PROPOSED EXPANSION OF THE PIETERMARITZBURG AIRPORT: ECONOMIC IMPACT ASSESSMENT

Report prepared for the Institute of Natural Resources as a Special Study for an Environmental Impact Assessment.

George Oldham

December 2016

Proposed Expansion of the Pietermaritzburg Airport

Economic Impact Assessment

Executive Summary

Objectives

This investigation seeks to assess the key economic issues stemming from Phase 1 of the Proposed Pietermaritzburg Airport Expansion as identified in the scoping process. This will involve two economic impacts on respectively:

1. Regional income and employment.
2. The financial viability of the airport.

Regional Economic Context

The existing economic environment is assessed by a number of measures. In 2015 the uMgungundlovu regional economy generated R47 billion Value Added (constant 2010 prices). Economic activity is skewed towards community services, business and financial services and trade. Manufacturing contributes 13 percent.

There are 255 000 formal sector jobs with unemployment at 30 percent. There were 48 000 jobs in manufacturing and construction. The Gross Domestic Product growth rate has slowed from 4 percent to nearly zero. Average Household Expenditure is weighted towards accommodation, food and beverages and transport.

All the economic indicators reveal the need for a strategy that identifies a catalyst stimulating investment in new technologies, manufacturing and business.

Currently the operating budget for Pietermaritzburg Airport is subsidised by the Msunduzi Municipality. Operating expenditure exceeds revenue by about R2 million be annum. If an allowance for depreciation of fixed assets is made the subsidy is approximately R5 million per year.

Airport Master Planning

The concept of an Airport City is the motivation driving the development of a Pietermaritzburg Airport Precinct. Msunduzi Municipality commissioned a Revised Airport Master Plan, approved in December 2014. The Master Plan projects the demand for fixed investment expenditure to provide infrastructure for growing aviation activity, associated business expansion and the development of mixed commercial and light industrial zones.

Phase 1, the concern of this study, lasts until 2025, or until a threshold of 250 000 arriving and departing passengers, per annum, is reached. Phase 1 includes:

- An extended terminal building, depending on the rate of increase in demand
- A new apron and taxiway
- Site preparation for a new general aviation zone.
- Reserved space for mixed commercial and industrial zones.
- Development of a Technology Hub

Capital expenditure on basic infrastructure for the Airport, Techno Hub and roads of R455

million (constant prices) is estimated for Phase 1 of the Project.

The layout and scope of the Phase 1 elements as documented in the 2014 Master Plan has been revised through the subsequently commissioned Airport Precinct Planning Project and a Feasibility Investigation into the viability of improved access roads and a new site for general aviation facilities.

Precinct Plan

The final draft of the Airport Precinct and Management Plan was submitted in September 2016. The Precinct Plan incorporates areas surrounding the Airport perimeter, including sub precincts for Oribi Village, Mkondeni industrial zone, residential areas and an open space corridor. While the focus remains the Airport, and a proposed Techno Hub, much greater emphasis is given to new road systems and upgrading the sub precincts. The focus of the EIA, however, is limited to the specific elements within the Airport Sub-precinct which is located within the Airport boundaries.

For analytical purposes the economic impact is viewed from three perspectives:

1. Development of roads systems giving access to the Precinct and improved traffic circulation within the Airport Precinct
2. Expansion of the Airport along with new land uses for commercial and industrial development
3. Development of a Techno Hub.

Assessing the Regional Economic Impact

The major economic impact will be derived from new fixed investment in critical infrastructure and buildings and facilities to accommodate projects.

Major investment projects have a direct and indirect impact on the regional economy, depending on backward and forward linkages. New investment produces a ripple effect as expenditure spreads from the initial investment to linked sectors of the economy. This is known as a multiplier effect generating more than proportional growth in income and employment. This analysis employs a partial input-output model to capture some of these effects. The coefficients of the model, on which prediction depends, are based on certain assumptions, and information derived from regional income data.

New and Upgraded Roads

A major part of the Airport Precinct plan deals with access to the Precinct including expansion and upgrading the road network. A vital connection to the N3 motorway will be made via an extension of Market Road from a new Market Road/N3 interchange. The extension will link into Gladys Manzi Road in the South and Washington Road in the North, providing a loop around the airport and connecting with internal airport roads.

Capital Expenditure on this project, of between R51-81 million, in addition to enhancing access to the Airport Precinct and improving traffic flows, will have a multiplied effect on regional

gross domestic product and jobs. There will also be external benefits in the form of value of travel time saved, business investment opportunities and enhanced property values.

The input-output model predicts that CAPEX of R81 million would generate R136 million value added, R76 million income and 906 jobs. This is spread over an anticipated two year construction period. There is insufficient specific information about the other beneficial effects, such as travel time saved, to quantify all the impacts.

Airport Sub- Precinct

The Airport Master Plan layout was reconfigured in the Airport Precinct Plan. The Precinct Plan alters the spatial layout of the Master Plan, proposing an extension to the terminal building, additional space for general aviation facilities as well as expansion of the apron, a new taxiway and an extended parking area.

A new General Aviation zone will provide space for 20 hangars to meet a much needed aeronautical demand from private aircraft owners for additional hangars. The municipality will be responsible for ground works but private investors must fund the superstructure at an estimated cost of R30 million.

Phase 1 of the Master Plan proposes capital expenditure in Phase 1 of R178 million which reconciles with the Airport aspects of the Precinct Plan.

The economic impact, on the regional economy, of CAPEX on the Airport expansion will be moderate when spread over 10 years. Application of the input-output model indicates that Capex of R178 million over 10 years will generate additional GVA of R299 million, salaries and wages of R167 million and 1994 jobs. Averaged over 10 years this comes to 199 new jobs per year.

Technology Hub

The proposed Technology Hub is a green field development, offering a stimulating environment to promote partnerships and cooperation, between research or educational institutions and business enterprises, to create innovative new services and products.

A Feasibility Study set out an ambitious vision for a Hub containing, broadly five activity zones for knowledge, innovation, enterprise, business and public institutions. The Project was to be completed over 8 years involving nearly R1 billion capital expenditure. This would have an economic impact, over the full time span, of an additional R 2 billion value added and 12000 direct and indirect jobs.

The KZN Treasury appointed project managers to begin implementing the Techno Hub project. Subsequent to the preparation of an architectural concept plan and further research it became evident that the time framework will be much longer than anticipated - at least 20 years.

Projected CAPEX on basic infrastructure and bulk services, implemented over 5 years, is R196 million, generating GVA of R329 million, remuneration of R184 million and 2195 jobs. This would create 439 new jobs per year.

Because of a lack of future funding a much reduced Phase 1A, involving R29 million CAPEX, was introduced for 2017.

Limitations

Normally, in an economic impact assessment the scale and timing of investment is known with a high degree of certainty. This is not the case with the Airport Precinct where planning is still at an early stage and there are few committed investors.

The planning documents available for assessing the economic impact of the project are at a high level with insufficient detail of anticipated capital expenditure or investment opportunities for private investors. The analysis is, therefore, partly speculative and subject to a high degree of uncertainty.

Over the next 10 years the Municipality will have to source R178 million to implement the Airport Expansion and another R196 million for the Techno Hub. Thus far there is no provision for this expenditure in the IDP or capital estimates. Allocations for the Airport Project compete against other pressing socio-economic priorities. The availability of capital funding may delay implementation of the project

One potential source of funding is the sale of industrial land in the Precinct, yielding an estimated R52 million.

Thus far, institutional and private sector interest, as evidenced by letters of intent, in investing in the Techno Hub and Precinct is minimal. The only firm proposal if from Durban University of Technology.

Conclusion

The likely economic impact of the Pietermaritzburg Airport Expansion, Phase1, in terms of the key issues identified in the scoping report are:

1. Regional income and employment. The initial impact derived from CAPEX of R454 million on basic infrastructure projects is estimated to increase GDP by R763 million, income by 426 million and create 5092 jobs over 10 years. The magnitude of the project, combined with the likelihood of success, leads to the prediction that the impact of the proposed Airport Expansion Project will be of moderate significance. There is a medium level of confidence in the prediction.

2. Financial viability of the Airport. In terms of operational income and expenditure, expansion of aviation activity has the potential to eliminate an operational deficit in five years. However, additional operational expenditure on the new development zones and the Techno Hub may lengthen this period until new sources of income become available.

Msunduzi Municipality could enhance the likelihood of achieving growth in GDP and jobs as well as eliminating the operational deficit for the Airport budget through a number of key decisions and policy approvals.

Contents

Acronyms

ACSA – Airport Company of South Africa
CAPEX – Capital Expenditure
DBSA – Development Bank of Southern Africa
DUT – Durban University of Technology
EIA – Environmental Impact Assessment
GA – General Aviation
GDP - Gross Domestic Product
GVA - Gross Value Added
ICAO – International Civil Aviation Organisation
INR – Institute on Natural Resources
IRPTN – Integrated Rapid Public Transport Network
MFMA – Municipal Finance Management Act
MM - Msunduzi Municipality
MSA - Municipal Systems Act
RPAS – Remotely Piloted Aircraft Systems.
SANRAL – South African National Roads Agency
SACAA – South African Civil Aviation Authority
SEIA – Scoping and Environmental Impact Assessment
UKZN – University of KwaZulu-Natal

1. Introduction

The letter of appointment, from the Institute of Natural Resources (INR), dated 25 August 2016, sets out the background to the study and the scope of work as follows:

1.1 Background

The Msunduzi Municipality (MM) is proposing an expansion of the Pietermaritzburg Airport. The project involves the development of vacant land on the airport site, and the upgrade of aviation infrastructure to meet the increasing growth in passenger and cargo volumes, and air traffic movements. The proposed commercial and industrial developments, and the infrastructure upgrades will be in terms of Phase 1 of the Airport Master Plan which is projected to last until 2025.

This proposed expansion thereby triggers the need for an application for environmental authorisation supported by a Scoping and Environmental Impact Assessment (SEIA) process. The SEIA is a process designed to facilitate and improve decision making on development projects. INR has completed the Scoping phase, resulting in the identification of the key issues to be investigated by experts in the next phase. These specialist studies are commissioned to provide the information necessary to respond to the key issues associated with the proposed project.

1.2 Scope of Work

The scoping process identified the following key economic issues and questions that need to be investigated and answered to inform a decision regarding the sustainability of the proposed expansion:

(1) How will the proposed expansion benefit the economy at a local and regional scale? The question is expressed in terms of job creation and economic growth in the economy.

(2) Pietermaritzburg Airport is owned by the Municipality and is currently subsidized by ratepayers. How will the proposed expansion affect operational financial sustainability of the Airport?

2. Literature Review

A number of reports are available as reference for the economic impact assessment. These are listed below:

- Pietermaritzburg Airport Master Plan, Revision 03, August 2014.
- Msunduzi Technology Hub, Value Proposition, March 2013.
- Airport Precinct and Management Plan for Pietermaritzburg Airport and Surrounds, Inception Report, August 2015.
- Airport Precinct and Management Plan for Pietermaritzburg Airport and Surrounds, Integrated Strategic Statement, January 2016
- Environmental Scoping Report for Proposed Expansion of Pietermaritzburg Airport, August 2016
- Msunduzi Technology Hub, Architectural Concept Plan, October 2015.
- Airport Precinct Plan, September 2016

The Airport Master Plan, Precinct Plan and Techno Hub Study are all at a high level and do not provide the detailed information needed to prepare an Economic Impact Assessment with a high level of confidence in the predictions.

There are a number of gaps in the available information, such as completed feasibility studies for the new General Aviation Zone and the proposed multi sports complex in the Techno Hub. Nor is any reliable information available on proposed developments in new commercial zones, including a Hotel.

3. Methodology

The report uses published, national and regional, statistics of economic activity and employment, as well as existing information and other reports currently being prepared to analyse and assess the economic impact of the Pietermaritzburg Airport expansion. This information will be supplemented by interviews with key persons involved with the Airport Project.

The Table 1, below, shows the economic impact assessment criteria:

Table 1: PMB Airport Expansion: Economic Impact Assessment Criteria	
1. Existing Economic Environment	Identify sectors and employment affected by the project
2. Economic impact Assessment Beneficial effects	Investment opportunities Partnership opportunities Construction and operating phases Backward and forward linkages Direct and Indirect effects on income and employment
3. Impact on Msunduzi Municipality Capital Expenditure	New Airport Infrastructure Roads General Aviation Zone Techno Hub
Operating Income and Expenditure	Future Financial viability and municipal subsidy for Airport
4. Mitigating and Enhancement Strategies	Additional funding sources Marketing and promotion

A formal input-output (I-O) model was not employed for the following reasons:

- The initial impact, net new investment, will be spread over a long period (10 or more years) and will consist of a range of projects in different sectors (aeronautical, high tech manufacturing, educational, hotels, business services).
- There is considerable uncertainty about the timing and scale of this investment.
- An appropriate and concurrent model is not readily available to produce accurate and reliable predictions for a project as diffuse as the airport expansion.
- There are other technical limitations to I-O models such as assumptions of given prices, no capacity constraints, no capital restrictions, constant returns to scale and all job created being new and not replacing redundant jobs elsewhere.

I-O models, used correctly, can give a short term indication of the impact of a project in terms of output, value added activity, employment generated and salaries and wages paid. However, the airport project limitations are severe and it is unlikely that reliable predictions will be obtained.

However, a partial input-output model based on regional evidence, in conjunction with alternative methodologies was used to assess the economic impact of the airport project on regional gross value added, income from remuneration and employment.

The final summary of the economic impact assessment utilised a matrix which evaluates, in terms of a number of criteria, the overall significance of an impact and the confidence in that estimate. Some of the criteria can be assessed objectively where data exists while others are subjective, based on the best available information. A Table setting out the methodology is shown below:

Table 2: Economic Impact: Nature, Type and Significance	
Proposed Pietermaritzburg Airport Expansion	
Nature	Positive/Negative: Direct/Indirect
Magnitude	Combination of Extent, Intensity and Duration of Impact
Extent	Local, Regional or National
Intensity	Strength or Concentration of the Effect Negligible, Low, Medium, High
Duration	Short term (5 years), Long Term, Permanent
Probability	Definite, Likely, Unlikely
Significance	Combination of Magnitude and Likelihood
	Negligible, Minor, Moderate, Major
Confidence	High, Medium, Low

A highly desirable project would be one of major significance with a high level of confidence. On the other hand, a project with minor significance with a low degree of confidence should be treated with caution.

