige ligging (en ook verdere uitbreidings oor tyd), behoort ook in die breër konteks van verdere verstedeliking in oënskou geneem te word. Daarom behoort daar ook nou reeds onweging gegee te word aan verdere alternatiewe toeganklikheid; veral as in aanmerking geneem word dat 'n toekomstige lughawe op hierdie ligging in 'n verdere nodus vir werkskepping en dus meer verkeersopwekking sal beteken. Toeganklikheid vanuit die suide en weste behoort na mening ook nou reeds oorweeg (en vasgelê) word.

Hieronder is uittreksels uit 'n informele gespreksdokument wat in die breër verstedelikingkonteks gedurende 2011 opgestel was. Hierin is die posisie van die lughawe en toeganklikheid ook reeds bespreek. Sien ook die vryhand notas op die meegaande kaart van die betrokke omgewing.

E H Enslin
0824567651

UITTREKSELS:

"1.2. Soos wat dit reeds die geval was met ander dorpe aan die noordelike kant van die Nasionale Roete verder oos, is en sal die in- en aansakeling (toeganklikheid) van hierdie gebied met die res van die Mosselbaai stedelike gebiede, vir sulke gronde met stedelike gebruike daarop in elke geval 'n groot uitdaging wees.

1.3. Die feit dat Mosselbaai ('n relatief sterk groeiende stedelike gebied), aan die kusgebied geleë is, beteken noodwendig dat verkeersroetes en hulle beplande ligging vanweë die "bepelings van die seegebied", bykomende uitdagings aan stadsontwerp en -funksionering stel. Anders as inlanse stedelike gebiede wat (teoreties) in meeste gevalle radiaal kan groei rondom 'n middestad (sentrale

fokus), moet Mosselbaai spesiale voorsiening in sy stedelike ontwerp inbou om doeltreffende verkeersvloei te verseker.

1.4. Die ligging van die Nasionale Roete N2 en sy ontwerp-standaarde met betrekking tot toeganklikheid en dan ook sy relatief "minimale" rol in die daaglikse funksionering van die stedelike organisme waardeur dit strek, dra by tot die skep van verkeersbeperkings wat anders daartoe gesien het as dit verder weg van die reeds bestaande stedelike gebiede geleë sou gewees het. Die provinsiale roete R33/1 (Louis Fourieweg), wat as die voorganger van die huidige opset met die N2 beskou kan word, word reeds in totaliteit as 'n stedelike hoofroete benut. Die streng toegangsbeperkings wat ook ten opsigte van hierdie laasgenoemde roete geld en gegeld het, kan juis vanweë sy veranderde rol nie volgehou word nie; dit moet 'n sterker stedelike rol vervul as wat die geval van 'n hoof-verbindingsroete tussen afsonderlike stedelike gebiede sal wees.

1.5. Gedeelte 191 kan en moet ook nie in isolasie beskou word nie: dit grens aan en maak deel uit van sekerlik die belangrikste hinterland van Mosselbaai vir toekomstige stedelike uitbreiding. Wanneer daar daarom oor stedelike verkeer en vervoerroetes besin word, moet 'n veel breër siening omtrent die groei van Mosselbaai en sy skakeling met die vervoer/verkeersfunksie van die N2 geneem word.

3. Belangrike faktore en potensiële grondgebruike aangrensend en in die omgewing van wat van groot belang is om ook in aanmerking geneem te word.

3.1 Mosselbaai lughawe en sy bestaande toeganklikheid.

Die gebruikers van die lughawe moet tans die enigste roete (Aalwyndalweg) wat by sy aansluiting by Louis Fourieweg (en fisies ook saamval met die wisselaar op die N2), gebruik. Hierdie toegang toon reeds tydens sekere dele van die jaar, veral gedurende Nov./Des/Jan, tekens van ernstige verstikking gedurende groot dele van die dag. Afgesien daarvan dat Aalwyndalweg verbreed kan word, sal sy aansluiting by Louis Fourieweg, wat vanweë die nabyheid van die N2 Wisselaar, dit nog meer kompliseer, binne afsienbare tyd 'n ernstige verkeersprobleem vir betrokke owerhede skep. 'n Alternatiewe toegang na en van die lughawe en sy omringende gebiede is daarom 'n saak wat dringende aandag behoort te ontvang. Oorhoofs beskou, kan so 'n alternatiewe toegang vanuit slegs twee ander kante bewerkstellig word, naamlik vanuit die suide in die omgewing van die bestaande N2 Industrial Dorp (en dus deur die beoogde ontwikkeling op Gedeelte 191), ofien ook vanuit die suid-westelike en westelike omgewing (tot sover wes as die petroleum aanleg (PetroSA).

