



DEVELOPING A  
**COLLECTIVE APPROACH**  
TO MIXED-USE DEVELOPMENT IN  
**TRANSIT-ORIENTED DEVELOPMENT**  
PRECINCTS



**S A P O A**

South African Property Owners Association

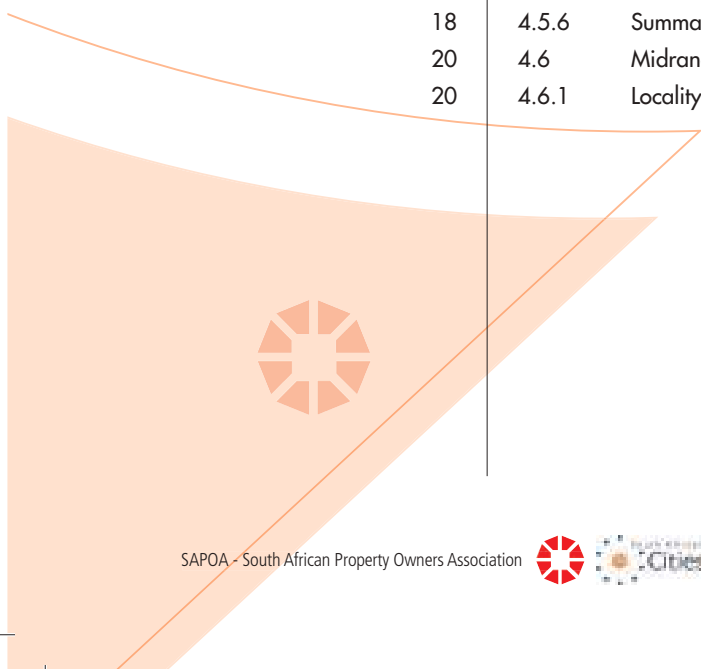
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Joburg Metro Building  
 16<sup>th</sup> Floor, 158 Civic Boulevard, Braamfontein  
 P.O.Box 32160, Braamfontein, 2017  
 t: +27 (0) 11 407 6471 f: +27 (0) 11 403 5230  
 e: info@sacities.net



**S A P O A**  
 South African Property Owners Association

Paddock View, Hunt's End Office Park  
 36 Wierda Road West, Wierda Valley Sandton  
 PO Box 78544, Sandton 2146  
 t: +27 (0)11 883 0679 f: +27 (0)11 883 0684  
 e: townplanner@sapoa.org.za



Compiled by:  
**METROPLAN**  
 +27 (0)12 804 2522  
 www.metroplan.net  
 marinda@metroplan.net

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## 1 INTRODUCTION

### 1.1 Aim of project

This research project aims to review the South African experience in planning and implementing transit-oriented developments (TODs), and understand the dynamics between the key role players in order to propose a collective approach to creating quality TOD precincts.

TOD is a type of development which is focused around a public transport station or interchange and is characterised by a mixture of land uses (dwellings, workplaces, facilities, shops and services) and an accessible, walkable public environment.

The role players in TOD development include different spheres of government (mostly local government), the private sector (e.g. landowners, developers, business owners and relevant built environment professionals), public transport operators and the public. All role-players contribute to the development of TOD precincts and the realisation of a particular urban form by informing development decisions and processes and in the use of the space.

#### 1.1.1 Project objective

The objective of the project is to develop a practical, operational guideline drawing on TOD development over that past decade that will provide a framework for government and the private sector stakeholders to implement a collective planning and implementation response to the creation of TODs in South Africa. The guideline will inform the institutional arrangements and interactions between the public and private sector in relation to realising TOD precincts of high quality. Financial mechanisms and incentives required to realise a collective approach are alluded to in the report but do not form the focus of the study.

#### 1.1.1 Research focus

The research, in terms of the stated objective, will be focussed on the dynamics between the public and private sector in developing TOD precincts, including:

- the development process;
- participants in the process;
- their mutual relationship and interaction/communication;
- adherence to plans if they exist; and
- problems experienced.

- the development outcome;
- compliance with TOD principles;
- functionality and appearance of the precinct; and
- urban management issues.

The research is divided into three sections:

- the identification and elaboration of specific TOD case studies;
- the extraction of lessons from those examples; and
- the proposal of interventions to improve TOD development within South Africa.

#### 1.1.2 Approach

The study is based on desktop research and interviews with stakeholders. The case studies are set in a narrative format. From this, lessons and guidelines are defined. Three elements form the focus of the study: spatial planning and land use management, integrated planning, and operational accountability.

##### 1.1.2.1 Spatial planning and land use management

Spatial Planning refers to Spatial Development Frameworks/ Local Plans/ Precinct Plans/ Urban Design Frameworks that have been drafted for the case study precincts. These plans serve to direct government investment in TOD precincts e.g. construction/ upgrade of roads, development of public transit facilities, the provision of engineering services and social services, etc. The Plans also serve to attract private investment and guide private developers as to the type, character, and quality of development.

Land use management refers to applications for development of land through the processes of rezoning, township establishment, obtaining consent use, consolidation, and subdivision. These applications are processed by the municipality. The municipality influences private development through its power to approve or reject an application, the time it takes to process an application and the costs involved in both the application and related bulk infrastructure. The private sector responds based on the demand for development, the dominant development paradigm and the opportunities and constraints of a given site. Ideally there should be a direct link between spatial plans and land use management applications with spatial plans informing land use management decisions.



### 1.1.2.2 Integrated planning

Integrated planning refers to the co-operation of different sector department, different spheres of government, parastatals and the private sector in order to achieve publicly participated and accepted development outcomes. It is important to understand which departments and organisations are involved in the planning and execution of the development of TODs. In order to achieve integration, which is a requirement for successful TOD development, all relevant bodies need to be involved in the phases of the project. TODs do not only consist of public transport, but also land use, provision of infrastructure and social facilities. In addition, integrated planning includes urban management and financial incentive considerations.

### 1.1.2.3 Operational accountability

Operational accountability is of particular importance for investors, developers, and property owners active in TOD precincts as they rely on the effectiveness of the services associated with the TOD. Most likely the property or project was acquired or developed at a higher premium which was assumed to be subsidised by the competitive advantage of being located in a TOD precinct. Should service provision in the TOD precinct be sub-standard, or below expectations in terms of market absorption, the private sector is exposed to the risk of not meeting financial and economic objectives.

Operational accountability concerns:

- How communication between the various role-players is structured.
- Quality of public transit services.
- Nature of inter-connectivity between services.
- How constituencies hold government, the private sector and service providers accountable for poor delivery and performance in a TOD precinct.

## 1.2 Process

This document deals with information gathering and interpretation of that information, which involved:

- Interviews with relevant officials at municipalities to confirm the case studies and provide background information and access to relevant documents and datasets. Information gathered concerned spatial plans, land use management applications, land ownership, development constraints e.g. servitudes and environmental

sensitivities. The discussions with officials centred on the experience of each case study e.g. history of development, development blockages, co-operation between different role players, etc.

- Interviews with private developers who are involved in TOD precincts, to determine the reasons why they invested in the area, what issues they have with the TOD, and what affects their investment decisions in the area.
- Economic data analysis and specialist observations on the performance of the TOD precincts. Examples of aspects analysed included rental rates, vacancy factors, investment rates, perspectives on new development opportunities, market movement in property as well as general area improvement.
- Interviews with transport operators considered, market participation, take-up, peak periods, customer profiles and service usage rates. These are important considerations to inform whether the introduction of the transport service contributed to new market energy of sufficient scale to produce positive spin-offs.



## 2 SELECTION OF CASE STUDIES

Six case studies were selected: two each from the cities of Cape Town, Johannesburg, and Tshwane.

### 2.1 Criteria for selection of case studies

The first criterion used was the dominant mode of public transport that forms the heart of the TOD, as different modes of transport have a distinct function, impact and scale.

The following modes were selected:

- Gautrain high speed railway transit in the City of Johannesburg;
- PRASA public railway transit in the City of Tshwane; and
- the bus rapid transit System in the City of Cape Town.

Although a dominant mode of transport was identified in each instance, the TODs are multi-modal, and facilitate different transit options, so as to integrate different modes of transport and ensure an efficient public transport system.

Secondly case studies were selected from different urban areas, to understand how the impact of a TOD manifests in different contexts: the following areas were selected.

- Established Commercial Nodes (Inner City and/or significant decentralised commercial nodes) in the City of Johannesburg;
- Former township areas in the City of Tshwane; and
- Suburban areas in the City of Cape Town.

Lastly, examples of a TOD were selected where limited private development has occurred and where significant private development has taken place.

### 2.2 Case studies selected

The following case studies were identified:

- Sandton and Midrand Gautrain Station in Johannesburg;
- Denneboom PRASA Station in Mamelodi and Kopanong PRASA Station in Klip-kruisfontein, Tshwane; and
- Zoarvlei MyCiti Station in Paarden Eiland and Wood MyCiti Station in Table View, Cape Town.

**THE DEFINITION AND KEY FEATURES OF TOD**

**3.1 Definition of TOD**

A transit-oriented development can be defined as a mixed land use development designed to maximize access to public transport and encourage ridership.

The symbiotic relationship between land use, built form and public transport lies at the core of the notion of TOD.

From a transport perspective TOD is focussed on promoting sustainable public transport while minimizing the travel mode share of private motor vehicles and the negative externalities of this mode. From a spatial development perspective the focus is on mixed land use and increased residential densities in an improved public environment (particularly from a pedestrian’s point of view).

In practice, a TOD comprises urban development projects that –

- are located within a comfortable walking distance of a high-capacity public transport stop or station; and
- present specific urban design and land use characteristics that support, facilitate and prioritise a variety of people’s activities (mixed land use), walking, cycling and the use of public transport.

A comfortable walking distance from a public transport stop or station is generally accepted to be 500m. For the purposes of this research, a TOD precinct would therefore be an area in a radius of 500m from a public transport stop or station.

relax and to shop for daily needs should be located as close to the stop/station as possible.

Mixed land use also allows people to run more errands in a shorter space of time, combining them with their getting on or off a bus or train.

Transit supportive uses should be encouraged and, simultaneously, transit non-supportive uses should be discouraged.

Transit supportive uses are those which generate and facilitate pedestrian movement, directly promote greater transit ridership and create opportunities for multi-purpose trips. They include uses such as residential, offices, hotels, health facilities, schools, cultural facilities, recreational facilities, retail shops, business services, restaurants, coffee shops, entertainment facilities, banks, etc. Community/social facilities, such as libraries or clinics, are particularly important elements of a TOD.

Transit non-supportive uses are those which generate little or no transit ridership, consume large amounts of land or create environments where pedestrians feel unsafe or uncomfortable. Examples include car sales, car washes and other automotive services, warehouse-type retail, regional parks, drive-in or drive-through services, large parking facilities and low intensity industrial uses.

Within a TOD land uses should be mixed both vertically and horizontally. Land uses are mixed vertically when they are located in the same building one above the other (for example, ground floor is used for retail



**Figure 1: TOD concept**

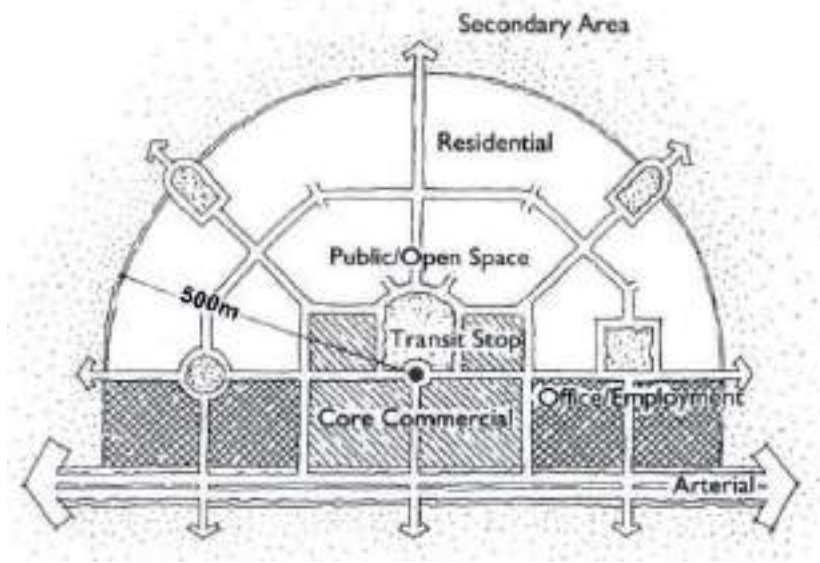
**3.2 Key TOD features**

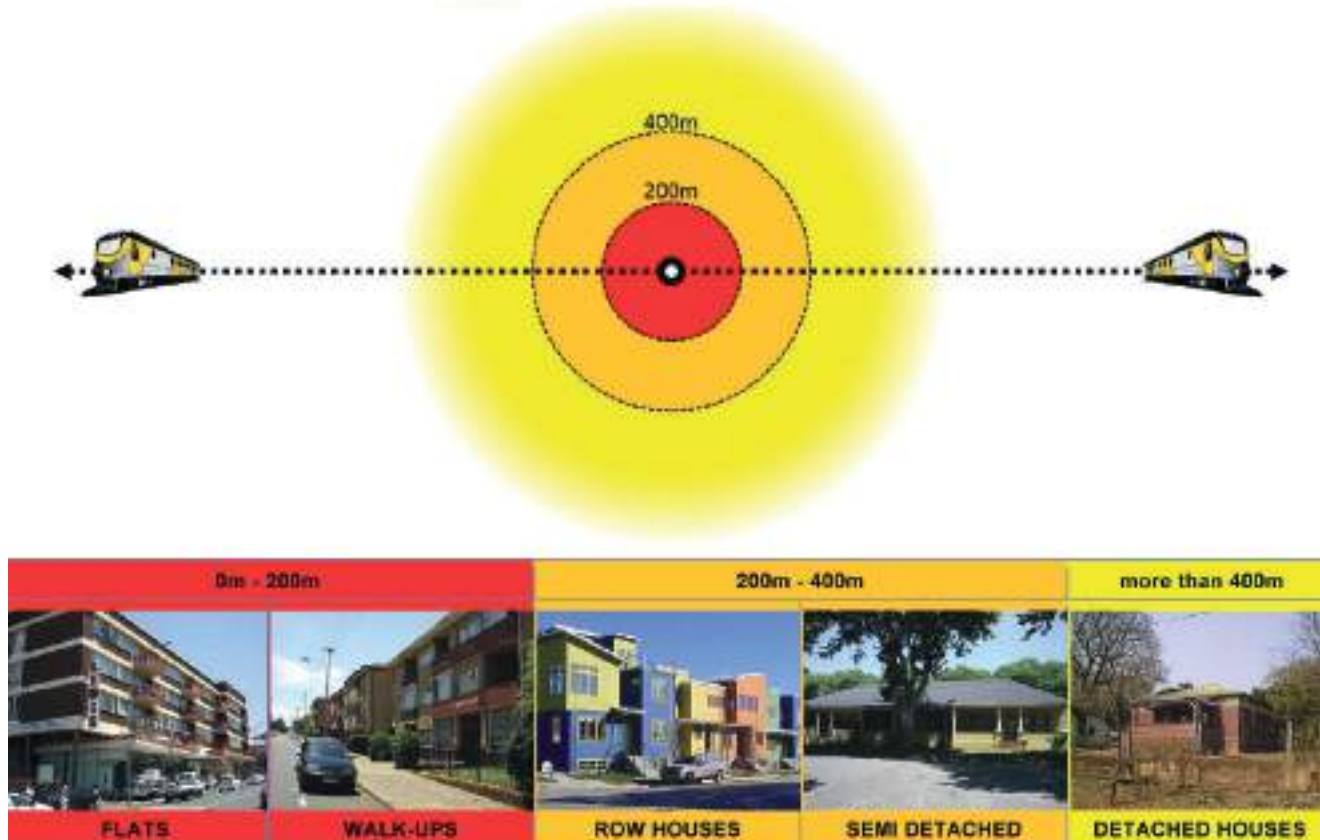
There are different definitions and descriptions of TODs and their characteristics, but it is generally accepted that the key features of any TOD include the following:

- mixed land use;
- increased residential density;
- social mix;
- high quality pedestrian environment; and
- access and permeability.

**3.2.1 Mixed land use**

A TOD requires a balanced mix of uses capable of generating ridership at different times of the day (ideally 24 hours). Places to work, to live, to learn, to





**Figure 2: Residential typology (Density) in relationship to the distance from the stop/station**

and other businesses that attract, facilitate and make use of pedestrian movement, while upper floors accommodate offices and/or apartments). Land uses are mixed horizontally when they are located side by side, usually in different buildings and on different sites. A proper horizontal land use mix within a TOD implies fine-grain development, i.e. small erven, small building footprints and frequent public rights-of-way. Coarse-grain developments, such as large shopping centres, are generally not appropriate to TODs unless specific urban design guidelines are strictly adhered to.

**3.2.2 Increased residential density**

Compact and dense residential developments allow for more people, potential public transport users, to live conveniently close to public transport stops/stations. They also ensure a critical mass of people needed to sustain the local economy, i.e. the abovementioned mixed land use. The highest residential densities should be located closest to the transport stop/station.

Residential developments within TOD precincts must contribute to the creation of public environments by enclosing (or providing edges to) public urban spaces. Public spaces with clear form and edges, i.e. those that are enclosed by buildings or trees, have a feeling of permanence and safety and seem to be more attractive for a variety of urban activities than large,

unbounded and amorphous open spaces. Safety of spaces enclosed by residential buildings is enhanced as they are under 24-hour passive surveillance by the occupants of the surrounding apartments.

**3.2.3 Social mix**

It is important that a range of housing types and affordability levels are provided for within a TOD in order to bring people of diverse ages, races and incomes together and into daily interaction. A TOD would not serve its purpose if it excluded the poor who depend on public transport the most.

**3.2.4 High quality pedestrian environment**

TODs require comfortable, safe, interesting and attractive pedestrian environments (urban spaces) as people would be reluctant to walk from their homes, offices or shops to the public transport stop/station through uncomfortable, dangerous, boring and ugly streets.

Quality of a pedestrian environment depends on –

- area layout (network of public rights-of-way) and the degree to which it facilitates pedestrian movement and activities;
- interface between the public space and surrounding private properties and the degree to which it (a) ensures spatial definition or sense

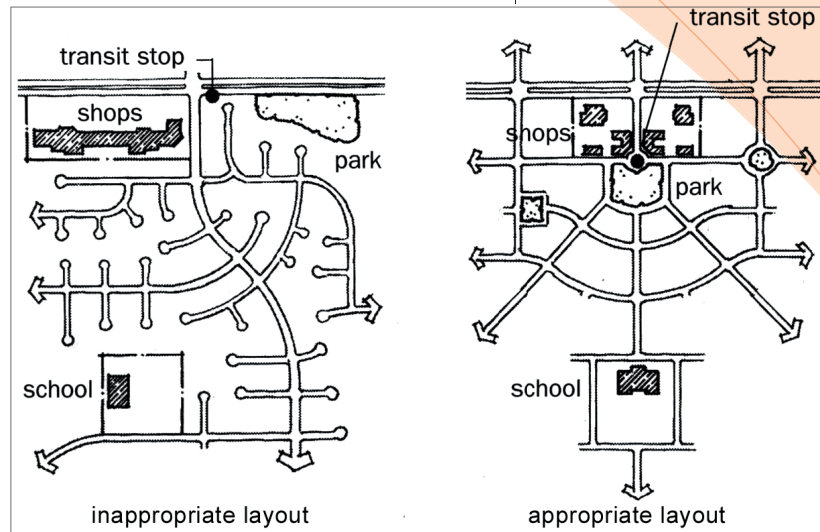
of enclosure; (b) improves safety by allowing for 'eyes on the street' and (c) stimulates the intellect and senses of the passers-by;

- streetscape/ landscape design and the degree to which it contributes to the usability, comfort, safety, and aesthetic appeal of the public space.

A pedestrian friendly layout implies links that are as short and direct as possible and preferably at street level. It also implies a system of public rights-of-way characterised by –

- a choice of multiple, but equally short and convenient routes between any two points within the precinct;
- increased permeability in all directions;
- reduced walking distances; and
- minimises backtracking.
- Both the interface with surrounding private properties and streetscape design within a TOD must be able to –
- facilitate pedestrian movement – i.e. ensure that people who are walking in the streets are comfortable, safe and socially, intellectually and aesthetically stimulated;
- attract people, other than those who have no other choice but to walk through the streets – i.e. ensure that it is a pleasure or fun to be in the streets;

- encourage recreational, social and economic activities within public urban spaces, such as strolling, congregating, playing, sitting, eating, drinking, people watching, window shopping, trading, parking, advertising, etc.;



- ensure that surrounding businesses capitalise as much as possible on the pedestrian movement along the street.
- It is important that public spaces within a TOD also accommodate other forms of non-motorised transport such as cycling.

**Figure 3: Inappropriate and appropriate TOD layouts**

**Figure 4: An Illustration of interfaces and streetscaping appropriate to a TOD**



### 3.2.5 Access and permeability

TODs must be highly accessible and permeable for all (pedestrians, bicycles and vehicles) in order to –

- ensure that the stop/station is easily accessed,
- facilitate intermodal transfer; and
- attract, support and service economic activities which are essential for the achievement of the necessary land use mix.

## 3.3 Benefits of TOD

Based on international experience TODs have the following benefits:

- increased public transport ridership (for example, people that live near a station in Californian cities are five times more likely to use public transport than those that do not);
- improved mobility and convenient living environments for all those who do not own a car, cannot or chose not to drive, such as -
  - the poor, i.e. those who cannot afford private transport;
  - the younger, i.e. those who are old enough to desire social life away from their parents, but are too young to drive;
  - the elderly, i.e. those who are still capable of enjoying independent life, but are too old to drive; and
  - tourists and other visitors who may not be comfortable with driving in an unknown city;
- attractive and vibrant places to live, work, and play in;
- higher and more stable property values (property values around stations are about 10-20% higher than average and for every five minutes of reduced walking time to a BRT station, property values are 6-9% higher);

- increased opportunities for formal and informal business along the precinct's streets due to increased pedestrian movement;
- discourages sprawl and encouraged compact development;
- enhanced overall economic efficiency and sustainability of the city.

## 3.4 Importance of TOD for urban restructuring

The potential of TOD to drive the restructuring of South African cities and to redress the inherited dysfunctional socio-spatial patterns (such as racial and social segregation, land use separation, overdependence on the use of private cars, low density sprawl, etc.) has been identified in many government plans and strategies, most notably the 2011 National Development Plan which calls for TOD principles to be employed. TOD principles, applied through the concept of Urban Hubs, feature strongly in the work of the Neighbourhood Development Programme at National Treasury.

In addition, TODs have the potential to enhance and expand economic development opportunities within an urban region. When TOD principles are applied correctly, an agglomeration of economic opportunities is created. Economic agglomeration refers to the economic benefits that are created as a direct result of concentrating people and businesses in close proximity to one another. Broadly speaking TODs encourage commerce and local economic development in densified urban areas<sup>1</sup>.

In terms of its impact on urban restructuring, TODs have the potential to decrease urban sprawl and thereby centralise economic opportunities. Furthermore, TODs provide improved access to employment opportunities and affordable housing.

## 3.5 Urban networks strategy and the urban hub concept

The Neighbourhood Development Programme (NDP), through its Urban Networks Strategy, supports the eradication of spatial inequality (which is a priority in terms of the National Development Plan) by providing technical assistance and grant funding to municipalities for capital projects that leverage further public and private sector investment in strategic locations around the country.

World Bank, 2014.  
 "Transit-orientated development –  
 What does it take to get it right?"  
<http://blogs.worldbank.org/transport/transit-oriented-development-what-does-it-take-get-it-right>  
 Urban Landmark, 2011.  
 "Creating and Capturing Value  
 around Transport Nodes"  
[http://www.urbanlandmark.org.za/downloads/creating\\_capturing\\_value\\_2011.pdf](http://www.urbanlandmark.org.za/downloads/creating_capturing_value_2011.pdf)

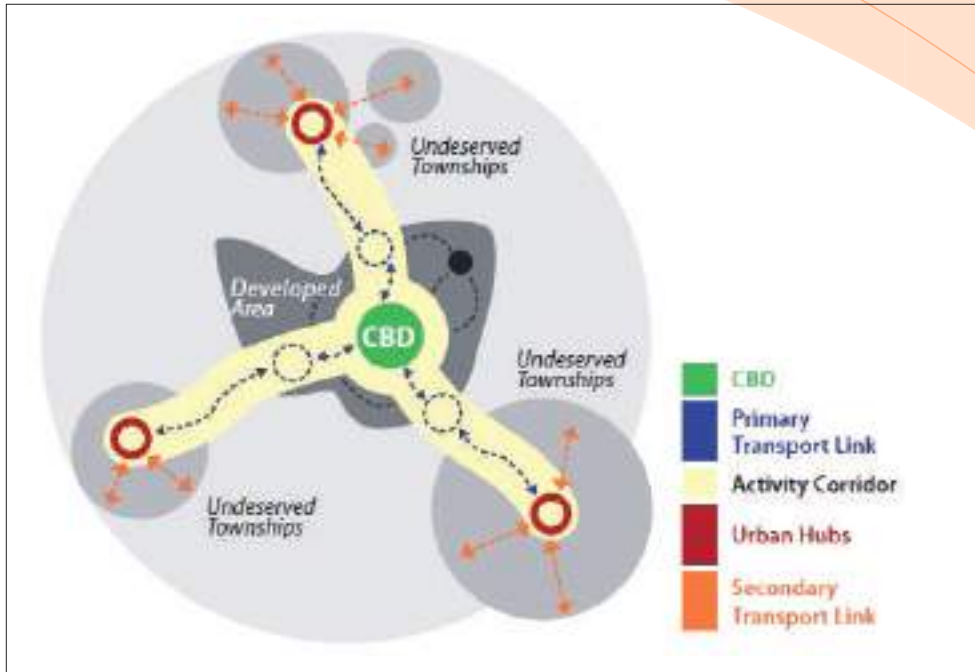


Figure 5: Urban network concept

One of the NDP's strategies aimed at the long term restructuring of larger urban settlements is through targeted investment in identified 'urban hubs'.

The NDP's approach sees our cities as two distinct, but interdependent networks. The primary network comprises:

- the CBD (which functions as the anchor access precinct);
- primary transport links;
- activity corridors along the primary transport links; and
- urban hubs located in the broader urban fabric.

Secondary networks, which spread around urban hubs and feed the primary network, comprise:

- urban hubs; and
- secondary transport links.

Urban hubs function as portals between the secondary networks in a township or group of townships and the primary network of the city. They are points of maximum connectivity and become the places for the concentration of resources. As the highest order nodes within the townships, these hubs contain the facilities that service not only local residents but the broader area. They function as urban service centres and contain public services, commercial activities and residential development. The urban hubs are transit-oriented developments.

The following three spatial strategies define the urban hub concept:

- the interchange zone;
- mixed use development and residential densification; and
- vibrant, people-friendly public places.

In an **interchange zone** rail, bus and taxi services come together within easy walking distance from each other. The connecting pedestrian routes between them are designed to become areas of opportunity for retail and service-related businesses which would choose to locate along such movement routes due to the high pedestrian count.

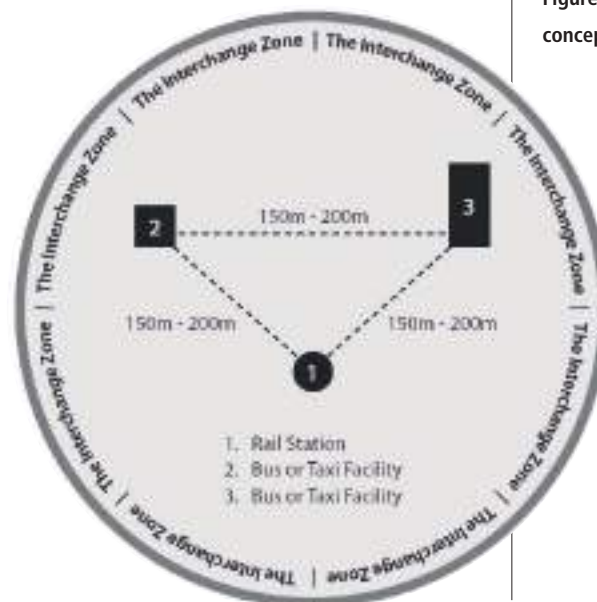


Figure 6: Interchange zone concept

## 4 CITY OF JOHANNESBURG

In this section the institutional structure of the City of Johannesburg with regards to TOD is discussed, its TOD Policies, and development incentives, and a short description of each of the case studies and the Gautrain is provided.

### 4.1 Institutional structure

In the City of Johannesburg, there is no specific TOD section, however a number of departments and municipal entities are involved with TODs directly or indirectly, are:

- Development Planning Department – City Transformation:
  - Draft Spatial Development and Urban Development Frameworks.
    - Coordination of other departments to obtain inputs.
    - Participation with the private sector and public to obtain buy-in and address objections to proposed plans.
- Development Planning Department - Development Management:
  - Evaluation of land use management applications.
  - Obtain inputs from other departments on land use management applications.
  - Set development controls through Annexure T and Conditions of Establishment.
- Transportation Department:
  - Planning and design of BRT stations.
  - Operation of BRT.
- Johannesburg Development Agency (JDA):
  - Implementer of transport projects for BRT with regards the public environment upgrades adjacent to the stations.
  - Infrastructure issues: negotiated with other departments on projects.
  - Co-ordinate spatial development. This is possible because there is a clear development framework and programme based on UDFs developed by Development Planning .
- Johannesburg Property Company (JPC):
  - Identification of municipal-owned land.
  - Purchase and sale of land for the Metro.
  - Preparation of land for development (e.g. rezoning).
  - Marketing of land for lease.

