

THE IMPLEMENTATION OF THE WONDERBOOM AIRPORT DEVELOPMENT PLAN – A CATALYST FOR ECONOMIC EMPOWERMENT

G J JORDAAN and H KLEYNHANS*

Tshepega Engineering (Pty) Ltd, P O Box 33783, Glenstantia, 0010

Tel: 082 416 4945; Email: jordaangi@tshepega.co.za; and

Professor Extraordinaire, University of Pretoria

*Airport Manager's Office, Wonderboom Airport, Lindtveld Road,

City of Tshwane, 0002

Tel: 012 567 1110; Email: hendrikk@tshwane.gov.za

ABSTRACT

The Wonderboom Airport Development Plan (WADP) was approved in 2004 by the City of Tshwane. By 2009, detailed designs have been prepared ready for implementation for the bulk of the required infrastructure to enable the airport to function as an International Airport serving the whole of the Southern African Development Community (SADC) region. This included, inter alia, the lengthening of the main runway to accommodate medium sized passenger aircraft. The implementation of the WADP plan could lead to direct private sector investment at the airport in excess of R4 billion (2012 Rand) and the creation of more than 16 000 permanent jobs resulting in annual Gross Domestic Product (GDP) increase of more than R 6 billion (2012 Rand) to the City of Tshwane. The WADP together with the adjacent "Rainbow Junction" (a ± 650 000 m² mixed use economic development node) are situated in an identified "zone of choice" and could significantly impact on the high unemployment figures in the North of Tshwane. The area in and around the Wonderboom Airport have the potential to develop into a modern "Airport City" – a concept gaining in popularity all over the world as a major stimulus to attract investment and lead to major points of growth. It is in close proximity to good access roads and the City of Tshwane has in recent years invested heavily in the development of infrastructure leading to the airport. The Wonderboom Airport also lies in close proximity to Rosslyn and Waltloo where about 40 per cent of the automotive industry in South Africa is situated. This industry could also hugely benefit from the close proximity of an airport with the capabilities to accommodate freight aircraft. With most of the designs and approvals ready for implementation, this development can start immediately and the bulk thereof can be completed within two to three years to form part of a major new growth node in the Capital City.

1. INTRODUCTION

The Wonderboom Airport Development Plan (WADP) was approved in 2004 by the City of Tshwane (CoT). Consultants were appointed in 2007 to immediately proceed with the detailed design for the implementation of the bulk of the required infrastructure to enable the airport to function as an International Airport serving the whole of the South African Development Community (SADC) region. This included, inter alia, the lengthening of the runway to accommodate medium size aircraft, new aprons, holding bays, taxiways and detailed storm-water and related infrastructure for the development of approximately 45 ha within the borders of the airport for airport related industries and an airpark to be opened to private investors. These designs were done in close liaison with officials from the City of Tshwane and the South African Civil Aviation Authority (SACAA), ensuring strict adherence to the standards of the International Civil Aviation Organization (ICAO). With the full implementation of the 2004 WADP the airport will have a capacity of about 3.6 million passengers per year.

The implementation of the 2004 WADP could lead to direct private sector investment at the airport in excess of R4 billion (2012 Rand) and the creation of more than 16 000 permanent jobs resulting in annual Gross Domestic Product (GDP) increase of more than R 6 billion (2012 Rand) to the CoT. These figures were confirmed in an independent socio-economic study done in 2012 as part of the application and reinstatement of International Status to the airport. The SACAA approved the WADP layout and designs for the development of the bulk infrastructure required on the about 45 ha within the boundaries of the airport in 2011.

The implementation of the WADP, and the adjacent approved “Rainbow Junction” (a $\pm 650\,000\text{ m}^2$ mixed use economic development node) are situated in an identified “zone of choice” and could potentially have a huge impact on the high unemployment figures (> 30 per cent) in the North of Tshwane, reducing the figures by an estimated third. Rainbow Junction and surrounding areas are estimated to have a potential of attracting between R 8 – 10 billion in private investment, creating more than 80 000 permanent jobs. This whole area in and around the Wonderboom Airport (WA) have the potential to develop into a modern “Airport City” – a concept gaining in popularity all over the world as a major stimulus to attract investment and lead to major points of growth.