4. Existing Economic Environment

The report examines the existing economic environment in terms of gross value added per economic sector, employment and labour remuneration and growth rates for regional gross domestic product. The statistics relate to the Msunduzi Municipality area of jurisdiction and the wider uMgungundlovu District Municipality. The later includes Msunduzi Municipality as well as uMngeni, Richmond, uMshwathi, Mkhambathi, Mpofana and Impendle municipalities. Economic activity in the region, however, is dominated by Msunduzi with a contribution of approximately 70 percent to gross domestic product (GDP). The data is derived from Global Insight which provides a model based on South African national economic statistics

4.1 Gross Value Added per Sector

Table 3: Gross Value Added by Economic Sector (2015)				
uMgungundlovu and Msunduzi Economic Regions				
Constant 2010 Prices				
Sector	**uMgungundlovu**		**Msunduzi**	
	R1000s	% total	R1000s	% total
Agriculture	4,346,220	9.3	1,234,585	3.8
Mining	360,104	0.8	223,394	0.7
Manufacturing	7,332,806	15.6	5,023,771	15.5
Electricity	1,925,831	4.1	1,391,790	4.3
Construction	2,062,041	4.4	1,454,186	4.5
Trade	6,562,098	14.0	4,606,608	14.2
Transport	5,160,594	11.0	3,761,318	11.6
Business/Finance	7,314,493	15.6	5,698,437	17.6
Community Services	11,916,254	25.4	8,967,825	27.7
Total	46,980,441	100.0	32,361,914	100.0
Source: Global Insight				

Gross value added (GVA) is a measure of total income – remuneration, profits and interest-generated in production of output. It is different from gross domestic product in that the measure does not take account of taxes and subsidies. GVA provides a reliable measure of the relative contribution of the different sectors, thus presenting a picture of the structure of the regional economy.

In 2015, GVA was R47 billion and R32.3 billion in uMgungundlovu and Msunduzi respectively. Economic activity is skewed towards community services that include national, provincial and local government services. This reflects the role of Pietermaritzburg as provincial capital. There is an important manufacturing base (15.5%) as well as Trade (14%), Transport (11%) and Finance (15.6%).

4.2 Labour Formal and Informal Employment

Table 4: Formal Employment (2015)				
uMgungundlovu and Msunduzi Regions				
Sector	**uMgungundlovu**		**Msunduzi**	
	Number	% total	Number	% total
Agriculture	25,294	9.9	7,320	4.4
Mining	506	0.2	301	0.2
Manufacturing	34,200	13.4	22,136	13.3
Electricity	1,858	0.7	1,389	0.8
Construction	13,536	5.3	8,843	5.3
Trade	35,803	14.0	25,446	15.2
Transport	10,864	4.3	7,668	4.6
Finance	32,279	12.6	24,097	14.4
Community Services	69,337	27.2	51,021	30.5
Households	31,509	12.3	18,793	11.3
Total	255,186	100.0	167,014	100.0
Source: Global Insight				

Total formal employment, in 2015, was 255 000 and 167 000, respectively, in uMgungundlovu and Msunduzi. Formal employment grew, in the 10 year period 2005-2015, at an average annual rate of 1.6 percent in the district and 1.5 percent in Msunduzi. This is too slow to absorb a growing labour force. The unemployment rate in the formal sector was 30 percent in 2015.

Over 40 percent of formal employment is in government, community organisations and households. Trade, transport, business and finance account for a further 30 percent. There is a fairly large manufacturing sector (13%) while construction contributes 5 percent.

Table 5: Informal Employment (2015)				
uMgungundlovu and Msunduzi Regions				
Sector	**uMgungundlovu**		**Msunduzi**	
	Number	% total	Number	% total
Agriculture		0.0		0.0
Mining		0.0		0.0
Manufacturing	4,975	8.9	2,236	6.9
Electricity		0.0		0.0
Construction	9,196	16.5	4,336	13.3
Trade	23,689	42.5	15,070	46.3
Transport	6,036	10.8	3,528	10.8
Finance	3,146	5.6	1,983	6.1
Community Services	8,728	15.6	5,416	16.6
Households		0.0		0.0
Total	55,770	100.0	32,569	100.0
Source: Global Insight				

The measurement of informal employment is difficult and depends on the definition used. Total informal employment, according to the measure used, was 55 000 in the region. Nearly half of this occurs through informal trading.

4.3 Labour Remuneration and Income per Employee

Table 6: Table Labour Remuneration Formal Sector (2015)				
uMgungundlovu and Msunduzi Economic Regions				
Current prices (2015)				
Sector	**uMgungundlovu**		**Msunduzi**	
	R1000s	% total	R1000s	% total
Agriculture	1,365,854	4.3	342,554	1.5
Mining	130,176	0.4	83,000	0.4
Manufacturing	6,329,888	19.8	4,397,140	18.6
Electricity	1,228,073	3.8	902,523	3.8
Construction	1,190,296	3.7	844,029	3.6
Trade	3,589,323	11.2	2,519,753	10.7
Transport	2,167,426	6.8	1,574,894	6.7
Finance	4,485,051	14.0	3,541,482	15.0
Community Services	11,479,948	35.9	9,381,388	39.8
Total	31,966,035	100.0	23,586,763	100.0
Source: Global Insight				

Total remuneration derived from formal sector employment was R32 billion for uMgungundlovu and R23.5 billion for Msunduzi. Nearly 40 percent was contributed by government and community services. Just less than 20 percent comes from manufacturing. Manufacturing plays an important role in generating relatively high paid jobs, making an important contribution to regional income. Development policies and initiatives should be directed towards promoting this sector.

Table 7: Labour Remuneration per Employee: Formal Sector (2015)						
uMgungundlovu and Msunduzi Economic Regions						
Current prices (2015)						
Sector	uMgungundlovu			Msunduzi		
	R1000s	No. Emp.	Per Emp.	R1000s	No Emp.	Per Emp.
Agriculture	1,365,854	25,294	53,999	342,554	7,320	46,797
Mining	130,176	506	257,265	83,000	301	275,748
Manufacturing	6,329,888	34,200	185,084	4,397,140	22,136	198,642
Electricity	1,228,073	1,858	660,965	902,523	1,389	649,765
Construction	1,190,296	13,536	87,936	844,029	8,843	95,446
Trade	3,589,323	35,803	100,252	2,519,753	25,446	99,024
Transport	2,167,426	10,864	199,505	1,574,894	7,668	205,385
Finance	4,485,051	32,279	138,946	3,541,482	24,097	146,968
Community Services	11,479,948	69,337	165,567	9,381,388	51,021	183,873
Total	31,966,035	223,677	142,912	23,586,763	148,221	159,132

Source Global Insight

Manufacturing generates an average per employee income of R15400 per month. This is generally above the income earned in other sectors. The average in trade is R8300 p.m. and business and finance R11500 p.m. It can be seen from these average remuneration estimates that a job in the formal sector is valuable. In particular, the creation of sustainable jobs in manufacturing is an important economic goal.

4.4 Growth Rates of Regional Gross Domestic Product

Table 8: Growth Gross Domestic Product (2005-2015)				
uMgungundlovu and Msunduzi Economic Regions				
Constant 2010 prices				
Year	**uMgungundlovu**		**Msunduzi**	
	R1000s	% total	R1000s	% total
2005	37,634,044		26,973,337	
2006	39,469,895	4.9	28,040,901	4.0
2007	41,411,156	4.9	29,255,084	4.3
2008	43,155,478	4.2	30,247,791	3.4
2009	43,055,342	-0.2	30,042,720	-0.7
2010	44,937,267	4.4	31,207,148	3.9
2011	46,794,213	4.1	32,407,215	3.8
2012	48,020,197	2.6	33,147,730	2.3
2013	49,400,115	2.9	34,050,638	2.7
2014	51,568,916	4.4	35,456,093	4.1
2015	51,440,565	-0.2	35,338,420	-0.3
Source: Global Insight				

Over the 10 year period the average growth rate for the district (3.1%) was slightly higher than for Msunduzi (2.7%). These growth rates are low and inadequate to absorb a growing labour force. The rate of growth has slowed down to the point where it is below zero in 2015. Clearly, job generating economic growth needs to occur at a faster rate. This requires investment as well as technical progress.

4.5 Expenditure by Category

Table 9: Gross Expenditure by Category (2015)				
uMgungundlovu and Msunduzi Economic Regions				
Current prices (2015)				
Sector	**uMgungundlovu**		**Msunduzi**	
	R1000s	% total	R1000s	% total
Accommodation	7,216,560	13.5	4,821,527	13.6
Domestic Workers	1,245,989	2.3	825,526	2.3

Food	8,665,821	16.2	5,616,258	15.9
Beverages	2,629,424	4.9	1,691,076	4.8
Clothing	2,459,083	4.6	1,632,828	4.6
Household	1,312,505	2.5	882,633	2.5
Personal	709,289	1.3	467,244	1.3
Transport	7,022,746	13.1	4,740,840	13.4
Comm./Education	3,381,881	6.3	2,240,191	6.3
Recreation	1,071,023	2.0	715,649	2.0
Restaurants	665,555	1.2	432,883	1.2
Smoking	794,550	1.5	535,688	1.5
Furniture	554,778	1.0	360,234	1.0
Medical	3,252,464	6.1	2,162,856	6.1
Miscellaneous	660,210	1.2	435,708	1.2
Taxes	7,456,465	13.9	4,908,906	13.9
Finance	3,895,784	7.3	2,586,271	7.3
Other	516,927	1.0	337,665	1.0
	53,511,054	100.0	35,393,983	100.0
Source Global Insight				

Expenditure by households according to category is of interest because of the backward and forward linkages involved. Any increase in household income generates further economic activity according to how it is spent. The main categories of household expenditure are accommodation and domestic workers (16%), food and beverages (21%), transport (13%), clothing, household and personal expenditure (9%). Taxes absorb a further 14%. Whatever additional income is generated from new projects a high proportion will be spent on basic living expenses.

4.6 Conclusions

The relevant information drawn from the above statistical analysis is summarised below:

(1) There is diverse regional economy weighted towards government and community services but with significant contribution from manufacturing, trade, business and finance. Greater activity in the private sector notably industry and commerce would give more sectoral balance to the regional economy. Planned developments such as the Pietermaritzburg Airport Expansion fit in well this objective

(2) The formal economy generates 255 000 jobs in the district and 167 000 in Msunduzi. Over the past 10 years the average growth rate in employment was 1.5 percent, obviously not sufficient to absorb a growing labour force. Job creation is, therefore, a major goal of economic policy.

(3) Remuneration of employees is the major component of gross value added. Manufacturing contributes nearly 20 percent of the total wage bill. Business and transport make important contributions. Income generation from new sustainable jobs is an important objective of economic policy. The Airport Expansion Project consists of three components all of which can contribute to this objective:

(i) Airport and aeronautical activity – transport

(ii) Airport precinct - business and industry

(iii)Techno Hub – innovation and manufacturing.

(4) Real economic growth has been lagging in the region and there is urgent need for new projects to create a stimulus.

(5) Multiplier effects derived from additional wage income will occur mainly in the sectors providing basic goods and services.

5. Airport Planning

The Airport Master Plan was approved by Msunduzi Municipality in December 2014. Subsequently, an Airport Precinct Plan was prepared which reconfigured and made a number of changes to the Master Plan. The EIA application is in respect of the reconfigured Master Plan.

5.1 The Airport Master Plan

The Airport Master Plan sets out the development of the airport in three phases. This study of the economic impact is concerned with only the first phase. Phase 1 is defined to provide sufficient capacity to cater for all arriving and departing passengers from 2015 until 2025 or until total passenger volume reaches 250 000 per annum, if this occurs before 2025.

5.2 The Airport Precinct Plan

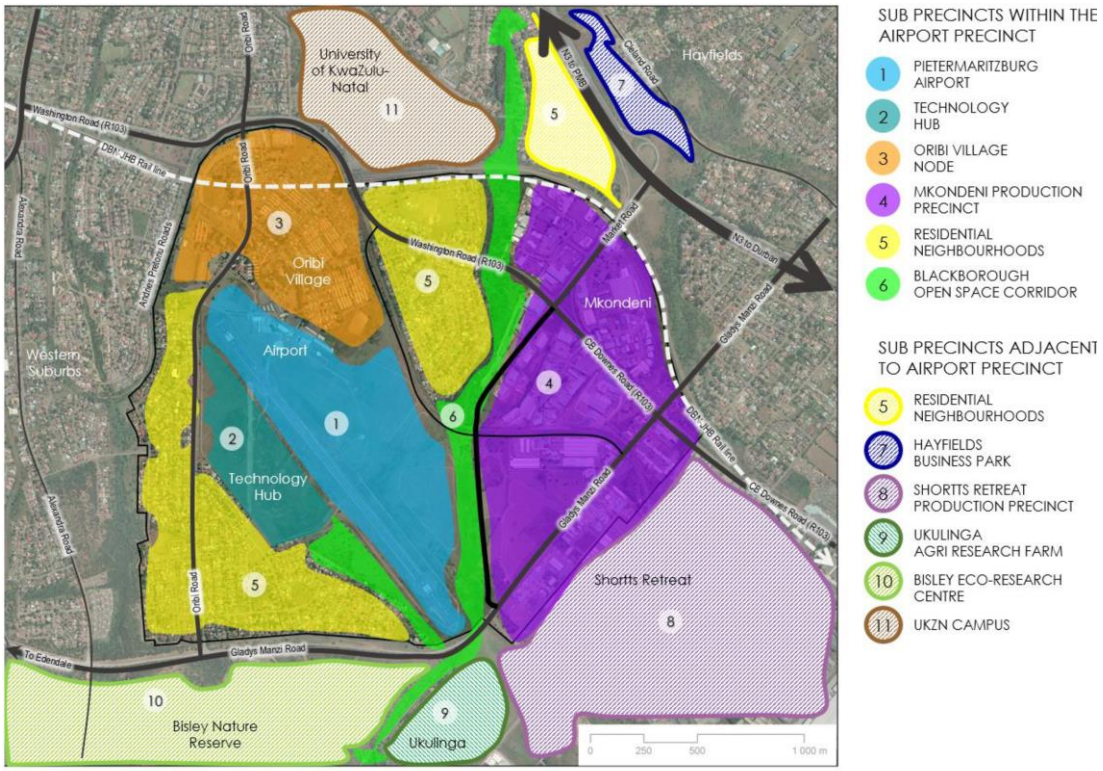
Although the scope of this report is restricted to Phase 1 of the Master Plan and any relevant reconfigurations in the Airport Precinct Plan the economic impact should be seen in the light of the wider plan.

The concept of an Airport City is the motivation driving the development of a Pietermaritzburg Airport Precinct. The Precinct Plan prepared by consultants; the Markewicz Redman Partnership, goes beyond the Pietermaritzburg Airport perimeters and incorporates surrounding areas. It has a much wider scope than the Airport Master Plan. The view is taken that the airport should not be seen in isolation as its development impact, to varying degrees, will affect associated areas. The table and graphic below shows how the Airport Precinct has been analysed in terms of a set of sub-precincts.