### 4.2 TOD policies

The Metropolitan Spatial Development Framework (MSDF) and Regional Spatial Development Frameworks (RSDF) are all premised on the prioritisation of public transport as the backbone of the structure of the city. In addition, the City has two policies that address TOD specifically.

#### 4.2.1 Transit-oriented development (TOD) policy for the City of Johannesburg. May (2009)

The policy aims to give guidance on the purpose of ToD as well as provide design guidelines. The Policy focused on PRASA, Gautrain and BRT Stations, especially on multi-modal interchanges. It was driven by the advent of the Gautrain and the Rea Vaya and the potential for settlement restructuring around mass public transport networks with TOD as the guiding concept.

It defines TOD as 'a moderate to higher density development, located within an easy walk of a transit stop, generally with a mix of residential, employment and shopping opportunities, designed for pedestrians, without excluding vehicles'.

It states that the principles of TOD allow for the bringing together of the multi-sectoral policy imperatives of the City and to actively implement them through related policy instruments and mechanisms. The TOD is supported by a range of tools, such as layers of spatial plans, design guidelines and standards, and mechanisms to incentivise development.

The policy is premised on the following key principles:

- Vision building;
- Development through partnerships;
- Promoting development when promoting transit;
- Getting the parking right;
- Build places, not projects;
- Make retail development market driven, not transit driven;
- Mix uses;
- Bus use;
- Encourage housing around transit; and
- Engage corporate attention.



The key planning mechanisms to achieve TOD are:

- Land use mix;
- Density;
- Connectivity;
- Urban Design;
- Transit access;
- Parking; and
- Incentives.

#### 4.2.2 COJ Transit-oriented development (TOD) Principles and Guidelines (2013)

The TOD Principles and Guidelines document was finalised in 2013 and builds on the 2009 Policy. It defines TOD as 'high-density, mixed-use development within walking distance (1km) from a station.

The guiding principles are:

- Well-integrated, effective and efficient inter-modal public transport system.
- A network of interactive public open recreational space and bio-diversity areas.
- A mix of incomes living in high-density development.
- Effective and integrated non-motorised movement network, pedestrian-friendly urban environment and place-making.
- Compatible and high intensification of a mix of uses that provide for and complement one another.
- Stimulus for economic development.
- Sustainable and innovative urban solutions to buildings, infrastructure and services.
- Total shareholder return through beneficial financing systems.
- Reliant foundation of key drivers, public-private partnerships and good governance of projects, programmes and development.
- Management and co-ordination of all principles in order to create a quality urban environment.

The TOD building blocks are defined as:

- The institutional framework
- The street building interface (in line with complete streets guidelines and SHS indices);
  - Building line,
  - Landscaping,
  - Land uses,
  - Street paving, furniture and signage,

- Parking,
- NMT: Provision of NMT access, sidewalk and cycle path where appropriate.
- Development Controls
  - Land use
  - Density, mix, height, coverage, income mix.

### 4.3 Development incentives

The City of Johannesburg Growth and Development Strategy, 2008 lists a number of development incentives, including: Tax Increment Financing, Planning Gain, Rights Bonuses, Fast Tracking of Land Development Applications and Waiver of Development Application, and Building Plan Fee and Special Rating Districts. No examples of the application of these development incentives could be found. Some Precinct Plans propose the use of Rights Bonuses, such as the Sandton Urban Development Framework (UDF) that provides for higher bulk for the provision of public spaces. It is not clear whether this incentive has been applied.

The City is developing the concept of Special Zoning Districts, where rights are conferred on properties. This allows for developers to merely submit Site Development Plans (SDPs) and building plans as their rights are effectively in place.

### 4.4 Gautrain

The first phase of the Gautrain was completed in 2010 in time for the Soccer World Cup. The primary goal of the Gautrain is to reduce the usage of private cars on public roads. If there is no shift from private to public transport, peak hour traffic in 2037 will be 10km/h. The success of the Gautrain, as measured in passenger numbers, has been greater than expected. The fuel price and toll fees have impacted on the number of passengers that use the Gautrain. According to the Gautrain Management Agency (GMA) when fuel increases by 5% then the number of Gautrain passengers increase by 10%. If the toll is increased more people also make use of the Gautrain. Currently the Gautrain connects the City of Tshwane, the City of Johannesburg and the OR Tambo International Airport. The Gautrain serves 10 stations within and around these areas.

The intention of the Gautrain is not to compete with PRASA or local taxis. All strategic plans from PRASA

are considered by the GMA as a means of ensuring a collaborative effort in public transport provision. According to the 25 year ITMP facilitation and support efforts should be increased with regard to the role of PRASA and the GMA to develop and extend the rail network into a modern passenger rail transport system in Gauteng that meets the needs of the passengers. Links to the BRT systems are being explored and implemented. In some instances, such as at Marlboro station, taxis are integrated into the distribution system. It is envisaged that taxis and BRT busses will replace the current Gautrain bus service.

The implementation of the Gautrain has proved that it is viable and successful. Stations that are proposed for 2037 include Jabulani, Roodepoort, Little Falls, Cosmo City, Lanseria, Randburg, Samrand, Modderfontein, and Irene.

The GMA indicated that many lessons were learnt from the implementation of the first phase of rail development and more attention will be given to the location of the stations to ensure a better fit between current and projected development and the location of the stations. Modelling for Gautrain Phase 2 considers the following aspects for the potential locations of stations and the number of expansions required on the existing system:

- areas of greatest public transport need;
- high traffic zones and areas of greatest congestion;
- the differing socio-economic impacts;
- ideally, the station should be placed in such a way that it has maximum exposure; and
- Suitable densities within a 5km radius to ensure the maximum number of commuters are catered for.

More attention will be paid to development at and around the stations. With the current concession, there wasn't any provision for the private sector to develop properties around the stations. The Gautrain envisions that the land surrounding the stations is developed in a sustainable manner with a large mix and variety of land uses. The primary risk for the Gautrain development is financial due to the fact that it requires a vast amount of money from both private and public sector which jointly funded the project. The public-private partnership guidelines, as per the National Treasury's format for PPP's, have been the backbone of the entire

development. Approximately 80% of Gautrain (Phase 1) was funded by the public sector, with the remainder funded by the private sector. In future, the Gautrain Management would like to realise a more balanced contribution between the sectors.

## 4.5 Sandton Gautrain station

### 4.5.1 Locality and role of the station

The Sandton Gautrain Station was elected as an example of a successful TOD development due to the intensity of development within the station precinct. It is situated underground beneath Rivonia Road between Fifth Street and West Street in the Sandton business district. The Station is the hub of the Gautrain rail network as it is not only located on the north-south primary spine of the Gautrain network, but is also the western terminal station for the OR Tambo International Airport route.

The number of weekday passengers has increased significantly since 2011. The average number of weekday passengers that utilise the Sandton station has increased from 7 588 weekly passengers in 2011 to 11 349 weekly passengers in 2015. This suggests that the average weekly passengers have increased by 33% since 2011.

From the onset, the 80's business movement into suburban areas increased, and Sandton was a destination of choice. The Sandton Business District area is highly regarded due to its central location and good accessibility. Sandton, in its current form, is without doubt Johannesburg's financial centre.

### 4.5.2 TRANSPORT

#### 4.5.2.1 Vehicular traffic

Sandton is encircled and cut through by highly accessible main vehicular routes that have become heavily congested. These include Rivonia Road, Grayston Drive, Katherine Street, and Sandton Drive. It is projected that traffic congestion will increase, despite new modes of public transport.

There is limited scope to increase the capacity of the road network. Capacity will further decrease with the construction of the BRT that will use some of the current vehicular lanes. This could lead to businesses locating elsewhere.

**4.5.2.2 Public transport**

Although the Sandton Precinct is dominated by private vehicles, there are a number of public transport services, such as the Gautrain feeder busses, Minibus Taxi's, Johannesburg Metro Bus, Metered Taxi's and the BRT (Rea Vaya) which is currently under construction. The Sandton CBD Taxi Rank was torn down due to the construction of the Gautrain and relocated to West Street where a temporary taxi rank has been erected. Informal stopping areas are located along the main roads. Taxi routes connect Sandton with the Joburg CBD, Alexandra, Midrand, Ivory Park, Tembisa, and Tshwane.

Provision is made for several modes of transport within the Gautrain Station building.

**4.5.2.3 Pedestrian movement**

The Precinct is still dominated by private vehicles and generally the pedestrian movement rates are fairly low. The busiest areas are on Maude Street outside Village Walk and on 5th Street outside Sandton Mall. The lowest flows are found on the outer streets such as Katherine, Sandton Drive and the eastern end of Rivonia Road.

There are a number of factors that discourage pedestrians, e.g. large block sizes land developments internal orientatation of buildings, the topography and narrow and inconvenient sidewalks.

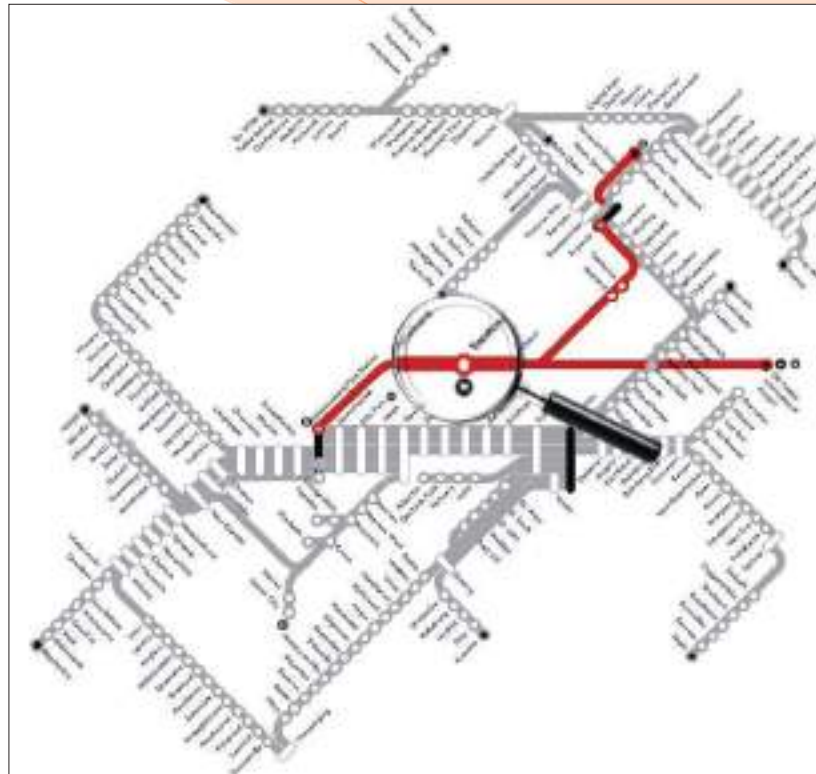


Figure 7: Locality of Sandton station on the rail system in Gauteng

**4.5.3 Land use and environmental quality**

The Sandton Gautrain Precinct is characterised by large and prominent land uses: several hotels, entertainment and shopping centres such as the Michelangelo, Hilton and Garden Court Hotels, Sandton Towers, Nelson Mandela Square, Sandton City and the Sandton Convention Centre. It also houses a number



Figure 8: Large street blocks around Gautrain station preventing pedestrian movement.

Land Use Status Quo	Existing Building Stock (m2)	Percentage
Office	820,511	48%
Retail	176,675	10%
Residential	362,682	21%
Public Amenities	41,402	2%
Entertainment / Hospitality	301,180	18%
<b>TOTAL</b>	<b>1,702,450</b>	<b>100%</b>

**Table 1: Breakdown of land uses in Sandton precinct**

of financial institutions: The Johannesburg Stock Exchange, Investec and the head offices for Nedbank and Rand Merchant Bank.

Retail is concentrated inside Sandton City Mall, Village Walk and Mandela Square. Retail facing the street includes service stations, car show rooms and service orientated retail such as mobile phone shops and banking. Offices are the dominant land use and are scattered throughout. Residential density ranges from as low as 20 units/ha to as high as 262 units/ha with the average being 69 units/ha. Building heights range from as low as three storeys to as high as 23 storeys, with the average being 12 storeys.



**Figure 9: Aerial photo of the station precinct (500m – 1km)**

By 2006, all development rights in Sandton had been developed and there was significant pressure to increase these rights. No rezoning applications were however approved due to the heavy congestion on main roads. The onset of the Gautrain, however, allowed for an increase in land use rights based on the expected impact of the Gautrain. Since 2008 various

new mixed-use developments and office blocks have been built in the Sandton business district concentrated around the Gautrain Station.

Most of the buildings are freestanding within the blocks and are either surrounded by high transparent fences or are raised off of the ground to form parking platforms at street level.

#### 4.5.4 Land ownership

Currently most of the properties within the Sandton Study Area are privately owned by a large number of land owners, with only a few properties owned by the City of Joburg Council.

#### 4.5.5 Planning frameworks

The Sandton Urban Development Framework was drafted in 2008, to review existing land use controls and to provide guidelines for the development of an appropriate TOD. It aimed to provide a set of development principles and specific urban design and transportation guidelines for future development in Sandton. The TOD was defined based on the principles of a 10 minute or 800m walking radius from the entrance to the station and transport interchange node.

The SUDF stated: 'In essence, the Sandton node already possesses all the right ingredients for further development. This framework simply aims to facilitate the management of such development, as well as to pave the way for the orderly increase of land use densities – thereby improving that which already exists.' It addressed issues such as pedestrian movement, shared streets, land use, building height and landmarks.

The framework divided the Precinct into a number of management districts which contain more detailed guidelines, e.g. height, density, FAR, land use and coverage.

#### 4.5.6 Summary

Sandton Gautrain is an important station within the Gautrain system. The Precinct is characterised by high intensity mixed use development and is seen as the financial hub of Johannesburg. The Gautrain unlocked higher intensity development. There are a number of public transport modes serving the area, but it is characterised mostly by vehicular transport creating high levels of congestion. The Precinct has a high number of landmark buildings, but the public environment and provision for pedestrians is low.

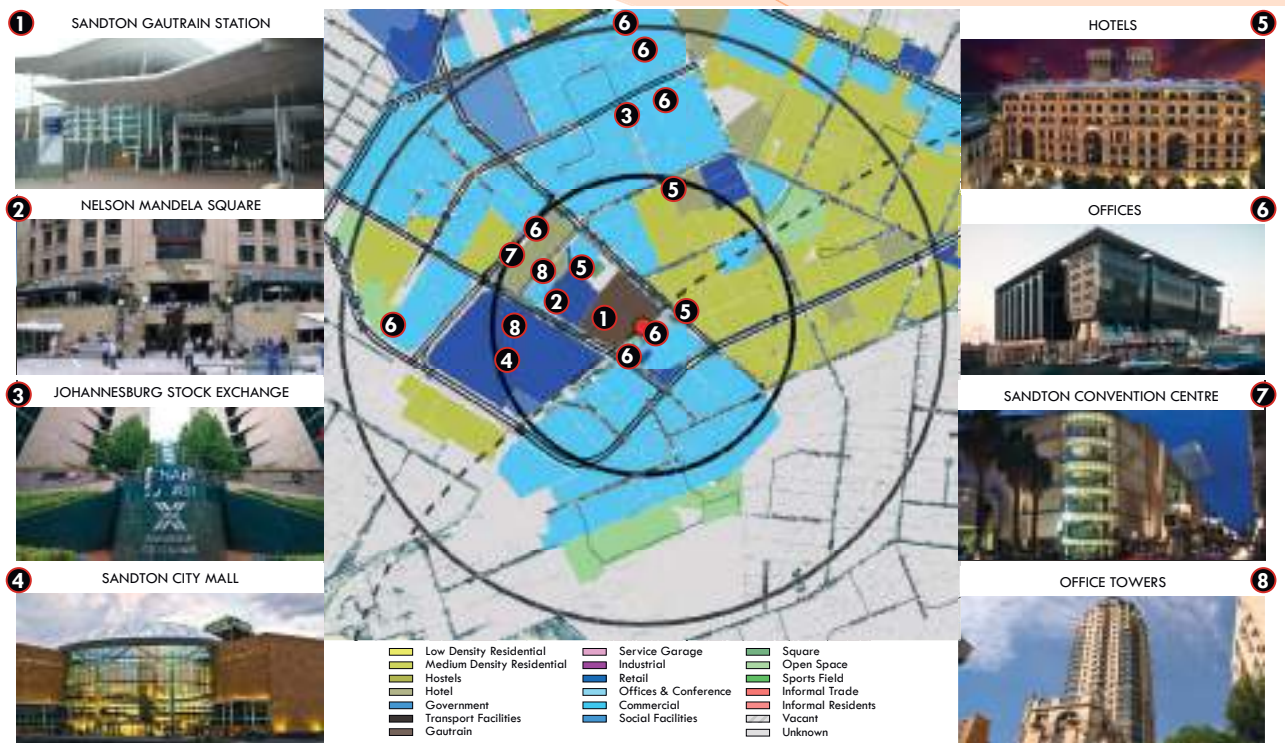


Figure 10: Character of Sandton Gautrain precinct



Figure 11: Land Use around Sandton station



Figure 12: Sandton urban development framework, 2008

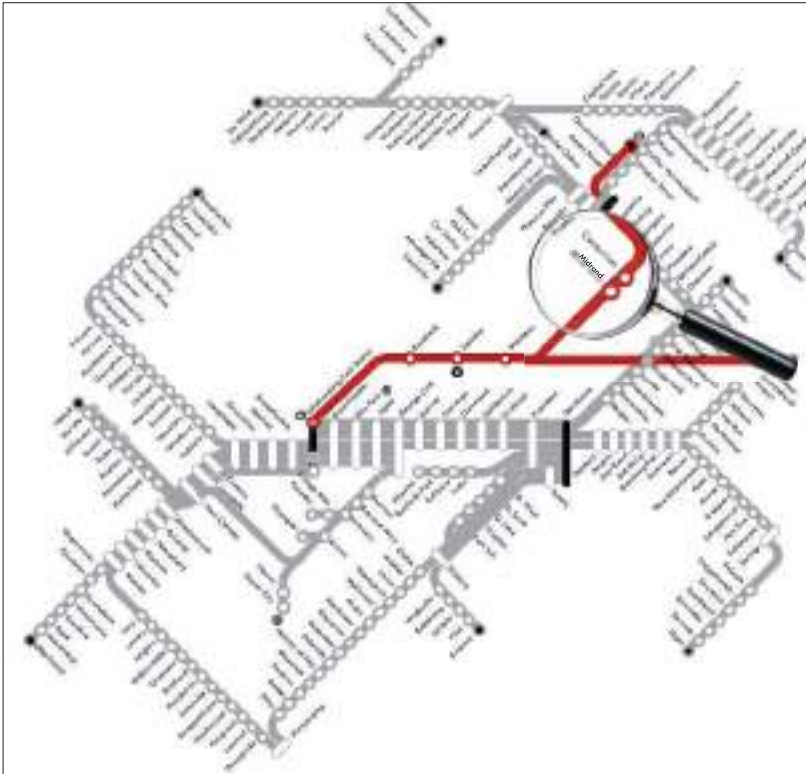


Figure 13: Locality of Midrand station on the rail system in Gauteng

Figure 14: Aerial photo of the station precinct (500M – 1Km)



## 4.6 Midrand Gautrain Station

### 4.6.1 Locality and role of the station

Midrand Gautrain Station was selected as the unsuccessful case study, due to the lack of development around the station.

It is located east of the Old Pretoria – Johannesburg Main Road (R101) at its intersection with Grand

### Central Boulevard.

The Midrand Gautrain Station is a greenfields (development in an underdeveloped area) station and it was envisaged that the area around the station can accommodate high density mixed use development creating the desired new urban form through the planned Zonk'izwe Town Centre, which never materialised.

Midrand is a rapidly growing residential, retail and industrial development area, but the station has not benefited from this development growth.

### 4.6.2 Transport

Public transport is limited. There are a few mini-bus taxi stops on the Old Pretoria Main Road with some shelters and without adequate sidewalks serving the public transport users. There is a taxi rank on Church Street at the intersection with Pretoria Main Road as well as an informal facility at the Boulders Shopping Centre in the CBD.

The area is however well served by an extensive road network, ranging from freeways and major arterials to a widespread local road network. The N1 Highway is the most important component in the movement network as it provides regional access to the Midrand area, linking it to various other freeways in Gauteng.

The most important roads connecting Midrand to the N1 and surrounding areas include Allandale Road, New Road, Olifantsfontein Road and Modderfontein Road. Traffic congestion in the area is growing as the larger Midrand area develops.

### 4.6.3 Land use and environmental quality

The station is adjacent to the Grand Central Airport but the surroundings remain largely undeveloped, with some small townhouse house developments and agricultural holdings. Extensive development has however taken place in the larger region surrounding the Midrand station for example on the Farm Waterval with the Mall of Africa being the flagship development. This development has shifted the centre of Midrand further away from the Gautrain Station.

The K101 creates a physical barrier between the existing Midrand Business District and the station precinct and there is currently no integration between

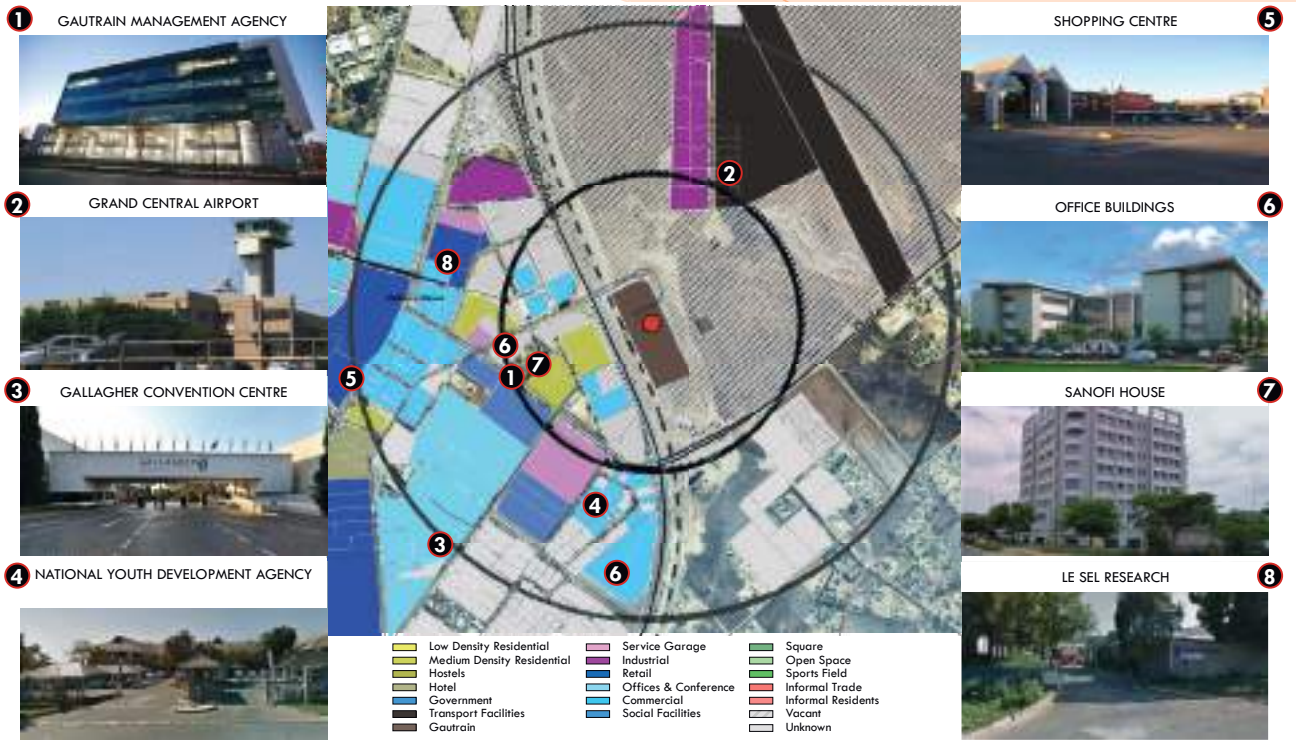


Figure 15: Land use around Midrand station



Figure 16: Character of Midrand Gautrain precinct

Figure 17: Midrand Gautrain UDF, 2008

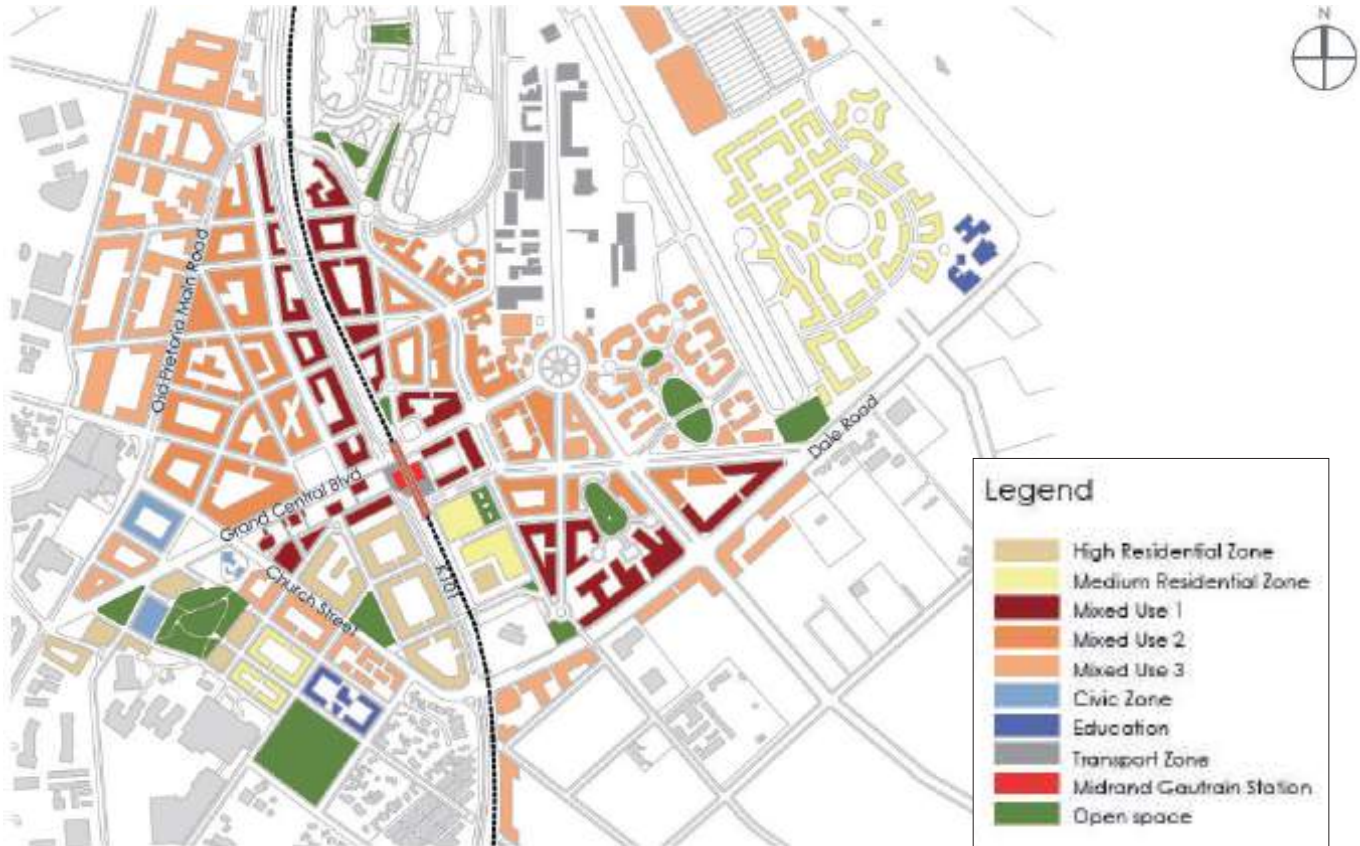
these areas. The urban form of the Midrand precinct is defined by fragmented, disconnected, low density development and it lacks a sense of place.

#### 4.6.4 PLANNING FRAMEWORKS

##### 4.6.4.1 Midrand Gautrain Urban Development Framework (2008)

The Midrand Gautrain Urban Development Framework was drafted in 2008 to facilitate a Transit-Oriented Development around the Midrand Gautrain Station. The UDF identifies the need to strengthen the land-uses already in place and to introduce a vibrant and integrated mix of new uses and activities.





**Figure 18: Midrand Gautrain UDF – proposed land use**

The Framework proposes the hub around the station including a connection to new transport facilities such as bus, taxi and feeder routes as a first phase. Phase 2 includes the construction and development of the high level pedestrian boulevard as well as any development along the edges supporting the functioning of this connection. Phases 3 to 5 concern the proposed Zonk’Izizwe development. Phase 6 addresses the link from the Gautrain Station and marginal areas, and Phase 7 addresses densification and diversification of the link along Old Pretoria Road.

The UDF proposes several urban elements such as a transport interchange hub, bridge link, an urban esplanade along grand centralboulevard, a civic hub and urban park, and a station square. It seems that few of these proposals have been implemented to date.

**4.6.4.2 Region A - Midrand. Precinct plan: Office Space Optimisation Programme (2015)**

The Office Space Optimisation Programme (OSOP) was initiated within the Joburg Property Company to address the City’s need for office space, both present and future, in a synergised and holistic manner. The Midrand node is focused around Midrand Gautrain Station and extends along the Grand Central Boulevard to Old Pretoria Main Road.

In order to promote a shared and balanced economic growth, the following critical strategic planning issues were addressed:

- Promote high densities in and around the node in support of the Gautrain system.
- Provision of affordable housing.