3.2. Die "vloeibaarheid van die stedelike grens"

Slegs Gedeelte 191 is op hierdie op stadium in hierdie omgewing binne die stedelike ontwikkelingsgrens, maar dit is na mening slegs 'n relatief korttermyn bestuursriglyn vir die reëling van stedelike uitbreiding. Verdere groei in Mosselbaai moet noodwendig druk plaas op hierdie grens soos wat ontwikkelbare grond binne hierdie grens opgeneem word. Die gebied ten weste en ten noorde van Gedeelte 191 (tot sover as die Lughawe in die noorde en die



MOSSEL BAY AIRFIELD

Comments and inputs to the study on the Mossel Bay airfield documents - December 2016

Name	Address	Representing which organization	Cell no	e-mail address
A.v. VUREN	P.O. Box 1800 MB	MAG & SAPCA	082 333 7418	arthur.van.vuren@gmail.com
1) The report contains various anomalies and inaccuracies 2) Much consultation is required, especially with property owners. 3) Certain statutes are ignored 4) ACSA and National govt inputs are absent 5) Costs appear to be estimates and could escalate dramatically 6) Much opposition exists 7) Feasibility is doubtful 8) Full EIA in accordance with NEMA & NEMA 9) Kommunkasie is gebrekkig 10) Baie meer gespesialiseerde insake word benodig 11) Die vliegvel is baie in kritiese Biodiversiteits Area's (Critical Bio-diversity Area) 12) Cost versus Benefit is non-viable and majority of stake holders oppose it.				

Please submit to W M de Kock at wmdk@lantic.net or P O Box 9934 George 6530 or to J Roux at jroux@mosselbay.gov.za or P O Box 25 Mossel Bay 6500 BEFORE OR ON 2 DECEMBER 2016



Comments and inputs to the study on the Mossel Bay airfield documents - December 2016

Please submit to W M de Kock at wmdek@lantic.net or P O Box 9934 George 6530 or to J Roux at jroux@mosselbay.gov.za or P O Box 25 Mossel Bay 6500 **BEFORE OR ON 2 DECEMBER 2016**

From: Flip du Plessis [flipduplessis96@gmail.com]
Sent: 05 November 2016 08:01 AM
To: wmdek@lantic.net; jroux@mosselbay.gov.za
Subject: Vliegskool

Mnre.

Ek het nie 'n probleem met die vliegskool in Mosselbaai nie.

Ek wil u versoek om asseblief die vliegtuie in die lugruim bokant Danabaai en die see te verbied.

Dit is steurend veral op 'n Saterdag nag of Sondag middag. Sover ek weet het die raad tydelik die area ander kant PetraSA na die berg goedgekeur.

Flip Du Plessis



Starlite International Aviation Training Academy made its debut on the Mossel Bay Airfield with a custom-built state of the art hangar for the training pilots in 2012. This specific area was selected owing to the extensive general flying area and temperate climate it presented.

The official opening of the facility in February 2013, marked the start of a long term invest by the Company bringing a much needed financial boost to the airfield.

The influx of contract and civilian students, initiated the need for expansion and in November 2013, a proposal for a student campus to be built adjoining the airfield was lodged and plans submitted to the Mossel Bay Municipality. The goals and objectives for the development in Mossel Bay was and still is, to purchase 7 hectares of land in Aalwyndaal, adjoining the airfield, for the construction of a single story, upmarket, eco-friendly campus to house student pilots, apprentice engineers and instructors.

The plans show the central hub of the construction is designed to provide restaurants, recreation facilities, a gymnasium, pool squash courts and conference centre. Each student has a single room and en suite bathroom, and personnel will be housed in an Administration block. The intention is to use an extensive solar heating recovery system and the eco-friendly building will be constructed to operate on renewable energy resources.

At a total investment of 100 million, the benefits to Mossel Bay and surrounds would be staggering and generate enormous annual potential income. It is anticipated that 100 staff from in and around Mossel Bay would be employed and the Company predicts an enormous potential to support local business for food and other supplies to the tune of 22 million per annum.

Starlite Africa Aviation (Pty) Ltd

Director: Klara Fouché

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www.starliteaviation.com

Committed. Experienced. Passionate.



The occupancy of the proposed campus operating at full capacity, is expected to reach 300 students made pilots, instructors, ground crew, air traffic control, CRM and engineers for cyclic periods of between 4 to 14 months. Training will be carried out in classrooms, simulators and aircraft. Safety is of utmost importance and the airspace will never be congested to unsafe levels.

Starlite has a policy for the conservation and preservation of the environments in which the Company operates and will ensure that the area occupied by the Academy remains in keeping with the natural beauty of the area.