Wonderboom also lies in close proximity to Rosslyn and Waltloo where about 40 per cent of the automotive industry in South Africa is situated. The use of WA for freight will substantially reduce transportation costs and improve the competitive edge of this industry. It is in close proximity to good access roads (such as the N4 and N1) and the CoT has in recent years invested heavily in improving accesses leading to the airport. With most of the designs and approvals ready for implementation, this development can start immediately and the bulk thereof can be completed within two to three years to form a major growth-node within the Capital City.

The implementation of the WADP is in line with the 25 year Gauteng Integrated Transport Plan (Gauteng Province Department of Roads and Transport, 2012) and fully supports the outcomes of the 2055 Tshwane Vision (City of Tshwane, 2012). The main emphasis of this paper is not to concentrate on the airport infrastructure

itself (although inseparable), but to show the additional potential economic benefits that could result from the implementation of the WADP. These additional benefits by far outweigh the role of the airport as a transport hub only. The development of the transport hub will serve as stimulus to create and enhance opportunities to support a much needed growth node in the North of the Capital City, creating development and employment opportunities to a large portion of the population in the North of the Province of Gauteng.

2. THE ROLE OF AIRPORTS

The expert planning and provision and preservation of a transport infrastructure network is crucial to create a competitive environment sustaining economic growth and hence, prosperity in a city, country or region. It follows that the prioritisation of transportation infrastructure is an essential part of long-term economic development for any city. Transportation Infrastructure provides ability for and hence, forms the foundation that enables growth to be achieved.

Airports, as part of transportation infrastructure, were in the past mainly perceived as gateways for the transportation of goods and people from one region or country to another. This historic perception is now giving way to a much broader concept of the airport as a business destination in its own right and as an economic engine for its region and local communities, enabling growth in itself. The model recognises that apart from performing its traditional aeronautical services, airports can evolve a range of new non-aeronautical functions and revenue drivers, from developing their real estate into commercial assets, transforming their terminals into fully functioning shopping malls (as seen at airports all over the world, including the major gateways into South Africa) and expanding their logistics and distribution chains. Office blocks, hotels, convention centres, medical facilities, casinos, free trade zones and even entertainment and theme parks, etc. can be built within or just beyond the airport fence to generate new sources of revenue for the airport operator and encourage the perception of the airport as a business or tourism destination in its own right (<http://www.globalairportcities.com>).

The spatial and functional core of the airport city is the passenger terminal, which has been likened to an urban central square. It operates as a multimodal commercial nexus offering a variety of specialised goods and services. A number of airports have pioneered the airport city concept including Frankfurt Airport, which is developing 2,100 hectares of office space at the Gateway Gardens and the Mönchhof Logistics Park; Incheon International Airport's International Business Centre (IBC I), Amsterdam Airport Schiphol's Airport City and 'Amsterdam Connecting Trade' (ACT) logistics hub. Similar examples exist in South Africa, including:

- The development of an aerotropolis or Airport city at the O. R. Tambo International Airport (ORTIA) developed in Ekurhuleni, East of Johannesburg;
- The Dube Trade Port Corporation and India-based Action Group development of a multi-million Rand 'Mega Industrial Integrated Township' next to Durban's King Shaka International Airport, and

- The announcement in 2013 of the Cape Town International Airport of its intention to become an aerotropolis as part of its ten-year strategic plan at its stakeholder planning session.

It follows that basically all global cities are investing in and around their airports to:

- Improve their position to benefit from any new world-wide growth;
- Benefit from the aviation revolution – moving goods and people faster and smarter, and
- Share in the proven multiplier effect created by economic points of growth in close proximity and access to regional and international markets, cutting transportation costs and ensuring a competitive place in an ever shrinking global inter-trade regime.

In short:

“Airports are undergoing a metamorphosis as they increasingly take on the functions of the metropolitan Central Business District (CBD) and are now being recognised as corporate entities in their own right”(airportcities@ubm.com).