**Figure 19: Midrand Gautrain UDF street design**





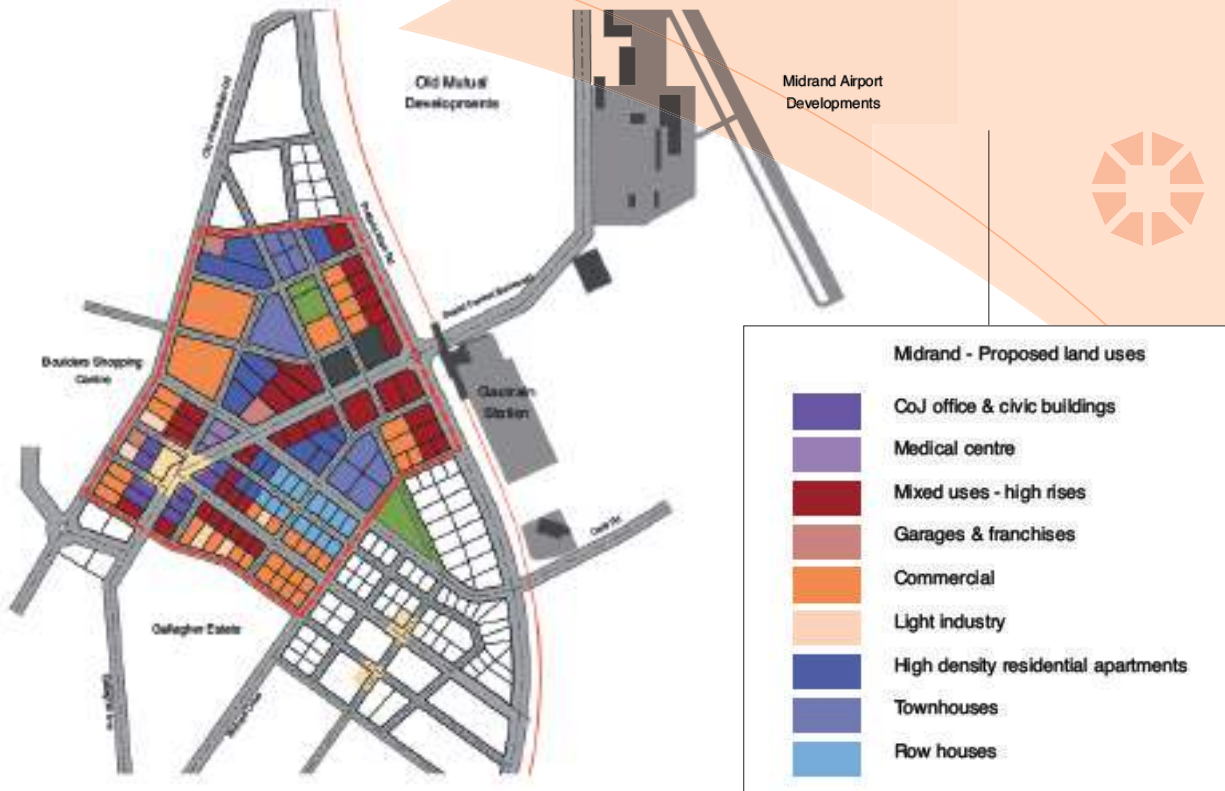


Figure 20: Midrand OSOP proposed land use



Figure 21: Midrand OSOP proposed development

- Ensure that adequate provision is made for public transport facilities to ensure effective implementation of the taxi ranks and BRT networks.
- Establish a City Improvement District to focus on revitalisation and regeneration.
- Improvement of public environment, pedestrian connections and landscaping.
- Address strong perceptions of crime and grime through socio-economic developments.
- Improve and provide for inter-modal facilities around Gautrain Midrand Station.
- Encourage development of vacant land within Grand Central area.
- Address Urban Management issues.

**4.6.5 Summary**

The Midrand Gautrain Station Precinct remains largely underutilised despite large portions of vacant and underdeveloped land in its surroundings. The momentum for development has shifted away from the station towards the Waterfall Area and Precinct Plans remain unimplemented.

Figure 22: Midrand OSOP streetscape



## 5 CITY OF TSHWANE

## 5.1 Institutional structure

There is no specific department or section that deals with TOD in the city. BRT planning, construction and operations is overseen by the Department of Transport. Much of this work has been outsourced to consultants. The Department of Spatial Planning deals with the identification of corridors and nodes.

## 5.2 TOD policies

The City of Tshwane does have a policy that addresses TOD Rapid Transit Spatial Development Policy. The MSDF, RSDFs and Integrated Transport Plans also addresses issues around TOD.

### 5.2.1 MSDF and RSDF

The MSDF and RSDF were drafted for the Tshwane Metropolitan Municipality in 2012 and 2013. One of the strategic objectives of the MSDF is to provide sustainable communities with a clean healthy and safe environment and integrated social services by restructuring the spatially inefficient City through compaction, densification and TOD.

The SDFs state that 'TOD incorporates densification, intensification and compaction of mixed land use in close (walking distance) proximity to significant transit connections. The intention of TOD is to maximise the potential of developed land, create the population threshold required for sufficient ridership of public transport, reduce the carbon footprint by combating sprawl and promoting pedestrianism thus reducing reliance on private vehicle usage and creating vibrant 24-hour centres that provide sustainable human settlements'.

They state further that TOD 'will address spatial restructuring by 'stringing' the city's nodes together, effectively making the city 'smaller' and travel distances 'shorter' through an efficient integrated rapid transport network (IRPTN), which will optimally integrate road, rail and air transport within the CoT. The IRPTN will thus allow that, regardless of one's location in the city, equal access for all residents to all nodes will be provided for. In addition, labour markets will be spatially integrated and true flexibility regarding one's place of residence versus place of work will be catered for'.

Walking distance that defines the TOD precinct is taken as 500m to a bus stop and 800m to a train station,

although in practice a portion of transit riders will walk somewhat more depending on local circumstances.

### 5.2.2 Integrated Transport Plan 2015

The comprehensive Integrated Transport Plan for the City of Tshwane was issued by the Department of Roads and Transport in March 2015.

It was recommended in the document that The City of Tshwane should implement a comprehensive Growth Management Strategy aimed at facilitating growth along the priority public transport network identified. Such Growth Management Strategy should include the following measure: The promotion of Transit-oriented Development along public transport corridors and ensure that surrounding movement networks sufficiently cater for Non-Motorised Transport (NMT) supplementing the public transport network.

### 5.2.3 Tshwane Rapid Transit Spatial

#### Development Policy – Densification and Intensification guidelines (2014)

The purpose of the document is to provide the City with Spatial Development Guidelines for densification and intensification around Tshwane Rapid Transit stations.

Transit-oriented development (TOD) is defined as a mixed-use residential or commercial area designed to maximize access to public transport, and often incorporates features to encourage transit ridership. A TOD neighbourhood typically has a centre with a transit station or stop (train station, metro station, tram stop, or bus stop), surrounded by relatively high-density development with progressively lower-density development spreading outward from the centre. TODs generally are located within a radius of one-quarter to one-half mile (400 to 800 m) from a transit stop, as this is considered to be an appropriate scale for pedestrians. Maximum walk distance is less than 1 kilometre to a high-capacity transit station, or less than 500 meters to a direct service station TOD Standard requirement.

The following design guidelines are provided specifically for TOD:

- Encourage vertical mixing of uses
- Encourage active interfaces between buildings and streets.
- Offer incentives for inclusionary development
- Encourage development that spread economic impact

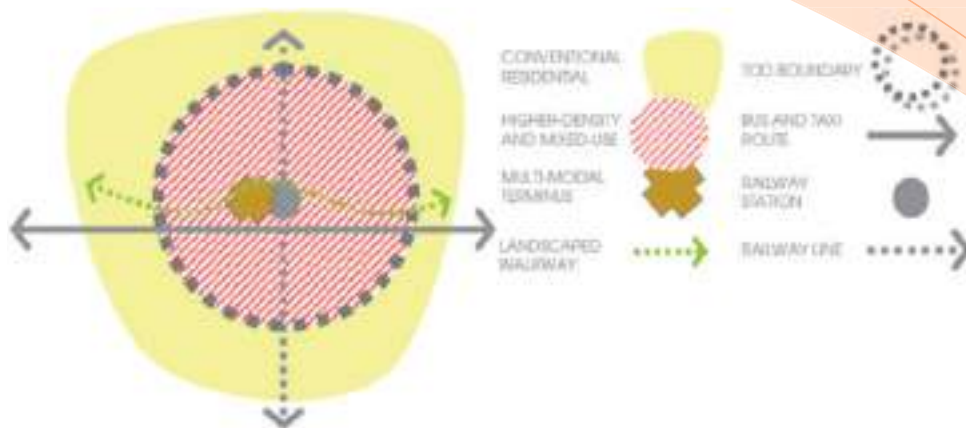


Figure 23: Principles of TOD in Tshwane

Figure 24: Image of a TOD, City of Tshwane policy

- High accessibility to the transit station
- A mix of residential, retail, commercial and community uses
- High-quality public spaces and streets which are pedestrian and cyclist friendly
- Medium to high density development within 500 metres of a transit station
- Reduced rates of private car parking.
- Create “anchor” civic spaces around and close to stations
- Prioritise pedestrian and bicycle movement over motor vehicle movement
- Increase pedestrian permeability into and through BRT Station Precincts

### 5.3 Development incentives

The City of Tshwane Incentives Framework introduces a new and innovative way of facilitating development opportunities in the City. The objective of the Incentive Framework is to attract investors who will bring the expertise, funds and the capacity to develop new structures and industries. This initiative was born out of the realisation that the City of Tshwane will not achieve the desired growth and development without cultivating an investor friendly environment, efficient processes, proactive but sustainable policies and funding strategies.

A list of the proposed investment incentives of the City of Tshwane are listed in the table below.

Category	Incentive Name
Land Use Management	Special Development Zone (SDZ). Incentive Zoning. Fast Tracking of Land Use applications. Fiscal Tools.
Fiscal Tools	Bulk Service Contribution. Property Rates Rebates. Exemptions and reductions. Tax Incentive Programmes. Subsidised and Urban Development Grants.
Capital Investment	Infrastructure. Good quality Public Transport. Social and Community Facilities. Investment in the public environment.
Urban Management	Area Improvement Partnership. Safety and Security.

**Table 2: Proposed investment incentives, City of Tshwane**

## 5.4 PRASA

The Passenger Rail Agency of South Africa (PRASA) is a state-owned initiative which is accountable for the majority of passenger rail services throughout the country. PRASA consists out of three divisions (PRASA Technical, PRASA Rail Operations and PRASA Corporate Real Estate Solutions) and two subsidiaries (Autopax and Intersite). Around 2010, PRASA decided to revive all properties around the PRASA stations with the objective of gaining revenue from it. PRASA then formed an investment wing, known as Intersite, in order to manage this objective. Intersite's role is to explore commercial opportunities for PRASA as it manages all the property owned by PRASA.

During 2011 and 2012, most of the properties surrounding the PRASA stations were made available for tenders, allowing developers the opportunity to utilise the PRASA owned land for development. Due to Intersite's business model that is focused on retaining assets and not to sell them off, a development lease model was used. The development lease model is based on assets that aren't relinquished, but rather leased on a long-term basis.

Furthermore, in April 2011, PRASA introduced a new plan to replace existing rolling stock. The estimated worth of the replacements was roughly R 97 billion. The Integrated Transport Master Plan (ITMP25) lists critical priorities for PRASA to be implemented

over a period of three to five years, which includes modernising the existing passenger railway system as well as introducing and implementing new passenger rail technology. In addition, PRASA also aims to achieve the following:

- Extended hours of service;
- Improved travel times, improved customer experience and improved security and uncompromised safety on trains and on rail stations, including railway station precincts;
- Improved service levels in terms of reliability, availability and predictability (PRASA aims to improve their punctuality to at least 98% right time arrivals at all times and zero cancellations).
- Full service accessibility; and
- Provide capacity to ultimately move 60 000 – 80 000 passengers per hour in peak periods.

One of PRASA's key projects is the Modernisation of the Passenger Rail Corridor and the initiatives that support it. This is based on the objective to align PRASA with other public transport initiatives undertaken in Gauteng. The primary objectives include:

- Integration with the integrated road-based public transport (IPTN) at key stations;
- Effective road linkage to key stations;
- Integrated public transport ticketing;
- Integrated passenger information and communication; and
- Creation of a fresh new service experience for the commuter rail service users to attract passengers back to the rail mode of transport.

## 5.5 Denneboom PRASA station in Mamelodi

### 5.5.1 Locality and role of the station

Denneboom Station is located at the western entrance to Mamelodi and serves the largest part of this township. In 2007/8 it was the 4th busiest station in Tshwane with a total of 32 063 commuters per day, despite its peripheral locality on the Tshwane rail network. The station was constructed in the 1950's when Mamelodi was developed.

### 5.5.2 Transport

The precinct is an intermodal facility and accommodates a large number of public transport modes including taxis' municipal and private busses and in future will form part of the BRT network. Ranks have been constructed for the different public transport modes.

It is also located on the main access route into Mamelodi, Tsamaya Road.

Due to the large number of public transport activities and private vehicles, there is extensive conflict between vehicles and pedestrians. No attention has been given to pedestrian facilities. attempts to channel pedestrians along specific routes have failed. Barriers erected to prevent pedestrians from crossing the street have been removed. No consideration has been given to the needs of pedestrians.

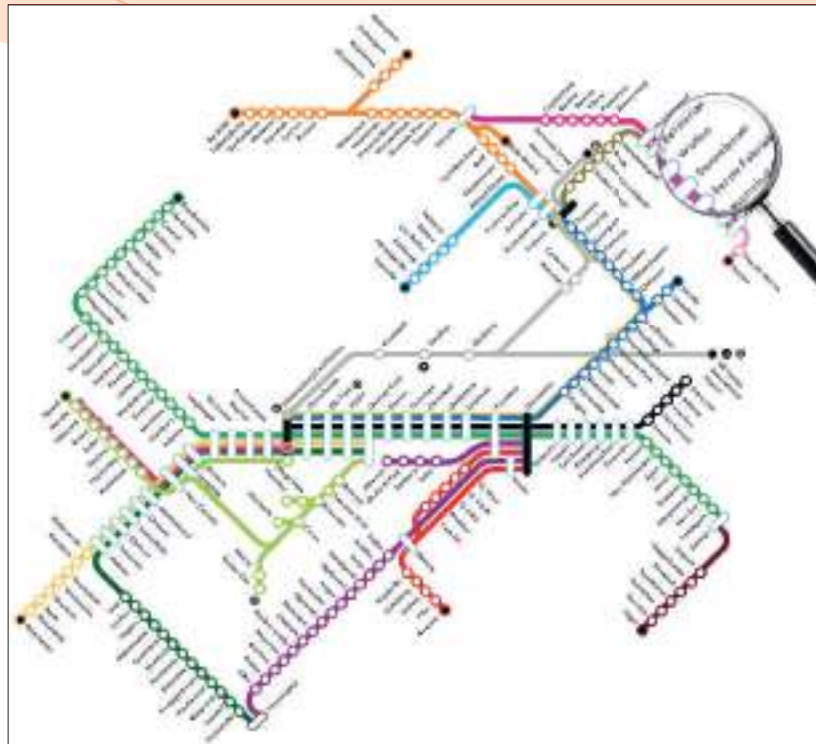
### 5.5.3 Land use and environmental quality

The station is wedged in between the industrial area of Waltloo to the south and the residential area of Mamelodi to the north. It is located in the apartheid 'buffer strip' and there are thus large portions of land surrounding it that remain vacant. The station has no relation to the industrial area to the south.

The station given its high level of use, has long been a hub for both formal and informal land uses.

There is a shopping mall on the Intersite land abutting the station. This was constructed in 1994 by Metropolitan Life. The area directly in front of the station is used for bus and taxi ranks.

To the north of Tsamaya Road are a number of hostels, some of which have been upgraded. These hostels form a barrier to pedestrian movement. A number of social



**Figure 25: Locality of Denneboom station on the rail system in Tshwane**

facilities can be found in the precinct. These include the municipal offices, and the Solomon Mahlangu Park.

Around 2004 a new shopping mall was built on municipal land to the north-west of the station (Denlyn). This mall has been expanded several times due to the growing demand for retail in the area.

Despite extensive public investment in public transport facilities, informal traders' stalls, the park and the road, the environmental quality of the precinct is very low. This is subscribed to a lack of urban management,

**Figure 26: Aerial photo of the station precinct (500M – 1Km)**



Developing a COLLECTIVE APPROACH TO mixed-use development in



Figure 27: Character of Denneboom precinct

Figure 28: Land use around Denneboom station

Figure 29: Solomon Mahlangu precinct plan



including informal trade. Facilities are old and broken, and the area is dirty and generally unattractive.

**5.5.4 Land ownership**

The land in the buffer strip around the station belongs to the City of Tshwane Municipality. The land was recently sold to a private developer for a shopping centre. The shopping centre will be located where the current intermodal transport facilities are located. These facilities will have to be replaced.

**5.5.5 Planning frameworks**

There are several spatial frameworks that have been drafted for the Precinct since 2004. These frameworks were drafted by different government departments, notably the CoT Integrated Transport Department, CoT Spatial Planning Department, the Gauteng Sustainable

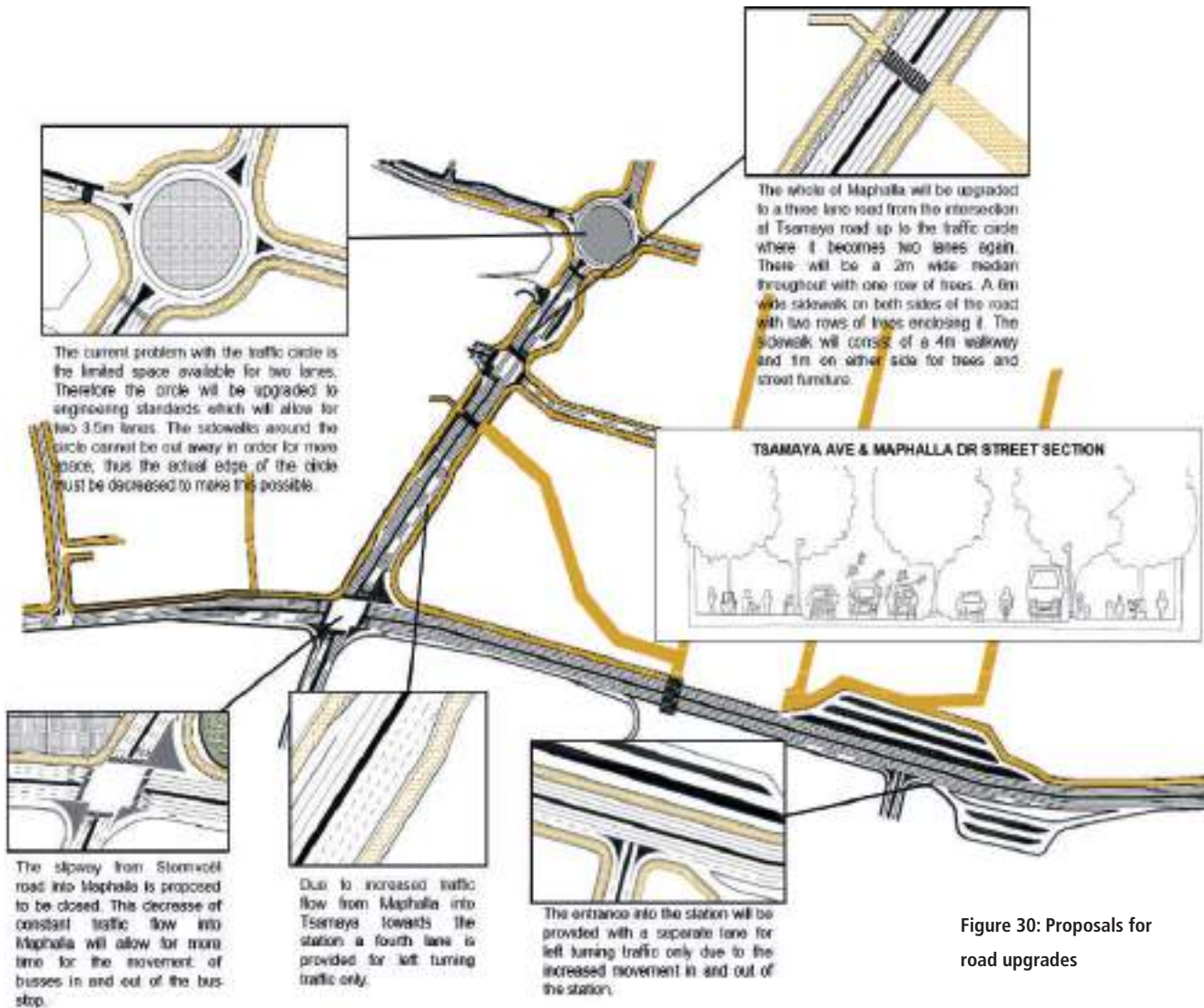


Figure 30: Proposals for road upgrades

Figure 31: Proposals for the upgrade of Mamelodi hostels

Human Settlement Department and National Treasury. There is limited reference made in the different spatial frameworks to each other. A new Spatial Development Framework is currently being drafted. This creates confusion and inconsistencies in the development of the Precinct.

**5.5.6 Summary**

Denneboom Station in Mamelodi is one of the busiest intermodal facilities in the city. Although there are numerous formal and informal activities, the area is run down and unsightly. Conflict between vehicles, buses, taxis and pedestrians distract from the creation of a TOD around the station. There are a number of upgrading projects in the precinct, hostel upgrading, road upgrading, development of public spaces and private commercial development. These are not significantly integrated to create a cohesive precinct.



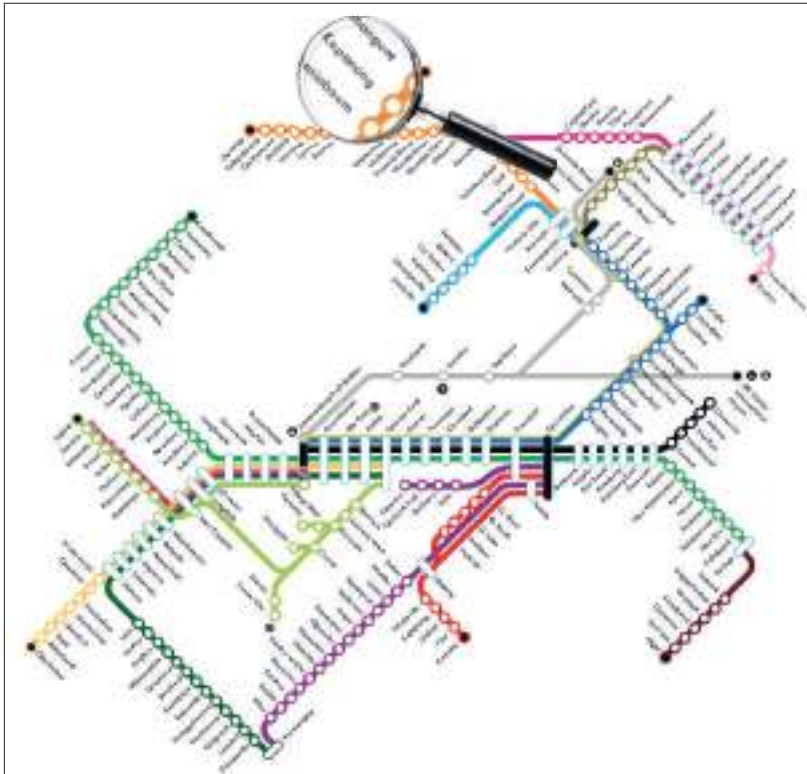


Figure 32: Locality of Kopanong station on the rail system in Tshwane



Figure 33: Aerial photo of the station precinct (500M – 1Km)



## 5.6 Kopanong PRASA Station In Klip-Kruisfontein

### 5.6.1 Locality and role of the station

The Kopanong Station is a relatively new station, built on the north-south line linking Mabopane to the Inner City. It was developed in the 1990s to accommodate the fast-growing housing development to the north of the city.

### 5.6.2 Transport

There is a bus and taxi rank within the station precinct. It is accessible via the R80 that links to the Tshwane Inner City.

### 5.6.3 Land use and environmental quality

The Precinct is surrounded by large residential areas accommodating fully subsidised and low cost bonded housing.

As it is a new station, the city was able to draft a precinct plan for the precinct prior to any development taking place. Township establishment followed in terms of the precinct plan proposals. Public investment took place following the township establishment: a taxi and bus rank, clinic, library and regional park were built, along with a public walkway and facilities for informal traders. Land was set aside for private developers.

Despite the public sector investment, no private development has taken place and the land surrounding the station is still mostly vacant. Disappointingly, the design of the clinic and library did not adhere to the design principles of the precinct plan - both are located centrally on the erf with boundary walls and do not speak to the broader precinct.

### 5.6.4 Land ownership

Almost all the land around the station is owned by the municipality. Some of this land has recently been alienated for private development.

### 5.6.5 Summary

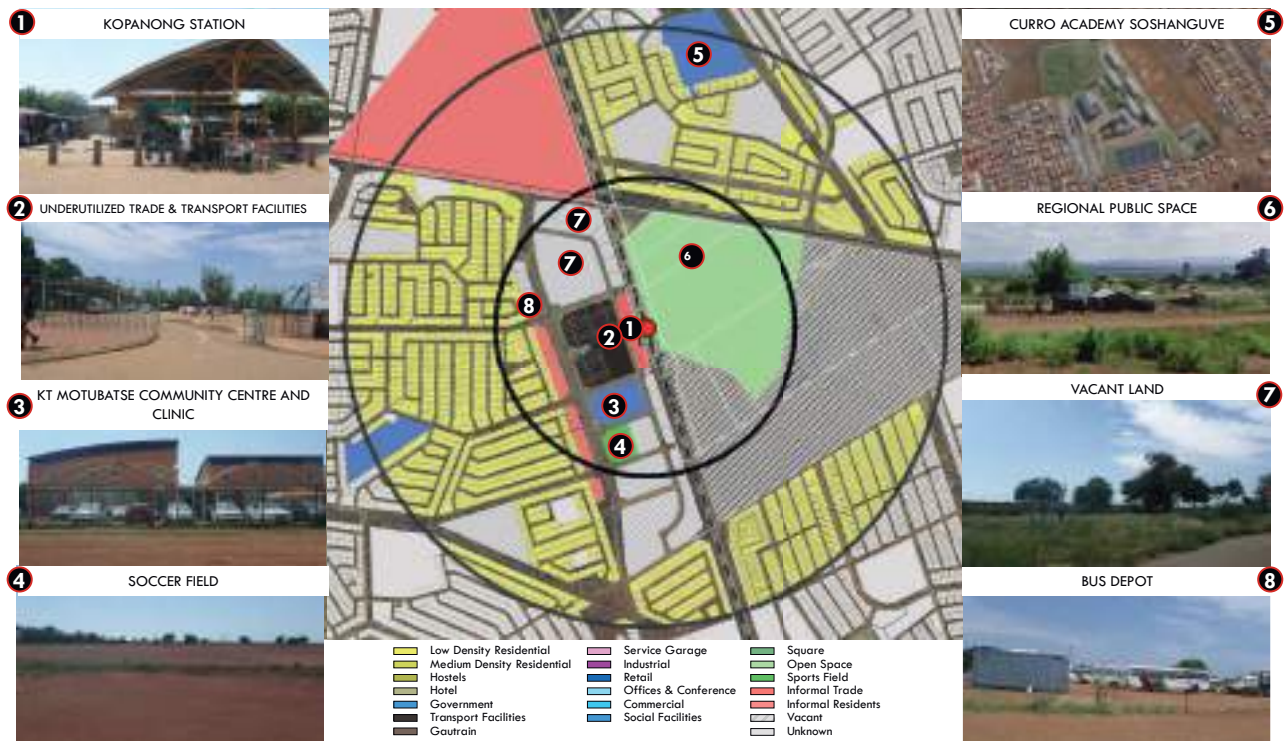
Kopanong station precinct is located within a low density middle to low income area. It is a new station and developed according to the precinct plan drafted for the area. Government investment took place in line with the proposals of the precinct plan, but private development has not yet taken off.





Figure 34: Land use around Kopanong station

Figure 35: Character of Kopanong precinct



## 6 CITY OF CAPE TOWN

The following information has been compiled on the basis of interviews with municipal officials from Spatial Planning and Urban Design Department and Transport for Cape Town (transport authority) conducted in February and March 2016, as well as the following documents:

- City of Cape Town Zoning Scheme Regulations, 2012.
- Comprehensive Integrated Transport Plan 2013 – 2018, 2014.
- Integrated Public Transport Network Plan 2032, 2014.
- Built Environment Performance Plan 2015/16.
- PowerPoint presentation on Transit Oriented Development, October 2015.
- City of Cape Town TOD Strategic Framework, 2016.
- MyCiti Business Plan, 2015 Update.
- Integrated Human Settlement Five-Year Plan July 2012 – June 2017, 2015/16 Review.
- Testing and Refinement of the Draft Integrated Human Settlement Framework for Cape Town, Final Report, 2014.

## 6.1 Public transport in Cape Town and planning for it

Public transport in the City of Cape Town is provided by a network of services:

- Rail passenger services (Metrorail);
- Conventional bus services (GABS and Sibanye);
- MyCiti services (trunks and feeders);
- Minibus taxi services;
- Metered taxi services;
- Dial a ride service (City of Cape Town); and
- Long distance services (road and rail).

The City of Cape Town's Transport Authority, named Transport for Cape Town (TCT), is responsible for planning, costing, contracting, regulating, monitoring, evaluating, communicating, managing and maintaining the City of Cape Town's transport infrastructure, systems, operations, facilities and network.

### 6.1.1 Bus Rapid Transit (BRT)

The City's BRT service, which is also referred to as IRT (integrated rapid transit), is relevant for this research as the two Cape Town case studies are linked to it. The service is marketed under the name MyCiti.