Table 10: Pietermaritzburg Airport Precinct and Surrounds	
1	Pietermaritzburg Airport
2	Technology Hub
3	Oribi Village Node
4	Mkondeni Production Precinct
5	Residential Neighbourhoods
6	Blackborough Open Space Corridor

This study is concerned with two Sub-Precincts namely Pietermaritzburg Airport and Technology Hub.

Diagram1 PMB Airport Precincts and Sub-precincts



The overall development goals are to (i) integrate these sub-precincts, functionally and spatially (ii) consolidate and or enhance those sub-precincts functioning well and (iii) redevelop and support those that are underperforming.

A fundamental part of this goal will be upgrading the infrastructure of the precinct to improve accessibility and operational performance of its various components. Secondly, preparing the precinct for longer term investment by public and private institutions. This will include educational and research investment such as those planned for the Techno Hub as well as business investment in logistics and industry. A link to the N3 corridor initiative is a major objective of the plan.

The attainment of all these objectives is a long term project, involving not only the municipality but also provincial government, SANRAL and the private sector. The project will be constrained by the availability of capital funding and priorities set by the involved parties. Nevertheless, although spread over time the impact on the local economy will be considerable.

6. Economic Impact

The EIA application and associated Economic Impact Assessment relate to Phase 1 of the Master Plan, and any revisions in the Precinct Plan, which includes the following elements:

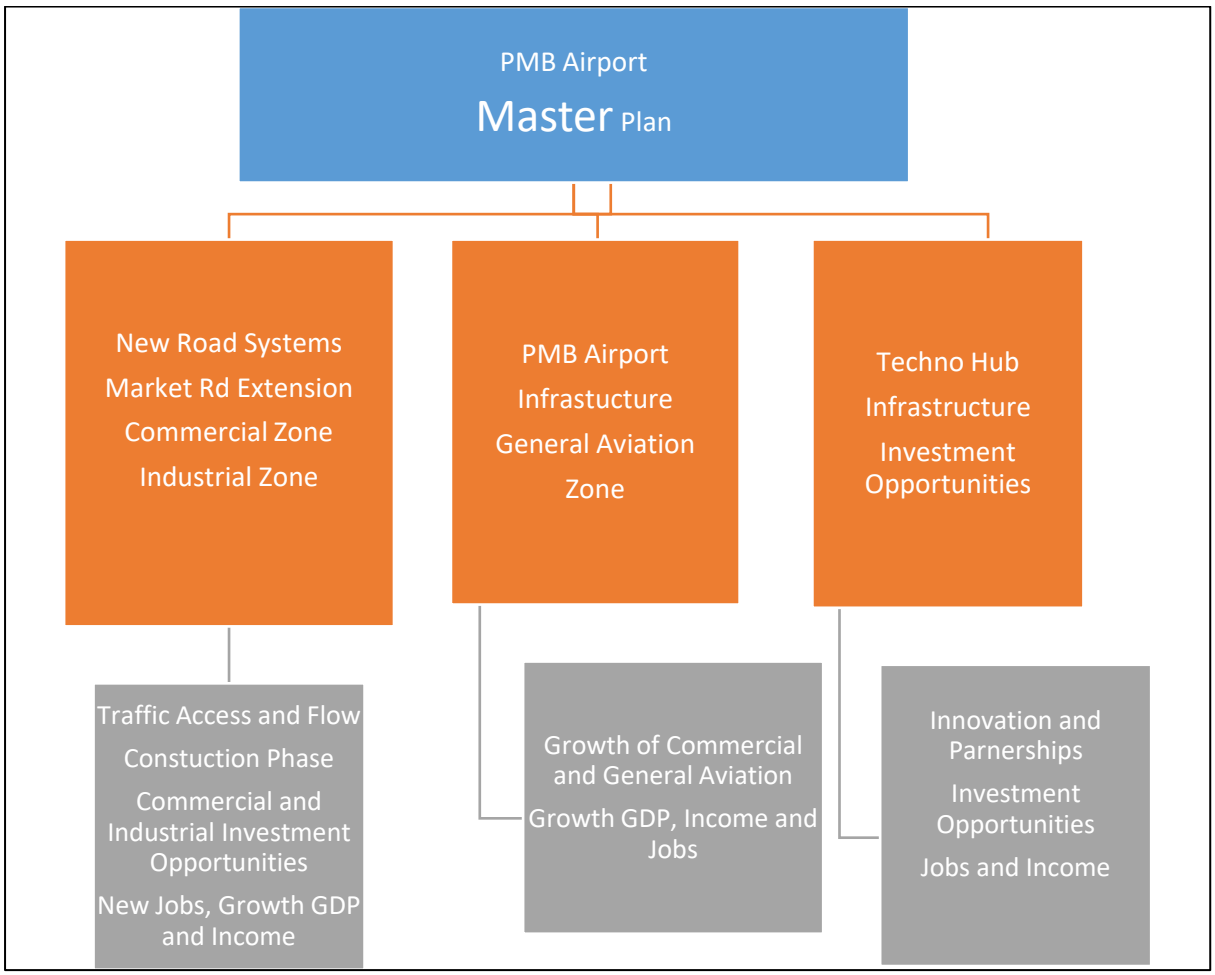
(1) New and upgraded road systems incorporating Market Road extension and internal airport roads. Included are plans for environmental upgrades and provision for new land use activity in mixed commercial and industrial zones

(2) Phase 1 upgrades to the airport and aeronautical activities as defined for the EIA. This includes additional airport facilities and a new General Aviation area.

(3) Development of a Techno Hub as visualised in a feasibility study and the terms of GWI's contract to implement the initial phase of the project.

The three elements of the economic impact are illustrated in the schematic diagram below:

Diagram 2: Schematic Design of Economic Impact



The component parts of the overall airport expansion are, in the main, still at various stages of the planning process. Very little information is available about implementable precinct plans involving definite intended investment in basic infrastructure as well as buildings and facilities to be occupied by tenants. However, the Master and Precinct Plans provides some guidelines and broad estimates of CAPEX which will be analysed in following sections. Because of opacity about

implementation of proposed projects there is a high degree of uncertainty about the extent and timing of future economic impacts.

The Map below shows the project elements that were considered in the EIA application:

Diagram3: PMB Airport: Elements of EIA Application

6.1 Partial Input-Output Model

Indications of the economic impact of new investment on gross value added, remuneration income and jobs in the regional economy depends on backward and forward linkages in the local economy, along with leakages of spending to other regions. The impact consists of three components.

(1) There is a direct impact. During the construction periods (all investments will not take place simultaneously) contractors spend on goods, services and materials. If these purchases increase the sales of firms in the local economy this raises regional gross domestic product. A proportion of purchases may be made outside of the regional economy, for example eThekwini, and does not have a local impact. The direct impact derives from local purchases.

(2) There is, in addition, an indirect effect. Local firms that supply the contractor increase their activity and make purchases of inputs and services from other local firms. This further expands the regional economy by what is known as a multiplier effect. The value of the multiplier depends on how an economic region is defined and the extent of forward and backward linkages in the economy

(3) A further impact occurs via the direct expenditure of contractors on salaries and wages. This generates income in the regional economy, stimulating an induced effect. A proportion of

remuneration is spent locally on purchases from local businesses supplying items such as food, clothing, transport and other items. This in turn raises the level of economic activity in firms supplying these goods and services.

(4) The quantitative measurement of these impacts is based on knowledge of the regional economy and data contained in the regional income tables. Coefficient values used to derive of the value of the multiplier were implied from the regional income-expenditure tables presented in section 4 of the report. The values of the multipliers for direct, indirect and induced effects are respectively 0.7, 0.63 and 0.35. These combined yield a total estimated value for the multiplier of 1.68. In other words, R1 of investment on any year generates R1.68 of gross value added in that year.

(5) Income in the form of salaries and wages is determined as a proportion of gross value added, directly and indirectly.

(6) These effects can also be quantified in terms of the number of full time equivalent jobs created. Each job will be associated with an anticipated amount of gross value added.

The table below illustrates operation of the partial input-output model

Table 11: Pietermaritzburg Airport: Partial Multiplier Model

Impact of an assumed R1000 Capex per year

	Capex	Multiplier	GVA	% GVA	Income	Jobs
Direct	R1000	0.70	R700	0.5	R350	0.046
Indirect		0.63	R630	0.6	R378	0.042
Induced		0.35	R350	0.6	R210	0.024
Total		1.68	R1680		R938	0.112

Note: Number of jobs calculated at one per R15000 GVA

On the basis of the above coefficient values, new investment expenditure of R1000 per annum would raise regional GVA by R1680, generate income of R938 and create 0.112 direct and indirect jobs. If the investment was recurring for 10 years the higher levels of value added, income and employment would be maintained. If there are no economies of scale the value of the multiplier remains constant irrespective of the volume of investment.

7. Pietermaritzburg Airport Sub-Precinct

This section of the report examines the potential economic impact of (1) upgrading and expanding the road network giving access to the Airport Precinct and (2) Developing commercial and industrial zones on land within the Airport boundaries.

7.1 Road Access and Traffic Circulation

A priority of the Precinct Plan is to expand and upgrade the road network to give better access to the Airport Precinct and improve traffic circulation. This will involve providing additional access points to the Airport and strengthening linkages to the City and N3 motorway. The intervention to improve connectivity, linkages and integration includes the following:

(1) Market Road / (N3) Interchange Expansion

This intervention, already being planned by SANRAL, will lead to upgrading of the interchange. The interchange expansion will provide new access, on the eastern side, to Cleland Road and increase capacity to handle traffic to the western side, using Market Road to access industrial areas and the City surrounds.

(2) Market Road Extension

The plan is to construct an extension to join Market Road, via a new industrial zone, to Gladys Manzi Road and, also, to Washington Road by means of a loop around the airport precinct. The Market Road Extension is a major catalyst for unlocking the full development potential of the airport precinct. It will enable rapid access to the Pietermaritzburg Airport from the N3 and enable a new industrial zone between Gladys Manzi Road and the airport.

The direct connectivity from the N3 to the airport will significantly increase the capacity and functionality of the Airport Precinct. There are a number of alternative configurations for this road depending on the outcome of negotiations about a rail servitude.

(3) Airport Access Loop Road

This will provide a new Airport access loop road and precinct circulation route between Market Road Extension and Washington Road, improving accessibility to the Airport from the City and the N3. The road will also connect to an internal airport road network, providing direct access to parking and other facilities at the Airport.

7.2 Capital Cost of the Market Road Extension

The DBSA, as part of its programme to assist municipalities with development projects, appointed consultants to prepare a feasibility study of two concepts stemming from the Master Plan. The study examines the technical and financial practicality of:

(1) Extending Market Road to give access to Pietermaritzburg Airport from the N3 national highway.

(2) Extending the taxiway and apron and constructing a new hangar area within the airport precinct. The economic impact implications of the proposed new general aviation zone are examined in a later section of the report.

The following section looks at the capital cost of three alternative options for the Market Road extension to Gladys Manzi and Washington Roads.

The existing rail line along the Northern boundary of the airport is presently disused. Msunduzi Municipality officials met with Transnet to discuss the possibility of transferring the rail reserve to the Municipality to unlock the land potential of the Pietermaritzburg Airport Precinct.

The capital cost of alternative options is dependent on whether or not the rail reserve is transferred. All three options provide access to airport internal roads and, also, facilitate a new industrial area of approximately 129 390m^2.

Option 1 -Market Road Extension on Rail Line

Under this option the proposed Market Road Extension will follow the route of the existing railway line, and link into both Washington and Gladys Manzi Roads. Within the Airport site existing and new internal airport roads will be linked to Market Road Extension. Option 1 is shown in the diagram below:

Diagram 4. Pietermaritzburg Airport Expansion Option 1.

Option 2 -Market Road Extension adjacent to Rail Line

Alternatively, it is assumed that the rail reserve will not be transferred to the Msunduzi Municipality in the foreseeable future. The proposed Market Road Extension will run parallel to existing railway line on the airport side, and will link back into Washington and Gladys Manzi Roads respectively. This option will necessitate the construction of two bridges to cross over the existing railway line.

Option 3 -Market Road Extension and airport internal roads to link to Oribi Road

The rail reserve will not be transferred to the Msunduzi Municipality. The proposed Market Road Extension will traverse over the existing railway line on the airport side linking into Gladys Manzi Road on the south side and, via an extended airport internal road, to Oribi Road on west side. This option will necessitate the construction of one bridge to cross over the railway line.

The Table below shows the capital cost of the alternative options:

Table 12:Capital Expenditure: Market Road Extension			
	Option 1	Option 2	Option 3
	R 1000s	R 1000s	R 1000s
Road on Rail Line	15959		
Road on Ground	27935		
Road Adjacent Line		47534	
2 Bridges		21090	
Extension to Oribi Rd			44920
1 Bridge			13505
Sub Total	43984	68624	58425
Sub Total (Inc. Fees)	51795	80977	68942

The three options for Market Road extension are:

(1) The rail reserve is used as an access road: CAPEX R51.8 million

(2) Access road is adjacent to the rail reserve with two bridges required over the railway line: CAPEX R80.9 million.

(3) Extension to Oribi Road with one bridge: CAPEX R68.9 million.

7.3 New Mixed Commercial and Industrial Zones

The planned airport precinct designates three new zones for commercial, mixed use and light industrial development. Once basic infrastructure and services are installed the sites will offer attractive investment opportunities.

Unfortunately, at this stage, delays in the finalisation and implementation of the Precinct Plan have inhibited the ability of the Msunduzi Municipality to market the sites.

The mixed commercial zones offer opportunities for private investment in logistics, retailing, offices as well as a hotel and conference centre. There has been discussion about a two story 75 bed hotel but nothing concrete has emerged. It is very difficult to predict the economic impact of developments in the proposed mixed commercial zones because these have not been marketed and it is impossible to anticipate the response.

The response to potential availability of sites in the industrial zone has been more positive. Two letters of intent were signed.

7.3.1 Investment Opportunities and Letters of Intent

(1) Ramsay Production Engineers.

The company, already located in Pietermaritzburg, is a major supplier of component parts to the automotive industry. They wish to relocate to more spacious and suitable premises, identifying the proposed light industrial area, alongside Gladys Manzi Road, as an appropriate site. The offer is to purchase 6 hectares within the Airport Precinct. As this is a relocation it will not be creating new business in the local economy, but new investment in plant and equipment will generate economic activity during the construction phase. The offer is to purchase not lease land. The magnitude and catalyst effect of this investment should create an incentive for the Municipality to offer the land for sale. The last thing the City needs is for Ramsay Engineering to relocate to Durban, or some other attractive industrial site.