The Province of Gauteng is generating more than 30 per cent of the Gross Domestic Product (GDP) of South Africa and forms the engine of the country. The different role of airports in the province are clearly visualised in the 25 year Gauteng Integrated Transport Plan (Gauteng Province Department of Roads and Transport, 2012), with ORTIA fulfilling the role of a major international hub. In addition, Lanseria and Wonderboom can be developed into major regional international city airports with an identified clear vision of growth stimulation within the province. There is little doubt, that the role of the airport city can and should be extended to these centres to further provide the stimulus for accelerated growth desperately needed in the country. With a current population of close to 3 million and an unemployment rate in excess of 30 per cent in the northern regions of the city, such a stimulus is urgently needed.

3. LOCATION, BACK-GROUND AND SCOPE

WA was established in 1936, 12 km to the North of the Pretoria Central Business Centre (CBD) on an area covering approximately 325 ha, just to the North of the Magaliesberg mountain range as shown in Figure 1. In 1939 the South African Airforce took control of the airport, which was used for the training of pilots during the Second World War. In 1945 the WA was returned to civilian control. The City of Tshwane Metropolitan Municipality is presently the asset and airport license holder of the WA.

The WA was initially established in the 1930s with a grass runway parallel to the existing terminal buildings. During the last 80 years the airport was upgraded at several times with the original runway being surfaced and converted into a taxiway in 1965 with the construction of two new runways. The main runway (RW11/29) was

lengthened to the current length of 1829 m (6000 ft.) in 1993. Wonderboom Airport currently has 2 runways, i.e. the main runway (RW11/29) which is 30 m wide and a secondary runway (RW 06/24) which is 1280 m long and 22 m wide.

The airport is well serviced by current support transportation infrastructure and is located in close proximity to National Roads, i.e. the N1 and the N4 as shown in Figure 2. As shown in Figure 2, two interchanges links the WA with the N4, the K99 (Dr Swanepoel Road) to the East and the newly constructed link, the K95, to the West. The Lintvelt road was also recently (2014) upgraded by the CoT to provide better access to the Airport.



Figure 1 Location of Wonderboom Airport, 12 km to the North of the Tshwane CBD, with relation to various landmarks within the Municipal borders.



Figure 2 Wonderboom Airport in relation to Major Transport Infrastructure in close proximity to both the N1 and N4 National Routes

The Airport is about 12 km and 13 km respectively from the Gautrain stations within the CBD and Hatfield and is on the Rapid Bus Service lines of both these stations. The closest Metro-rail station is 6.6 km from the airport at Wonderboom, also linked to the airport via a bus service. The K99 (Dr Swanepoel Road) has been earmarked by the CoT to become a major South-North corridor, cutting through the Magaliesberg mountain range, to provide a direct link to Hatfield (a possible future link with the existing Gautrain line).

Unlike many other airports in Gauteng, WA has its own airspace, not interfering with flight patterns of either ORTIA or Lanseria. The airport used to have International Status. In 1997 the South African Cabinet took a decision to reduce the number of entry points into South Africa in an effort to combat crime and illegal activities. Consequently, the number of International Airports was reduced from 40 to 10. Each province was allocated one International airport with Gauteng awarded two, i.e. ORTIA and Lanseria. This decision was taken not considering the potential market and contribution of regions to the GDP of the country and consequently Wonderboom lost its International Status in 1999. The CoT is currently the only Capital City in the world without an International airport.

The withdrawal of International Status of the airport was one of the factors contributing to the cancellation of the concession agreement with the Pretoria International Airports Company (Pty) Ltd (PIAC), who managed the WA from 2000 to 2003. In 2003 the CoT implemented plans to safeguard the asset for the municipality and in a resolution taken by the Council on 26 June 2003 its commitment to the redevelopment of the airport and to regain International Status was, inter alia, reiterated. This resolution led to several viability studies and the approval of the "Wonderboom Airport Development Plan" in 2004 (2004 WADP).

The approval of the 2004 WADP resulted in the following actions approved by the council of several appointments aimed at the implementation of the plan, the investigation of the best business plan for the airport and the regaining of international status, including:

- Scoping report: Lengthening of the Runway, Erection of an Air Traffic Control Tower and the Development of Taxiways, Hangers and Associated Facilities (City of Tshwane (a), 2007);
- Appointment of a consulting engineering company for the project management, detailed design, tender documentation and construction supervision of (City of Tshwane. (b) 2007,(c) 2012, (d) 2012):
 - New holding bays;
 - Upgrading of the storm-water management;
 - Upgrading of the sewerage network;
 - New aircraft parking aprons, and
 - Extension of the main runway and new taxiways.
- Appointment of a consultant to investigate the various options with regard to the future of the WA (City of Tshwane, (e) 2009),

- Appointment of a consultant to prepare a motivation for the re-instatement of international status to the WA (City of Tshwane, (f) 2012),
- Appointment of an Transactional advisor for the privatisation of the WA (City of Tshwane, (g) 2013).