#### 6.1.1.1 Key BRT system features

The key BRT system features are:

- an integrated network of routes consisting of trunks and feeder services;
- dedicated median busways on trunk routes which provide customers with dramatically reduced travel times;
- frequent and rapid service between major origins and destinations;
- rapid boarding and alighting on trunk services, facilitated by:
  - pre-board fare collection and fare verification;
  - multiple right sided doors on buses;
- a reliable and accessible feeder service network;
- universal access;
- fare integration between routes, corridors, and feeder services; and
- presence of extensive security personnel and the use of CCTV cameras.

#### 6.1.1.2 Phasing of the MyCiti service

The service is being implemented in phases and to date only the first phase, as well as the N2 express service, have been completed.

The first, rudimentary system enabled the City to meet the public transport requirements for hosting the 2010 FIFA World Cup. It only provided services to event venues (such as Cape Town Stadium), the Airport and around the inner city.

The IRT network was officially launched in May 2011. It linked the Civic Centre in central Cape Town with Table View and serviced the central city and residential areas of Table View, Blaauwberg and Parklands.

The following additions – still part of the first phase – covered Woodstock, Salt River, Oranjezicht, Tamboerskloof and the Atlantic Seaboard suburbs, as

well as areas to the north of the central city, including Atlantis, the informal settlements of Dunoon and Jo Slovo Park, the industrial area of Montague Gardens and the seaside suburb of Melkbosstrand.

The second phase will provide a more extensive service to the southeastern parts of the city, including Mitchells Plain and Khayelitsha. The implementation of each phase is subject to the availability of funds. The implementation of the full system is expected to take between 15 and 20 years. The majority of the funding is provided through the Public Transport Infrastructure Grant (PTIG), with the balance funded by the City.

### 6.1.1.3 System operation

The MyCiTi system is operated collectively by a range of TCT departments, along with private sector companies contracted to perform specific operational tasks, such as vehicle operation, automated fare collection, advanced public transport management, station management, advertising and bus stops maintenance.

### 6.1.2 Integrated Public Transport Network (IPTN)

In October 2012 the City initiated the Integrated Public Transport Network (IPTN) project which aimed to integrate public transport services between modes and allow all users to travel from their origins to destinations in a seamless manner.

The Integrated Public Transport Network Plan 2032 (IPTNP), 2014, which forms part of the Comprehensive Integrated Transport Plan (CITP), encompasses all modes of public transport, including rail and road based technologies, as well as proposals for improving non-motorised transport (bicycle and pedestrian) access and park-and-ride facilities at modal interchange locations. The IPTNP determines which modes are best suited to cater for the existing and future public transport demand, describes routes and modal interchanges, defines station and stop locations, sets system operational parameters, determines infrastructure needs and estimates the total system costs.

This plan commits the City to a more compact and integrated city form and structure. The efficiency, productivity and resource sustainability are core principles associated with this vision. It envisages a city where approximately 80% of residents are placed

within 500 metres of a trunk (BRT/rail) or bus feeder route, where significantly fewer people rely on private vehicles and those who are using public transport can expect to reach their destinations within an hour.

In the process of IPTN planning an urban growth land use model was developed with the purpose of locating and quantifying spatial growth estimates. Equal focus was placed on residential growth – trip origins – and the growth of employment-generating land uses, such as office, retail and industrial trip destinations/generators. On the basis of this land use model three different land use scenarios were to be tested:

- **Business as Usual (BAU) Scenario:** Residential development is taking place at historic trend densities and follows the north-western and north-eastern growth corridors (greenfield areas). New industrial and office developments continue to cluster in existing locations, while new retail development follows disposable income and locates in such a way that it is able to reach the threshold population that it requires.
- **Pragmatic Transit Orientated Development (PTOD) Scenario:** Residential densification and non-residential land use intensification takes place in accordance with the principles of the Densification Policy with greater focus on transit orientated development locations. New industrial and office development largely remains confined to known economic areas with new retail floor area locating where disposable income is.
- **Transit Orientated Development Comprehensive (TODC) Scenario:**
- Land development is spatially concentrated around high-order public transport infrastructure, while residential and non-residential development is balanced to optimise public transport movements. All projected residential and non-residential development in the 20-year period is located in high-order transport precincts.

Notwithstanding the fact that the IPTNP was developed in terms of the pragmatic TOD scenario, the Council adopted TOD comprehensive assumptions and principles and decided that they should be used to further develop a more TOD comprehensive land use scenario.

These TOD comprehensive assumptions are:

- Locations of residential developments will not be impacted on by household income and

**Figure 36: An overview of the TOD strategic framework's methodology and structure**

land value. They will be determined from a transport optimisation perspective, i.e. residential development will be located so that it supports public transit.

- Development will be allocated to priority transit areas using the existing maximum permissible rights. If additional development is required the existing rights will be amended (rezoning).
- Parking requirements will be adjusted according to the provisions of Public Transport (PT) areas. If this reduction is not sufficient, further reductions will be modelled.
- Land use intensity and land use mix is allocated according to best location for transit capacity utilisation.
- Development is geo-fenced to existing and planned higher order public transport infrastructure.

### 6.1.3 Demarcation of PT1 and PT2 areas

Since April 2014 the Cape Town Zoning Scheme reflects the City's policy shift towards public transport. It recommends reduced minimum parking requirements in demarcated PT1 and PT2 areas where a reduced number of car trips can be expected due to the convenience of a public transport service.

### 6.1.4 Transit-Oriented Development strategy and TOD strategic framework

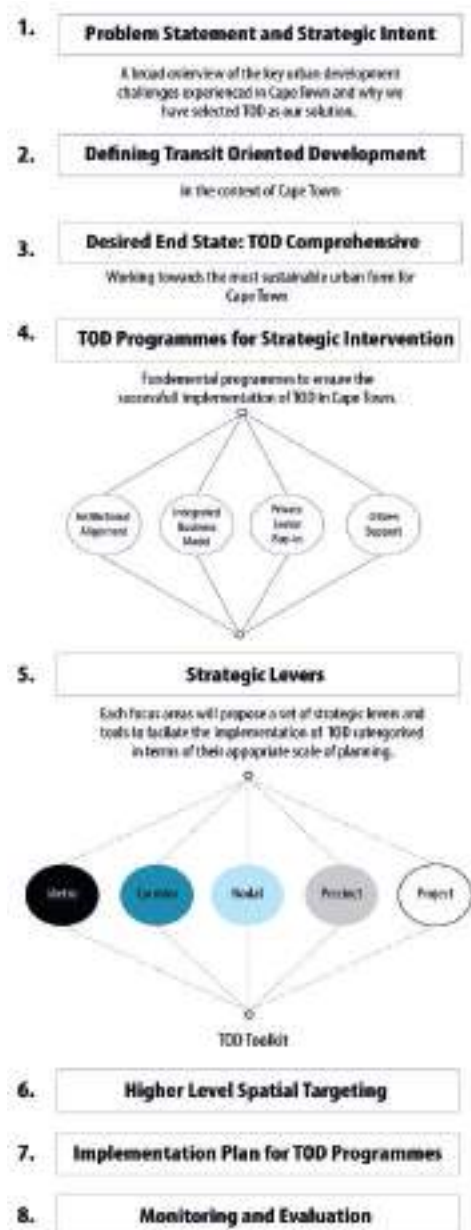
The City of Cape Town has adopted Transit-Oriented Development (TOD) as a key transversal development and management strategy to reverse previous anomalies in the city's urban form and achieve urban space economy and operational efficiencies. This strategy has been positioned under the leadership of a senior Mayoral Committee member.

TOD planning and implementation are the responsibility of the TCT Planning Department (Business Development Branch) via a TOD Technical Working Group.

In line with the TOD strategy and the IPTNP, the TCT Planning Department prepared a TOD Strategic Framework with the intent of establishing an implementation plan for TOD to be adopted by the City. The Council approved this Strategic Framework on 31 March 2016 and all City strategic and built environment plans will now have to align with the requirements of TOD for Cape Town to ensure integrated and co-ordinated delivery of services. All existing corporate strategic policy and development

frameworks (Integrated Development Plan, Spatial Development Framework, Integrated Human Settlement Framework, City Development Strategy, etc.) will have to incorporate TOD principles and objectives. These principles and objectives will also have to be applied in the assessment of all private sector development approvals and public sector led development across Cape Town.

The current thinking is to eventually build the TOD principles into the institutional score card, i.e. to translate them into performance indicators for each relevant department so that these departments do not have any other choice, but to implement them.



The TOD Strategic Framework contains, inter alia –

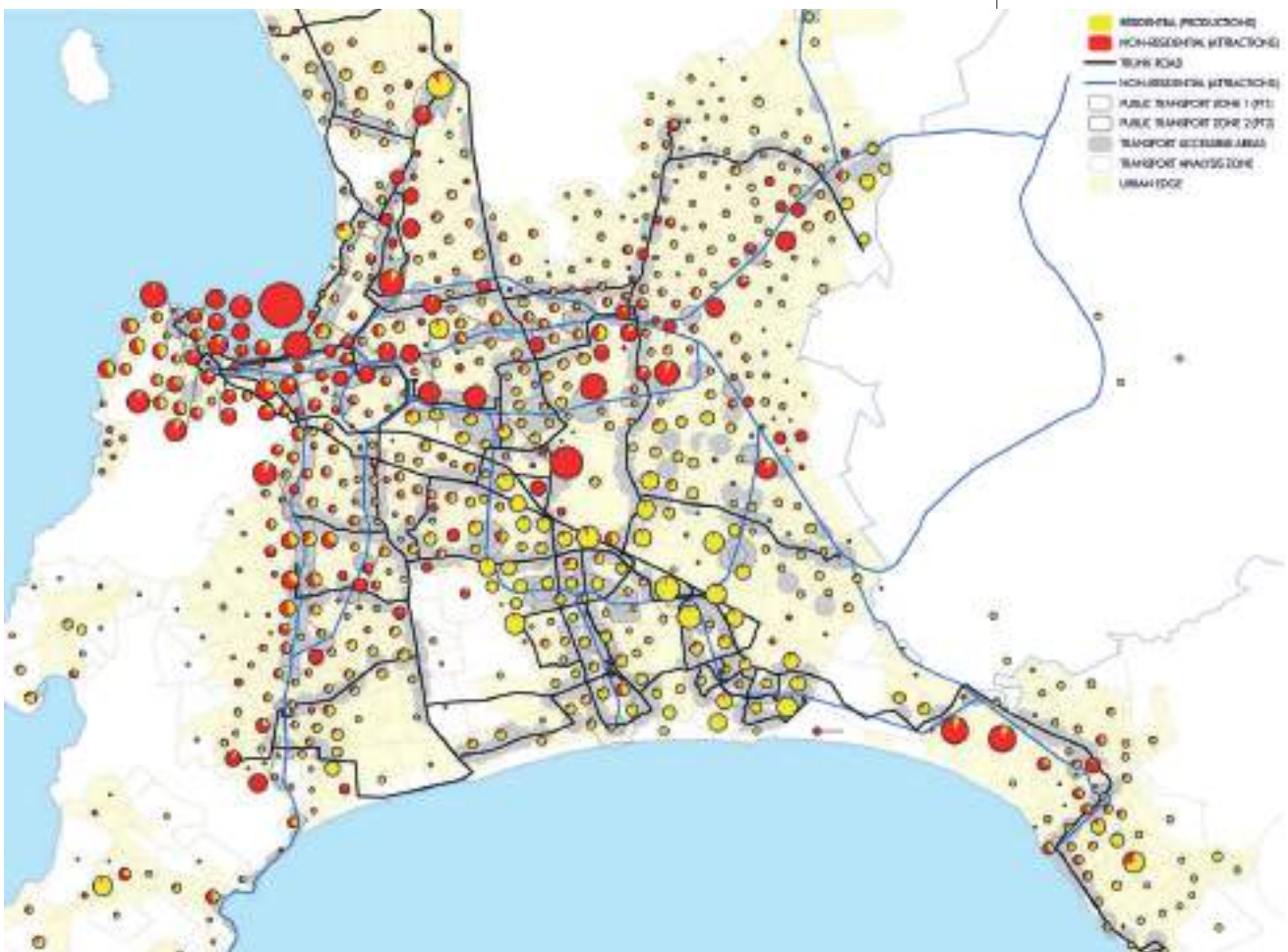
- TOD programmes for strategic intervention (fundamental programmes necessary to ensure the successful implementation of TOD in Cape Town):
  - institutional alignment;
  - integrated business model;
  - private sector collaboration; and
  - civil society participation;
- strategic levers and tools to facilitate the implementation of the TOD programmes at each of the following levels of planning:
  - metropolitan;
  - corridor;
  - nodal;
  - precinct; and
  - project/programme.

Relevant to the implementation of TOD is the concept of Transit Accessible Precincts (TAPs). A TAP is an area within the radius of 500m around a rail or BRT station

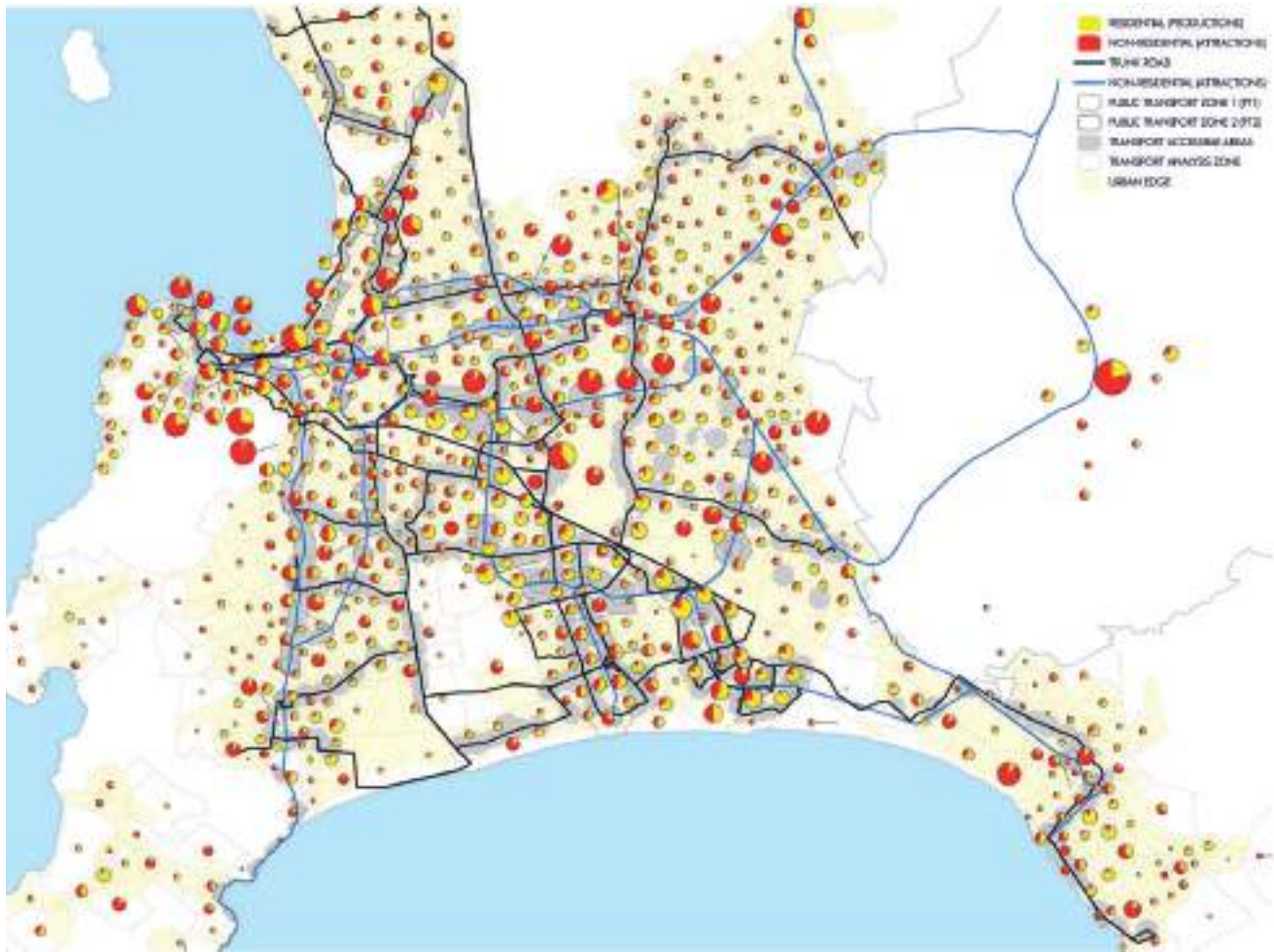
or public transport interchange. In this regard, the application of tools and the type of tools to be applied would depend on –

- whether there is demand for development within a TAP or not; and
- where in relationship to a TAP the demand for development is.

The TOD Strategic Framework is based on the earlier mentioned TOD Comprehensive land use scenario which provides the desired end state, i.e. the ideal locations of new residential and non-residential developments at a metropolitan scale. Figure 11 shows the optimal location of new trips in 2032 per 'transit analysis zone'. The yellow depicts new trip productions (generated from future residential development) and the red, new trip attractions (generated from future non-residential development such as retail, office, industrial and community facilities). Figure 10 shows the current spatial distribution of productions and attractions.



**Figure 37: Urban growth land use modelling: Current distribution of 'Productions' and 'Attractions'**



**Figure 38: Urban growth land use modelling: TOD comprehensive land use scenario 2032**

## 6.2 Integration of planning across sectors

The IDP office compiles the IDP on the basis of various line directorates' inputs. The extent to which inputs into the IDP are integrated depends on communication between line directorates and their ability to ensure the integration of their own proposals and requirements with the proposal and requirements of others.

The Metropolitan Spatial Development Framework (MSDF), the Comprehensive Integrated Transport Plan (CITP) and the Integrated Human Settlement Framework are examples of sector plans that feed into the IDP and should be integrated. This is, however, not always the case.

Housing plans driven by the existing subsidy system aim to create the maximum number of dwelling units in the shortest possible time and within the smallest capital budget. Due to the way in which the current subsidy system is structured and the impact that it has on municipal budgeting, as well as on the financial thinking within the city in general, the capital budget for the delivery of housing units has no correlation

with the (long term) operational expenditure and no mechanisms exist for the evaluation of their mutual impacts or a possible cross-subsidisation of one through the other. For example, housing units are provided in an area which, in terms of the capital budget, seems to be the most suitable one. However, the area is not serviced by public transport and the future costs of the provision of public transport services have not been considered. Had these costs been taken into account, the chosen area would not have looked so attractive. In the process of drafting the Integrated Human Settlement Framework for Cape Town (IHSF) six different strategic scenarios were scoped and modelled. One of these scenarios was the "Sustainable Compact City Scenario", described as the one which would contribute to spatial efficiencies and transit orientated development. However, this scenario was rejected as the base for housing planning because the criteria for the evaluation of the scenarios were: number of households that would be assisted, required funding (total and by the City), land availability and the proportion of housing delivery that would be managed by the City. No other city management aspects, such as public transport service provision, were taken into account. It seems, therefore, that housing plans are

not necessarily consistent with other sectors' strategies and objectives in the City.

There is sometimes a discrepancy between plans in Cape Town aimed at promoting TOD on one hand and road classification standards and requirements on the other hand where road classification standards and requirements impede incremental densification, mixed use intensification and pedestrian friendliness and thereby undermine the use of public transport services.

### 6.3 Coordination of various aspects of design

Historically, the coordination of design issues related to TOD – such as location and design of stops and stations, road design, infrastructure design, public space design and housing design – was poor, but that has improved significantly during the process of IPTN planning and planning for the next phase of the IRT network (Lansdowne Wetton Corridor). Within this process TCT, who manage the project, set up a multi-disciplinary working group, incorporating representatives of Spatial Planning and Urban Design Department, Human Settlements Directorate and other relevant departments. This working group debated and influenced all aspects of planning and design. Particular attention is paid to the location of the stations and stops. The ones that have been planned by the IPTNP are now being interrogated and fine-tuned so that they optimally support TOD.

### 6.4 Development incentives

Important aspect of plan or design implementation is development attraction and stimulation. This can be done through offering incentives and marketing of plans and designs.

The TOD Strategic Framework considers the following types of incentives aimed at the stimulation of development consistent with TOD principles and guidelines:

- financial rewards (discounts, leveraging of city property assets, rebates, tax holidays and subsidies); and
- non-financial inducements (exemptions from certain regulations or standards).

This Framework also considers disincentives in order to curb development in undesirable locations. These may include increased development contributions, parking levies and planning restrictions.

The Cape Town Zoning Scheme already contains two types of incentives applicable to TOD precincts and these are:

- PT1 and PT2 zones with reduced parking requirements; and
- incentive overlay zones.

City officials involved in development believe that one of the most effective incentives is speeding up processing of development applications.

They also warn that one should be cautious in offering financial incentives as they often carry costs which have to be borne by other rate payers and suggest that such incentives may be justifiable only in cases where the value can be recaptured through rates (e.g. the property value increase) depending on the fundamentals of each particular area. Incentives should not be used to promote development in an area where there is no business interest. Businesses may be tempted to make short term locational decisions just to take advantage of the offered incentives and the city may end up with a business node that cannot be sustained (for example Atlantis industrial zone).

The Voortrekker Road 'Integration Zone' experience shows that merely showing plans of proposed interventions to developers and property owners can elicit a positive response.

There is a need for an organisational unit (department, section or branch) or an agency in Cape Town whose sole responsibility should be to attract, enable, coordinate and facilitate private sector's development in accordance with approved plans and designs. The feeling is that, in order to fulfil this task successfully, such unit or agency should have certain decision making authority which would prevent a project from being compromised by an unreasonable sector requirement and it would enable more effective negotiations with the private sector developers.

In the implementation of the Voortrekker Road Corridor the Greater Tygerberg Partnership is successfully fulfilling an important role of an intermediary between

the City and the private sector. This Partnership was originally established by the City, but now is an independent, non-profit organisation (with some City officials on the board).

A discrepancy between (progressive) forward planning and (outdated) zoning schemes may be a huge deterrent to private sector developers as they are expected to go through lengthy, costly and potentially risky rezoning procedures even if they are willing to fully comply with municipal plans and TOD principles. The City is contemplating tools such as proactive rezoning or overlay zoning to facilitate private sector development.

Another helpful tool, at least in heritage areas, could be a blanket heritage assessment of the entire precinct, so that individual developers are not burdened (and thereby deterred) by individual heritage assessments.

In summary, City officials believe that it would be important to de-risk development opportunities within TOD precincts for potential developers in order to leverage higher value.

## 6.5 Land use management

In the land use management process (dealing with development applications) it is often difficult to persuade developers to comply with subtler aspects of TOD (which are not necessarily built in the development rights), e.g. orientation of buildings, interface with the public realm, position of parking, build-to lines, etc. Their reluctance to adopt the new approach is often motivated by the unacceptability of these new concepts to their prospective tenants. So, these tenants (e.g. retailers) should also be considered as role players in TOD and their interest, perceptions, fears should be taken into account and appropriately addressed.

## 6.6 Transport operations

Currently there is no formal integration between operations of different modes of public transport, but in the course of 2016 TCT intends to initiate an integrated ticketing system.

A problem is that all modes of public transport are not at the same level of efficiency, reliability, maintenance and safety.

MyCiTi service seems to be convenient, affordable,

reliable, well maintained and safe. However it is still not used to its full potential. The system is predominantly used during morning and afternoon peaks on working days, and much less at other times of the day and over weekends. This indicates that public transport is still seen as only a means to travel from home to work, and not for other activities e.g. recreation and entertainment.

## 6.7 Zoarvlei MyCiTi station

### 6.7.1 Locality and role of the station

Zoarvlei station is located in an industrial part of Milnerton, approximately 5km north/north-east of central Cape Town. It is serviced by two trunk MyCiTi routes, namely T01 (Dunoon – Table View – Civic Centre – Waterfront) and T02 (Atlantis – Table View – Civic Centre).

The station became operational in 2011 as part of the first phase of the IRT project. It operates daily (including weekends and public holidays) from 05:15 to 22:45.

### 6.7.2 Transport

The precinct is well connected with central Cape Town, as well as with northern suburbs such as Bloubergstrand, Melkbosstrand and Atlantis by Marine Drive which runs along the precinct's western edge. MyCiTi busses approach the station from the south via an exclusive busway (closed for general traffic), while from the station to the north they use dedicated bus lanes flanking Marine Drive's median.

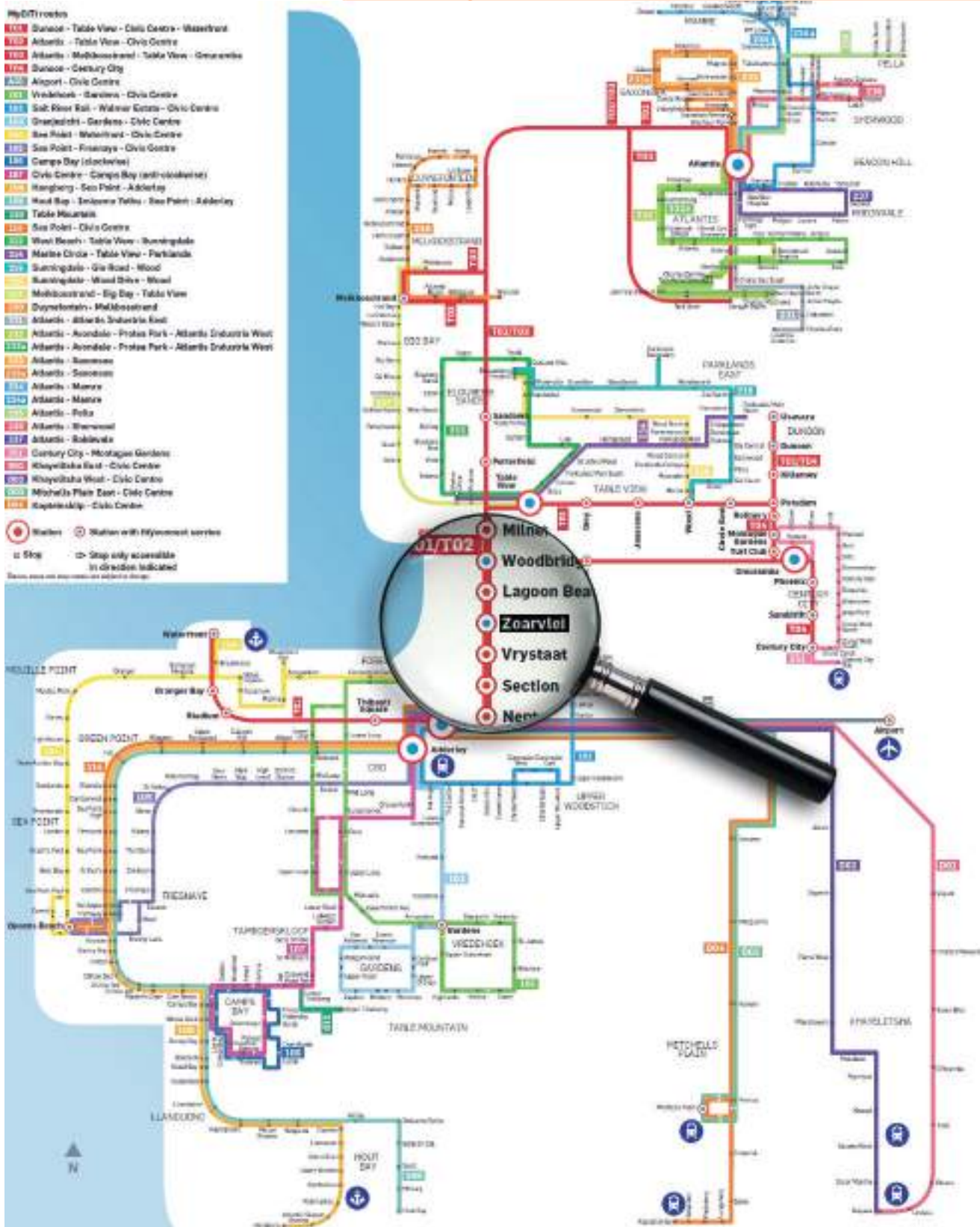
The precinct is very impermeable in an east-westerly direction. Two nearest vehicular links across the vlei in the Zoarvlei station area are 2,7km apart. Pedestrians are in a slightly better position as there is a pedestrian path (with a bridge) linking the station with Wemyss Street on the opposite side of the vlei.

The MyCiTi route is accompanied by pedestrian and cycling paths which are well integrated with the station.

### 6.7.3 Land use and environmental quality

The current land use within the precinct generally does not support public transport. The area between Marine Drive and the vlei accommodates light industry, offices, warehouses, car related businesses and similar uses and therefore may contribute to MyCiTi ridership





only during morning and afternoon weekday peaks, i.e. when people go to and from work.

The only real attraction in the precinct (in terms of MyCiTi ridership) is Milnerton Flea Market located between Marine Drive and the ocean.

The precinct also comprises a portion of a residential

area in Brooklyn, as well as Brooklyn Sports Ground and Brooklyn Chest Hospital. These however cannot offer much support for public transport as the residential density is low and both community facilities, the hospital and sports ground, imply very extensive use of land (low level of activity on a very large area). Although reasonably well maintained, the precinct

Figure 39: Location of Zoarvlei station on the MyCiTi route map



Figure 40: Zoarvlei MyCiTi station



Figure 41: Aerial photo of the precinct (500M around the station)



Figure 42: Current land use within the radius of 500M around the station

is unattractive. It is characterised by a vehicle-appropriate (i.e. pedestrian-unfriendly) layout, high fences and blank boundary walls facing the streets and a lack of any meaningful interaction between the street space and surrounding properties at the pedestrian level.