(2) Q Tech Africa.

The company wishes to establish a steel fabrication facility to service the electrical supply industry in South Africa. The project will involve investment of R25 million and create 30 sustainable jobs. The requirement is to purchase a 7000sq.m.site with access to Gladys Manzi road. This is another example where an investor wishes to purchase not lease land.

7.4 Economic Impact-Beneficial Effects

(1) Connecting the Airport Precinct directly to the N3 will widen the potential market catchment area for Pietermaritzburg Airport services. Increasing use of the Airport by business and leisure travellers provides a catalyst for investment in new and expanded aviation related business projects.

(2) A new and upgraded road system, combining airport access with a wider transport network, will provide more efficient traffic access and circulation. This will reduce travel time as well as vehicle fuel and running costs. In the absence of a full cost-benefit analysis it is not possible to quantify these effects.

(3) In the short term capital expenditure of between R52-R81 million on road construction alone, will provide a boost to the local economy. Construction jobs are short term, lasting for the duration of a project. In terms of the partial input output model in section 6.1, CAPEX would, depending on the option implemented. Assuming that option 2 is chosen, and implemented over two years, the following outcome was predicted by the input-output model.

Table 13: PMB Airport: Economic Impact: CAPEX New Roads

Master Plan Phase 1		
	R1000s	Av Per Year
CAPEX	80600	40300
GVA	135408	67704
Income	75603	37801
Jobs	903	451

CAPEX of R80.6 million, over two years, is expected to add R68 million to GVA, generate R38 million in income and create 451 jobs per year.

(4) The impact of the Market Road extension is likely to be, in the short term, during the construction phase, local, of high intensity and short term duration. The longer term benefit of enhanced connectivity and access will be regional in extent but less intense. Overall, the benefit is assessed to be of moderate, positive significance held with a medium level of confidence.

(5) Planning is insufficiently advanced to quantify, or even give a qualitative assessment of, the benefits of private Investment on buildings and facilities in the zoned mixed commercial and light industrial areas. The significance of the letter of intent from Ramsey Engineering should be recognized. Msunduzi Municipality ought to do all it can to facilitate their relocation to the Airport Precinct site to ensure retention of this company in Pietermaritzburg

7.5 Limitations

There is no certainty that the funds will be forthcoming for new roads or infrastructure for mixed business and industrial zones. Msunduzi Municipality has not, at this stage, provided for Airport Expansion in the capital budget. The Market Road extension, however, may be funded from Provincial Government resources.

Without funding the Market Road extension, airport access loop and other planned upgrades will not be implemented. These projects must compete for funding in the Msunduzi IDP and capital budget against other urgent socio-economic priorities such as housing and basic services. Alternatively, finance must be raised from sources not, as yet, identified.

It is impossible to quantify the potential economic benefits derived from new mixed commercial and industrial zones, over the next 10 years, in the absence of information about the scale, nature and timing of possible investments. All that exists at the moment is a reserved area on a map.

8. Pietermaritzburg Airport Airside and Landside Infrastructure

The Pietermaritzburg Airport is the lynchpin of the Precinct development plan. It facilitates national connectivity, through a scheduled air service to ORTIA as well as providing general aviation facilities and logistical services. A number of businesses related to aviation operate at, or near, the airport.

The ability of the Airport to act as a catalyst for expansion of the Precinct depends on effective operations, accessibility to the regional economy and availability of attractive sites for new businesses.

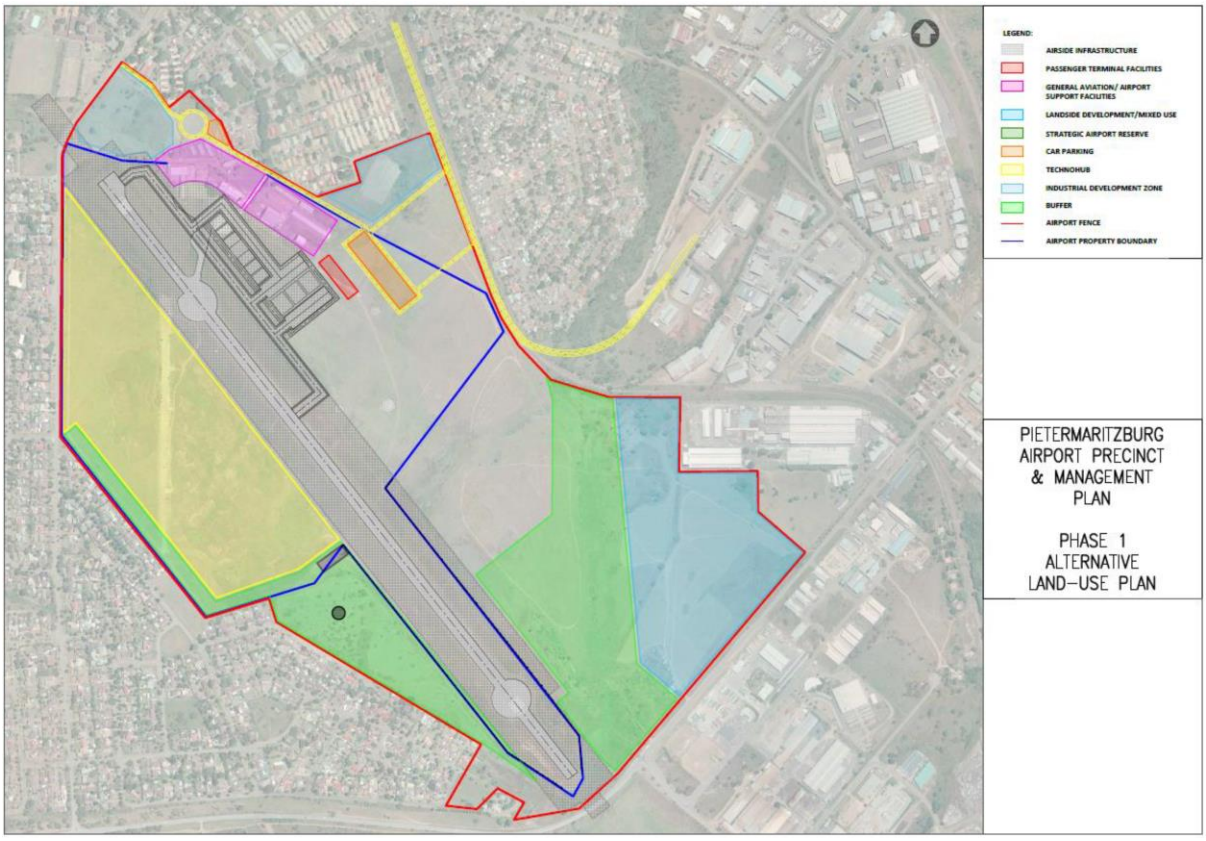
8.1 Airport Master Plan

Msunduzi Municipality commissioned a Revised Airport Master Plan, approved in December 2014. The Master Plan projects the demand for fixed investment expenditure to provide infrastructure for growing aviation activity, associated business expansion and the development of mixed commercial and light industrial zones.

Phase 1, the concern of this study, lasts until 2025, or until a threshold of 250 000 arriving and departing passengers, per annum, is reached. This phase includes:

- An extended terminal building, depending on the rate of increase in demand
- A new apron and taxiway
- Site preparation for a new general aviation zone.
- Reserved space for mixed commercial and industrial zones (see above).
- Development of a Technology Hub

Diagram 4: PMB Airport: Phase 1 Alternative Land-Use Plan



8.2 New General Aviation Zone

General aviation activity declined at Pietermaritzburg Airport during the decade 2006-2015. Departing non-scheduled aircraft fell from 4520 in 2006 to 2480 in 2015, non-scheduled passengers from 4059 to 1340 and training flights from 6229 to 3540.

The present GA area accommodates 12 T hangars of 76sq. m. each and 5 other hangars of various sizes giving a total of 4814sq. m. of hangar space. Rental income to the municipality averaged R42140 per month, in the 2015 financial year.

DBSA appointed consultants were briefed to report on the proposal to extend the General Aviation facilities at Pietermaritzburg Airport. There is a growing demand for hangar space at the Pietermaritzburg Airport. The demand is partially attributable to King Shaka Airport reducing its General Aviation obligation in favour of commercial flights, and the imminent closure of the Virginia Airport. Msunduzi Municipality has a current backlog in demand for hangars at the Pietermaritzburg Airport of thirty four.

In addition to new hangar space the taxiway and apron will be extended to accommodate more GA activity and to meet the long term growth in scheduled services. Additional apron space and taxiway access will be required if the terminal building is relocated, as planned, at date dependent on the growth of passenger numbers.

A new proposed General Aviation Area is in accordance with Phase 1 of the Pietermaritzburg Airport Master Plan. This new GA zone will be an extension of the existing GA area. New internal roads will be constructed within the Airport to provide access to GA. The plan is for 20 new sites be allocated for hangars to meet excess demands for hangars at Pietermaritzburg Airport.

The construction of hangars will be to the cost of hangar users, and the construction will be in accordance with the size and type of aircrafts that will be parked in the hangars. It is proposed that 10 hangar sites be allocated for “T” type hangar configuration, which will effectively allow for the parking of 20 aircraft back-to-back in the space provided. There will be 10 additional larger hangars. Estimated capital cost, to be funded by lessees, is approximately R30 million. A hangar roadway and taxiway costing R13.8 million will need to be funded by the Municipality.

Once the sites in the GA zone becomes available for lease, and construction, the opportunity is likely to be taken up immediately by investors. This will give a boost to GA activity at the airport as well as promoting servicing businesses. Interestingly, the consultants estimate a site rental of R20 per sq. m. yielding R125 000 per month, which is nearly three times as much as current hangar revenue.

8.3 Capital Expenditure on the Airport Expansion

A breakdown of the capital cost of the proposed airport expansion, according to Phase 1 of the Master Plan phases, is presented in the table below. The data is derived from the Master Plan prior to reconfigurations in the Precinct Plan.

Table 14: Phase 1 Master Plan PMB Airport Expansion	
Estimated CAPEX	
Item	R1000s
Terminal	38,950
Parking	11,634
Move Fuel farm	500
Control Tower	6,937
Light Industrial Area	20,817
Mixed Commercial	6,742
Hangars/Apron only	25,703
Buffer Zone	5,134
Taxiway	15,671
Apron	9,159
Prelims/Contingencies	36,423
Total (ex VAT, before price escalation)	**177,670**

Phase 1 will take approximately 10 years with anticipated capital expenditure of R178 million. This includes further expenditure on the terminal building, preparatory work for hangars, in the zone set aside for general aviation, and also in the zones reserved for mixed commercial and light industrial use.

The Master Plan, as set out above, was reconfigured in the new layout presented in the Precinct Plan. The following priorities were adopted:

(1) Greater capacity for General Aviation in the form of hangar space, a GA apron and taxiway to the runway.

(3) Re-configured layout of airside components including provision for a new terminal building to provide accommodation for the possibility of higher capacity passenger aircraft and additional domestic linkages.

(4) New parking and hire car area

(5) Re-configured layout for land side infrastructure to create opportunities for the expansion of both commercial and light industrial activities. Two areas are set aside for mixed business use.

The Airport Precinct Plan does not provide detailed capital cost estimates for the reconfigured Master Plan but in a broad estimate allows for R117 million over two Phases to 2028. This excludes CAPEX on new mixed commercial and industrial zones and the contingency allowance shown in the table above. If this amount of R64 million is added to the Precinct Plan estimate a figure of R181 million is arrived at. Therefore, for estimating the economic impact of CAPEX on the Airport Expansion it is not unreasonable to use the Mater Pan estimate of R178 million.

9. Economic Impact

Assessing the economic impact of this project is complicated because there are so many component parts and the phasing is uncertain. The initial impact will be derived from the construction phase which stretches over at least 10 years.

The operational phase has the potential to create long term sustainable growth in Regional GDP and valuable jobs. At this stage, however, there is virtually no information available as to the nature, type or magnitude of potential investments. The emphasis is, therefore, on the economic impact of the Construction Phase

9.1 Beneficial Impact

The Pietermaritzburg Airport Expansion will create a significant number jobs during the construction phase and, to a lesser extent, in manufacturing and business once the project becomes operational. The project is well suited to economic development in the region, boosting activity during construction, diversifying the distribution of economic output and expanding into high technology manufacturing. This will help to diversify the economy away from government services.

9.2 Input-Output Model Predictions

The concern of this study is with the probable economic impact in the first 10 years of the project. The Table below summarises the results of an application of the partial input-output model to the construction phase:

Table 15: Economic Impact: CAPEX PMB Airport

	R1000s	Av. Per Year
CAPEX	178000	17800
GVA	299040	29904
Income	166964	16696
Jobs	1994	199

Based on the model shown in Section 6.1 of report, CAPEX of 178 million, over 10 years, should create additional GVA of R299 million, income of R167 million and 1994 new jobs. However, these estimates are for 10 years meaning, on average, an extra R30 million GVA, R16 million income and 199 jobs per year.

Planning is currently at a high level, without specific details of projects. The implementation, instead of being phased, is likely to be ad hoc. For this reason the impact is evaluated as regional, of low intensity and long term duration. The probability of the plan been implemented is “likely” leading to an assessment of moderate significance, but because of all the uncertainties surrounding the project, there is an associated low confidence level.

9.3 Other Benefits

There are a number of non-quantifiable benefits:

(1) The Airport expansion will impact on the regional economy through greater airside aviation activity. In the next 10 years, capacity will be provided to double the handling of scheduled airline passenger arrivals and departures. More frequent services and new routes will facilitate business

and tourism. The benefit will be regional, of medium intensity and long term. There is medium confidence that this will occur, yielding a moderately significant impact.

(2) A new general aviation zone plus opportunities for private investment in additional hangar space will revitalise non-scheduled aircraft activity. This will include an expansion of flight training, possibly accommodating flight schools and aviation businesses relocating from Virginia Airport. The impact will be regional, of high intensity and long term duration. This project will definitely go ahead and is thus assessed as of major significance with a high degree of confidence.

10 Pietermaritzburg Airport: Techno Hub

This innovative development has the potential to attract a range of new projects related to aviation research and associated light manufacturing, business parks, sport and recreation. The centre piece will be the establishment of a Durban University of Technology (DUT) campus with educational and research facilities. There will also be residential and hotel accommodation related to the DUT's activities.