To date, due to a lack of available funds within the City of Tshwane, most of the envisaged and construction ready plans still await implementation.

4. 2004 WADP

In the preparation of the development plan it was agreed that the Airport should be designed to serve at least the whole of the SADC region through the use of medium size passenger aircraft (e.g. Boeing 737-800 and Airbus A320). It was decided that the airports will also continue to accommodate general aviation and Aircraft Maintenance Organisations (AMO's). In line with the envisaged role of the airport, the maximum aircraft size to be accommodated on the airports was limited to be ICAO Code C aircraft, with wingspans up to 36 m (ICAO, 1987 to 1999). This decision is in line with the envisaged role of the airport as seen in the Gauteng Integrated Transport Master Plan (Gauteng Province Department of Transport, 2012).

The prepared designs and tender documents were completed in close cooperation with the CoT – Wonderboom Airport management, the SACAA, the current layout of which is shown in Figure 3 (City of Tshwane, (b) 2007). The main elements of this plan as highlighted in colour in Figure 3 are:

- Widening of the main runway to 45 m and lengthening it to 2750 m (yellow with the existing runway shown in red);
- Construction of a new taxiway parallel to the main runway in line with International Civil Aviation Organisation (ICAO) regulations (shown in green parallel to the main runway);
- Construction of rapid-exit taxiways (shown in green at an angle to the main runway);
- Construction of holding-bays (partially funded in 2009) for smaller aircraft (shown in orange);
- Construction of new parking aprons (partially funded in 2009) (shown in dark yellow (2009 construction) and peach);
- Preparation of supporting infrastructure for the development of approximately 45 ha within the current borders of the airport for airport associated private development (shown in pink), and

- Development of an airpark for private development in the East-South corner of the airport.

Since approval of the 2004 WADP, the CoT has invested in excess of R 280 million on the airport and more than R 100 million on the improvement of the transport infrastructure surrounding the airport. Currently, a limited number of passengers are being served by WA (mainly the two return flights by Airlink to Cape Town). The potential passenger volume of a developed WA according to the 2004 WADP is in excess of 3.4 million passengers/annum. (It is estimated that about 30 per cent of the more than 19 million passengers/annum currently using ORTIA, originates within a radius of 30 km from Wonderboom and can be considered as potential clients.)

5. POTENTIAL DEVELOPMENTAL IMPACT

Wonderboom Airport (WA) is in the North of the CoT, close to previously disadvantaged areas within a “zone of choice” as shown in Figure 1. The implementation of the 2004 WADP could lead to at least 16 000 permanent employment opportunities on the airport itself, attracting private investment in the order of R 4 billion (2012 Rand) (City of Tshwane, (f) 2012). If implementation started in 2012, the addition to the GDP of the CoT was estimated to would have been between R 5 and 6 billion by 2015 (City of Tshwane, (f) 2012).