#### 6.7.4 Land ownership

The built-up and developable land is predominantly privately owned. There are large tracts of publicly owned land, but most of these properties are not developable as they are part of a nature system and a proclaimed conservation area.

#### 6.7.5 Planning frameworks

Zoarvlei station is located within the planning area of –

- Blaauwberg District Plan, 2012, as well as the
- Milnerton South - Paarden Eiland Local Area Spatial Development Framework, 2014.

Projections of the TOD Comprehensive Land Use Scenario 2032 are also relevant for the understanding of the planning context of the precinct.

Both the district and the local plan seem to be well aligned with TOD principles and contain provisions supportive of public transport which can be summarised as follows:

- mixed use intensification;
- increased number of residents in the area;
- creation of quality public spaces; and
- active interface between buildings and open spaces.

The comparison between the current situation and future TOD comprehensive land use scenario shows that currently non-residential uses dominate in the area around the station, while the growth required to support and optimise public transport would have to feature significant residential development as well.

Nevertheless, little has been done to implement the above plans. The construction of MyCiTi infrastructure and associated features (bus lanes, station structure, pedestrian and cycling paths, landscaping along the route and around the station) has, so far, been the only development in the right direction.



Figure 43: Illustration of the precinct's character



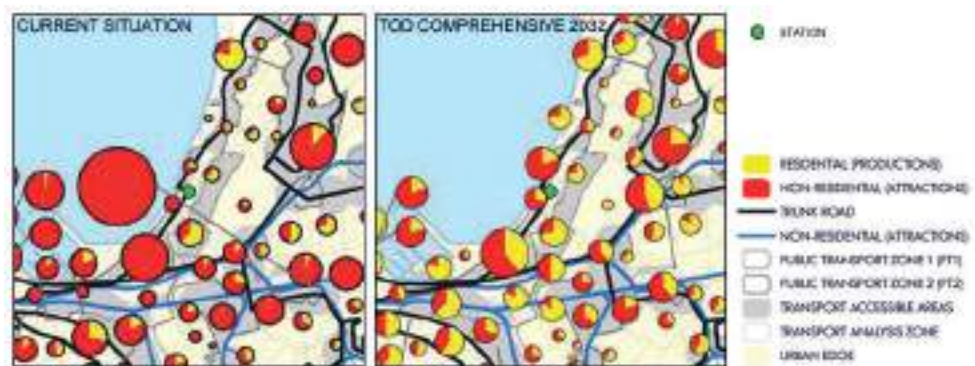
Figure 44: Land ownership within the station precinct

Figure 45: An Extract from The Blaauwberg District Plan, 2012



Figure 46: An extract from the Milnerton South - Paarden Eiland local area SDF, 2014

Figure 47: Urban growth land use modelling: Distribution Of 'Productions' And 'Attractions' Now And In 2032



## 6.8 Wood MYCiTi station

### 6.8.1 Locality and role of the station

Wood station is located in a suburban environment, at the intersection of Blaauwberg Road and Wood Drive in Milnerton (Table View), approximately 18km to the north-east of central Cape Town and approximately 9km straight north from Century City. It is serviced by one trunk MyCiTi route, namely T01 (Dunoon – Table View – Civic Centre – Waterfront) and two feeder

routes – 215 (Sunningdale – Gie Road – Wood) and 216 (Sunningdale – Wood Drive – Wood).

The station became operational in 2013 as part of the first phase of the IRT project. It operates daily (including weekends and public holidays) from 06:15 to 19:45.

Due to the width of the Blaauwberg Road median, the station consists of two separate structures linked by a bridge.

The precinct includes two large public parking lots (in the south-western and north-eastern quadrants of the intersection of Blaauwberg Road and Wood Drive) which allow for a park-and-ride use of the MyCiTi service.

### 6.8.2 Transport

Blaauwberg Road (M114), which links West Coast Road (R27) in the west with Potsdam Road (M5) in the east, provides easy access to the area from other parts of the city, including central Cape Town, northern suburbs, Century City and the N7 highway. It also accommodates the trunk route of the MyCiTi bus service which uses two dedicated bus lanes, one on each side of the Blaauwberg Road median. The feeder route busses use Wood Drive which does not have any dedicated bus lanes.

Figure 48: Wood MyCiTi Station



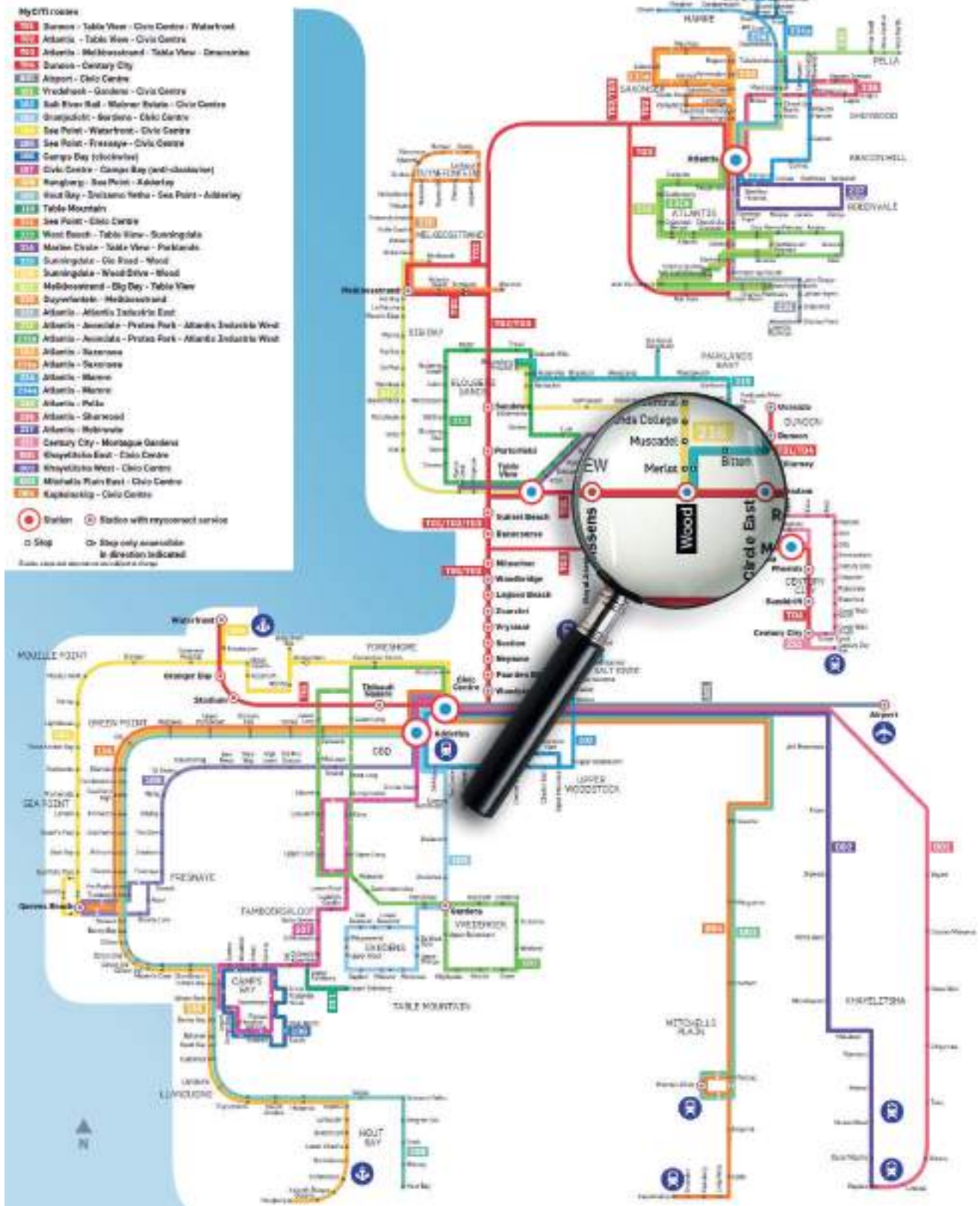


Figure 49: Location of Wood station on the MyCiti route map

The street network in and around the station precinct can be categorised as a 'looped, hierarchical network' which works better for vehicular than for pedestrian movement. It allows for higher vehicular mobility along main routes (such as Blaauwberg Road and Wood Drive) and eliminates any need for outsiders to use internal streets through which individual properties are

accessed. For pedestrians it implies increased walking distances with frequent backtracking and it makes the area much less permeable than it would be desired for a TOD precinct.

Intersections along Blaauwberg Road are spaced far apart. The distance between Wood Drive and the next



Figure 50: Aerial photo of the precinct (500M Around The Station)

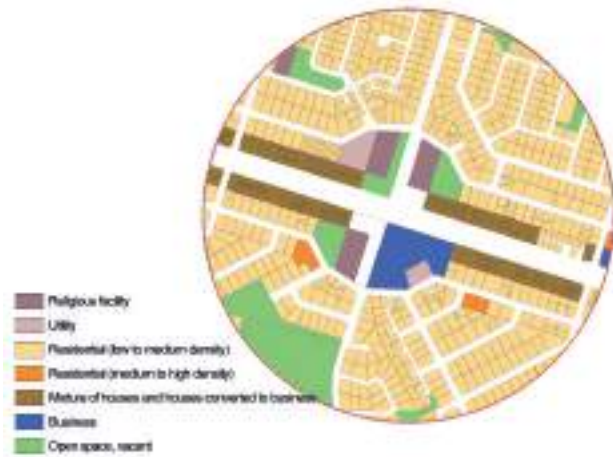


Figure 51: Current land use within the radius of 500M around the station

Figure 52: Illustration of the precinct's character (Four quadrants of the Blaauwberg Road and Wood Drive intersection)



intersection to the west (Janssens Avenue) is 400m, while the next intersection to the east of Wood Drive (Van de Graaff/Millin Road) is 520m away.

The MyCiti route is accompanied by pedestrian and cycling paths (located within the Blaauwberg Roads median) which are well integrated with the station.

### 6.8.3 Land use and environmental quality

The current land use within the Wood station precinct only partially supports public transport. It is predominantly a low to medium density residential area, accommodating single houses and different forms of group housing.

A large number of originally residential properties along Blaauwberg road have been converted into business premises and these businesses are conducted from what originally were dwelling structures (houses).

The central portion of the precinct (i.e. the sites adjoining the intersection of Blaauwberg Road and Wood Drive) accommodates a shopping centre (Flamingo Square) in the south-eastern quadrant and a church, surrounded by vast open space, in each of the three remaining quadrants. There

is a water tower next to the church in the north-western quadrant and a Telkom exchange with a communication tower behind the shopping centre in the south-eastern quadrant.

The immediate surroundings of the station and all features associated with the MyCiTi service, i.e. the Blaauwberg Road median with pedestrian and cycling paths, as well as the park-and-ride facilities, are well designed, landscaped and maintained and they contribute positively to the overall quality of the environment.

However, the sides of Blaauwberg Road, with a mixture of different types of residential structures, many of which have been converted into business premises, appear messy. These businesses are obviously aimed at the passing vehicles and do little or nothing for MyCiTi users. The sidewalks are not pedestrian friendly. Large strips of land between the sidewalks and property boundaries are not landscaped and are mostly used for parking. There are no trees providing shade or ambiance for pedestrians.

From a broader TOD perspective, and particularly from an urban design point of view, the location of the two park-and-ride facilities adjacent to the intersection of Blaauwberg Road and Wood Drive is unfortunate. They underutilise the valuable, strategically located and prominent land that – through a different design and development process – could have also been used for mixed use intensification, residential densification and high quality public spaces for pedestrian activities.

The south-eastern quadrant of the intersection of Blaauwberg Road and Wood Drive is occupied by a shopping centre (Flamingo Square). In terms of its land use this shopping centre supports public transport very well, but – from the location and design of its parking lot and pedestrian access routes – it is clear that it was designed to attract and serve customers that arrive by private cars and not by MyCiTi busses.

**6.8.4 Land ownership**

The land within the precinct is predominantly privately owned. However, a number of large erven owned by the City are strategically located in the close proximity to the station.



Figure 53: Land ownership within the station precinct



Figure 54: An extract from the Blaauwberg District Plan, 2012

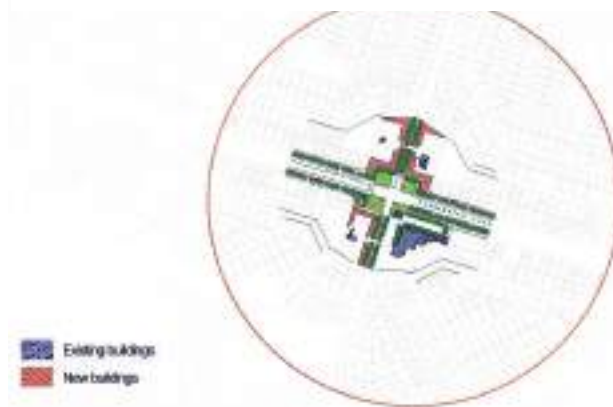


Figure 55: An extract From The Management Strategy For Blaauwberg Road, 1998

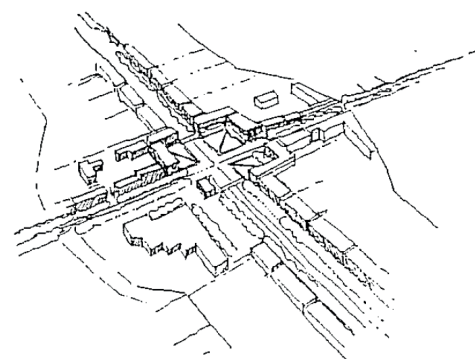
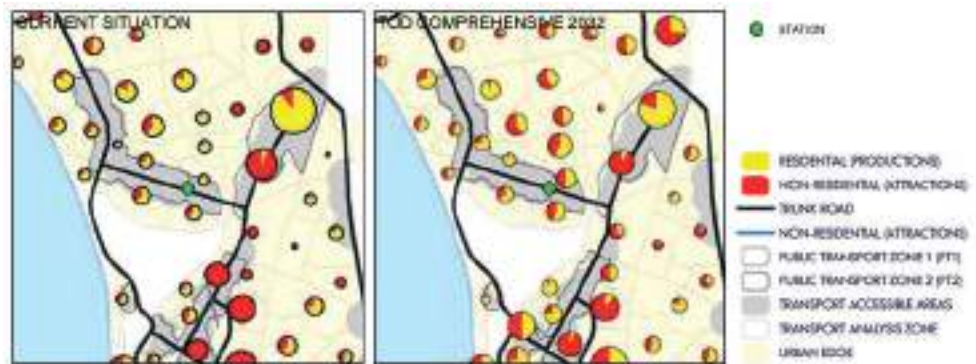


Figure 56: Aerial view of the proposed Flamingo Square (Management Strategy For Blaauwberg Road, 1998)

Figure 57: Urban growth land use modelling: Distribution of 'Productions' and 'Attractions' now and in 2032



### 6.8.5 Planning frameworks

Wood station is located within the planning area of –

- Blaauwberg District Plan, 2012; and
- Management Strategy for Blaauwberg Road, 1998.

Projections of the TOD Comprehensive Land Use Scenario 2032, as well as the Blaauwberg Road classification and access spacing requirements of the Western Cape Road Access Guidelines, 2002, are also relevant for the understanding of the planning context of the precinct.

Both the district and the local plan seem to be well aligned with TOD principles and contain provisions supportive of public transport which can be summarised as follows:

- mixed use intensification along Blaauwberg Road;
- creation of a quality public space around the station;
- ensuring active interface with open spaces.

However, the vehicular access spacing requirement of 90m, as stipulated by the Western Cape Road Access Guidelines, 2002, makes the proposed mixed use intensification along Blaauwberg Road a challenge.

The comparison between the current situation and future TOD comprehensive land use scenario shows that growth of both residential and non-residential uses is required to support and optimise public transport. As it can be seen in the above figure, the growth of non-residential uses should be proportionally higher than growth of residential use (which presently dominates in the area around Wood Station).

The only significant private sector development since Wood station became operational was an upgrade of Flamingo Square shopping centre in 2014.

Although interest to rezone and redevelop the existing residential properties along Blaauwberg Road in accordance with the planning frameworks exists, this cannot be permitted due to the abovementioned access limitations. Furthermore, all properties along Blaauwberg Road are subject to restrictive title deed conditions which would have to be removed to allow for any non-residential development.

In addition to this, the community and local councillors regularly oppose rezoning of residential properties as they are suspicious towards potential impacts of land use intensification in their neighbourhood.

The Management Strategy for Blaauwberg Road, 1998 has never been implemented and the implementation of the IRT project made it outdated and unimplementable. In order to enable the implementation of the planning frameworks a new development strategy is therefore needed which would have to be produced on the basis of a new traffic/transport study.

So far, the City has not initiated any development or land release processes in relationship to its own vacant land around the intersection of Wood Drive and Blaauwberg Road.

### 6.8.6 Summary

Wood MyCiTi station is located within a predominantly residential, suburban environment. It allows for transfer between a MyCiTi trunk route and two feeder routes. It also allows for a park-and-ride use of the MyCiTi service. Significant redevelopment energy, which could transform the precinct into a proper TOD, is present in the area, but the requisite development management strategy has not yet been put in place.



**THE PERSPECTIVE OF PRIVATE DEVELOPERS**

7



**Private sector property developers have a significant role to play in terms of the implementation of TOD's. In order to determine the private developers' perspective on TOD development a number of key private sector role-players were interviewed.**

The interviews with the private sector centred on specific elements of TOD implementation. These included TOD policy development, development implementation, and communication between the various role-players within the property development sector. In terms of TOD policy development, it is evident that the private sector is relatively familiar with existing municipal policies, however indicated that local government policies were rarely implemented.

Due to the lack of proper implementation a certain level of uncertainty with regard to future public transport provision is created. In terms of the actual precinct development plans drafted by the municipalities for TOD areas, the private sector noted that the standardised process of forming these plans should change to reflect local experiences.

Municipalities should acknowledge that each TOD precinct are different and as such require unique development interventions. For example, a precinct

plan for the development of a TOD in a metropolitan urban area should not have similar objectives than a TOD in a township area.

Furthermore, the private sector indicated that the municipality could utilise its resources more effectively when implementing development in TOD areas. For example, by providing high quality road infrastructure the financial burden of providing infrastructure contributions is reduced. Of particular concern for the private sector developers is the issue pertaining to the delayed approval on development applications.

Due to private property developers being driven by profit generation the intention is to find innovative ways of reducing development risks. Risks associated with delaying the development application process is one of the primary concerns for private sector developers. It is important that the public sector, in collaboration with the private developers, identify ways in which these risks can be reduced.

**FINDINGS**

8

**8.1 Introduction**

This section contains the findings of the six different case studies. It aims to cover the most pertinent aspects regarding the implementation of a TOD. As such it deals with TOD in the larger urban context, and the experience in changing modes of transport. It further assesses the compliance of development within the precincts with TOD principles such as a fine-grained mix of land use and pedestrian-friendliness. A key aspect considered is the success achieved regarding the implementation of precinct plans. Linked to precinct plan implementation are the issues of land ownership, the release of public-owned land, municipal procedure, subsidies and grants. Finally, a key feature for the achievement of successful TOD is the involvement of the private sector.

This chapter starts with an explanation of the finding which is then supplemented by appropriate examples.

**8.2 TOD in a wider urban context**

TOD in the wider context refers to how TOD fits into the larger urban fabric of cities and how it is influenced by existing urban patterns.

**8.2.1 Urban form**

Historically South African cities have not been developed to support public transport and have been built around the convenience and mobility of private vehicles. Factors that contribute to the inefficiency of public transport include low density residential sprawl, land use separation a single dominant commuting direction, and dispersed suburban commercial nodes. The provisions of public transport can currently only function by means of extensive public subsidies at the expense of severe hardship for users (e.g. long traveling times, long walking distances, and high transport costs). To support efficient public transport urban form has to be developed with high residential

densities and mixed use nodes and. TODs are punted as a strategic intervention to achieve this restructuring. In some of the case studies some form of restructuring is starting to emerge, but significant change remains the exception.

#### Example 1: COJ origins and destinations

Recent research undertaken by the Transport Department in the City of Johannesburg for the review of the BRT system has indicated that public transport points of origin are concentrated in low income neighbourhoods on the periphery of the city, but that destinations are dispersed. This is due to the concentration of commuters in specific locations e.g. Soweto and Ivory Park on the one hand (origins), and the large number of decentralised nodes that offer job opportunities, e.g. Sandton, Randburg, Midrand, Fourways (destinations). The lack of concentrated destinations impacts on the efficiency and viability of public transport, specifically the BRT, as it is impossible to link effectively to all the destinations and to create two-directional flow.

#### Example 2: Sandton and Gautrain stations

With regards to the Gautrain, the Sandton station is an example of a station that is both an origin as well as a destination at different times of the day. The node is a destination due to the presence of commercial tenants. Office workers commute to Sandton from other origins to access work opportunities. The node is an origin for affluent commuters residing locally to reach destinations such as the Johannesburg or Tshwane, the Inner City and the OR Tambo International Airport.

The Midrand Gautrain Station on the other hand is primarily a point origin for trips in the morning and a destination in the afternoons servicing local residents that travel north or south on the route. This trend might change over time with the large scale introduction of commercial development in the Midrand area in developments such as Waterfall. However, Midrand is in essence built on the concept of private vehicle movement, and there are still limited linkages between the Midrand station and its immediate surroundings.

The difference in function of these stations, is also reflected in the number of commuters utilising the stations on a daily basis. In 2015 11 349 commuters used the Sandton Station and 4 781 used the Midrand Station.

#### Example 3: PRASA stations

The Denneboom and Kopanong PRASA stations have almost exclusive one-directional flow of commuters, outbound in the mornings and inbound in the evenings. Even new commercial development at the Denneboom station specifically has not had any impact on this pattern, as commuters visit these shopping centres mostly in the afternoon on their way home when exiting the train.

### 8.2.2 Development within the surrounding region

The development of a TOD must be understood within its wider context. This refers to development that takes place outside of the sphere of influence of a TOD Precinct within a 1km radius, as its success of TOD is intricately linked to its locality within the urban area. Three issues are relevant in this regard.

Firstly, Spatial Development Frameworks are often very 'generous' in demarcating areas for mixed use development and residential densification. The potential development bulk contained in these designated areas often exceeds demand, even over a long period of time. This means that development in one area, although proposed in the SDFs, may have a negative impact on development within another area. Should market forces be allowed to leak elsewhere, the market demand and energy could fall below the threshold level required to sustain a TOD.

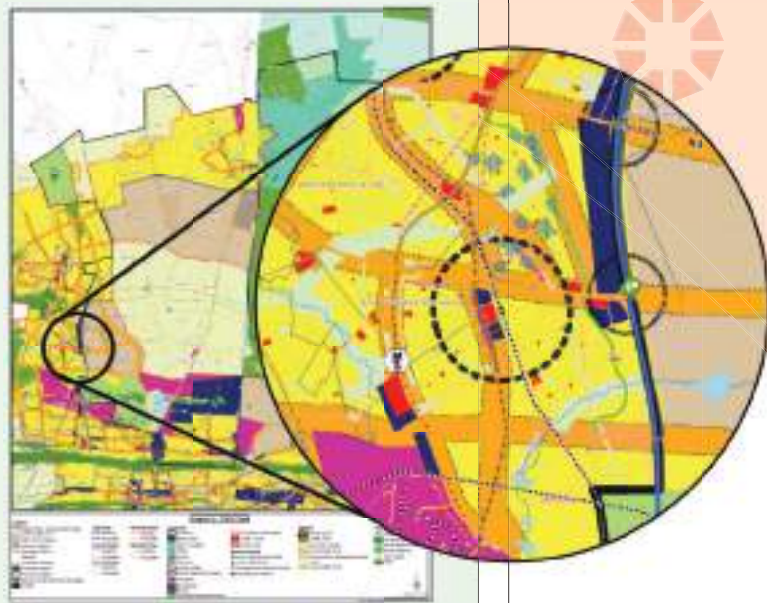
Secondly, cities identify strategic areas for the focus of development e.g. the Urban Development Zones, where special incentives to stimulate private investment are introduced and where government projects are directed. These do not necessarily include TOD Precincts, although public transport does play a role in the demarcation of such areas. TOD precincts thus often have to compete with other areas for funding and investment.

Thirdly, applications are at times approved on an ad hoc basis, despite being contrary to the proposals of an SDF. If such development is in close proximity to the TOD, but outside its precinct, it can impact on the feasibility of development within the TOD. Although SPLUMA requires in Section 22 (1) that a change in land use decision may not be made if it is inconsistent with a MSDF, it does allow in Section 22 (2) that such decisions may depart from the provisions of a MSDF (but) only if site specific circumstances justifies this. This is seen by some of the interviewees as a 'loophole' for the approval of applications outside of the proposals contained in the SDF and can lead to 'missed opportunities' for the development within a TOD precinct.

**Example 1: Tshwane Regional Spatial Development Framework Region 2**

Kopanong Station falls within Region 2 of Tshwane. The RSDF for this region indicates a large mixed-use area, almost four times the size of the Inner City to the south-east of the station on land which is largely undeveloped. Furthermore, although the station precinct is indicated as a transit zone, it is located within 1.5km from a future node and mixed-use corridor that is located adjacent to the R80 highway. These proposals speak to the generosity of proposed mixed use and densification rights and the competition for investment and how this can potentially impact on the feasibility of development within a TOD precinct.

**Figure 58: Extracts from Tshwane region 2 RSDF**



**Example 2: Zonk'izizwe Mall vs Mall of Africa, Midrand**

An example of a missed opportunity for the development of a TOD can be found at the Midrand Gautrain Station. Old Mutual planned to build what was going to be South Africa's biggest shopping centre, the much-vaunted 160 000m<sup>2</sup> Zonk'Izizwe Mall at the Midrand station. Several problems delayed the project, amongst others being road access and environmental concerns. In the meantime, Atterbury Property Group constructed Midrand's first super-regional mall, the so-called Mall of Africa some 4km away from the Gautrain Station. This forms part of the Waterfall Business Estate, a R25bn mixed-use development that spans 330ha of land on both sides of the N1 highway between the Woodmead



**Figure 59: Proposed Zonk'izizwe Mall**

and Allandale interchanges.

Old Mutual Property indicated that they would go ahead with the Zonk'Izizwe Mall despite the Waterfall project, and stated that: 'The site has the Gautrain station as a major catalyst. The development will be driven according to market demand on a phased approach.'

**Figure 60: Mall Of Africa, Waterfall Estate**



Market commentators, however, believe that the Midrand market can't support two megamalls. Preston Gaddy, executive head of retail at property management group Broll, indicated that opportunities to build new shopping centres exceeding 100 000m<sup>2</sup> in Gauteng were becoming few and far between. 'Retailers will definitely support one of the two proposed Midrand centres but not both.'



**Figure 61: Distance between Midrand Gautrain station and Waterfall Development**

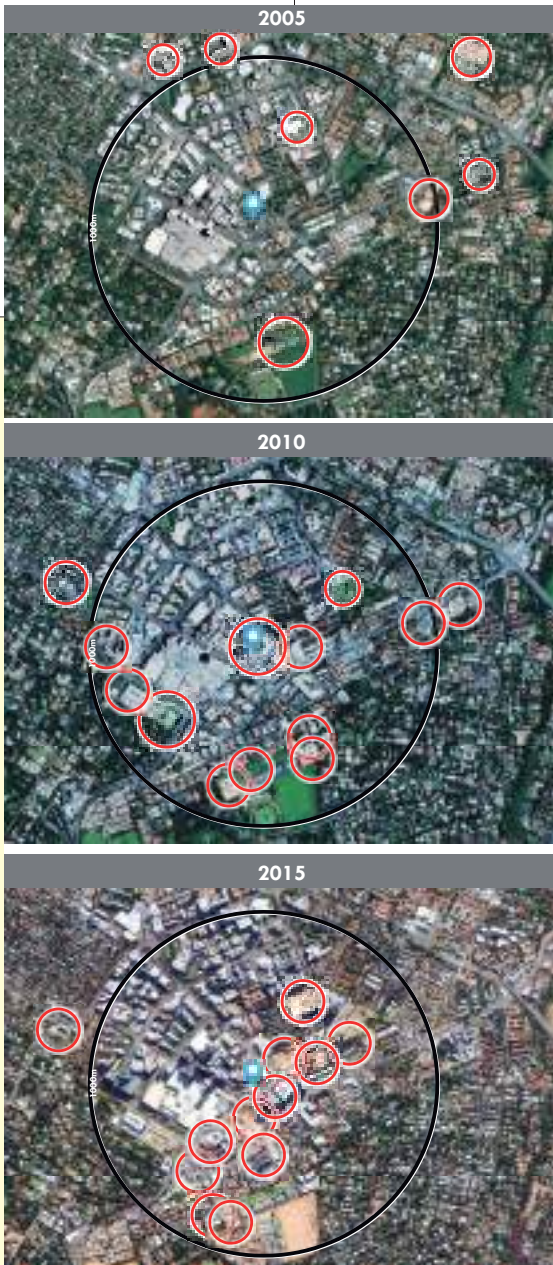
**Example 3: Kopanong station precinct**



Another example of a missed opportunity is at the Kopanong station precinct. Despite the development plans for a TOD being in place around the Kopanong PRASA station, since the late 1990s, and municipal-owned land available for commercial development, a new shopping centre was approved a mere 1.5km away, along the R80 highway. This has resulted in a limited demand for more commercial development at the Kopanong Station.

Municipal-owned land around the station has now been sold to a private developer and Intersite also has plans to develop retail on its land around the station. When considering the lack of development and the large low income market within these areas, the viability of these retail developments is questionable.