Planning includes provision of efficient access, linkage to transport systems and other parts of the precinct and as well as modern infrastructure and high quality environmental surrounds

Analysis of the impact on the local economy of investment in the Techno Hub is undertaken in three parts (1) Review of projections of the feasibility study (2) Treasury grant to begin implementing the project and appointment of GWI as project managers (3) Potential economic benefits and the limitations to the analysis.

10.1 Urban Econ Feasibility Study

A starting point is the Feasibility Study prepared for the Techno Hub by Urban Econ and other consultants. This was completed and accepted by the KZN Treasury in February/March 2013. Visualised capital expenditure is allocated between five zones, external work and other infrastructure in two phases. Anticipated Techno Hub progress and expenditure is shown in the Table below:

Table 16: Techno Hub Feasibility Study: Estimated Capital Expenditure

Pietermaritzburg Airport: Techno Hub				
		Phase 1	Phase 2	Total
Capital Expenditure	Area sm.	R1000s	R1000s	R1000s
Zones				
Mind	4737	56,844		
Innovation	5553	66,636		
Enterprise	13260	119,340		
Public	5379	67,354		
Business	45999	175,500	238,491	413,991
Sub Total	74928	485,674	238,491	724,165
External Work		26,333	26,660	52,993
Other		90,626	47,109	137,735
Budget (ex. Vat, pre price escalation)		602,633	312,260	914,893

CAPEX of this magnitude, R915 million (excluding VAT and before allowing for price escalation) obviously necessitates a detailed investment programme. The investment plan, however, depends on the interest and willingness of private sector businesses, and institutional organisations, to invest in the Techno Hub. The Feasibility Study allows for the possibility that external works may be financed by government grants.

The study assumes that the first construction phase will take 5 years followed by a second construction phase of 3 years. In other words, the Techno Hub will be fully occupied and operational at the end of 8 years. For reasons that will be discussed this is highly unlikely to materialise.

There is also an implied assumption that the Techno Hub will be developed and funded by the private sector. Financial viability is assessed by discounted cash flow and estimates of NPV and IRR under various scenarios. The outcome of this exercise is that the project is financially viable in the long term. The weakness of the study is that if the various zones and sub zones are not developed in accordance with the cash flow time framework the NPV and IRR will be adversely affected.

To assess the economic impact of the project Urban Econ utilises an Input-Output model for KZN. The details of the model, or any underlying assumptions, are not stated. The Table below shows the final outcome of total investment in the Techno Hub of R1.96 billion (Inc. Vat, price escalation and professional fees) over 8 years.

Table 17: Techno Hub Feasibility Study: Economic Impact

Capital Expenditure	Direct	Indirect	Total
Impact on	R1000s	R1000s	R1000s
Gross Expenditure	2,424,131	3,039,573	5,463,704
Gross Value Added	802,189	1,138,994	1,941,183
Labour Income	424,883	533,341	958,224
Number of Jobs	6,755	5,247	12,002

It must be born in mind that this scenario is the cumulative result after 8 years of continuous capital expenditure, measuring the effects on KZN and not just the regional economy. A more accurate scenario would show the impact on GVA and employment year by year.

Reasonably confident forecasts of economic impact require detailed information of anticipated annual capital expenditure on infrastructure and new projects in the different zones over the next 10 years. Currently, there is too much uncertainty regarding the future direction of the Techno Hub to make significantly confident forecasts.

10.2 KZN Treasury Grant and Appointment GWI as Project Managers

The KZN Treasury provided R120 million towards the Techno Hub Project, divided between four regions (Msunduzi, Newcastle, Hibiscus Coast and Richards Bay) to be spent over a period of 3 years. GWI was tasked with implementing the first phase of the Techno Hub project, subject to the R120 million constraint. Feasibility reports show that this should be sufficient to meet a proportion of external work costs (earthworks, water, storm water, sewers and fencing) and landscaping (ground, roads and parking) in Phase 1 of the Techno Hub project.

The allocation of Treasury funding between the KZN Techno Hubs, within the stipulated time framework, has been a complex task. Regulatory delays and slow planning approval has resulted in Msunduzi Municipality receiving a relatively small amount of the available funds

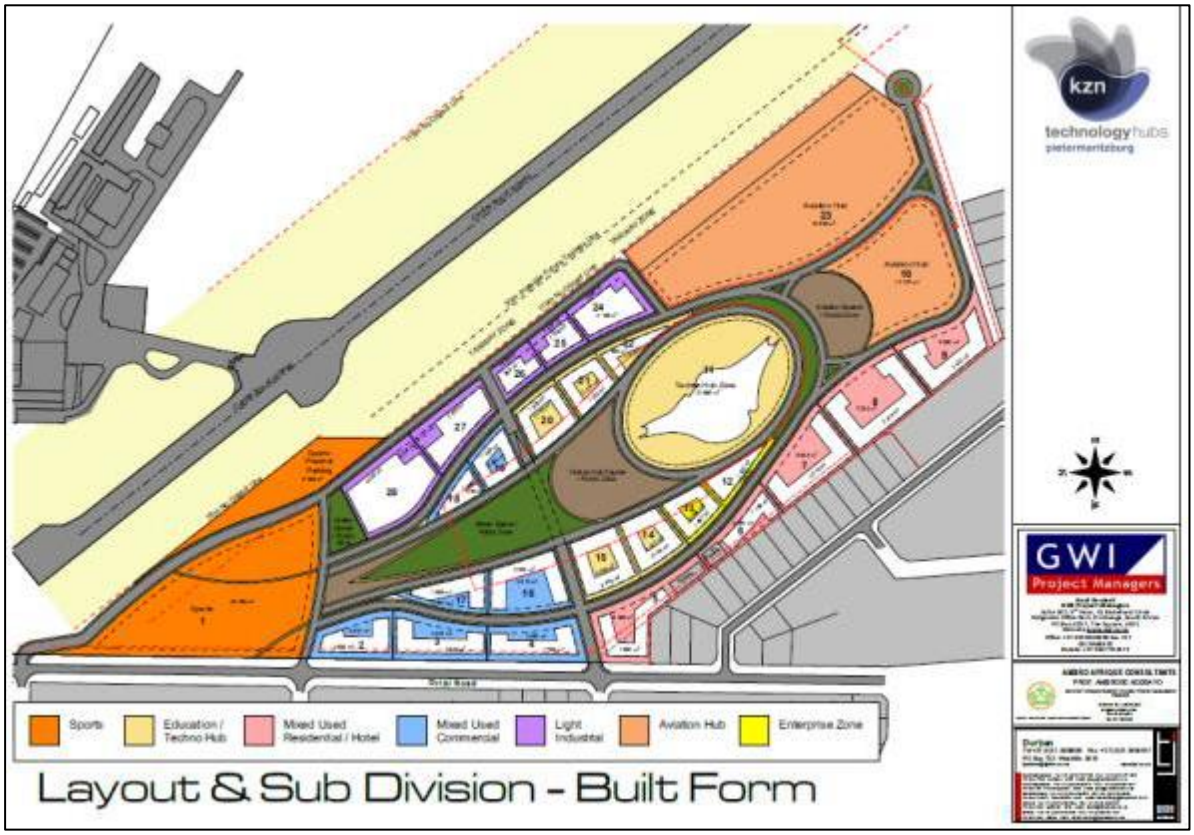
It is anticipated that once external works are completed, capital investment in projects will come from private and institutional investors, taking up leases on available sites available for development in the Techno Hub. .

10.2.1 An Architectural Concept Plan for the Pietermaritzburg Techno Hub

GWI moved to the next stage pursuant to the concepts presented in the Feasibility Study. An architectural concept and design plan is complete for the Pietermaritzburg Techno Hub precinct. The plan sets out a design for zones and activities within the Techno Hub, as well as access, roads, parking and recreational areas.

The following architectural plan, prepared by Ambro-Afrique Consultants in October 2015, shows a proposed layout for the Pietermaritzburg Techno Hub. This differs considerable from the vision of Urban Econ and, if implemented, will result in a different set of impacts.

Diagram 6: Pietermaritzburg Airport: Techno Hun Concept Plan



The table below sets out the anticipated floor area for building to be erected on the allocated sites and a valuation of the CAPEX involved:

Table 18: Pietermaritzburg Airport: Techno Hub: Concept Plan				
Sites, Buildings and Capital Expenditure (2015)				
		Area	**Total**	**CAPEX**
Number Sites	Type of Site	sm.	Percent	R1000s
1	Special Sports Zone	21559	13.2	0
2	Mixed Commercial	13156	8.1	118 404
5	Mixed residential Hotel	38717	23.7	348 453

1	Aviation Hub	12317	7.6	98 536
5	Education Techno/Hub	32806	20.1	393 672
4	Mixed Use Commercial	10725	6.6	96 525
3	Education Techno/Hub	7459	4.6	89 508
1	Aviation Hub	8418	5.2	67 344
5	Light Industrial	17921	11.0	143 368
27	**Total**	**163 078**	**100.0**	**1355 810**

For comparative purposes an attempt is made to quantify anticipated investment in the Techno Hub using the same method as the Feasibility Study. Estimated capital expenditure on buildings and facilities, excluding the special sports zone, increases from R915 million to R1355 million.

The following basic infrastructure and bulk services are required to make the Techno Hub site functional and ready for construction of built facilities.

Table 19: Pietermaritzburg Techno Hub: Project Budget

Basic Infrastructure and Bulk Services (December 2016)

Description		Amount R1000s
Section 1	Preliminary & General	14,600
Section 2	Bulk Earthworks	94,650
Section 3	Roadworks - Boulevard Extension	16,610
Section 4	Sewer Reticulation	3,410
Section 5	Water Reticulation	1,560
Section 6	Storm-water Drainage	7,557
Section 7	Cable Ducts, Manholes & Tree Rings	6,560
Section 8	Electrical	12,000
	Total Construction (excl. VAT)	156,947
	Contingencies (prelim design 25%)	39,236
	Total (Excl. VAT and Price Escalation	196,193

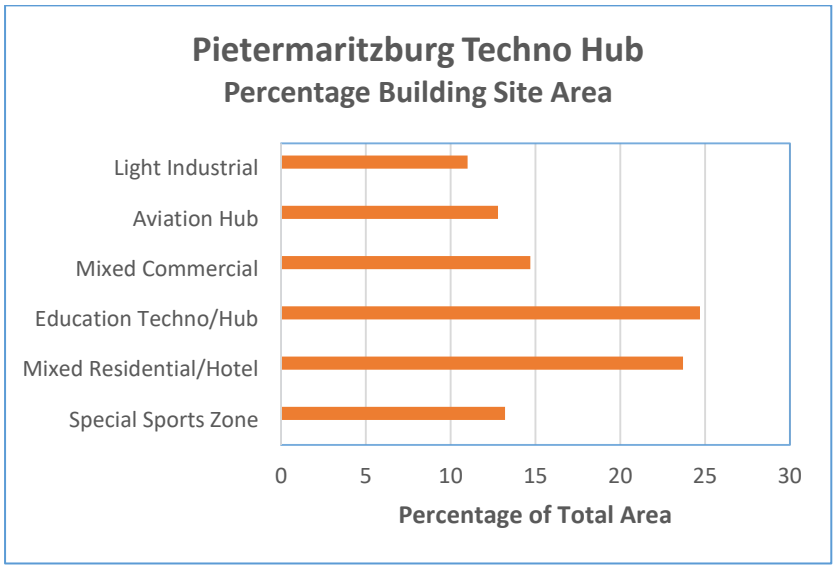
Total estimated construction cost, before VAT and price escalation, is R196 million. This is way above the financial resources available from the EU grant. At this stage alternative sources of funding have not been identified. Thus, the current implementation phase will have to be severely curtailed because of budget constraints.

The anticipated spending on buildings and facilities is of high magnitude but impact on the regional economy will depend on the time framework for investment spending. A concept plan only becomes implementable once specific projects are identified and basic infrastructure installed. The transition from a concept plan to an implementable precinct plan is a lengthy and complicated process. It is likely that only a proportion of the plan will be implemented in Phase 1 of the Airport Expansion Project.

10.2.2 Investment and Partnership Opportunities

The Concept Plan for the Techno Hub allocates building space, as shown in the Chart below, between numbers of activities. Education and technology is allocated 24.7 percent, residential and hotel accommodation 23.7 percent, mixed commercial 14.7, light industrial 11 percent, aviation hub 12.8 percent and a sports complex 13.2 percent.

Diagram 7: PMB Techno Hub: Allocation of Site Areas



There is space for public institutions as well as large corporate and smaller businesses. The central focus is on aviation related activities.

Conceptually, the Techno Hub provides an opportunity for collaboration and partnership between government, universities, research institutions, business, and industry. Through partnerships there is the potential to innovate, develop and establish new products and new markets. State of the art buildings can be designed for laboratories, workshops, data processing, production and business support. This environment should stimulate collaboration between researchers, engineers, project managers and business.

10.2.3 Letters of Intent

As at October 2016, non-binding letters of intent to participate in the Techno Hub project had been received from four institutions:

(1) Durban University of Technology (DUT).

The Durban University of Technology (DUT) is, currently, the only committed tenant and investor. The DUT intend to establish an aerospace technology and innovation centre involving partnerships between public and private institutions and South African Research Councils. Specialised facilities are offered by a Reinforced and Moulded Technology Station, including an advanced manufacturing laboratory, industrial design unit and prototype testing component. These activities, along with others at DUT, have a particular application to aviation. At this early stage of

planning DUT require 3*10000 sq. m. fully serviced sites. There would be a long term lease agreement between DUT and Msunduzi Municipality.

(2) Royal Haskoning DHV.

A consortium has been formed to investigate the feasibility of establishing a Velodrome for multi-sport facilities at the Techno Hub. This would include medical sports research facilities. A non-binding letter of intent, valid for six months, to enter into a 50 year lease agreement for Site 1 (30588sq. m.) of the Concept Plan was signed in March 2016. The feasibility study has not been finalised but acceptance of the project depends on financial viable.

(3) Adept Airmotive.

The company, located at Virginia Airport, is engaged in engineering design and installation of aviation engines for light aircraft. They would also like to establish testing, training and showroom facilities. The entity would be part of general aviation area with access to the runway. The requirement is a 300-600 sq. m. airside hangar facility, including 200 sq. m mezzanine office space. Anticipated employment is 10-15 full time jobs. It is, however, clear from the letter of intent that Adept Air does not have investment capital to fund the construction of the facility. The company is wanting to lease an operational hangar and not a site on which to construct a facility.