TSHEPEGA - DESIGN AND CONSULTING ENGINEERS FOR CITY OF TSHWANE AND WONDERBOOM AIRPORT

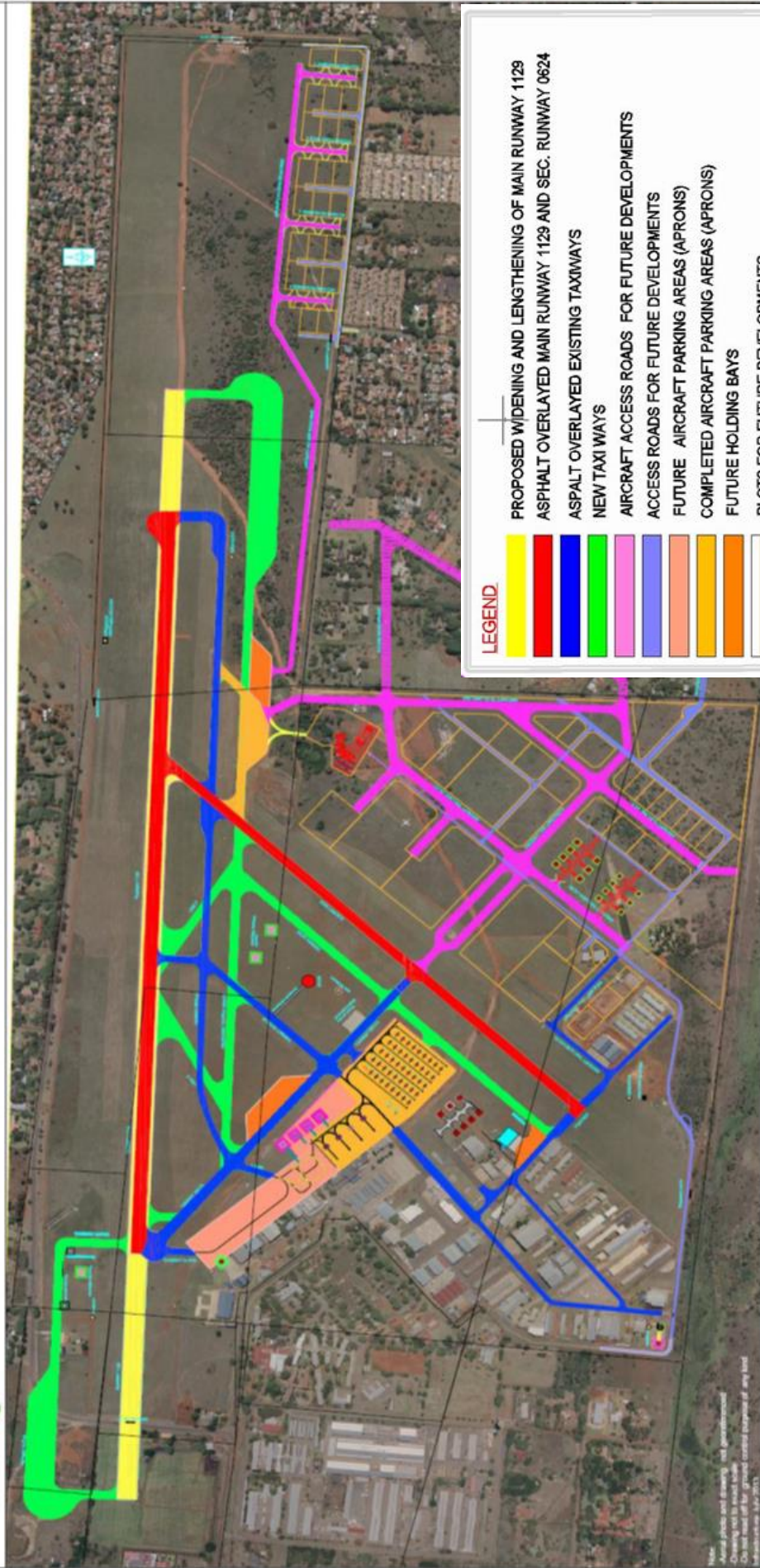


Figure 3
2004 Wonderboom Airport Development plan (Approved by the SACAA)

WA is in an area with large vacant spaces ideally suited for the development of a modern Airport City as defined in Section 2. The potential development zones around the airport are shown in Figure 4. It is seen that the recently approved “Rainbow Junction” (dark blue) lies South-West of the airport. This development alone is expected to attract in excess of R 6 billion in private investments, creating up to 80 000 permanent job opportunities in the very near future.