**Figure 62: Distance between Kopanong Station and Thorn Tree Mall shopping centre**



**Example 1: Sandton Gautrain station**

Development initiatives were already present and successful in Sandton prior to the Gautrain Station development, e.g. commercial and business anchors such as Sandton City and the JSE. Most development rights had been fully exercised before the advent of the Gautrain Station and no additional rights were being granted by the City until 2006 despite intense pressure for new development. This was due to the severe traffic congestion in the area. The advent of the Gautrain however allowed for the granting of new development rights based on the assumption that traffic congestion would be eased by a shift from private to public transport.

The introduction of the Gautrain served the purpose of unlocking further development and accelerating economic growth. Proof of this trend is the recent high density development of major office blocks opposite the Gautrain Station that has become the area of choice for blue chip tenants, such as EY.

A timeline of development indicates that it is not only new development, but that the 'centre of gravity' has shifted towards the Sandton Gautrain Station, showing the attraction of the station for investment. The return of investment around the Gautrain Station has increased to such an extent that developers could convert even sectional title housing schemes into higher density residential and office blocks, despite the complication and cost involved in such a process.

**Figure 63: New development in Sandton Gautrain station precinct between 2005 and 2015**

**8.2.3 Pre-development conditions**

Pre-existing development and conditions refer to investment and development patterns prior to the construction of a station and the proposals for a TOD.

The case studies indicate that just because a station is built, it does not mean that development will follow automatically, but rather that the success of a TOD

**Example 2: Midrand Gautrain Station**

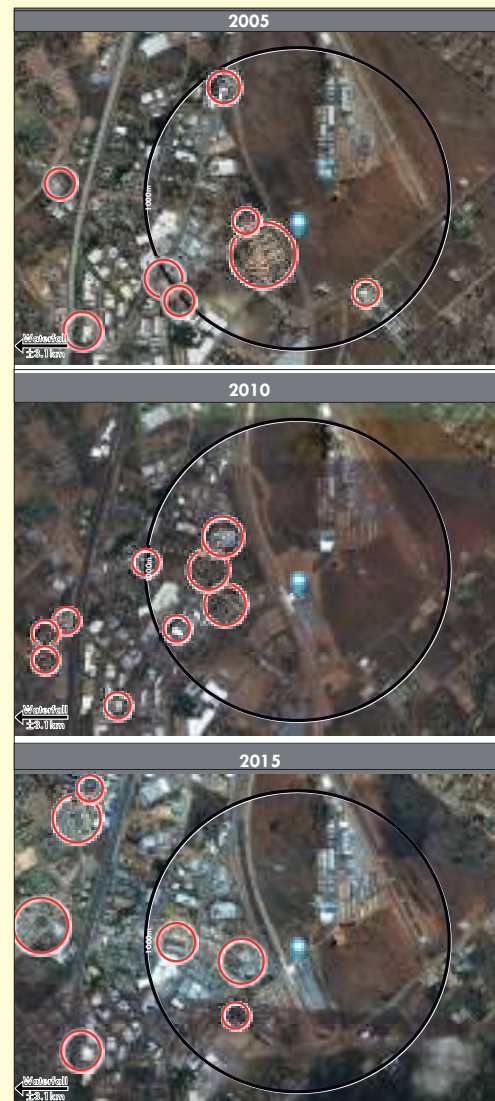
In the case of Midrand, no significant development has taken place within the Precinct. Although its locality was largely determined on the proposed Zonk'Izizwe development, it was located some distance from the 'commercial heart' of Midrand.

According to the Gautrain Management Agency, the failure of the Zonk'Izizwe development to proceed was a costly lesson for the transport planners at the Gautrain. Locality decisions for the placement of the Midrand station were made on the basis of information available at the planning stage that Zonk'Izizwe would proceed and become a key destination of regional importance for Midrand. This did not occur and in hindsight the placement of the Midrand station would have been better served if it were closer to the recently opened Mall of Africa.

Irrespective of the failure of the Zonk'Izizwe development, little new development has taken place around the Midrand station despite ample vacant and 'underdeveloped' land being available. This has been attributed by some of the interviewees to the nature of the Midrand centre, which is a strip development centred on the N1 and which has, despite several attempts by the local authority, never become a node. Others indicated that the development rights granted in the Midrand area have been conservative (low residential densities and FAR) and due to the presence of large undeveloped land portions and relatively low return of investment, there is little incentive for greenfields and brownfields development around the station.

A time series of development in Midrand shows development is shifting in a western direction away from the Gautrain Station.

**Figure 64:**  
New development in Midrand Gautrain station precinct between 2005 And 2015



depends on a number of pre-conditions. It seems that not all stations have the potential to develop into TODs. The factors that are important include market trends, the type of existing development and the socio-economic profile of surrounding population;

Firstly, the most successful (as measured in increase in development) of the TOD case studies are located in areas that were characterised by development prior to the construction of the station. In instances where there is already pressure for development, the station appears to have unlocked further development and even attracted new investment in close vicinity of the station. This tendency is addressed in the TOD Policy for the City of Johannesburg, 2009, which states 'Public sector-driven transit projects can set the stage for significant private sector investment, (but) the careful coordination of transit and development is critical, so that each can optimally enhance the other'. Moreover, the success of a TOD is also sensitive to its exact location

within a development node. A peripheral locality, even within a fast-growing area, could negatively impact on its success.

The socio-economic characteristics of surrounding areas are also important. As can be expected, new development are more attracted to higher income areas. The number of commuters using a station can however create the potential for a TOD even in low income areas.

Worryingly, public investment in a TOD does not seem to have the same effect as pre-development conditions. In most cases public investment had no observable link with investment in the public realm or in social facilities. It is in all likelihood important to create a positive environment for private investment, e.g. provision of bulk services, together with public investment.



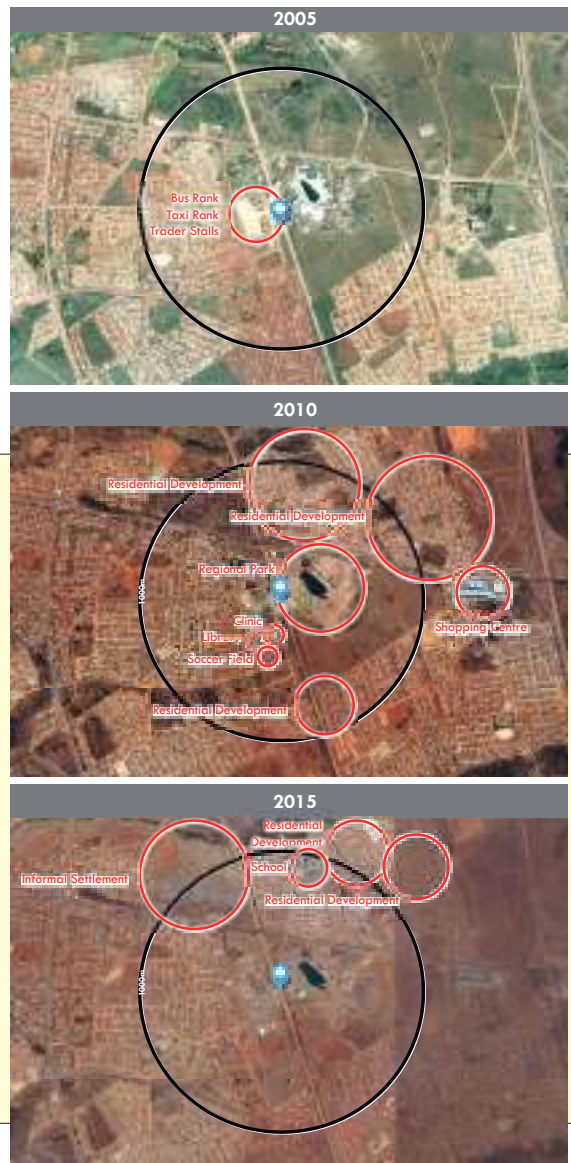
**Example 3: Denneboom station**

Denneboom Station, in Mamelodi, is the 4th busiest rail station in Tshwane and had 16 948 commuters per day in 2007. It is located at the main entrance to Mamelodi and caters for a number of other public transport modes. It has been characterised by extensive informal activity, especially since the early 1990s. The first commercial development around the station was undertaken by Metropolitan Life in the 1990s on Intersite land. This was followed by Denlyn shopping centre that was constructed in 2005 and has since been expanded twice, due to demand.

Despite the station being located in a low-income area, development pressure stems from the sheer number of commuters using the station precinct and its central locality.

A time series of development shows continued development in the precinct and investment by both the public and private sector.

**Figure 65: New development in Denneboom PRASA station precinct between 2005 and 2015**



**Example 4: Kopanong station**

Kopanong station is, like Denneboom station, located in a low-income area. The number of commuters using the station is however much lower, probably due to a number of factors including capacity problems with the train and the locality of the station on the periphery of the residential areas. Extensive public investment was directed to this station: tax and bus ranks, informal traders' stalls, a clinic and a library was built. This has however not had an impact on either informal or formal activity at the station. The situation could change in future when operational issues with the trains are addressed and now that the council owned land has been sold for development.

**Figure 66: New development in Kopanong PRASA station precinct between 2005 And 2015**



### 8.3 Feasibility and typology of public transport

The construction and operation of the BRT in all three cities has provided valuable lessons in the provision of this mode of public transport.

Both the construction and the operational costs are subsidised by the National Department of Transport (NDoT). The Cities have provided counterfunding. The NDoT subsidy however reduces annually, with the city

having to carry an increasing cost burden. The Cities will eventually have to carry all the costs and the aim is that the system will pay for itself.

The cost of the current system, which is designed to a high standard (even when compared with international cases), is unsustainable. All cities have changed the way in which the system will be designed and implemented in future, but will still have to carry to costs of maintaining existing infrastructure - a burden which would be unaffordable for the cities in the long term.

#### Example 1: Cape Town's 'moderation exercise'

Although in planning Phase 1 of Cape Town's MyCiTi system, during 2010, extensive cost modelling was done, actual costs and revenues emerged only once the system was implemented, contracts signed and services run. These projections were less favourable than the initial models.

In 2013 concern around the implications of emerging costs and revenues led to a study into the long-term cost implications of extending MyCiTi to the whole metropolitan area ('Making MyCiTi Financially Sustainable'). The study showed that financial feasibility would be dependent on receiving large operating subsidies from national government, or the generation of new city-owned revenue in co-operation with national government. It also revealed the importance of travel demand management which is aimed at stimulating public transport usage and smoothing the peak to off-peak demand ratio. Furthermore, the study emphasised the need to pursue a 'hybrid' approach in which a significant portion of the market may need to continue to be served by minibus-taxi. Finally, the study showed that ultimately the most important factor in making MyCiTi feasible is improved land use, i.e. transit-oriented development.

In 2014, on the basis of the study, the City of Cape Town undertook an intensive review and adjustment of current MyCiTi operational practices referred to as the 'moderation exercise'.

The key changes identified included:

- optimising routes to increase bus capacity utilisation;
- curtailing or even cancelling some (feeder) routes and frequencies where demand was low;
- improving internal departmental protocols and addressing management structure issues;
- smoothing the peak to off-peak differential by making peak fares higher than off-peak fares, capping services in the peak and permitting minibus-taxi to operate only in the peak;
- reducing cycle times by effecting some infrastructure changes;
- reducing staff at stations by reducing kiosk hours (linked to demand) and improving station door technology;
- introducing revenue protection measures;
- reducing the number of illegal minibus-taxi operators through improved law enforcement and carefully synchronised marketing campaigns and promotional MyCiTi incentives designed to capture stranded or queuing taxi passengers;
- investigating the retention of minibus-taxi services in periods where the level of public transport demand and associated financial viability does not warrant a full MyCiTi service;
- developing strategies for transit-oriented development and shifts in urban form over the longer term to improve sustainable transport services.

**Example 2: Johannesburg**

Initially the BRT routes and stations in Johannesburg were determined by the Department of Transportation, which was under pressure to complete a section of the system before the 2010 Soccer World Cup. The locality of stations was based on the theoretical 500m walking distance and stations were spaced 1km apart without much consideration been given to the surrounding urban environment.

The BRT system is proving both unaffordable and unfeasible. The cost of 1km of a BRT lane is approximately R50m due to the types of busses used, that require expensive foundations and the enclosed stations are expensive to operate, due to the security personnel needed. One of the aims of enclosed stations is to prevent commuters from using the bus without paying. It would however be cheaper to allow for the estimated commuters who do not pay, than it is to operate the station. Moreover, some stations are hardly used. The City ascribes this to the locality of the stations.

The City has developed a new typology of public transport that incorporates a number of public transport modes (not just BRT) and is linked with surrounding development. This is done as part of the future development of the BRT system. The typology of public transport is being developed in close association with the Development Planning Department to provide guidance on the locality of stations based on the existing and projected urban development.

In essence different modes of public transport and different types of stations will be provided based on existing and future development. New stations will only be provided where there is a clear demand and development exists. The system is modular and can be adapted to future changes in urban form, e.g. an open station might be provided initially, but it is designed in such a way that it can easily be upgraded to a full station. Different modes of transport, e.g. mini-bus taxis, standard buses, will be used where demand does not justify a BRT service. The frequency of busses will also differ based on the type of surrounding development.

**Example 3: Tshwane**

The BRT office in Tshwane describes the first phase of its BRT system as the Rolls Royce. As is the case in the other cities, the full BRT system has proven to be unaffordable. The capital costs for 'quality' of the routes and the stations are problematic. Operational costs are also beyond the reach of the City.

The city is rethinking the number of routes and stations, the design of the routes and the stations. The projected timing of the programme and completion of the system has also been pushed forward much later into the future.



## 8.4 Change in mode of transport

The change of mode of transport addresses a shift from private to public transport and from one form of public transport to another.

A shift from private to public transport has not been achieved at scale and it has proved difficult to get higher income groups to get out of their cars. There is also an aspiration to own a car, due to the perception of the convenience of using private transport and the status of owning one's own car. A change of mode of transport necessitates a change in mindset. Certain income groups have been more willing to accept upmarket transport such as the Gautrain. The same acceptance has not been attributed to the BRT and other forms of public transport.

The shift from private to public transport requires a

paradigm shift. However, the mind set of 'wealthier' communities, property developers, as well as many professionals who work within the built environment (planners, engineers, architects, etc.) is still biased towards private vehicular transport and suburban, car-oriented development typologies (e.g. introverted shopping malls with private parking, enclosed office parks and gated residential complexes). Although traffic congestion is increasing, this has not changed the desire to travel in a private vehicle.

There are also issues around achieving a shift from one public transport mode to another. In order to streamline public transport and make it more efficient all cities are attempting to replace buses and taxis with BRT and rail. A change of mode of transport is dependent on cost, time, convenience and the functioning of the system, e.g. timetables, routes and stations/ stops, as well as an understanding of how the system operates.



### Example 1: Use of the Gautrain

The Gautrain has been successful in changing the mode of transport of a significant number of commuters in Gauteng.

The number of weekday passengers using the Sandton Gautrain Station has increased significantly since 2011 from an average of 7 588 weekday passengers to 11 349 in 2015 an increase of 33%. The number of weekday passengers that utilise the Midrand Gautrain Station has more than doubled: from an average of 1 906 in 2011 to 4 781 in 2015.

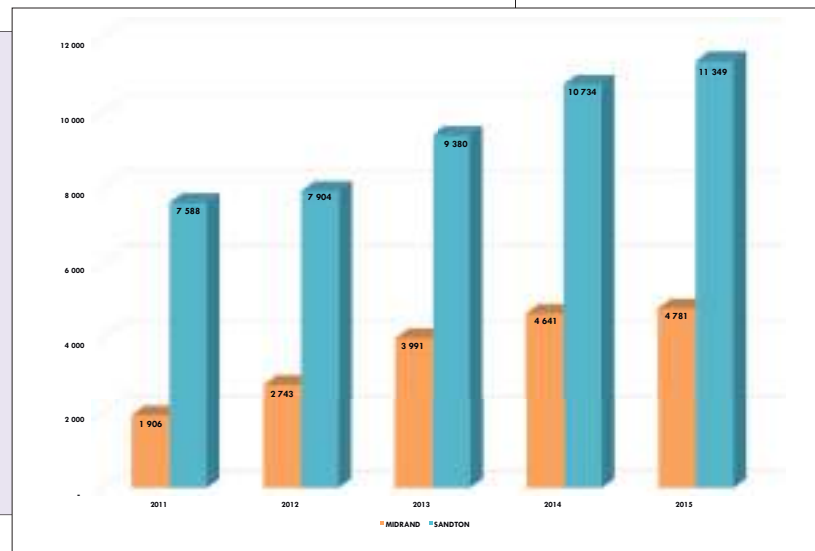


Figure 67: Average weekday entries at Sandton and Midrand Gautrain stations

### Example 2: Sandton modal split

Based on research done by the Transport Department of the City of Johannesburg, the percentage of population using private and public transport has remained the same, despite extensive use of the Gautrain and the increase in congestion in the Sandton node.

This indicates an increase in the number of people using private cars.

Although it has been predicted several times in the past that the traffic congestion in Sandton could cause developers to look elsewhere this has not happened yet. Some of the developers interviewed have however indicated that they are considering other localities such as Waterfall in Midrand due to the traffic conditions in Sandton.

The introduction of the BRT in the Sandton area could impact on the modal split.

**Example 3: Opposition to the BRT**

There has been fierce resistance against the development of the BRT, mostly in wealthier areas but also from the taxi industry.

In the case of Sandton, the implementation of the BRT was delayed for months, due to objections from the public. The public initially pushed for the City to expropriate land for the BRT line instead of placing it in the road reserve, in order to prevent further inconvenience to private vehicle users, when some of the vehicular lanes are closed for the BRT.

In the case of Tshwane, resistance from residents has led to a redesign of the BRT route. It is now a single lane instead of being double.

In the initial phase of the BRT the Taxi industry almost terminated the project.

**Example 4: Parking ratios**

Despite the development of the Gautrain in Sandton, and the large number of commuters using the train, developers indicated that sufficient provision of parking is still a determinant for 'successful' development. A parking ratio of 6 parking bays per 100m<sup>2</sup> of office space is provided for by private developers, despite the Council requirement being 4 parking spaces per 100m<sup>2</sup> of office space, and its willingness to reduce this ratio to 2 parking spaces per 100m<sup>2</sup> office space.

According to developers a high parking ratio is a requirement of prospective tenants. If less than 6 parking bays per 100m<sup>2</sup> office space is provided, tenants will not lease or buy into the scheme.

**Example 5: Zoning annexure**

In both Tshwane and Johannesburg parking requirements in Zoning Annexures make provision for private vehicles at the expense of public transport.

- A minimum parking ratio is required, rather than a maximum parking ratio.
- Provision is also made for vehicular entrances, turning circles etc. but no or limited provision is made for pedestrian or public transport facilities on site.

Although the focus of planning policy has shifted from private to public transport, the 'detailed' implementation of planning and transport engineering has not.

**Example 5: Reduced minimum parking requirements**

In the Cape Town Zoning Scheme, two planning transport zones are demarcated: PT1 and PT2. They imply reduced minimum parking requirements in areas serviced by public transport. Some municipal district traffic engineers, however, still insist that more parking must be provided by developers.

**Example 6: International and local perceptions**

It has been recognised in Cape Town that international retail chains are more flexible and responsive to different TOD, urban regeneration, high street and similar urban design concepts than national retailers. This indicates that the resistance shown by national companies could be more due to local perceptions and less due to compromised business interest. Apparently Puma's highest grossing store in South Africa is located in the part of Central Cape Town where most national retailers are reluctant to go.

**Example 7: Cape Town's 'tidal flow'**

Public transport is seen as only a means to travel from home to work, and not for other activities e.g. recreation. For instance, Cape Town experiences long 'tidal flow' trips, where users mostly commute in one direction to work in the morning and the reverse direction in the evening, with very high peak and very low off-peak demand.

**Example 8: BRT ridership**

The projected ridership of the BRT is much lower than anticipated, showing some resistance to the use of the new mode of public transport.

In the National Treasury Medium Term Budget Policy Statement: Adjusted Estimates of National Expenditure the following BRT ridership figures were provided:

- Rea Vaya in Johannesburg: In 2012, it stated that the target of 100 000 passengers would only be reached in 2013/2014. However, in 2013 an average of only 36 081 passengers per weekday was reached, compared to the adjusted targeted average of 50 000. In 2014 an average of 45 000 weekday passengers was recorded, compared to the projected 85 000 passengers. The 2015 Statement, contrary to the 2014 Statement, gives an average of 40 000 passengers per weekday against a target of 70 000. These figures indicate a reduction in ridership from 2014 to 2015.
- MyCiTi in Cape Town: In 2012 the system carried only 20 000 passengers and it was stated that the annual estimate of 112 000 passengers will be reached by 2014. By 2013 the average number of passengers per weekday was 13 500, significantly below the targeted 60 000 per weekday. In 2014 the system carried an average of 50 000 weekday passengers, compared to the anticipated 80 000 weekday passengers. In the 2015 Statement, the figures (contrary to the 2014 Statement) were given as an average of 42 522 passengers per weekday against a target of 70 000. These figures also show a decline in ridership, as in the case of Johannesburg.
- Some of the reasons given for the slower than expected rate of passenger use were:
  - Delays in construction due to delays in finalising contracts.
  - Delays in the introduction of a new ticketing system.
  - Delays in the full integration of rapid public transport networks.
  - It could also be that other modes of transport, such as private vehicles and taxis are still more convenient than the BRT.

**Example 10: Understanding operations of public transport**

A factor that can play a role in discouraging a shift from private to public transport or from one mode of public transport to another is the lack of understanding by the public on how the systems operates.

Informal discussions with public transport users indicate that using the Gautrain is uncomplicated: routes and stops are clear as well as the time of departure and of arrival. Apps, that indicate time of departure and arrival and problems, such as temporary route closures and alternative transport arrangements, are conveyed to commuters on their cell phones. The card system used for payment is also easy to use.

Taxi users indicate that they are reluctant to use the BRT as they do not understand how it operates.

## 8.5 Compliance with TOD principles

Although there is extensive development around some of the stations, these developments do not necessarily comply with the principles/features of transit-oriented development as stated in previous sections.

### Example 1: Denneboom PRASA station precinct, Mamelodi

- **Transit supportive land uses:** There are two shopping centres and housing within the precinct. Some land uses are not transit-supportive such as a filling station.



- **Fine grain of mixed uses:** Land uses are separated from each other and large in extent.
- **Medium to high density inclusionary housing:** The hostels located to the north of the station are being upgraded. The proposals for the upgrade are for medium density residential blocks of two to four storeys and a mix of housing types, from communal units to two bedroom units. These should comply with the TOD principles, although it will in all probability only cater for a mix of lower-income groups.
- **High quality public space:** The public space in front of the station is chaotic and populated by informal traders and vehicles, most of which are taxis. Although many proposals have been drafted and approved for the provision of a suitable public space in front of the station, these have not realised. The land in front of the station has, in the interim, been sold to a private developer. This could mean that the only opportunity for a public square in front of the station is lost and that this space could be transformed into a shopping centre.
- **Pedestrian-friendly:** The station precinct is extremely pedestrian unfriendly.
  - As mentioned above, the space in front of the station is taken up by vehicles and no pedestrian routes are provided.

- Tsamaya Road, which is a K-route passes in front of the station, which creates severe vehicular-pedestrian conflict. This has also created conflict between the urban planners and transport planners. From the planning side there is a request to downgrade the road and give preference to pedestrians crossing the road, whereas the transport engineers want to protect the K-route status of the road allowing for the free flow of private vehicles and construct bridges or underpasses to accommodate pedestrians. Currently there is a fence along the road and only vehicular access to the station is permitted. Some of this fencing has been removed by pedestrian to allow for easy access to the station.
- The large hostel complex, which is currently impenetrable forms another barrier between the station and the residential areas to the north.
- The shopping centre has until recently only had a vehicular entrance. A small pedestrian gate has now been provided.
- Some sidewalks have been provided as part of the road upgrades and through the NDP.
- All spatial plans for the area propose ample routes to accommodate the needs of pedestrians.
- **Concentration of social facilities:** There are a number of social facilities within the precinct: municipal offices, a park (Solomon Mahlangu Square), and a sports field.
- **Active public-private interface:** There are no active public-private interfaces as all developments are fenced off. The shopping centre has a fence and a large parking area adjacent to the road and the municipal offices are also fenced off.
- **Intermodal:** All public transport modes are catered for. Taxi and bus ranks are located in front of the station. The land on which the taxi and bus ranks are currently located has been sold to a private developer. This implies that the ranks will in all likelihood have to be relocated. As part of the BRT programme, new ranks will be built in a multi-storey structure that will link directly to the shopping centre. Although

the precinct is multi-modal, it is not intermodal (transport modes being located in a triangle 150m to 200m apart) as required by the NDP.

- **Urban management:** There is no urban management and the area is neglected, dirty and unhygienic. Control of informal traders was indicated as one of the biggest problems in the precinct.

Therefore although the Denneboom Precinct has a multitude of land uses and accommodates a number of different transport modes, the way in which it is developed and the lack of urban management, means that it does not comply with the majority of TOD principles. If the precinct is developed in future as per spatial plans, the situation can improve.



**Example 2: Kopanong station precinct**

- **Transit supportive land uses:** The precinct is largely undeveloped, although these are some social facilities, as discussed below. Proposed land uses that include retail and housing will ensure transit-supportive uses. There are no existing or proposed land uses that support public transport.
- **Fine grain of mixed uses:** Land uses are in close proximity to each other and although largely mono-functional can be described as fined-grained mixed use. The only exception is the regional park to the east of the station, which is large in extent and prevents further intensification and densification within the Precinct. The character and design of the proposed shopping centre in front of the station can either contribute or detract from the grain of mixed uses.
- **Medium to high density inclusionary housing:** Provision is made for medium density residential development which is a positive aspect. It is not clear at this stage whether the housing will be inclusionary.





- **High quality public space:** Public spaces have been designed and developed in line with the precinct plan.
- **Pedestrian-friendly:** Dedicated pedestrian walkways have been provided in line with the precinct plan. A wide walkway with traders' stalls links the bus and taxi ranks with the station and creates a focal point onto the station.
- **NMT:** Provision will be made for NMT when the BRT is constructed.

- **Concentration of social facilities:** There are a number of social facilities within the precinct. These include a clinic, a library and a regional park.
- **Active public-private interface:** The fencing of the social facilities prevents an active public-private interface. Although the precinct plan prescribed that the social facilities should define the public space, this has not been implemented.
- **Intermodal:** The current layout of the station, and the bus and taxi rank complies with the guidelines from NDP (100m – 200m apart in a triangular relation). However, the land on which the bus and taxi ranks are located has been sold to a private developer and it is not clear at this stage where the new facilities will be located. The BRT is planned to be right in front of the station.
- **Urban management:** Although no information was available on the urban management of the precinct, it appears to be well-kept, except for some of the land being invaded for an informal settlement.

Kopanong station is still largely undeveloped. Existing and proposed development does comply with the principles of TOD, except for the active public-private interface. The sale of land for commercial development could change the current situation if precautions are taken to follow the guidelines of the precinct plan.

### Example 3: Midrand Gautrain station precinct

- **Transit supportive land uses:** As the area around the station is still largely undeveloped, there are no real transit supportive land uses. The offices and medium density residential are transit

supportive. The proposed uses of Zonk'izizwe are transit supportive. The Grand Central airport is potentially transit supportive as it can attract a large number of users to the precinct.

- **Fine grain of mixed uses:** Although the land uses around the station are mixed, they are separated and some distance apart. This does not reflect the expected fine-grain character of mixed land uses.
- **Medium to high density inclusionary housing:** There is some medium density housing in the precinct. This caters for middle income earners and is not inclusionary of a range of earners.
- **High quality public space:** there are no public spaces within the Midrand Gautrain Precinct. The precinct plans do however make provision for such spaces.



- **Pedestrian-friendly:** The precinct is currently not pedestrian friendly. The K101 passes in front of the station creating conflicts between vehicles and pedestrians. No sidewalks or pedestrian walkways are provided. Provision for these is however made in the precinct plan.
- **NMT:** There are currently no NMT facilities.
- **Concentration of social facilities:** There are no social facilities within the precinct.
- **Active public-private interface:** All adjacent developments are fenced off and introverted.
- **Intermodal:** The only other mode of public transport, except for the Gautrain, is the Gautrain busses.
- **Urban management:** Although no information could be obtained on urban management in the Gautrain Station Precinct, the area is well-kept.

Development in the Midrand station precinct does not currently comply with the principles of TOD. The precinct plans for the area do however contain proposals that comply with these principles.



**Example 4: Sandton Gautrain station precinct**

- **Transit supportive land uses:** The Sandton Gautrain Station Precinct is surrounded by high density land uses such as offices, retail, entertainment, hotels and residential.
- **Fine grain of mixed uses:** Although the area is characterised by a large mix of land uses, most developments are mono-functional and due to the large scale of development the fine grain of mixed uses is compromised.
- **Medium to high density inclusionary housing:** Housing in the precinct is almost exclusively for high income residents due to the high value of the land.
- **High quality public space:** The quality of the public space is limited and few public spaces are provided. The precinct is characterised by high quality and iconic buildings but an impoverished public environment.
- **Pedestrian-friendly:** The precinct is not pedestrian-friendly due to the large block size and the large



building footprint, which limits permeability through the area. The topography further makes walking uncomfortable. Sidewalks are generally small and pedestrians have to contend with busy streets and large numbers of vehicles.

- **NMT:** Some cycle lanes are currently provided.
- **Concentration of social facilities:** there are a limited number of social facilities within the precinct.
- **Active public-private interface:** Most buildings do not have an active public-private interface. A problem is the provision of multi-storey structured parking adjacent to sidewalks and the introverted and internalised nature of many of the larger developments.