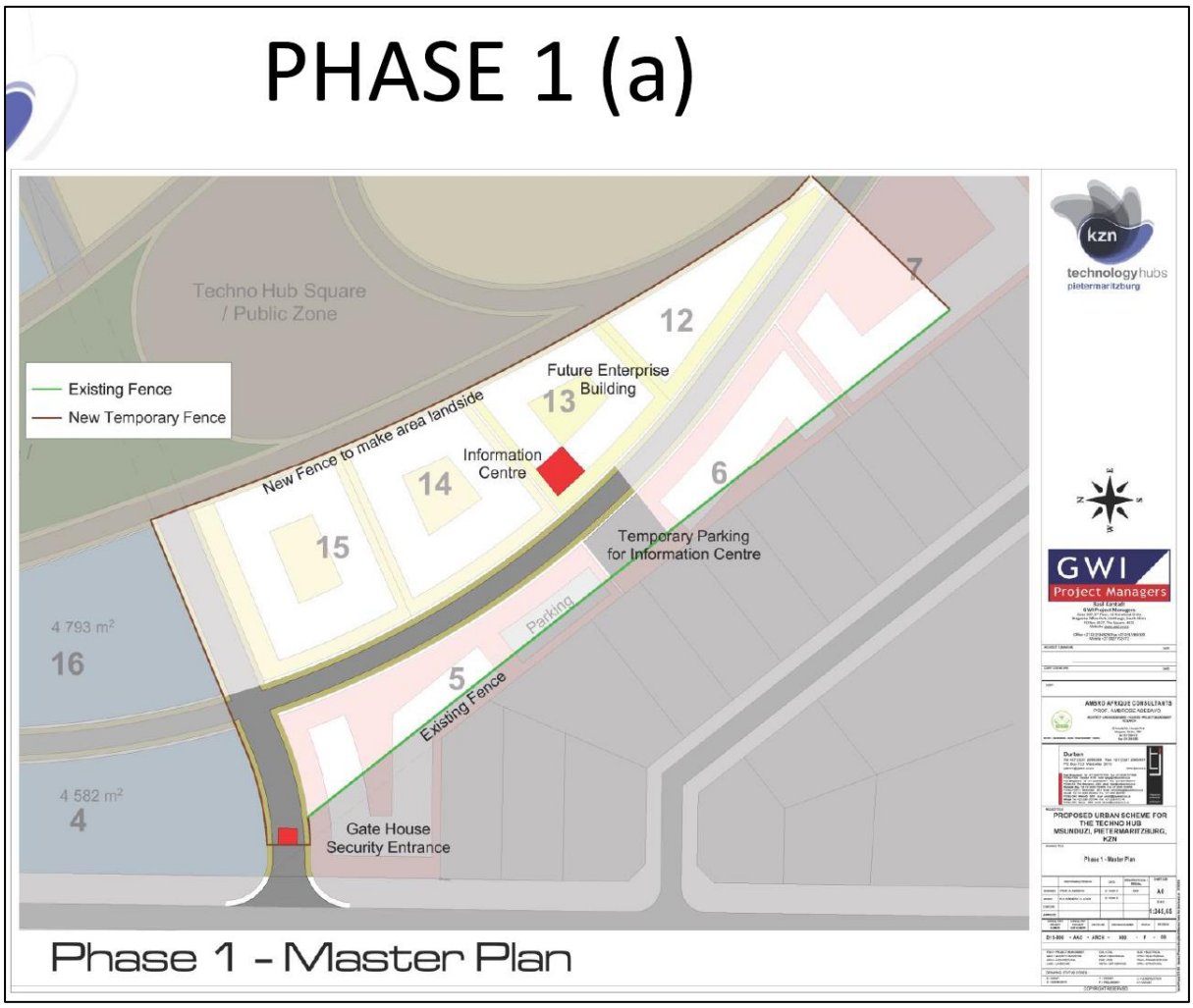
(4) Raptor Aero Logistics.

Currently located at Virginia Airport the company is involved in the design, production and manufacturing, as well as fully serviced flight operations, of Remotely Piloted Aircraft Systems (RPAS). The company wishes to enter into negotiations to lease a fully serviced 300sq. m site. A non-binding letter of intent, valid for 12 months was signed in September 2015.

10.3 Phase 1 A Techno Hub Project

The availability of KZN Treasury funding for the Techno Hub project expires at the end of March 2018. However, all construction work must be completed by the end of November 2017. Implementation of the project cannot proceed until the EIA is approved. This means only a small part of Treasury funding will be utilised in 2017. Consequently, the plan has been truncated into Phase 1 A to achieve some measure of progress.

Diagram 8: Phase 1A Techno Hub project



The estimated budget for Phase 1(a) is shown below:

Table 20: Pietermaritzburg Techno Hub Phase 1A Project Budget (December 2016)

Description		Amount
		R 1000s
Section 1	Preliminary & General	3,650
Section 2	Bulk Earthworks	145
Section 3	Roadworks - Boulevard Extension	2,459
Section 4	Sewer Reticulation	971
Section 5	Water Reticulation	384
Section 6	Storm-water Drainage	1,614
Section 7	Cable Ducts, Manholes & Tree Rings	1,029
Section 8	Electrical	7,759
	Total Construction Cost (excl. VAT)	18,011
	Contingencies (prelim design 25%)	4,502
	Escalation (est. at 6% per annum - 1 year)	1,081
	Design Fees (est. 9%)	1,622

	Supervision (est. R60 000/month*10)	600
	Sub Total	25,816
	VAT (14%)	3,615
	TOTAL	29,431

Phase 1A is a diminutive reflection of the Master Plan for the Techno Hub, illustrating the lack of progress in implementing the project. The estimated cost of basic infrastructure and bulk services is R29.4 million, after providing for contingencies, price escalation, design fees and supervision and VAT.

10.4 Beneficial Economic Impact

An economic impact assessment can proceed only on the assumption that certain aspects of the Master Plan will be implemented within 10 years. Any estimates based on general plans, as opposed to specific implementation programmes, are highly speculative. Thus far the planning for the Techno Hub involves:

(1) Estimates of construction costs for basic infrastructure and bulk services, of R196 million, which should be completed during Phase 1 of the Airport Expansion Project. If an assumption is made that CAPEX funding will become available, and spent over 5 years, during Phase 1 of the project, the following impact is predicted.

Table 21: Economic Impact: CAPEX Techno Hub

	Phase 1	
	R1000s	Av Per Year
CAPEX	196000	39200
GVA	329280	65856
Income	183848	36770
Jobs	2195	439

If, during the basic infrastructure construction phase, on average, R39 million per annum of CAPEX occurs this will create, according to the partial input-output model in Section 6.1, further GVA of R66 million, income of R37 million and 439 direct and indirect jobs per year. The economic benefits from the construction phase are inherently temporary, terminating when construction is complete.

(2) As at December 2016, planning approval and regulatory delays resulted in money allocated from KZN Treasury funding being curtailed. At best Phase 1A of the Project may be implemented in 2017. This will incur R 29 million of CAPEX.

(3) A feasibility study and a concept plan for buildings and facilities. The feasibility study visualises CAPEX, at constant prices, of R915 million over 8 years while the concept plan has an implied cost of R1355 million over a much longer period, possibly 20 years.

DUT is a committed future tenant and investor. All other potential investments are highly speculative. It is impossible to make an accurate estimate of the phasing or amount of private investment expenditure, on buildings and facilities, during Phase 1 of the Airport Expansion.

(5) In summary, the extent of the project is regional but because of the long implementation period intensity will be low and the duration long term. The magnitude, therefore, is medium and since it is unlikely that the full Techno Hub plan will be implemented, the significance is assessed as moderate with a low level of confidence.

10.5 Limitations

A high degree of slippage may occur between concept plans and implementation. A number of major question marks arise:

(1) Once GWI's contract expires, in 2017, Msunduzi Municipality will be responsible for (a) future capital expenditure on basic infrastructure (b) attracting private or institutional investment to the Techno Hub and (c) management of the complex. In the context of the regional economy this is a large scale project requiring skilled management along with strong marketing and promotion. Msunduzi Municipality has drafted a proposal to establish a Municipal Entity to manage the Airport Precinct, including the Techno Hub, but this has not been presented to Council for final approval.

(2) There are relatively large amounts of capital expenditure involved for external works, basic services, roads, open areas and other infrastructure. A preliminary estimate is CAPEX of at least R196 million over 10 years. A relatively small share of the KZN Treasury grant may be allocated to Msunduzi. There is no indication in any of the planning or feasibility studies as to how the bulk of CAPEX will be funded.

(3) There is a high degree of uncertainty about the interest of prospective tenants in investing in the Techno Hub. Once basic services and infrastructure are installed, business and institutional investors are expected to take up available space. For the 27 planned sites there is only one committed tenant.

(5) This sites will not be taken up unless there is an active campaign to promote and create awareness of the opportunities available in the Techno Hub. The implementation of the project is unlikely to succeed unless accompanied by a campaign to market the full attractions of the Techno Hub.

11. Msunduzi Municipality: Financial Sustainability

Long term financial sustainability will depend on policies and decisions made by Msunduzi Municipality. The future economic success of the airport project depends on attracting new inward investment from research and educational institutions, as well as national and international companies. The right management structure needs to be set in place to attract investment funding.

Both the aeronautical and business aspects of the airport precinct should, in the long term, be financially viable and not a drain on municipal resources in the form of subsidies.

11.1 The Role of Airport Management

The area of jurisdiction of the airport authority should be clearly defined. The assumption in this report is that Airport Management will be responsible for area demarcated in the Airport Master Plan. This will include the Airport, three new business and light industrial zones and the Techno Hub.

Crucial to the successful implementation of the Airport Master Plan is a dynamic and effective management structure that will be able to attract institutional and business investors to the Airport Precinct. Management objectives should extend beyond just expanding aeronautical activities to include marketing and promotion of the commercial and industrial zones and Techno Hub. The critical element in realising the potential of the airport project is to ensure that the management has the capacity to create attractive opportunities for investors.

There are three aspects to management of the airport (i) Commercial air services and general aviation (ii) Techno Hub investment and operations (iii) Precinct development and investment in mixed commercial and light industrial zones. The most economical and effective management structure should encompass all three aspects.

11.2 Management Options

The Pietermaritzburg Airport is managed under a service provider contract. However, since the purpose of airport management will include business promotion and property development Msunduzi Municipality decided to explore the merits of alternative management options to replace the current arrangement.

In the event of a change in management structure, Section 78 of the Municipal Systems Act (MSA) requires that a review is conducted of the existing situation, and an assessment made of the capacity of the municipality to provide the service from internal resources.

A Section 78 inquiry and business case/feasibility study, together with a financial model, testing the viability and sustainability, of an airport entity was completed. Council passed a resolution approving the business case/feasibility study and a made a decision to go ahead with whatever steps were required to establish an airport municipal entity

A notice was published in the media (as required by Section 84 of the MFMA) of the municipalities' intention to establish a management entity and an invitation to communities, trade unions and other interested parties to comment, or submit representations on the proposal. No adverse comments were received from organised labour, communities or other interested parties in response to this consultative process.

11.2.1 Municipal Entity

The MSA and the MFMA provide for the establishment of a municipal entity to control and manage municipal services that will be more effectively provided within a business rather that a government environment. The MSA defines three types of entity that may be established.

In the case of the Airport Precinct the most appropriate structure is a private company. This will allow for the participation of other stakeholders. It will provide an effective management structure through a board of directors and a chief executive officer.

Finance will be separate from Municipal financial system and “ring fenced”. This will enable the entity to be run according to sound business principles with strong control over income and expenditure. With an anticipated growing revenue stream the entity could be financially self-sufficient within 5 years, without the need for a municipal subsidy.

There is provision in the Municipal Finance Management Act allowing the parent municipality to transfer the municipal owned land within the airport precinct to a municipal entity. This would facilitate the marketing of leases and attraction of investment to the airport.

There has been no further progress in the matter indicating that Msunduzi Municipality may wish to explore alternative options.

11.2.2 Management Contract

A municipality may enter into a contract with private institution to provide management for a municipal service. For instance, the Pietermaritzburg Airport is managed by an external company. However, this arrangement has not permitted the airport finances to be “ring fenced”. Airport income and expenditure are an integral part of the municipal financial system. Unfortunately, the financial deficit and subsidy continue to present a problem to Msunduzi Municipality.

11.2.3 Public-Private Partnership

This is a versatile form of organization because it draws in private sector capital as well as technical and management skills. PPPs are well suited to large projects with a single focus. The Techno Hubs and Precinct, however, will involve a number of different investors in diverse businesses and sectors. For example, educational, aviation, industry, accommodation or logistics.

An attractive option would be to establish a PPP as a holding company forming a partnership between the Municipality and a private developer and estate manager. The municipality contributes bulk serviced, fully approved and compliant sites to the partnership while the private investor brings to the partnership investment capital, marketing and management skills.

The partnership agreement spells out the respective rights and obligations of the partners. The PPP, acting as a holding company, would hold investments in subsidiary companies that control subsidiary components of the Precinct.

The MFMA sets out procedures to establish a PPP. This is a recognized mechanism to bring together the public and private sector in a successful joint ventures. If a suitable PPP arrangement could be established this would relieve the Municipality from having to finance the Airport. However, the Municipality would have to share long term financial benefits arising from the Airport Project.

11.2.4 Concession Contract

In the case of the Pietermaritzburg Airport a concessionaire would contact to expand, maintain and operate the airport. In return for the risks involved, and capital investment, the concessionaire would be entitled to any financial surplus. The municipality benefits from a fixed annual royalty and a share of total revenue. This would eliminate the subsidy. A concession contract might be feasible for the management of airport but the issue is more complicated if the concession extends to the Techno Hub and other development zones.

Future income streams are difficult to estimate because of uncertainty attached the number of tenants that are likely to sign long term leases. Concessions, however, enable the mobilisation of private capital and know-how to complement public resources and support new investment in public infrastructure and services.

11.2.5 Sale or Disposal of Land to Private Enterprise

Section 14 (2) of the MFMA provides for the disposal of municipal owned capital assets, including land, subject to certain conditions. In addition the municipalities have set up land disposal policy frameworks.

The land must not be required for the provision of basic municipal services and can only be disposed of at fair market value. Any transfer of ownership of a capital asset must be fair, equitable, transparent, competitive and consistent with municipal supply chain management policy.

There does not seem to be any insuperable legal difficulty, apart from political opposition, to selling land in the airport precinct to a private developer. The deed of sale, and zoning regulations, would ensure appropriate development in line with stated social and economic objectives. It may, however, be practical to involve more than one developer by parcelling the land according to different zoned usages.

Disposal of land within the Techno Hub and mixed commercial and new industrial zones development zones alleviate the problem of an airport operational deficit and subsidy. It would exclude the municipality from future operating expenses in these areas and provide a stream of rates income. In addition, the capital raised from land sales would become available to finance other aspects of the Airport Expansion Project.