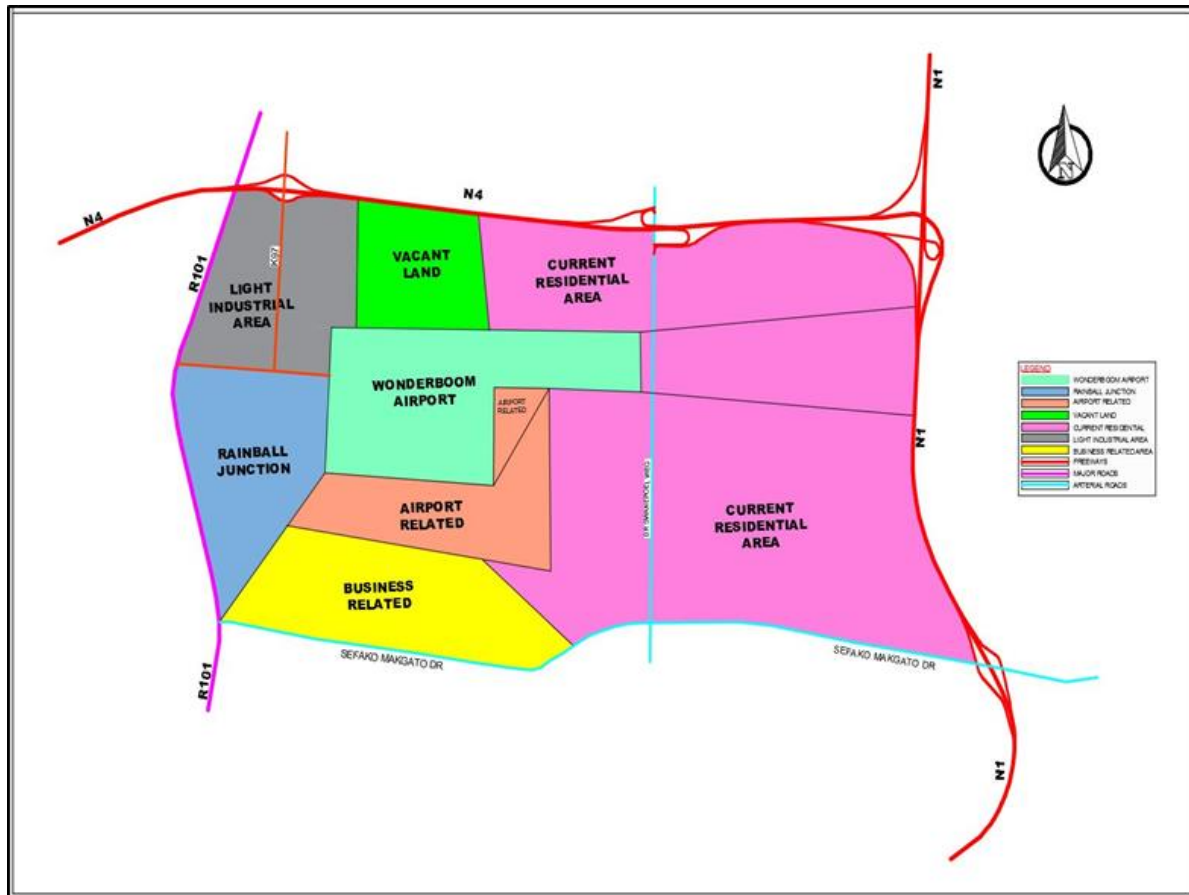


Figure 4 Development zones surrounding Wonderboom Airport indicating the potential for the establishment of a modern “Airport City”

The previously disadvantaged areas to the North within the CoT as shown in Figure 5, currently has an unemployment figure exceeding 30 per cent, with an estimated 300 000 individuals seeking employment (City of Tshwane, (f) 2012). The implementation of the 2004 WADP as part of a modern Airport City could have a marked influence on unemployment figures in the Capital City. Most of the bulk of the required infrastructure (e.g. access routes) for the implementation of the development plan is already in place.

WA is also in close proximity of Rosslyn and Waltloo where 40 per cent of the automotive manufacturing in South Africa is currently taking place. With huge investments (expansion capabilities) in this industry announced in 2015 (estimated R 6 billion earmarked for Rosslyn), the attractiveness of further investments could dramatically increase with the close location of an International Airport situated at Wonderboom. The implementation of the 2004 WADP could substantially reduce air-transportation costs and increase the competitiveness of all industries in close

approximation of the airport (of great importance also with the approval in 2015 of the “Rainbow junction” development).