- **Intermodal:** Provision is made for all modes of transport (public and private) within the Gautrain Station; it is however impractical in this case, due to the high intensity of developed land surrounding

the station and the lack of municipal owned land.

- **Urban management:** The area is managed by a CID and is very well-managed.

The Sandton Gautrain Precinct complies with many of the TOD principles. The most important drawback is its focus on the private rather than the public domain. Several efforts have been made by both the public and private sector to improve this, e.g. precinct plans that accommodate pedestrian movement drafted for the private sector and the public transport week in early 2016.

#### Example 5: Zoarvlei MyCiTi station, Cape Town

- **Transit supportive land uses:** Only a few land uses within the precinct could be classified as transit supportive, such as offices and the Milnerton Flea Market, while the majority of land uses (light industry, warehouses, car related businesses and similar uses) are generally transit non-supportive.
- **Fine grain of mixed uses:** The precinct features a coarse grain land use pattern, i.e. land uses are separated and large in extent.
- **Medium to high density inclusionary housing:** Only a small portion of the precinct accommodates a low density residential area.

- **High quality public space:** Although all structures and infrastructure associated with the IRT (station, bus lanes, pedestrian and cycling paths) are of high quality, neat and well maintained, the surrounding public space is amorphous, characterless and feels desolate. In contrast, the pedestrian path with a bridge crossing Zoarvlei and a pedestrian plaza besides the Klein Zoar historic homestead is a very good place making attempt.
- **Pedestrian-friendly:** The whole precinct is not particularly pedestrian friendly, although there are no obvious obstacles or threats to pedestrian movement. There are no trees or canopies to provide shade and ambiance and street furniture is also scarce.







- **NMT:** Pedestrian and cycling paths have been provided together with the IRT infrastructure.
- **Concentration of social facilities:** The precinct accommodates the Brooklyn Sports Ground and Brooklyn Chest Hospital, but they are extensive uses of land (low level of activity on a very large area) and cannot therefore be regarded as being concentrated around the station.
- **Active public-private interface:** Most

developments are fenced or walled off and have no interaction with the street space with the exception of the property on the corner of Marine Drive and Milner Street.

- **Intermodal:** This station only caters for MyCiTi busses.
- **Urban management:** There are no particular urban management arrangements, but the area does not appear neglected and unmaintained.

**Example 6: Wood MyCiTi station, Cape Town**

- **Transit supportive land uses:** All land uses within the precinct, with the exception of a petrol station, municipal water tower and a Telkom exchange, are – in principle – transit supportive. They include Flamingo Square shopping centre, a number of churches,

dwelling and dwelling structures converted into business premises. There are also large tracts of vacant land in close proximity to the station and two large parcels of land are used as park-and-ride parking facilities.

- **Fine grain of mixed uses:** The precinct features a coarse grain land use pattern, i.e. land uses are separated and large in extent. A





finer land use grain has been achieved only along Blaauwberg Road through a sporadic conversion of houses into businesses.

- **Medium to high density inclusionary housing:** Residential land use is predominantly of low density. There is no inclusionary housing.
- **High quality public space:** The Blaauwberg Road median, which contains the station and associated pedestrian and cycling paths is a high quality public environment. The sides of Blaauwberg Road appear messy.
- **Pedestrian-friendly:** The Blaauwberg Road median has been made very pedestrian friendly, while the rest of the precinct lacks shade trees, street furniture and anything that could make walking on sidewalks an interesting and pleasurable experience. It is clear that Flamingo Square Shopping Centre was designed to attract and serve private car users and not public transport users (who would approach the shops as pedestrians). A shopper arriving in his/her car can park the car right in front of the shops, while a public transport user has to walk approximately 150m from the station to the shops (through a parking lot without a single tree). There are only two narrow and inconspicuous pedestrian links providing pedestrian access from the station to

the shopping centre which look more like an afterthought than a design.

- **NMT:** Pedestrian and cycling paths have been provided together with the IRT infrastructure.
- **Concentration of social facilities:** There are three churches adjacent to the intersection of Blaauwberg Road and Wood Drive and one approximately 500m away from the station. There are no other community facilities in the precinct, except for the Post Box Lobby within Flamingo Square Shopping Centre.
- **Active public-private interface:** Some businesses along Blaauwberg Road face the road by shop windows, but generally there is no interaction between these businesses and the sidewalks. Flamingo Square Shopping Centre faces the road indirectly as there is a large parking lot between the shops and the road.
- **Intermodal:** This station only caters for MyCiTi busses, but it does allow for transfer between the trunk route and feeder routes. It also allows for a park-and-ride use of the MyCiTi service as there are two large parking lots provided for this purpose adjacent to the station.
- **Urban management:** There are no particular urban management arrangements, but the area does not appear neglected and unmaintained.





## 8.6 Implementation of spatial frameworks

### 8.6.1 Disjuncture between spatial frameworks and land use management

There is a disjuncture between strategic planning and land use management (council proposals and private sector projects), often resulting in development rights being approved, that comply with the functional aspects (development controls e.g. FAR, height and coverage) of the frameworks, but not the design guidelines. In most instances, it has proved difficult to enforce the design guidelines contained in the Precinct Plans or Design Frameworks. If a developer refuses to comply with specific guidelines, the City has limited avenues to enforce it.

The issues that have come to the fore, are:

- Design guidelines are not included in the Zoning Annexures or Conditions of Establishment, as these are seen as potentially too restrictive, sometimes unfeasible and are often opposed by applicants, e.g. at least 75% of the building should have an active façade.
- Design guidelines contained in Precinct Plans and Design Frameworks are generic and not site specific. Although these guidelines might have been approved by Council, they are still open to interpretation.
- Different sections and officials deal with the approval of precinct plans, land use management applications, site development plans and building plans. The finer design nuances often gets lost in this process.
- There is often no capacity for the evaluation of design guidelines within council.

#### Example 1: Standard zoning annexure conditions

Below is an Example of a Zoning Annexure for a property in one of the TODs studied. It makes provision for a maximum density, minimum parking as well as several conditions relating to vehicular facilities. No mention is made of the accommodation of pedestrians or public transport. Furthermore, land uses are restricted and no provision is made for mixed-uses, e.g. the inclusion of residential. Although there is a Precinct plan in place, the design guidelines are no included.

1	Use Zone	28: SPECIAL
2	Uses permitted	Shops, offices, banking facilities, medical and professional suits limited to a maximum floor area of 1000 m2, clinics, place off entertainment including cinemas as well as fast food outlets and a transport terminus
3	Uses with consent	None
4	Uses not permitted	All other uses
5	Definitions	Clause 5
6	Density	Not applicable
7	Coverage	60%
8	Height	19m
9	Floor space ratio	0.5
10	Parking requirements	Demarcated parking spaces, together with the necessary paved maneuvering space, shall be provided on the erf to the satisfaction of the Municipality as follows: All uses 2.5 parking spaces per 100m2 of gross floor area
11	Paving of traffic areas	All parts of the erf upon which motor vehicles are allowed to move or park, shall be provided with a permanent dust-free surface, which surface will be paved, drained and maintained to the satisfaction of the Municipality.
12	Access to erf	Entrance to and exits from the erf shall be sited, constructed and maintained to the satisfaction of the municipality. Access from Stormvoël Road shall be to the satisfaction of the Municipality
13	Loading and offloading facilities	The loading and off-loading of goods shall only take place within the boundaries of the erf.
14	Turning facilities	To the satisfaction of the Municipality.
15	Physical barriers	A permanent non-removable physical barrier shall be erected and maintained on the street boundary of the erf (approved entrances and exits excluded) to the satisfaction of the Municipality.

### 8.6.2 Actions to address disjuncture

Several of the Cities have started to address this disjuncture and some actions have also been taken by the private sector. Examples of these are listed below.

#### Example 1: Urban design assessment committee COJ

In some instances, committees have been setup to evaluate the quality of new development design through the evaluation of Site Development Plans. Such committees can consist of the land Use Planner, the strategic planner, officials from the building office and from the environmental department. Not only does this lead to consistency between the Framework and the Site Development/ building plans, but it also gives some status to the evaluation of such plans (e.g. the opinion of a number of professionals rather than just one). The Urban Design Assessment Committee (UDAC) in the City of Johannesburg is one such example.

#### Example 2: Collaboration between city and developers

The approach at the City of Johannesburg has changed to one of co-operation / collaboration between the developer and the City. When Site Development Plans are submitted, a round table discussion is held wherein the City explains its requirements. If the developer does not want to comply, the City can reject the SDP. It has been noted during some of the interviews that where developers intend to own and let the building, they are more open to design guidelines to improve the quality of the environment. In contrast, where developers want to sell off the building, they are more focused on profit and less interested in the long term development of the precinct.

#### Example 3: Precinct plans drafted by private developers

In the case of Sandton, a professional urban designer became the link between the City and developers. The urban designer advised developers on the importance of the quality of the urban environment, as opposed to only the architecture of the buildings. A comparison was made between buildings and the public environment in Melrose Arch and Sandton. Melrose Arch is not characterised by iconic buildings but a high quality public environment is created by a shared architectural character and use of materials, the placing of buildings, an active public-private interface, ample public spaces and a human scale. In contrast Sandton is characterised by iconic buildings with no relation to each other and a low quality public environment with blank facades and limited public spaces and pedestrian walkways. Once developers understand the importance of a high quality urban environment for their investment, they became more open to the idea of urban design principles. A detailed Precinct Plan was drafted for the private developers. Although this plan has not been officially approved by the Council, it serves as a pact between the developers. Some of the aspects addressed are pedestrian walkways and public-private interface.

### 8.6.3 Realism/pragmatism in planning and design

Even though the Council approves local spatial development frameworks, urban design frameworks, precinct plans or similar spatial policies, it cannot guarantee that every parcel of land within the planning area of such a policy will indeed be developable in accordance with TOD principles.

Planning proposals contained in such policies are often made on the basis of higher order policies, sound town

planning and urban design principles and best national and international practices, but their feasibility in terms of environmental (including historical) sensitivities, infrastructure capacity, traffic impact and economic viability, is seldom tested during the planning process.

Assessments of such impacts are only required once a developer decides to develop a specific site and there is a possibility that, at this stage, a planning proposal of an approved spatial policy may be proven unfeasible (either undesirable or unaffordable). Similarly, as with

any development application there is the possibility that public objections to a development proposal may prevent it from being realised.

Furthermore, an approved spatial plan may for specific parcels of land propose a use that significantly deviates from its current zoning. The prospective developer of such land will then have to apply for rezoning without any guarantees that it will be successful. An objection may be lodged during the rezoning process due to which the intended development, although fully compliant with an approved spatial policy, may not be able to be implemented.

Precinct plans related to TOD can also be unfeasible when planning proposals rely on assumed, planned or promised bulk service infrastructure extensions and upgrades that are not budgeted for, do not have political support or do not have priority with the infrastructure implementing agency.

There is a general consensus that town planners and urban designers that draft the spatial plans require more exposure to property economics and the effects of market forces and property demand pressures. It is important that spatial planning channels market forces rather than force development where it is not supported by the market. Financial feasibility is a key reason why development proposals are unsuccessful. For these reasons such spatial policies, including TOD precinct plans, may often be seen as unrealistic and mere wishful thinking.

**Example 1: What matters for developers**

It is Cape Town's experience (and most likely that of other South African cities too) that developers, when looking for land to develop, ignore spatial development frameworks and only act in one of the following ways: (a) attempt to acquire land which already has in place all development rights they need; (b) look for reasonably priced and suitably located land, irrespective of any spatial development frameworks, and push for its rezoning; or (c) look for land in another city that will realise higher returns.

**Example 2: Unrealistic proposals for Zoarvlei station**

The Milnerton South - Paarden Eiland Local Area SDF considers the Zoarvlei station precinct in Cape Town as one of the key precincts to unlock the potential for increased land value in the area as a result of the IRT. It proposes the transformation of the precinct into a medium density, mixed use area which would include –

- a public square adjacent to the station, surrounded by mixed use buildings accommodating a family supermarket, offices and apartments;
- mixed use buildings along the western side of the vlei accommodating businesses (ideally cafés and restaurants) that front onto the vlei;
- medium density housing along the eastern side of the vlei that faces the vlei;
- towers or other types of landmark buildings at strategically chosen locations to mark the precinct and thereby enhance the legibility of the area; and
- a seafront walkway and market.

However, the city officials doubt the feasibility of the planning proposals for the following reasons: The area is characterised by medium size properties with heavy capital investment, occupied by long-established and well-functioning businesses. Land owners are therefore not likely to redevelop their properties for a new use in the foreseeable future. On the other hand, the properties are too large and too expensive to attract new, mixed use developers. Furthermore, the conversion of an industrial property into mixed use will require increased on-site parking facilities which in this particular area cannot be accommodated in the basements due to high water levels and frequent flooding. The proposed housing development across the vlei from the station requires de-proclamation of a portion of the conservation area and it can only accommodate a limited number of dwelling units.



**8.6.4 Quality of spatial frameworks**

According to the Neighbourhood Development Partnership Programme the inability to implement Precinct Plans is due to the low quality of these Plans. This is ascribed to the lack of understanding of the principles of designing for TODs.

Other reasons that can contribute to the apparent low quality of plans are the lack of relevant data, the short period taken for the drafting of plans and low professional fees.

It should be noted that none of the municipalities complained about the poor quality of spatial plans.

## 8.7 Municipal procedures and relationships

### 8.7.1 Multiplication of frameworks with Spatial Implications

A number of municipal departments produce plans with spatial implications. These include:

- The Spatial Development Framework (produced by the department responsible for spatial planning);
- Integrated Human Settlement Framework (produced by the department responsible for housing);
- Integrated Transport Plan (produced by the transport authority);
- Integrated Public Transport Network Plan (also produced by the transport authority); and
- Open Space Plan (produced by the department responsible for city parks or the environment).

Other bodies, such as Gautrans, GDACE and transport operators e.g. Gautrain Management Agency, and spheres of government, e.g. Provincial Spatial Planning, also draft a number of spatial plans. Even though the departments consult each other during the planning processes, and even though their plans may declare to have the same objectives (as taken from higher order plans and strategies), actual planning proposals of their plans may (and do often) differ.

All of these plans are supposed to feed into a municipality's Integrated Development Plan which

incorporates them without questioning the issue of mutual alignment.

Additional plans, such as the Built Environment Performance Plan (BEPP), become necessary in order to, inter alia, 'coordinate and align planning and implementation related to public transport, human settlement, economic and social infrastructure' (National Treasury's BEPP Guidance Note 2015/16-2017/18, issued on 3 October 2014).

To developers and the public there often appear to be a duplication of plans for a single precinct, which are contradictory or out of date. Knowing which plan is relevant often appears to be subjective. It also appears that precinct plans are redrafted rather than implemented (often when planning for an area is taken over by a different planning official).

#### Example 2: Denneboom station

As stated in the description of the case study, a number of plans have been drafted for the precinct, since 2004.

- Three plans have been drafted for the upgrading of the hostels for the Gauteng Department of Sustainable Human Settlements as well as for the City's Department of Human Settlements.
- Spatial plans were drafted for the bus and taxi ranks and informal traders' stalls located in the forecourt of the station by the Department of Transport.
- A Precinct Plan was drafted for the station and its immediate surroundings as well as a plan for the larger precinct for the Department of Spatial Planning.
- A precinct Plan was drafted for the public space and social facilities for the NDPG.
- The Department of Spatial Planning has now drafted yet another plan that addresses only the provision of BRT stations and routes.

#### Example 1: Discrepancy between transport and housing planning assumptions

In the case of Cape Town the municipal Spatial Development Framework (SDF) was approved in 2012. During 2013 and 2014 the City's Integrated Public Transport Network Plan (IPTNP) was being produced, not on the basis of the SDF, but on the basis of a separately developed urban growth land use model and the evaluation of a number of different land use scenarios, generated through this model. The plan itself was based on the 'pragmatic TOD assumptions and principles', but the Council resolved that the 'TOD comprehensive assumptions and principles' be used to further develop a comprehensive TOD land use scenario. At the same time the Integrated Human Settlement Framework for Cape Town was drafted and, instead of being aligned with the SDF and/or IPTNP, it modelled its own six strategic development scenarios and eventually adopted the one that does not correlate to the IPTNP's TOD comprehensive land use scenario.

### 8.7.2 Relationship and communication among different departments in respect of TOD

Coordinated planning and action undertaken by different municipal departments is often compromised by the organisational structure and culture.

**Example 1: Cape Town's 'Silos'**

The Cape Town TOD Strategic Framework states: The City of Cape Town is structured in hierarchical line directorates which enables specialisation in specific areas and provides a clear chain of accountability. However, this type of organisation has its shortcomings, as each directorate is isolated in its own 'silo' with minimal links between directorates and departments. This may result in:

- decisions made in isolation from other departments;
- contradictory approaches to issues;
- duplication of work;
- missed opportunities in improving service delivery;
- difficulties in implementing coordinated strategy;
- complexities of rules and regulations, due to sector differences;
- lack of clarity around who should take the lead (if roles are not clearly defined, as nobody will take responsibility); and
- changing planning context under less than ideal financial and political circumstances.

**8.7.3 Departments/sections driving TOD**

The experience of the three cities with regards to the driving force behind the TOD is different and so are the levels of success realised.

**Example 1: Who drives TOD in Cape Town**

The City of Cape Town has adopted Transit-Oriented Development (TOD) as a key transversal development and management strategy to reverse previous anomalies in the city's urban form and achieve urban space economy and operational efficiencies. This strategy has been positioned under the leadership of a senior Mayoral Committee member. In terms of planning and implementation, TOD has become the responsibility of the TCT Planning Department, Business Development Branch via a TOD Technical Working Group.

**Example 2: City of Johannesburg**

In the City of Johannesburg Development Planning and the Department of Transportation work closely together in the development of a strategy and the alignment of routes and placement of stations. The Department of Transport is responsible for operations and JDA for project managing the construction of routes, stations and surrounding public spaces.

**Example 3: City of Tshwane**

In the City of Tshwane different departments deal with spatial and transport planning. There is limited interaction, and the BRT planners have the final say, due to the department's political importance. All aspects of the BRT construction are outsourced to private engineering companies.

**8.7.4 Institutional capacity**

Institutional capacity is hampered by insufficient personnel, high turn-over of personnel, and insufficient skills and experience. This also contributes to a lack of institutional memory.

Institutional capacity does not only relate to the drafting of Frameworks, and the evaluation of land use management applications, SDPs and building plans, but also to the ability to implement a plan or oversee its implementation. It has an impact on the efficiency with which applications can be dealt with and thus the time it takes for a private developer to get a development off the ground.

Specific lack of expertise that were mentioned during interviews is in urban design and land economics.

**8.7.5 Co-ordination of implementation**

Many planning and design proposals of local spatial development frameworks, urban design frameworks, precinct and similar plans remain unimplemented, even though most plans clearly list projects that have to be implemented and often allocate responsibilities. There may be different reasons behind this non-implementation of planning proposals, such as; them being unrealistic, unfeasible, unaffordable, of low priority, etc. The underlying fact is that the department which is responsible for preparing such plans does not necessarily have effective mechanisms, authority or

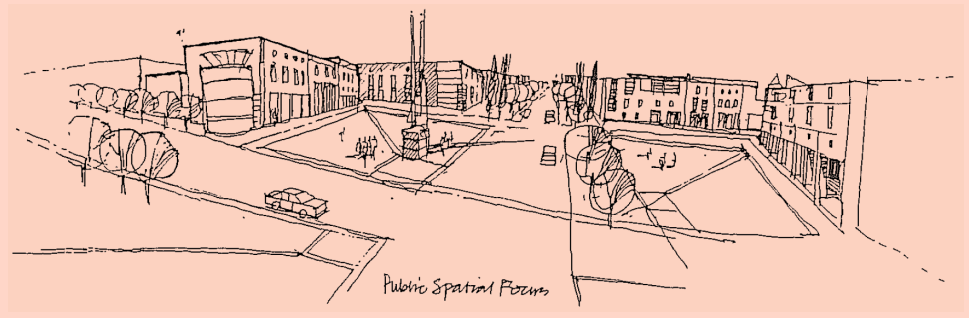


**Example 1: Lack of implementation despite clearly defined projects**

The Milnerton South - Paarden Eiland Local Area Spatial Development Framework, 2014 made very specific planning and design proposals for the Zoarvlei station precinct. It listed all projects necessary to implement the Framework and clearly allocated responsibilities to various municipal departments, such as Spatial Planning and Urban Design, Land Use Management, Property Management, Roads and Environmental Resource Management. However, no initiatives have been undertaken to implement any of the listed projects.

**Example 2: Management strategy for Blaauwberg Road**

The Management Strategy for Blaauwberg Road, 1998 made design proposals for what is today the Wood Station precinct. It proposed a large square surrounded by 4 to 5 storey high mixed use buildings. The entire development would be located on public land. No attempts to implement the proposed design have been made.



capacity to follow through on the implementation of such plans.

A typical TOD precinct plan may require the following types of projects to be implemented:

- public transport infrastructure (exclusive busways, railways, stations, bus stop shelters, taxi ranks);
- roadways, sidewalks and parking lots;
- pedestrian streets, public squares and markets;
- landscaping and parks;
- public amenities (such as public toilets);
- community facilities (such as libraries, clinics, post offices, etc.);
- service infrastructure;
- residential, office, business and mixed-use buildings.

The implementation of such infrastructure requires the involvement and coordination of a number of different municipal departments, as well as the private sector. The department responsible for spatial planning, as the custodian of the precinct plan, may request these role-players to play their part, but it cannot compel them to do so. Furthermore, the responsibility for the implementation of some types of projects is not always clear, e.g. pedestrian streets and public squares.

## 8.8 Subsidies and grants

### 8.8.1 Available subsidies and grants

There are a number of subsidies and grants that are available for investment in housing, infrastructure, public transport and public space. Conditions attached to these subsidies and grants are not necessarily conducive to transit-oriented development and sometimes are even counterproductive. There also seems to be a lack of alignment between the conditions of these grants specifically related to human settlement development (HSDG) and those related to public transport (PTIG).

**Example 1: Housing subsidy programmes**

The housing subsidy programme is still not effectively leading to higher density housing typologies. Subsidies are geared towards greenfields detached residential development with full title stands at low densities. Higher density options are not always applicable, e.g. social housing can only be developed in restructuring zones and a TOD precinct does not necessarily fall within this category.



**Example 2: City of Cape Town**

In accordance with the existing housing subsidy system, housing plans aim to create the maximum number of dwelling units in the shortest possible time and within the smallest capital budget, irrespective of public transport systems' needs and capacities. For example, housing units are provided in an area which, in terms of the capital budget for housing delivery, seems to be the most suitable one. However, the area is currently not serviced by public transport and future costs of the provision of this service have not been considered. Had these costs been taken into account, the chosen area may not have looked so attractive. In the process of drafting the Integrated Human Settlement Framework for Cape Town (IHSF) six different strategic scenarios were scoped and modelled. One of these scenarios was the 'Sustainable Compact City Scenario, described as the one which would contribute to spatial efficiencies and transit-oriented development. However, this scenario was rejected as the base for housing planning because the criteria for the evaluation of the scenarios were: number of households that would be assisted, required funding (total and by the City), land availability and the proportion of housing delivery that would be managed by the City. No other city management aspects, such as public transport service provision, were taken into consideration.

**8.8.2 Counterfunding**

Some subsidies, such as the Neighbourhood Development Programme Grant, require counter funding from the municipality. This can be problematic due to affordability and existing allocations of funds.

**8.9 Private development facilitation**

It is vital that private development in TOD areas is effectively facilitated by the public sector. Innovative ways should be identified as a means of attracting private investment in the TOD areas planned for by the public sector. Some of the key areas that require intervention pertain to obtaining development direction from local government. Based on the private sector perspectives it is evident that there is a lack of sufficient direction in terms of the desired development within TODs. Although policies speak to the development of TOD areas, the lack of sufficient implementation has contributed to the limited motivation for private developers to develop in line with the objectives set out in the precinct plans.

In addition, the risks associated with the non-fast-tracking of development applications discourages private developers from developing in certain areas.

There is no mechanism in place that motivates private developers to develop within a TOD area specifically. Developers intend to invest on land that ideally has existing rights as well as the necessary infrastructure and services.

**8.10 Land ownership**

Security of tenure or ownership is a pre-requisite for any form of financing. Therefore, a developer requires confirmation of ownership, if this is not in place the risk to develop is regarded as too high.

**8.10.1 Public**

Although it would be expected that land in government ownership would be an advantage to TOD, as the local authority can release strategic land for private development or supportive social facilities, this is not always the case. In some instances, it has actually hindered the development of TOD due to lengthy procurement procedures, uncertainty and political distrust.

**8.10.1.1 Procedures**

Disposal of government-owned land is sometimes difficult and a lengthy process due to legal procedures. The sale of land by any government entity local, provincial or national is bound by the Public Finance Management Act, 1999 and the National Treasury General Procurement Guidelines. This implies that the disposal of a property needs to go through an open tender process. This is required to ensure open and effective competition, so that the deal is ethical and fair. It is crucial that fair compensation is paid for the asset, government needs to be held accountable (via the appropriate legislation) and to ensure equity.

The tender process itself can take a long time and does not provide any guarantee for the developer that

the property will be acquired. In order to avoid the administrative hassles and uncertainty associated with the process developers prefer private land should it be available for purchase. In cases where no alternatives are available and therefore no choice of private land, developers will consider the option to procure government land if the return on the investment in the TOD is deemed worth the risk.

#### 8.10.1.2 Disposal of strategically-owned land

Government sometimes disposes of land that is strategically located for uses that are not supportive of TOD, e.g. low density subsidised housing, suburban-type shopping centres. One of government's key priorities is the development of sustainable human settlements to provide for the high demand for housing in South Africa. Due to human settlement development receiving such a high priority, land with strategic importance both for TOD's and development in general is often utilised for residential development and not necessarily for its highest and best-use application in support of the TOD development.

#### Example 1: Government land not used for housing (although suitable)

As part of the preparation of the Milnerton South - Paarden Eiland Local Area SDF, 2014, an economic analysis was undertaken for the area. This analysis contains the following remark: "Policies to develop gap housing units are in place, however very little support is invested from government (as indicated that government is selling strategic land to develop the highest return activities such as retail and office)"

#### 8.10.2 Private land ownership

When the bulk of the land within the TOD is owned by one land owner, the TOD can easily fail. If there are a number of land owners, the risk is more widely spread and this reduces the probability of development failure.

#### Examples 1: Sandton vs Midrand

In Midrand, key properties required to unlock development in the TOD around the Gautrain station are held by a single property owner (Old Mutual). The development proposals (Zonk'Izizwe) of this property owner did not progress and therefore the area has seen limited (or no) development.

In the case of Sandton, a key property adjacent to the station has not been developed due to a slow development response from the successful bidder. However, this has been counter acted by other major developments surrounding the station and thus the TOD as successful. If there is a presence of more property owners and stakeholders with vested interest, the risk factors are lower.

#### 8.10.3 Parastatals

In cases where land is held by a parastatal such as PRASA, Transnet, Eskom or other state owned entity a similar procurement approach to government land is required where the parcel/s is put out to open tender. This process has the same pitfalls as associated with the procurement of state owned land.

#### Example 1: PRASA

PRASA has established a developmental arm in the form of Intersite to manage the development of all PRASA's properties surrounding existing stations. Development has been successful in areas with a pre-existing demand such as the city centres or key development nodes. However, development in the township areas have received limited interest and progress with respect to development. Although PRASA and Intersite is keen to develop these properties, development blockages exist.

#### 8.10.4 Leasehold VS Transfer

A discernible difference in quality of development is evident when ownership of the asset is retained rather than if the property is developed and sold on to a third party.

#### Example 1: PRASA

In 2010 Prasa decided it would try to revive properties around the stations in order to generate revenue for the corporation. The parcels of land surrounding the stations were vacant creating an opportunity. In order for PRASA/ Intersite to benefit, they determined where they could generate the most income from. Intersite was established by PRASA as part of their 'investment-wing', where Intersite was a subsidiary of PRASA (as previously mentioned).

During 2011 and 2012, most of the properties surrounding the PRASA stations were made available for tenders, allowing developers the opportunity to utilise the PRASA owned land for development. Due to Intersite's business model that is focused on retaining assets and not to sell them off, a development lease model was used. The development lease model is based on assets that aren't relinquished, but rather leased on a long-term basis.

## 8.11 Co-operation between transit operators, municipalities and landowners

PRASA and Intersite need to take a long term view of the development of properties by structuring a leasehold deal with reputable developers. The deal should be structured in a manner that is lucrative for the developer and therefore promotes their involvement. Long-term leaseholds can be considered, however these should be sustainable and of benefits for both parties.

A long term view will ensure that catalytic development is taken forward by private sector companies. Private sector developers with sufficient drive and implementation skill will ensure development that is to the benefit of township areas where the development landscape is stagnant. The catalyst will enable further development in the TOD precinct whilst the asset is retained and returned to the landowner in the longer term with growth in value, purpose and use.

### Example 1 Sandton CID

A key challenge faced by the Sandton CID is that there is not enough communication around the development of TOD's. The challenge lies in that perceptions need to change to lower the resistance around activities (Corridors of Freedom, improvements for pedestrian) taking place within the Sandton area. The best solution is for people to see change such as the widening of walkways and introduction of cycle lanes. Positive change enforces public acceptance. If the TOD interventions being introduced cause positive change for Sandton, and public transport is seen as a positive alternative the public will come to accept the concept.

## 8.12 Urban management

Proper urban management is key to ensure the improvement and retention of the quality of a TOD area. Should the area not be well maintained, social problems will infiltrate, causing the general attractiveness to decline, investment to dwindle and thereby threaten the long term success of the public transit precinct.