11.3 Airport Operational Financial Viability

Financial viability of Pietermaritzburg Airport is assessed using a model projecting income and expenditure for the for the 10 year period, 2015/16 to 2024/25. Any deficit, in the initial period, will require a municipal subsidy. The model estimates net cash flows arising from future aeronautical developments. As this is a cash flow model no allowance is made for depreciation. There are four component parts:

1. Aeronautical revenue
2. Non-aeronautical Revenue
3. Operational Expenditure
4. Net Cash Flow (deficit or surplus)

Aeronautical income is projected by taking account of the number and type of aircraft using the airport, each week, aircraft passenger capacity plus an estimate of the load factor. A passenger

departure levy is applied to the estimated number of passengers and a landing fee for the different types of aircraft.

Fuel income streams are estimated using the number of aircraft landing and refuelling. The estimated volume of fuel usage is multiplied by the estimated profit per litre to yield a value. Currently net income from aviation fuel sales accrues to the Pietermaritzburg Aero Club

Non-aeronautical revenue is derived from the office, shop and hangar leases and the airport parking concession, plus advertising and other minor items. Potential income from new commercial and mixed use property zones is not included because of uncertainty surrounding these developments.

Expenditure is estimated for external provision of security and air traffic control while the airport management function will be internalised. Provision is made for a staff establishment consisting of a chief executive, senior managers, plus supporting staff, for operations, finance and administration

The model uses current prices, with provision made for inflation of income and expenditure streams.

11.4 Ten Year Income –Expenditure Projections

The Airport operations are sustainable and viable in the long term, once growing aeronautical and non-aeronautical income yield a positive net cash flow. However, because of the relatively long gestation period of some of these developments there is, for the initial 4 year period, a cash flow problem. This is illustrated in the table below:

Table 22: Pietermaritzburg Airport: Income and Expenditure Projections

Current Prices (2015/16 to 2024/25)

Year	Aero Income	Non Aero Income	Total Income	Expenditure	Deficit/Surplus
2014/15(Actual)	6,335,013	1,289,774	7,624,787	9,528,675	-1,903,888
2015/16	7,032,804	1,456,694	8,489,499	10,100,397	-1,610,898
2016/17	9,165,297	1,394,756	10,560,053	11,440,935	-880,882
2017/18	10,024,609	1,478,442	11,503,051	12,111,761	-608,711
2018/19	10,954,044	1,567,148	12,521,192	12,822,837	-301,646
2019/20	11,958,922	1,661,177	13,620,099	13,576,578	43,521
2020/21	13,044,950	1,760,847	14,805,798	14,375,543	430,255
2021/22	14,218,250	1,866,498	16,084,749	15,222,446	862,303
2022/23	15,485,385	1,978,488	17,463,873	16,120,163	1,343,710
2023/24	16,853,389	2,097,198	18,950,587	17,071,743	1,878,844
2024/25	18,329,807	2,223,029	20,552,836	18,080,417	2,472,419

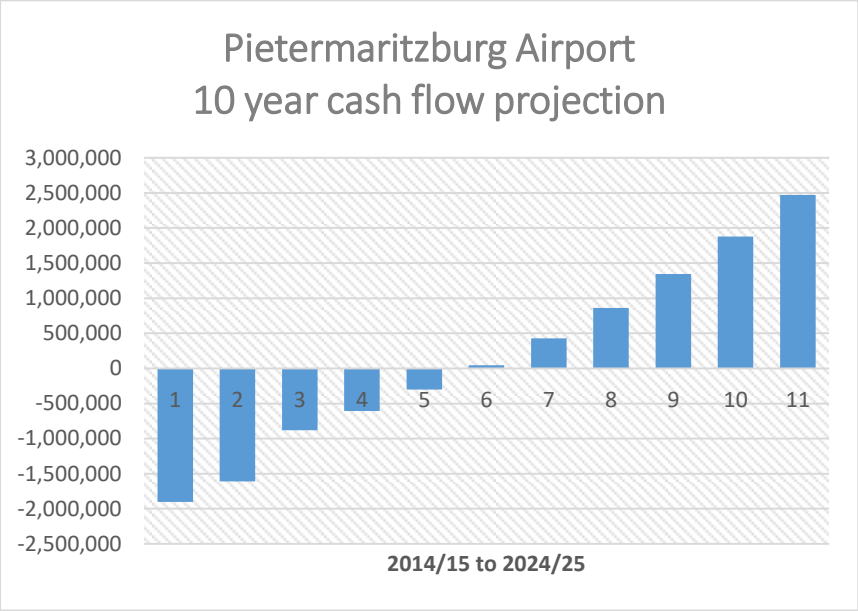
For the 10 year period 2015/16 to 2024/25, there are negative estimated net operating cash flows for the first 4 years, thereafter the operating cash flows become positive. The important implication is that for the airport entity to be financially viable during the period 2015/16 to 2018/19 a subsidy will be required for at least the first 4 years. However, the declining projection for the

subsidy depends on a 4 percent growth trend in passenger numbers. If growth falters this will prolong this subsidy.

Without allowing for depreciation the subsidy required would start at approximately R2000 000 in 2015/16. However, including a provision for depreciation would increase the initial subsidy to R5000 000

The cash flow projection is illustrated in the Chart below:

Diagram 9: PMB Airport: 10 Year Cash Flow Projection



There are a number of sensitive parameters in the model.

(1) Passenger numbers:

The average annual number of passenger at Pietermaritzburg Airport grows at an estimated rate of 4%. This is lower than the estimate used in the Airport Master Plan but, nonetheless may, in the light of forecast economic growth rates for South Africa, be on the high side. A lower growth in passenger numbers will prolong the deficit period

(2) Airport Charges:

On the other hand, airport charges for departing passengers and landing aircraft are considerably below ACSA charges. An increase in these charges has a major potential to raise annual revenue. For instance, if the current passenger departure fee was raised by R20 per passenger the potential annual increase in revenue is R1200 000. In relation to the PMB-JHB airline ticket price an increase of R20 per departing passenger is a relatively small amount.

(3) Aviation Fuel:

The issue of aviation fuel revenue is, also, a sensitive parameter. The model assumes that net revenue of R1500 000 will accrue to an Airport Entity from 2016/17, growing proportionately for the following 10 years. Currently, however, aviation fuel income accrues to the Pietermaritzburg Aero Club. If the aviation fuel income is not transferred to an entity there will be a major impact on the potential financial viability of the airport.

(4) Lease Rentals:

Current non aeronautical income, derived from office, shop and hangar leases, does not reflect market related rentals. A revision of the rental agreements, including realistic escalation clauses, will increase revenue from non- aviation sources.

(5) Staff Costs:

An Airport Entity will take responsibility for management of the airport precinct, with an appropriate staffing structure. The annual charge for an external airport manager is replaced by the cost of salaries and allowances for entity staff.

(6) Fixed Overheads:

The outcome of the analysis of airport operating expenditure is problematical. Because of the nature of airport operations, as well as legislative and regulatory requirements, related to safety and security, fixed overheads are high relative to variable costs. This means that costs do not vary proportionally with revenue or aviation activity. For instance, Air Traffic Control currently costs R200 000 per month irrespective of air traffic movements. Similarly, airport security costs R230 000 per month. These costs are high in relation to air traffic movements, passenger arrivals and departure and economic activity at the airport.

The foregoing analysis is based on a 10 year projection. At some time during this period sites should become available for development in new commercial and light industrial zones. Tentative proposals have being made for hotel and retail projects. If realised this will generate an additional rental income stream. However, because of uncertainty surrounding the implementation, timing and scale of these potential projects they have not being included in the financial model.

Any additional change in assumptions underlying the financial model will alter the magnitude of the required subsidy, but, nevertheless, it is anticipated that a municipal subsidy will still be necessary to ensure the entity remains financially viable during, at least, the initial 4-5 year development phase.

11.5 Funding Capital Expenditure

A fundamental question underlying the Pietermaritzburg Airport Project is “how will proposed capital expenditure be funded?” A small amount of Treasury funding may be available for the Techno Hub until June 2017, but other than that there is no guaranteed funding.

It is anticipated that the private sector will invest in buildings, and other structures, in the Techno Hub and General Aviation zones as well as newly designated mixed commercial and industrial areas.

Msunduzi Municipality, however, will be responsible for funding a proportion of CAPEX for basic services and infrastructure for the Airport and Techno Hub. To implement the Airport Expansion and Techno Hub projects in the next 10 years the Municipality will have to source R178 million of capital funding for the Airport and a further R196 million for the Techno Hub.

At this stage of the planning process there is no indication of where this funding will come from. The Airport Precinct is not included in the Municipal IDP or the capital budget. Other sources of funding may be available from government agencies but these avenues have not, as yet, been explored.

A valuable source of funding, which could be justified in terms of the Municipality's land disposal policy framework, would be to sell 130 000 sq. m. of industrial land adjacent to Gladys Manzi Road. This will become accessible once the Market Road extension is completed. At R400 per sq. m. this would yield R52 million.

11.6 Municipal Incentive Policy for Techno Hub

In order to attract investment to the Techno Hub Msunduzi Municipality has designed a package of incentives. This includes:

- Leases up to 50 years
- Rental holidays dependent on the scale of investment
- Rates rebates
- Rebates on electricity and water charges
- Free refuse collection for 5 years and bulk service connection

The incentives will play an important role in the marketing strategy for the Techno Hub. The long term benefits of new investment are well known. However, there is a short term cost to the Municipality in terms of revenue foregone. The consequence is likely to be an increased operational deficit for at least 5 years.

11.7 Economic Impact on Financial Subsidy

(1) Municipal Subsidy and Financial Viability

A key issue for successful development of the Airport Precinct is financial viability of the airport operation. The Airport, Techno Hub and new Business Zones within the airport boundary will require an operational subsidy for at least 5 years. With effective management, and continued growth in commercial aviation, the current subsidy could be transformed into a surplus after 5 years. If the Precinct does not develop as planned and growth does not materialise in these areas the subsidy could become a permanent drain on municipal resources.

(2) Economic Significance of Eliminating Municipal Subsidy

A major goal of the Airport Precinct Project is to eliminate a municipal financial subsidy of airport activities, which is a cost to ratepayers. If the goal is achieved the economic impact will be local, of medium intensity and long duration. In other words, operations will be financially viable and sustainable. The significance of the impact is evaluated as moderate with a medium level of confidence.

(3) Innovative and Flexible Management

A precondition for financial sustainability is innovative and flexible management. The Airport Project is complex, involving diverse activities ranging from airport operations to property

development and marketing. A management structure that is an integral part of a municipality will be hamstrung by legalities, regulations and local government procedures. It will be unable to respond effectively to the market.

(4) Sourcing Capital Funding

The economic impact of the project will be diluted if capital funding, or grants, for infrastructure investment is not available. The Municipality may need to look beyond government or government agencies for funding. In addition, the capacity of the Municipality to attract private sector funding of projects in the Precinct and Techno Hub is crucial to entire initiative.

12. Matrix Summary of Significance of Economic Impacts

The Table, below, summarises the analysis of a number of possible economic impacts, consequent to the implementation of the Proposed Pietermaritzburg Airport Expansion Project. The details were examined in previous sections.

Table 23: Significance of Pietermaritzburg Airport Precinct Plan Interventions

	Extent	Intensity	Duration	Magnitude	Probability	Significance	Status	Confidence
(1)	**Market Road Extension**							
(a)	Connectivity, Access to Airport, Travel costs							
	Regional	Medium	Long Term	Medium	Likely	Moderate	+ve	Medium
	Regional	*Medium*	*Long Term*	*Medium*	*Likely*	*Moderate*	*+ve*	*High*
(b)	Construction Phase: Direct and Indirect Effects on Employment and Income							
	Local	High	Short Term	Medium	Likely	Moderate	+ve	Medium
	Local	*High*	*Short Term*	*Medium*	*Likely*	*Moderate*	*+ve*	*High*
(2)	**Airport Expansion**							
(a)	Stimulate Aeronautical Activity: Commercial and General Aviation							
	Regional	Medium	Long Term	Medium	Likely	Moderate	+ve	High
	Regional	*Medium*	*Long Term*	*Medium*	*Likely*	*Moderate*	*+ve*	*High*
(b)	Construction Phase: Direct and Indirect Effects on Employment and Income							
	Regional	Medium	Medium	Medium	Likely	Moderate	+ve	Medium
	Regional	*Medium*	*Medium*	*Medium*	*Likely*	*Moderate*	*+ve*	*High*
(c)	Stimulate Private Investment in General Aviation Zone							
	Local	High	Short Term	High	Definite	Major	+ve	High
	Local	*High*	*Short Term*	*High*	*Definite*	*Major*	*+ve*	*High*
(d)	Stimulate Private Investment and Economic Activity in new Business Zones							
	Regional	Low	Long Term	Low	Likely	Minor	+ve	Medium
	Regional	*Low*	*Long Term*	*Low*	*Likely*	*Minor*	*+ve*	*High*
(3)	**Development of Techno Hub**							
(a)	Construction Phase: Direct and Indirect Effects on Employment and Income							
	Regional	Low	Long Term	Medium	Likely	Moderate	+ve	Medium
	Regional	*Low*	*Long Term*	*Medium*	*Likely*	*Moderate*	*+ve*	*High*
(b)	Investment in Techno Hub and Stimulation of Economy							
	Regional	Low	Long Term	Medium	Likely	Moderate	+ve	Low
	Regional	*Low*	*Long Term*	*Medium*	*Likely*	*Moderate*	*+ve*	*High*
(4)	**Impact on Municipality**							
(a)	Elimination of the Municipal Subsidy of Airport							
	Local	Medium	Long Term	Medium	Likely	Moderate	+ve	Medium
	Local	*Medium*	*Long Term*	*Medium*	*Definite*	*Major*	*+ve*	*High*

The predominant assessment of the various aspects of the proposed Pietermaritzburg Airport Precinct Project is that the impact will be of moderate significance, with a medium level of confidence in the expectation. The evaluation may disappoint the sponsors of the project but a rating of "major significance and high confidence" requires much more information about implementable projects and certainty about the time frame for implementation. The high level of

information on which the impact evaluation is based, creates uncertainty about the probability of the projects' goals being met, and only a moderate degree of confidence in the forecasts.

12.1 Mitigation and Enhancement Measures

The reason why the evaluation of the Project, in terms of its economic impact on the region, is given as of moderate significance with a medium level of confidence in the forecast, is that because planning is at an initial stage, a number of key issues and proposals have not been decided. The following measures relate to actions and decisions necessary from Msunduzi Municipality to enhance the impact of the Project or mitigate some of the adverse factors.