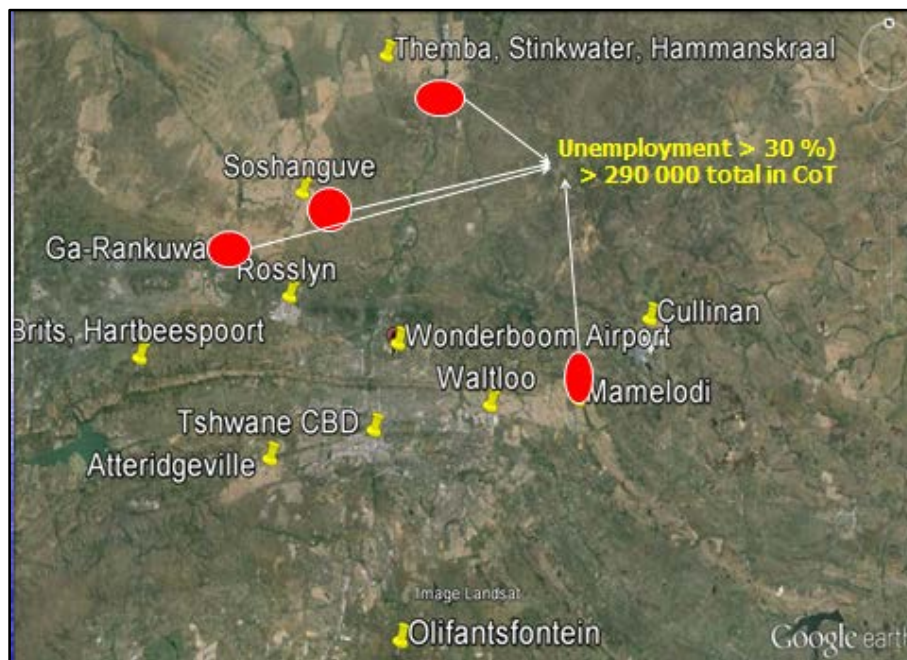


Figure 5 Previously disadvantaged areas with relation to the location of Wonderboom Airport

The application for the reinstatement of International Status to WA is supported by the Gauteng Province (announced by the MEC for Roads and Transport in 2014) and the South African Department of Transport. This application now awaits approval by the South African Cabinet. The contribution of Gauteng to the National GDP is well known and supports the viability of a third International City Airport fulfilling a regional role (City of Tshwane, (f) 2012).

Tshwane is currently home to 114 embassies, second only to Washington DC in the world in terms of international representation. It is also home to several tertiary institutions, internationally recognised research institutions, first world health facilities, etc. All of these existing institutions will receive improved access to individuals from of the rest of Africa with an international Airport in close approximation. An increase in passenger flow will automatically result in an increase in opportunities for business in the locality of entry and a further enhancement of the “Airport City” concept.

6. STATUS-QUO

The potential impact and stimulus that the implementation of the 2004 WADP and associated development of a modern “Airport City” could have on the economy in the North of the CoT is clear from the various studies as discussed. However, the City currently lacks the funds needed for the full implementation of the development plan. In support of the CoT, a request for IIPSA funding through a grant from the European Union (EU) (€100 million) was submitted in 2014 to the DBSA who acted as the

implementing agent. The project description submitted for funding had a three-fold focus which included the:

- Formulation of a detailed “Airport City” spatial development framework;
- Concurrent implementation and investment in airport infrastructure earmarked for construction in the next five financial years (as determined per the airport’s “Capital Investment Framework” – compiled in accordance with the “2004 WADP” and present development and compliance needs, and
- Concurrent facilitation of the “Transaction Advisory Process” to sell the airport business/operations.

Although recognising the merit of the project, the EU grant was allocated for the construction of solar-panels in the Province of the Northern Cape. However, it is a known fact that several investors are ready to invest in the development of the airport should the CoT be prepared to sell the airport business.

The 2009 study (City of Tshwane, (e) 2009) recommended that the most viable option would be for the CoT to sell the business of the airport, retaining ownership of the land. In 2013 the CoT appointed a Transactional Advisor (City of Tshwane, (g) 2013) to assist with the process to sell the business of the airport. The Transactional Advisor has proceeded as plan and provided the CoT with their input in the beginning of 2015.