Proper urban management involves:

- active crime prevention;
- land-use control;
- cleaning and maintenance;
- small business support;
- creation of public spaces and streets which are welcoming;
- providing an easily inter-connected area with a total experience and sense of place;
- creating a city with an urban form that is efficient, sustainable and accessible; and
- creating a city with a quality urban environment providing for integrated and sustainable settlements and well-designed urban spaces.



## 9 SUMMARY

**The case studies analysed indicated that achieving TOD, and not just development around stations, is complex and in some instances predetermined. All transit modes studied (Gautrain, rail, and BRT) showed similar results: existing conditions play a major role in the successfully realising TOD, both in terms of land use and environmental quality, and that public investment does not necessarily lead to the desired outcomes.**

The first aspect to consider is the broader urban form, which is generally not supportive of public transport and where private vehicular use and supporting infrastructure dominate. This is due to amongst others, low residential densities and a large number of widely distributed areas of employment that have limited mixed land uses. TOD research undertaken by the City of Johannesburg indicates that the origins of public transport use are defined but the destinations are not, due to a large number of different employment locations. This makes public transport inefficient because of the number of commuters in some areas, the need for a number of transfer points and mono-directional flows. These inefficiencies are one of the reasons for the need to create TOD precincts.

Secondly, it appears that current development patterns and development pressure around a station have the biggest impact on new development being attracted to the TOD precinct. Even where there has been significant investment by government bodies and land is available; it has not had the same impact. The lack of development of TODs around BRT stations, specifically, is attributed to the locality of stations and the high number of stations.

It is not a case of 'build it and they will come'.

Thirdly, development in the region of the station, but not within the station precinct itself, has limited the development potential around the station. In some instances, this is a case of missed opportunities.

Lastly, surrounding development has an impact on the type of public transport that should be used. In areas with low densities and limited commercial development, the potential for the use of public transport is limited and by extension the realisation of a successful TOD is limited.

Little headway has been made and despite growing congestion, the private car is still the mode of choice for those that can afford it. The Gautrain has been successful in attracting people traveling between

metros. Despite the higher than projected numbers of commuters using the train, it still does not carry sufficient commuters to make an impact on the number of private vehicle users. Its expansion may address this, but it will still, in all probability, not carry sufficient numbers of commuters, to impact on private car usage.

The locality of Gautrain stations, has not had such a big impact on the use of the train as in the case of PRASA or BRT stations. The main reason is that people travel by car to the stations, as is reflected in the high usage of parking facilities. The development of TOD around these stations, seems dependent on their locality and existing patterns of urban development.

The success of the Gautrain in convincing private vehicle owners to use public transport has been in providing a safe and punctual service. Although it is at times inconvenient to use, due to overcrowding and the lack of connections to other areas, this has not detracted from its use. It is also easy to use due to the clarity of its routes and stops and a number of apps that provide information on the timetable etc. It has not been as successful in getting riders to use the Gautrain bus, due to the lack of punctuality of buses, a perceived lack of safety and the complexity of the bus routes.

The assumption is that the BRT should be the mode of choice for both current public transport and private vehicle users and that it will in future replace private vehicles as the dominant transit mode. The assumption is also that TOD will develop around these stations. The performance of the BRT has been lower than expected, due to the limited network. As the BRT system gets expanded to new areas, its link to other modes of public transport improves, and as a stringent-ticketing system becomes available this should attract more users.

To achieve a shift in mode of transport, a number of factors appear to be important: safety, punctuality, convenience, cost (both in time and money), linkages to a number of destinations, and knowledge about the workings of the system (routes, stops etc.).



South African cities are inefficient, inequitable, and unsustainable. TOD is seen as one of the critical elements of restructuring cities in order to address these inefficiencies. The ability of TOD to actually achieve this, and the effectiveness of planning interventions, are however not so clear. The creation of a TOD is a complex endeavour, and its success depends on a number of factors and roleplayers, none of which can be considered in isolation.

This Section contains the guidelines for developing a collective approach to mixed-use development in TOD precincts based on the South African experience to date as captured in this Study. The aim of the guidelines is to improve the effectiveness of TOD implementation.

The guidelines cover the following topics:

- Integration of urban form and public transport.
- Changing ridership patterns.
- The need for appropriate precinct plans.
- Private development facilitation.
- Releasing strategic public owned land for TOD institutional structure and procedures.
- Capacity building and awareness creation co-operation between transit operators, municipalities and landowners.
- Urban management.

## 10.1 Integration of urban form and public transport

This Section addresses the link between urban form and public transport and its impact on the creation of a TOD precinct. The success of the creation of a TOD precinct depends on a carefully considered match between public transport infrastructure and the urban form. The creation of a TOD precinct can therefore not be considered without an understanding of the wider urban form and development processes.

### 10.1.1 Reactive approach and strategic interventions

It cannot be expected that a TOD will develop around all stations as suggested by the 'beads on a string' concept. Attempts to create TOD should concentrate on the areas with highest development potential, i.e. where there is already some form of development pressure. It is not the case of 'build a station and development will come'.

A strategic approach should be followed in the identification of TOD precincts. The first focus should be on those stations that already have development potential, or where interest has been shown by the private sector. This does however not mean that other stations should not be targeted, especially because of the need for restructuring and attracting investment to underdeveloped areas, but it does indicate a more targeted (realistic) approach and requires a greater match between urban form (land use) and public transport.

Restructuring urban form through TOD should be understood as a long term endeavour that requires continued commitment from both the public and private sector. Consideration should be given to the fact that the private sector however does not have the liberty of time, especially given that the market forces are one of their major consideration points in achieving TOD.

### 10.1.2 Consideration of wider planning conditions

An attempt to develop TOD should be avoided if there is an existing large mixed use or commercial development more than 1km but less than 5km away from the station, as this will create two competing development foci.

A land use management application for a new large mixed-use or commercial development should not be approved in the radius of 5km around a potential TOD station, unless it forms part of the TOD i.e. within 1km, preferably less, as this can impact on the viability of the TOD.

The locality of the station should be central to an existing or planned node and not located on the periphery as this will strengthen the development energy of the node and optimise access to the station.

### 10.1.3 Matching typology of transport modes with urban form

A typology of public transport modes should be developed in a way that matches surrounding conditions. Residential density and scale of mixed use or commercial development should determine the mode of transport and the distribution and number of stations. This typology should take into account future development trends and the desired urban form. For instance, in areas with low density, busses should be

small and their service infrequent, whereas in high density mixed use areas, large busses in dedicated lanes or trains with a frequent service should be used.

## 10.2 Changing ridership patterns

TOD is premised on a change in ridership patterns. Firstly, it involves a shift from private to public transport, and secondly, the switch from one mode of public transport to another. With regards to road-based public transport, the aim is to switch bus and taxi users to the BRT.

In order to encourage a shift from private to public transport, a two-pronged approach is needed. Firstly, public transport must be:

- safe and perceived to be safe;
- convenient, e.g. connects as many places as possible, is frequent, punctual and reliable, requires limited walking and allows for easy transfers;
- comfortable, i.e. not overcrowded, clean, and at a comfortable cabin environment,
- easy to understand the routes, the operational and payment system; and
- cost and time saving.

Secondly, the use of the private car should be discouraged in areas serviced by public transport by:

- allowing for congestion,
- ensuring shortage of and high cost of parking
- passing the real cost of construction and maintenance of roads onto the user.

In order to shift the mode of road-based public transport to BRT, the BRT must have a competitive advantage over other modes of public transport, e.g. cost and time saving and connectivity. Through law enforcement, minibus taxis should be prevented from competing with BRT on dedicated routes and should be used only as a feeder or supplementary system.

## 10.3 The need for appropriate precinct plans

Precinct Plans are the most significant instrument that the cities have to ensure development is in line with TOD principles. For the purpose of these guidelines, a Precinct Plan is defined as any spatial plan for a local area (that may be wider or smaller than a single TOD

precinct), that contains elements of an urban design framework such as a spatial vision, detailed layout of the area and detailed development guidelines for both the private and public domains.

Although Precinct Plans have been drafted for all the case studies, these have had limited success. Several problems with the current system have been highlighted. These include the general nature of design guidelines, the poor quality of plans, the difficulty to enforce design guidelines on private and public developers, a lack of pragmatism in plan implementation, and a lack of understanding of social and economic realities.

Proposals for the improvement of precinct plans are:

- Precinct plans should be preceded by and based on the studies that are normally required in the process of rezoning applications, such as traffic impact assessment, environmental impact assessment, bulk service investigation, geo-technical investigation, heritage assessment and market research. Although some elements of these studies may be taken into account, they are not sufficient to ensure that all proposed developments can actually take place.
- The TOD precincts plans, are often based on policy guidelines, theoretical constructs and 'good' planning principles, but they often disregard the context and specific conditions of a given area. A more realistic vision for the precinct should be developed based on an understanding of the specific precinct context and conditions. In essence a proactive, flexible and long-term development control approach should be implemented.
- The precinct plan must include proposals, plans, designs and standards for all public buildings, services and infrastructure to be constructed within the precinct. This includes roads, parks, housing and social facilities such as schools, libraries, clinics and police stations. The current situation where each sector has its own plan and pays scant attention to the TOD precinct plan, let alone other plans, should be prevented. There should be only one plan and that this single plan should be used by all relevant departments to guide their budgets, implementation actions and timeframes in a TOD area.
- The precinct plans should go beyond generic guidelines (land use, building heights, coverage and FSR) and be developed to a high level of detail, and should include:

- actual road geometry, vehicular access points, street and on-site parking areas, sidewalks and pedestrian paths (even on private properties);
- areas to be landscaped, streetscaping details such as street trees, street furniture, lighting, signage;
- public transport routes and facilities;
- public-private interface;
- access points to private properties;
- building or built-to lines;
- guidelines for architectural design.
- It must be ensured that all, even the subtlest, aspects of a spatial development framework/TOD precinct plan are translated into development rights/controls (Zoning Annexures or Conditions of Establishment). A different approach to development controls should be introduced to ensure alignment with TOD principles, e.g. minimum density instead of maximum density, maximum parking ratios instead of minimum parking ratios, land uses that should be excluded rather than land uses to be included, provisions for public transport rather than private transport.
- In order to ensure that the approved plans and designs are implemented it could be considered that, with the approval of a plan, score cards of relevant departments are amended with the planned projects that they have to implement.
- The constant redrafting of precinct plans when there are structural changes within the municipality should be prevented. The large number of plans and redrafting of plans creates confusion and insecurity for private sector investors.
- The precinct plan must be aligned and linked to government grants and subsidies, so as to access funding for the implementation.
- Extensive participation with communities and developers should be undertaken. Current processes of participation are done more with a view to comply with regulations. This should include education on the concept of a TOD and the positive impacts it will have in the long run. Critical in this regard is developing an understanding of the contribution of private developers to the quality of the public environment. Participation should rather be seen as collaboration and

an attempt to create a situation where objections against development are minimised.

- The proposed requirements, including detailed studies and significant participation take time and imply that the timeframe for the drafting of precinct plans should be realistic and that bigger budgets should be allocated to the drafting of plans.

## 10.4 Private development facilitation

### 10.4.1 Direction from local government

Generally, private sector developers are aware of some of the spatial development policies and objectives of the local municipalities, however there is a consensus that there is a lack of clear direction from local government in terms of how future development can be supported and facilitated. The primary concern is related to a lack of effective communication between private and public sector role-players. The following guidelines should be explored by the local government as a means of providing some direction to private property developers:

- Establish electronic platform that provides information on the financial benefits and implications of investing in a particular area. The financial benefits could potentially be determined through an economic impact modelling procedure. For example, a platform can be established that can indicate the estimated return on investment when developing in a particular region.
- The municipal in-house services to realise TOD do not exist and therefore partnerships between the private and the public sector should be formed.
- Provide a policy advisory 'hotline service' to private sector developers and property specialists in order to fast-track the pre-consultation process.
- Explore the possibility of establishing an electronic engagement platform through which private developers and other property development specialists can provide feedback and comments in real-time.
- Municipalities could explore the possibility of providing technical assistance to property developers throughout the development process. For example, the developer/applicant makes use of the municipality's in house urban designer, financial planners, market researchers and engineers. Anything from pre-feasibility to the project implementation.



#### 10.4.2 Fast-tracking of land use management applications

One of the key issues identified by the private sector was the slow processing of land use management applications. The primary concern is centred on the financial risks associated with prolonging approval of a particular application. Private sector developers require some form of certainty with regards to the status and expected timeframe from the local municipality in order to plan for any potential risks associated with the processing of applications.

- Prioritise development applications in TOD areas that specifically comply with the spatial principles of TOD's.
- Provide an electronic application monitoring and application circulation platform that can be accessed by all property developers and municipal officials as a means of monitoring the application process and status.
- Private developers should engage in extensive pre-consultation activities with the municipality as a means of understanding the necessary requirements for the development application as well as whether the application will be considered by the municipality.
- The municipality should ensure that the municipal officials involved in the pre-consultation process of a development application have the necessary capacity to provide the private developers/applicants with the correct information.
- Municipalities should establish an internal performance based incentive strategy for departments that implement measures to fast-track development applications within TOD areas.
- Municipalities should consider simplifying the application process in cases where there is more than one type of application on one development site. Instead of submitting multiple applications, the applicant could be permitted to submit one application package.

#### 10.4.3 Land preparation

Preparing the land for private sector investment should be of key concern to the local municipality as a means of encouraging development within TOD areas. Often, private developers will invest in land that has the least amount of cost associated with infrastructure provision and land use management. Some aspects that should be considered by the local municipalities include the following:

- Local municipality could create 'special zoning districts' in which the local municipality (with the permission of the existing owner) rezones the properties within the TOD area according to TOD mixed land uses (retail, office etc.). This will reduce the time consuming risks associated with obtaining rights for a particular development objective.
- Provide bulk service provision and public transport infrastructure within in TOD areas.

#### 10.4.4 Development incentives

Above all, private developers need certainty that their development applications will be approved and that it will be done in the shortest possible time. This implies:

- The Precinct Plan should be approved jointly with the approval of special zoning districts, overlay zones or proactive rezoning in order to avoid duplication of advertising and public commenting, as well as to minimise or eliminate risk for prospective developers. This becomes even more important given the provisions of SPLUMA for an intervener during the process of rezoning.
- The municipality must provide certainty that promised investment will be done and will be done timeously.

There are a number of incentives that can be used to attract private development as currently provided in guidelines for all the municipalities included in the study. These however seem less important than de-risking and fast-tracking of applications.

TOD plans and proposals should be presented to land owners and developers, to make them aware of the proposed development. This is different from public participation during the drafting of the plan. Marketing to developers should not be limited to those active in the specific area.

### 10.5 Releasing strategic public owned land for TOD

Public-owned land within a TOD precinct is a strategic asset for successful TOD and should be used as a catalytic intervention. The following should apply:

- All aspects of public land release and development should comply with a precinct plan. This includes land use and detail design guidelines.
- No public land located within an existing, proposed or potential TOD precinct can be released when





there is no precinct plan, except for temporary use through a short term lease.

- The municipal departments responsible for spatial planning and transport should jointly provide the department responsible for land release with the location of all existing, proposed and potential TOD precincts.
- On approval of a TOD precinct plan, the department responsible for the implementation of the plan, should identify all municipal owned land and inform the department responsible for land release on the requirements of the precinct plan. If the land is to be developed by a municipal entity, e.g. for a public square, library, etc. such departments should also be informed and made aware of the design guidelines contained in the precinct plan.
- The above guidelines should be appropriately applied to land owned by other government entities.
- If land owned by other government entities is of strategic value to the development the precinct, the department responsible for the implementation of the TOD, should approach such entities and negotiate obtaining the land.
- Lease of public land is preferable to alienation.
- Alienation of public land for the sole purpose of generating income for the public sector should not be permitted.
- Prior to the release of land, the city should undertake all actions required for development to take place, e.g. agreed to rezoning, bulk service and road infrastructure provision. This would assist in de-risking the involvement of the private sector. Detailed development and design guidelines should be included. As all development prerequisites are in place, a timeframe should be set for the commencement and completion of the private development. If such timeframe is not complied with, the lease should be revoked. Punitive measures should be considered, if the private developer does not comply with design guidelines.
- Legislation and policy (at a local, provincial and national scale) such as the MFMA, which prevents the sub-contracting of immovable property and thereby limits the City's ability to engage effectively with property developers (MFMA, No. 56 of 2003), should be investigated.
- Streamlining the tender processes should be investigated.

## 10.6 Institutional structure and procedures

An organisational unit (department, section, branch) or an agency should be established – where it does not already exist – whose responsibility should be to ensure the implementation of approved TOD precinct plans. This can be done with existing resources through internal reorganisation, whereby current officials would be assigned new responsibilities. Such unit is necessary due to the strategically important role assigned to TOD to restructure inefficient urban form and the current experience of ineffective implementation of spatial plans and frameworks. They should:

- budget for the implementation of planned projects or make sure that other relevant departments (such as parks, roads and housing department) include these projects into their budgets and implement the planned projects;
- Source, attract, motivate, lobby with and assist prospective private sector developers and other role-players to develop as much as possible of what has been planned (e.g. residential, office, business and mixed-use buildings inclusive of public spaces and social
- coordinate (project-manage) implementation actions of different public and private sector role players;
- directly implement projects which fall outside of traditional departments' responsibilities; and
- fulfil their role as described in the previous section (releasing strategic public owned land for TOD).

In order to fulfil its task successfully such an agency should have certain decision making authority which would prevent a project from being compromised by an unreasonable sector requirement and it would enable more effective negotiations with private sector developers.

All procedures within a municipality that affect TOD precincts (planning, land use management, lease or sale of council property, etc.) must be made clear and streamlined to ensure that TOD are not compromised (precluded or made sub-optimal) in any way (for example commenting on lease or sale of municipal property within TOD precincts).

## 10.7 Capacity building and awareness creation

The achievement of a TOD on capacity and awareness is wide-ranging, as its success is dependent on a number of stakeholders, from government officials, to developers, and the general public.

### 10.7.1 Municipality

Training on the value of TOD development is needed within municipalities so that all departments realise its strategic importance as well as their role in implementing TOD. The unit responsible for TOD implementation should organise such training.

Capacity should be created within the municipalities to be more involved in the drafting and evaluation of precinct plans. In this regard urban design expertise and an understanding of the workings of the land market and property development is of importance. With regards to property development trends four sections are applicable: the financial market (economic and monetary conditions), the space market (demand and supply), the developer market (building costs), and the land market (town planning).

This can be done through Continued Professional Development.

### 10.7.2 Developers, property owners and tenants

Developers, property owners and tenants play a critical role in the implementation of TOD, they should therefore be made aware of the following:

- the concept of a TOD and the necessity to structure the city around public transport;
- the benefit of undertaking development differently in order to benefit from and strengthen public transport;
- the importance of active participation in the municipal precinct planning process.
- the value and impact of targeted investment in prioritised TOD precincts.
- the organisational structures within the city that deals with TOD, and associated elements such as incentives and land release;
- design requirements and implications of TOD at the site and building level and the importance of the following elements of a TOD: mixed-use

buildings, active street fronts, locating parking behind buildings or in basements, absence of boundary walls and fences, pedestrian friendly design, orientation of building onto public space and public transport facilities;

- the importance of the quality of the surrounding public environment on the long-term value of their business and property;
- concept of developing a precinct instead of just constructing buildings, and their contribution in this regard.
- the need for skills transfer to municipal officials with regard to private development processes, and practical development considerations that impact on return on investment and land economics.

Training to mitigate the skills gap can be undertaken by a third party or an organisation such as SAPOA through seminars, conferences, lectures etc.

### 10.7.3 General public

The general public as main beneficiaries of TOD should be made aware of the following:

- the concept of a TOD and the necessity to structure the city around public transport;
- the process of precinct planning and their contribution to the formation of functional spaces;
- the positive impact of TOD on their quality of life, e.g. pedestrian-friendly environment, mixed use areas where they can address several needs in one place, the benefit of using public transport in terms of cost, time and convenience.

This can be done through media campaigns, pamphlets, newspapers etc. The focus should be on changing current negative perceptions of public transport and the benefits of dense, mixed use urban living as opposed to ubiquitous suburbia. The city can undertake such campaigns with the assistance of other government bodies such as the National Department of Transport, and the Neighbourhood Development Unit at National Treasury.

The process of public participation offers a unique opportunity to create awareness among the public in a specific precinct. Public participation should be creatively designed and should actively accommodate a wide range of users.

## 10.8 Co-operation between transit operators, municipalities and landowners

The co-operation between transit operators, municipalities and landowners are an important aspect seeing that without a partnership, the implementation of a TOD would be impossible. All of these different role-players need to work towards the same goal.

There is however a major difference between urban and township areas, where township areas contain a massive amount of people that need to be integrated and managed. Township areas are very complex given the development imperatives in these areas. Co-operation within a township area is essential so that economic support is provided to the area where it otherwise would not have been granted.

PRASA and Intersite need to take a long term view of the development of properties by structuring a leasehold deal with reputable and emerging developers. The deal should be structured in a manner that is lucrative for the developer and therefore promotes their involvement however it should not be to the detriment of PRASA or the municipality. Long-term leasehold can be considered and this but then there should be beneficial for both parties.

A long term view will ensure that catalytic development is taken forward by private sector companies. Private sector developers with sufficient drive and implementation skill will ensure development that is to the benefit of township areas where the development landscape is stagnant. The catalyst will enable further development in the TOD precinct whilst the asset is retained and returned to the landowner in the longer term with growth in value, purpose and use.

## 10.9 Urban Management

Proper urban management is key to ensure the improvement and retention of the quality of a TOD area. Should the area not be well maintained, social problems will infiltrate, causing the general attractiveness to decline, investment to dwindle and thereby threaten the long term success and sustainability of the public transit precinct.

Proper urban management involves:

- Active crime prevention
- Land-use control
- Cleaning and Maintenance
- Small Business support
- Creation of Public spaces and streets which are welcoming
- Providing an easily inter-connected area with a total experience and sense of place
- Creating a city with an urban form that is efficient, sustainable and accessible
- Creating a city with a quality urban environment providing for integrated and sustainable settlements and well-designed urban spaces.

There are a number of role-players and stakeholders involved in the management of TOD precincts. The following recommendations should be considered by each of the respective stakeholders:

- National Government
  - Should focus on overcoming the “apartheid city” by using TOD’s to eradicate segregation, by implementing and instilling policies to guide local municipal spatial planning.
  - Involving academic and other experts when developing national spatial development guidelines helps ensure quality planning, however it’s important for the content to be informed by city officials and managers, and to incorporate the views of a range of other key urban stakeholders, including political leaders at all levels, and representatives from the private sector and civil society.
  - Manage the national development planning process in a way that ensures that both the city- and national-level government’s role in development is defined.
  - It is imperative South Africa to define and develop a TOD processes that are in line with the Country’s needs and not an imitation of international processes.
  - National funding - TOD development should become a budgetary priority on a national level.
- Provincial Government
  - Provincial Government should provide guidance to local municipalities in terms of obtaining funds for urban management purposes as well as providing policies that focus on TOD in urban areas.

- Local Government
  - The City must ensure that the necessary maintenance, upgrades and investment from its side is carried out, e.g. bulk services provided, roads upgraded.
  - Local municipalities should be an intricate part of local city improvement.
  - Local government should establish a TOD management forum/authority within the administration of the municipality. The TOD authority should be directly involved with the local community as well as the city improvement districts.
  - Regular workshops with the local municipality, private sector developers, local business owners, and the property managers within the TOD should be held.
  - Local Municipalities should focus on developing clear land-use alternatives. The planning process should allow for public discussion and input from property owners, community members, developers and other key stakeholders early in the planning process to account for different scenarios.
  - It is important that Local Municipalities should have knowledge and understand the market demand for employment and higher-density housing through the commission of targeted feasibility studies. These feasibility studies should also account for additional mixed-use components such as retail, offices, industrial and residential. Different development scenarios could be created to account for changes in ridership making use of TOD modelling tools.
  - Local Municipalities should outline a media strategy to help secure broader coverage of the TOD planning efforts.
  - The Local Municipality should identify ways of facilitating and providing support to SMME's, specifically in TOD areas.
  - The local government should make use of international case studies as examples to work from when developing NDP funded projects.
- Transit Users (Local Community)
  - Conduct a public outreach, including workshops and open houses to fulfil public participation requirements. The inclusion of a TOD planning website where the community can view progress and provide feedback, would widen the reach and facilitate more efficient communication between the municipality and the public. The use of visual tools such as photo simulations of development alternatives can be seen as a useful tool for engaging with the public, and thus could help secure support for the desired outcomes of the development.
- Private Sector Developers
  - The Private Sector developers have the responsibility to comply with the specifications of the spatial plans and policies of the local municipality with regards to implementation of TOD precinct.
  - During development implementation, private developers should aspire to development in a manner that is associated with TOD design principles.
  - Private Developers should provide attractive facilities to ensure the overall desirability of the TOD precinct is maintained.
  - Developers that operate within the same TOD area should collaborate efforts to establish a management platform.
  - City Improvement District's (CID) or Similar Forums should be considered.
  - The CID should monitor and report any issues within the TOD precinct to the local municipality as well as any other managing role-players.
  - Provide recommendations to the local municipality on improving operational mechanisms within the TOD precinct.
  - The CID has highly accessible and reachable platform to communicate with the wider community therefore they should act as the bridge between local municipality and the community.
  - The CID should, with the support of the local municipality, be responsible for keeping the precinct clean, safe and operating at an optimum level.
  - The CID should facilitate a space which will enhance the involvement of informal traders within the TOD precinct.
  - The CID should focus on keeping the TOD precinct safe and secure for all users, especially ground level users.
  - Current CID's should look into creating platforms and support for other districts to initiate similar city improvement districts.

**CONCLUSION****11**

**TODs are critical for the restructuring of South African cities and in the provision of effective and efficient public transport through the integration between land use and transport. Although the creation of TODs is an accepted policy in most cities, its achievement has remained somewhat illusive. Several policy documents, precinct plans and development guidelines have been drafted by a variety of roleplayers, but less is known about the conditions that lead to successful TOD and the role that government can play in facilitating such development.**

**To this end, an analysis was undertaken in three cities (Johannesburg, Tshwane and Cape Town) and three modes of transport (Gautrain, PRASA metrorail and BRT). The aim of the research was to uncover the role that the public sector, the private sector and the transit operators in the implementation of TOD.**

As prescribed in the previous section some important aspects with referent to the sustainable creation of TOD's include:

- The importance of the wider urban structure on the feasibility and character of a TOD. A TOD is intricately linked to what is existing not only within its precinct but also within the larger urban area. Current development pressures (or lack thereof), pre-existing urban form, e.g. street layout, residential typology and density, and development character, all play a role. Importantly also is development outside of the precinct. In several instances development in the vicinity of the precinct has diminished the development potential within the TOD and has led to missed opportunities.
- It became clear that just because a station is built, it will not automatically lead to a TOD. It is not a case of 'build it and they will come'. In some instances, even extensive public sector investment was not enough to stimulate private sector development.
- There is a resistance to change of mode of transport: from private to public transport and from mini-bus taxi to BRT. This has much to do with a certain mindset that permeates local government, developers and transport users. Specific conditions are critical to make this mindshift, many of which relate to perceptions. Wide-ranging awareness creation is needed amongst all role-players.
- Much of the development taking place within the station precincts do not comply with the principles of TOD, e.g. fine-grained mixed uses, high quality public space, and pedestrian-friendliness and safety. Despite the existence of precinct plans and design guidelines, development still takes place on an erf-by-erf basis with scant attention being paid to the creation of an urban environment that transcends erf boundaries.

Several guidelines are provided to assist in the successful creation of TODs.

Some of the most important centre around:

- The importance of precinct plans that are realistic and pragmatic and of a high quality, and that contain sufficient detailed design guidelines to enforce a specific type of development for both private and public investment. Wide-ranging buy-in and participation is of great importance for the successful implementation of precinct plans.
- Government-owned land can be a catalyst for new development, but it should be dealt with strategically.
- Facilitation of private sector development does not only centre on the provision of incentives, but also on security and clarity on government actions and policies and ease of obtaining land development rights.
- Intergovernmental relations, specifically within local government is critical.

Creating a successful TOD requires the involvement of a whole range of roleplayers, an understanding of existing urban form and development processes, and commitment from all stakeholders

In conclusion, it is important to acknowledge the positive development capacity that TOD's provide to the urban environment and it is evident that if implemented properly TOD's have the ability to transform the spatial integration of cities. This document is to be used as another tool that encourages the South African dialogue on the development and implementation of TOD's, with the aim of innovatively addressing the country's spatial challenges.





Joburg Metro Building  
16<sup>th</sup> Floor, 158 Civic Boulevard, Braamfontein  
P.O.Box 32160, Braamfontein, 2017  
t: +27 (0) 11 407 6471 f +27 (0) 11 403 5230  
e: info@sacities.net



Paddock View, Hunt's End Office Park  
36 Wierda Road West, Wierda Valley Sandton  
PO Box 78544, Sandton 2146  
t: +27 (0)11 883 0679 f: +27 (0)11 883 0684  
e: townplanner@sapoa.org.za

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Layout and  
pre-press material  
MPDPS (PTY) Ltd  
mark@mpdps.com





Joburg Metro Building

16<sup>th</sup> Floor, 158 Civic Boulevard, Braamfontein

P.O.Box 32160, Braamfontein, 2017

t: +27 (0) 11 407 6471 f +27 (0) 11 403 5230

e: [info@sacities.net](mailto:info@sacities.net)



**S A P O A**

South African Property Owners Association

Paddock View, Hunt's End Office Park

36 Wierda Road West, Wierda Valley Sandton

PO Box 78544, Sandton 2146

t: +27 (0)11 883 0679 f: +27 (0)11 883 0684

e: [townplanner@sapoa.org.za](mailto:townplanner@sapoa.org.za)