- Approve a proposal to establish a separate Management Entity to take ownership and control of the Airport Precinct, including the Techno Hub.
- Finalise a land disposal policy with regard to leasing or selling land within the Airport Precinct.
- Approve an incentive package for potential investors in the Techno Hub and Airport Precinct.
- Establish responsibility and provide funding for a campaign to market and create awareness of investment opportunities in the Airport Precinct and Techno Hub.
- Remove some of the uncertainty surrounding the capital funding of the Project by including it in the IDP and Capital Budget as well as actively seeking alternative sources of funding.
- Planning should, as soon as possible, move on from high level planning to the identification of specific projects suitable for the designated new development zones.
- Accelerate planning approval and funding for the Market Road Extension
- Finalise planning for an extended General Aviation zone creating opportunities for private investors requiring additional hangar space.
- Promote aeronautical and aviation related activity at the Airport in order to raise revenue and reduce, or eventually eliminate, the Municipal financial subsidy of the airport.

13. Conclusion

The scope of work for this report posed two questions

(*1) How will the proposed expansion benefit the economy at a local and regional scale? The question is expressed in terms of job creation and economic growth in the economy*.

Planning provides an essential blueprint for future development. The transformation from a blueprint to projects on the ground is a crucial step. The Pietermaritzburg Airport Sub-precinct project has great potential to stimulate economic growth and create jobs in the uMgungundlovu region but there is much that can go amiss with this project.

The initial impact from Phase 1 of the Airport Expansion Project will be derived from a new road system, connecting the Airport to the N3 highway, investment in airside and landside infrastructure, including a new General Aviation zone, at the Airport and basic infrastructure, and bulk services, for the Techno Hub.

Over a period of 10 years it is estimated that this will increase regional gross domestic product by R763 million, income from remuneration by R426 million and create 5092 jobs. These benefits will be spread over 10 years but not continuously. In other words, implementation is likely to be 'lumpy". The total impact for the 10 year period would be a growth rate of approximately 1.5 percent.

The major economic impact should arise from investment in buildings and facilities in the Techno and new development zones at the Airport. For the Techno Hub a Concept Plan implies CAPEX of R1.35 billion. At this stage there very little information as to where these business and institutional investors will come or the nature, scale or timing of projects. Thus, it is impossible to make any reliable prediction or estimate of the impact on GDP or employment in the next 10 years.

In the long term sustainable economic growth derives from the operation phase when investment projects become viable. The vision is of a fully operational Techno Hub and a range of economic activities in the Business zones. It is doubtful that much of this vision will be achieved in Phase 1 of the Airport Expansion Project and, therefore, no attempt is made to quantify these benefits,

Capital funding may be the Achilles heel of the Airport project. Not only are hundreds of R millions needed for public investment but even greater amounts from private funding for the Techno Hub and Airport projects. None of the Airport or Techno Hub studies and plans give much attention to this issue.

Successful implementation of this complex project requires a management structure able drive the process forward. Once basic infrastructure and services are installed a major marketing initiative will be required to attract private sector investment. Failure to involve private business raises the spectra of a white elephant.

Thus, in the light of the above qualification, it may be concluded that benefits to the local and regional economy, in terms of job creation and economic growth, could be significant but will be derived from a range of diverse investments and take time to materialize. There are major possible

impediments to successful implementation of the project stemming from failure to raise capital funding, a lack of effective co-ordination and management and ineffective marketing of investment opportunities to the public and private sectors.

(*2) Pietermaritzburg Airport is owned by the Municipality and is currently subsidized by ratepayers. How will the proposed expansion affect the operational sustainability of the Airport?*

Msunduzi Municipal accounts for financial year 2014/15 show an Airport deficit of R5 million. This is subsidized from rates and general revenue. The Airport accounts are an integral part of the municipal accounting system and include an arbitrary allowance for depreciation and other extraneous items.

A true picture of the Airport financial situation will not be obtained until income and expenditure are “ring fenced” and accounted for using sound business principles. This will occur if a municipal entity, or some other form of independent management, is established.

A financial model, projecting future trends in income and expenditure, predicts that the upward trend in aeronautical revenue will eliminate an operational deficit, and the need for a subsidy, within 5 years. This prediction is based on continuous growth in commercial aviation passenger numbers, as estimated for Phase 1 of the Airport Master Plan.

There is a qualification to this conclusion. Additional operational expenses will be incurred as the Airport Project progresses. Management of the operational budget will be challenged by the incorporation of new Business zones and the Techno Hub. This may prolong the need for a subsidy. The Techno Hub economic incentives to investors will be beneficial in the long run but in the short run intensify the necessity for a subsidy. Over a period of ten years, however, as new income streams from leases materialize the need for a subsidy should steadily diminish.

14. References

Delta Built Environment Consultants (August 2014).Pietermaritzburg Airport Master Plan, Revision 03.

Urban Econ et al (March 2013). Msunduzi Technology Hub, Value Proposition.

Royal Haskoning et al (August 2015). Inception Report, Airport Precinct and Management Plan for Pietermaritzburg Airport and Surrounds.

Royal Haskoning (January 2016). Integrated Strategic Statement, Airport Precinct and Management Plan for Pietermaritzburg Airport and Surrounds.

Institute of Natural Resources (August 2016). Environmental Scoping Report for Proposed Expansion of Pietermaritzburg Airport.

Ambro-Afrique (October 2015) Architectural Concept Plan, Msunduzi Technology Hub.

Coetzee, C and Oldham, G (2007). University of KwaZulu-Natal. Economic Impact Study of the Pietermaritzburg Airport.

Oldham, G. (March 2014). Report for Msunduzi Municipality, Establishment of an Airport Municipal Entity.

Oldham, G. (June 2016). Financial Model, Pietermaritzburg Airport Municipal Entity 2015/16-2024/25.

Markewicz Redman Partnership (September 2016). Airport Precinct Plan, Airport Precinct and Management Plan for Pietermaritzburg Airport and Surrounds.

Mills Fitchet. (October 2016).Valuation Report on Pietermaritzburg EIA,

IMA Trader. (September 2016). Pietermaritzburg Noise Monitoring Results.

15. Appendices

Appendix A: Declaration of Interest: GW Oldham

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

Application for authorisation in terms of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment (EIA) Regulations, 2014

Project Title:	Proposed expansion of the Pietermaritzburg Airport
Specialist:	Economics
Contact person:	George Oldham
Postal address:	PO Box 483 Hilton
Postal code:	3245
Telephone:	0823799084
E-mail:	oldhamg@telkomsa.net
Professional affiliation(s)	No South African Professional Body for Economists
Project Consultant:	Institute of Natural Resources NPC
Contact person:	David Cox
Postal address:	P O Box 100396, Scottsville, Pietermaritzburg
Postal code:	3209
Telephone:	033 346 0796
E-mail:	dcox@inr.org.za

The specialist appointed in terms of the Regulations_

I, George Oldham, declare that -

General declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;

- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the specialist

Appendix B: CV George Oldham

CURRICULUM VITAE

2016

Role in Project: Economist

1. **Surname:** Oldham
2. **First names:** George William
3. **Date and place of birth:** 25 August 1938
4. **Nationality:** South African
5. **Education:**

Institution:	Degree(s) or Diploma(s) obtained:
Universityof Natal, Pietermaritzburg	B. Com. (Hons) (cum laude)
University of Stirling, Scotland	M. Sc. (Economics)

6. **Language skills:** (Mark 1 to 5 for competence, where 5 is the highest)

Language	Reading	Speaking	Writing
English	5	5	5
Afrikaans	3	2	3

7. **Membership of professional bodies:**

No professional body for economists. South African Economic Society publishes reviewed articles.

8. **Other skills:**

Proficient in Computer skills – Word, PDF, Excel and Power Point.

9. **Present position:**

Consultant: Economics/Finance/Local Government

10. **Years of professional experience:**

30 years

11. **Key qualifications:**

Project evaluation and appraisal, Local economic development, Strategic planning, Financial modelling

12. **Summary of Specific experience**

Institution	Date	Project
UKZN/Institute Natural Resources	2007	Dube Trade Port Economic Impact Assessment
KZN Provincial Government	2010 and 2012	Assessment of Msunduzi Municipal Enterprises including Pietermaritzburg Airport DBSA KZN Regional Airports Jobs Fund Application
KZN Provincial Government/ GWI Project Managers	2013-2014	Member of KZN Treasury Crack Team to develop Strategy for KZN Regional Airports
Msunduzi Municipality	2014	Process to Establish Municipal

		Entities to manage Airport and Market
KZN Provincial Government/ GWI Project Managers	2015	Member of team establishing KZN Techno Hubs

13. Professional experience:

Date:	Location	Company	Position	Job Description
1970-1978	PMB	UKZN	Lecturer	Teaching and research in a variety of under and post graduate fields. Specialised in Planning and Project Appraisal for Developing Countries.
1978- 2003	PMB	UKZN	Senior Lecturer	Teaching and supervising post graduate research in International Finance and Monetary Theory and Policy.
2003-2009	PMB	UKZN	Contract Appointment	Prepared two reports in collaboration with C Coetzee (1) Dube Trade Port Project: Economic Impact Assessment; Institute on Natural Resources, February 2007. (2) Cost Benefit Analysis and Economic Impact Assessment of Pietermaritzburg Airport Msunduzi Municipality
2010 and 2013	PMB	KZN Provincial Government Treasury	Consultant	(1) Prepared feasibility and economic assessment study of Msunduzi airport, produce market and forestry. (2) Prepared application to DBSA Jobs Fund for KZN regional municipal airports project. (3) Prepared and administered the expression of interest in business opportunities arising from the KZN municipal airports project
2013/2014	PMB	Msunduzi Innovation and Development Institute (MIDI)	Consultant	Prepared four studies in collaboration with R Fincham, S Govender and D Christian (1) Socio-Economic Impact of the KwaZulu-Natal Winter Air Tour at Six Regional Airports.May-June 2012 (2) Margate Airport Traffic Study: an Evaluation of the Potential Market for a Scheduled Air Service by SA Airlink between Margate and Johannesburg (3) Socio-Economic Impact of the KwaZulu-Natal Winter Air Tour at Seven Regional Airports.June-July 2013 (4) Socio-Economic Impact of the Durban Land Sea and Air Festival. March 2014
2013/14	PMB	KZN Provincial Government Treasury/ GWI Project Managers	Consultant Member of Crack Team Economist/ Financial Expert	(1) Review of Richards Bay Airport Concession Contract. Umhlathuze Municipality (2) Proposed KZN Regional Aviation Strategy: Establishment of KZN Aviation Agency. Report presented to KZN Government Economic Clustrer, March 2014. (3) Proposal to Implement KZN Aviation Strategy as part of the Provincial Growth and Devlopment Plan. (4) Preparation of GBS application to National Treasury for Establishment KZNAA (5) Proposal on Airports and Aviation Landing Facilities; Discussion Paper on Rural Infrastructure, KZN Rural Development Summit, July 2013. (6) Review of Pietermarizburg Airport Master Plan, Msunduzi Municipality (7) Msunduzi Municipality: Case Study and Analysis of the Feasibility of Establishing a Municipal Entity to take Ownership and Managment of (i) Pietermaritzbutg Airport (ii) Pietermaritzburg Fresh Produce Market.

2015	PMB	KZN Treasury /GWI	Member of Team for Techno Hubs	(8) Setting up the Process to Establish an Airport Municipal Entity in terms of the MSA and the MFMA (9) Financial Model: Pietermaritzburg Airport Precinct (2014-2039) (1) Proposals for Establishing Management Structures for KZN Techno Hubs (2) Formulation of Policy Proposals: Rates Rebates, Rental Holidays, Electicity, Water and other Tariff rebates.

14. Consultant Reports

List reports in respect of **Aviation and Regional Airports**

Coetzee C. de Beer E. Oldham G et al; Dube Trade Port Project: Economic Impact Assessment; Report prepared for the Institute on Natural Resources, 214pp, February 2007.

Coetzee C and Oldham G. Cost Benefit analysis and Economic Impact Assessment of Pietermaritzburg Airport Msunduzi Municipality (2007)

Coetzee C, Oldham G and Ingle K; Msunduzi Public Enterprises Feasibility and Economic Assessment Study (i) Airport (ii) Fresh Produce Market (iii) Forestry. Reports prepared at the request of the Msunduzi Municipality by a team from the KZN Treasury, Intergovernmental Relations Unit, June to September 2010.

Govender S, Oldham G and Fincham R; Socio-Economic Impact of the KwaZulu-Natal Winter Air Tour at Six Regional Airports. Report prepared by Msunduzi Innovation and Development Institute for the KZN Provincial Treasury, September 2012.

Govender S and Oldham G; Margate Airport Traffic Study: an Evaluation of the Potential Market for a Scheduled Air Service by SA Airlink between Margate and Johannesburg. Report prepared by Msunduzi Innovation and Development Institute for SA Airlink. November 2012.

Oldham G; Preparation of Businesss Plan for GBS Application to National Treasury for Establishment Kwazulu/Natal Aviation Agency. KZN Treasury Crack Team, June 2013.

Oldham G, Pietermaritzburg Airport,Review Of The Master Plan,Final Report, Revision1, March 2012, Prepared for Msunduzi Municipality, by the KZN Treasury Crack Team, Novembber 2013

Oldham G, Govender S and Fincham R; Socio-Economic Impact of the KwaZulu-Natal Winter Air Tour at Seven Regional Airports. Report prepared by Msunduzi Innovation and Development Institute for the KZN Provincial Treasury, November 2013.

Oldham G; Proposed KZN Regional Aviation Strategy: Establisment of a KZN Aviation Agency.
Report prepared by KZN Treasury Crack Team, presented to KZN Provincial Government Economic Cluster, February 2014.

Oldham G, Case Study and Analysis of the Feasibility of Establishing a Municipal Entity to take Ownership and Managment of (i) Pietermaritzburg Airport (ii) Pietermaritzburg Fresh Produce Market. Report prepared for Msunduzi Municipality, March 2014.

Oldham G, Process for the Establishment of an Airport Municipal Entity, Report prepared for Msunduzi Municipality, May 2014.

Oldham G, Pietermaritzburg Airport Municipal Entity Financial Model (2015-2039), November 2014

Oldham George, Proposal to Develop and Implement a Regional Airport Strategy Establisment of the KZN Aviation Co-Ordinating Body, Report Prepared for the for the Planning Commission as part of the Provincial Growth and Development Plan (PGDP), Prepared by the KZN Treasury CrackTeam(Aviation),August 2014.

Oldham G, Presentation to Local Labour Workshop for Msunduzi Municipality Economic Development Services, Municipal Entities: What are they? What do they do? How do you create them? Who are they responsible to? October 2014.

George Oldham
23 October 2016