7. CONCLUSIONS

The development of an Airport City at Wonderboom Airport in the next three to five years could cut unemployment by a third in the Capital City. Investment in Airside Infrastructure at Wonderboom Airport to accommodate medium sized aircraft could lead to an influx of private sector investments and substantially reduce unemployment in the northern part of Tshwane within a “Zone of Choice”. The implementation of the 2004 Wonderboom Airport Development plan could lead to direct private sector investment at the airport in excess of R4 billion and the creation of more than 16 000 permanent jobs resulting in annual GDP increase of more than R 6 billion to the City of Tshwane. The South African Civil Aviation Authority had already approved the airside development plans in June 2011 as well as the layout of the infrastructure required on about 45 ha on Wonderboom Airport for private investors for airport-related light industrial development and an associated airpark.

The recently approved “Rainbow Junction” (650 000 m² mixed use) economic development node adjacent to the airport will lead the way for the airport to develop into a modern “Airport City” - a concept that is gaining in popularity all over the world as a major stimulus to attract investment and lead to major points of growth. The Rainbow Junction development node is estimated to have a potential of attracting more than R 6 billion in private investment, creating more than 80 000 permanent jobs. The airport is designed to full fill the role of an International Regional City Airport able to serve the whole of the SADC region. The city is currently home to 114 embassies, second only to Washington DC. Several airlines based in Africa as well

as locally have shown interest to relocate to the airport provided the development plan is implemented and International Status reinstated.

The use of Wonderboom Airport for freight will substantially reduce transportation costs and improve the competitive edge of the automotive industry the bulk of which is situated close to the airport. The airport is in close proximity of a well-established road network system (such as the N4 and N1) and local access roads, bus routes and railway lines. With most of the designs and approvals ready for implementation, this development can start immediately and the bulk there-of can be completed within a two to three year period. If included in the transaction for the privatisation of the airport business, substantial value will be added to the transaction sell of the business, providing the City with a multiplying effect and much needed capital for further development and investment.

8. ACKNOWLEDGEMENTS

The City of Tshwane is thanked and acknowledged for the considerable assistance and support in the publishing of this paper.

9. REFERENCES

airportcities@ubm.com

City of Tshwane – Wonderboom Airport (a), 2007, Lengthening of the Runway, Erection of an Air Traffic Control Tower and the Development of Taxiways, Hangers and Associated Facilities – Scoping Report, BKS (Pty) Ltd, South Africa.

City of Tshwane – Wonderboom Airport (b), 2007, Consulting Engineering Services for the Detailed Designs, Tender, Construction Supervision and Monitoring of the several projects identified at Wonderboom Airport – Design Report, Tshepega Engineering (Pty) Ltd, South Africa.

City of Tshwane, 2012(a), Tshwane Vision 2055 – Remaking South Africa’s Capital City, City of Tshwane, South Africa.

City of Tshwane – Wonderboom Airport (c), 2012, Waste-Water Masterplan for the Wonderboom Airport, Tshepega Engineering (Pty) Ltd, South Africa.

City of Tshwane – Wonderboom Airport (d), 2012, Storm-Water Masterplan for the Wonderboom Airport, Tshepega Engineering (Pty) Ltd, South Africa.

City of Tshwane – Wonderboom Airport (e), 2009, Report on the development and assessment of options pertaining to the future of Wonderboom Airport, Blue Square Advisory Services (Pty) Ltd, South Africa.

City of Tshwane – Wonderboom Airport (f), 2012, Wonderboom Airport International Status Application. Nyeleti Consulting (Pty) Ltd and Urban-Econ Development Economist, South Africa.

City of Tshwane – Wonderboom Airport (g), 2013, Implementation Plan Proposal (RFP): Appointment of Transactional Advisors to Assist with the Transactional Process Plan Pertaining to the Wonderboom Airport Sale, Business Enterprise at University of Pretoria (Pty) Ltd in association with Attorney Len Dekker and Associates, Delta and Akhile Management and Consulting (Pty) Ltd, South Africa.

Gauteng Province Department of Roads and Transport, 2012, Gauteng 25-year Integrated Transport Master Plan, Johannesburg, South Africa.

International Civil Aviation Organization, 1987 to 199, Aerodrome Design Manuals Part 1 to 5 and Annexure 14. Quebec, Canada.

www.globalairportcities.com