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Spatial Planning and Transportation in Soweto. Tracking Densification and Land-Use Changes Around Rea Vaya Phase 1A Stations.

Tshanda Mbuyi

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of **Master of Science in Development Planning**

Johannesburg 2016

Declaration

I declare that this research report is my own unaided work. It is being submitted for the Degree of Master of Science in Development Planning to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.

…….....

Tshanda Mbuyi

20..... day of February, 2017.....

Abstract

The spatial transformation project in post-Apartheid South Africa aims to change the alienating urban form that resulted from planning policies based on racial segregation. Johannesburg's municipal government aims to capitalise on its investment on the Rea Vaya Bus Rapid Transit (BRT), through the principles of Transit Oriented Development (TOD), to catalyse densification and diversification of land uses along the Rea Vaya's corridors. This research sought to discover whether these objectives are being realised in Diepkloof and Orlando East, Soweto. In order to answer the research question, the results of a qualitative survey of people residing around these stations were analysed in conjunction with GIS data and records of Town Planning applications for properties located around BRT stations. The following findings emerged: the rate of densification has intensified but remains constrained mainly because of restricted access to finance; land-uses have remained the same but with increased activity levels. All spatial development strategies in the study area need to be aligned to the principles of TOD. This research hopes to achieve two things. Firstly, enrich the scarce literature on spatial transformation through transit investments, particularly the BRT in South African Townships. Secondly, guide spatial planning policies in similar contexts across the country.

Acknowledgment

I would like to thank my parents, Martin and Rebecca Mbuyi, for believing me and always encouraging me to take on new challenges. Thank you to my brothers and sister; Yanu, Andy, Yves, Anita and Ray; for always cheering me up and reminding me that I can achieve anything I set my mind to. I am grateful to family and friends for their unwavering assistance, support and encouragements (the Calais Team, you know who you are).

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List of Acronyms

BAS : Building Application System

BCDA : Black Communities Development Act

BRT : Bus Rapid Transit

CoJ : City of Johannesburg (refers to the administrative entity, not the geographic area that falls within the municipal boundaries)

CSIR : Council for Scientific and Industrial Research

DFA : Development Facilitation Act

DHS : Department of Human Settlements

GCRO : Gauteng City-Region Observatory

GDS : Growth and Development Strategy

GGDA : Gauteng Growth and Development Agency

GIS : Geographic Information System

GPG : Gauteng Provincial Government

GMS : Growth Management Strategy

IDP : Integrated Development Plan

IMF : International Monetary Fund

ITDP : Institute for Transportation and Development Policy

ITP : Integrated Transport Plan

JDA : Johannesburg Development Agency

JTPS : Johannesburg Town Planning Scheme

NDP : National Development Plan

NGO : Non- Governmental Organisation

NPC : National Planning Commission

NRF : National Research Foundation

PTMA : Public Transport Management Area

RDP : Reconstruction and Development Program

RRA : Removal of Restriction Act

RSDF : Regional Spatial Development Framework

RTPS : Roodepoort Town Planning Scheme

SACN : South African Cities Network

SARChI : South African Research Chairs Initiative

SDF : Spatial Development Framework

SEZ : Soweto Empowerment Zone

SMME : Small, Medium and Micro-sized Enterprises

TAS : Township Application System

TOD : Transit Oriented Development

TPTO : Town Planning and Township Ordinance

UDF : Urban Development Framework

Chapter 1: Introducing the Study

1.1 Introductory Backdrop – Justification and Problem Statement

Speaking at the launch of the *South African Presidency Twenty Year Review: South Africa 1994 to 2014*, President Jacob Zuma observed that, "[O]ne of the biggest challenges which the democratic government has faced has been how to address the entrenched apartheid spatial pattern" (Zuma, 2014). Indeed, twenty one years into democracy, spatial segregation – largely a legacy of apartheid planning - remains arguably the most pressing challenge to be addressed, if not redressed, by the South African national government and/or planning fraternity. While significant strides have been made – what with the ongoing consolidation[1] of previously disadvantaged localities with their privileged municipal counterparts – spatial disparities persist and are increasingly perceived by national policies as a serious threat to South Africa's development. For instance, according to the National Development Plan (NPC, 2012: 25; hereafter the NDP), spatial disparities are one of the nine primary challenges "hobbl[ing the] inclusive development" of the country. These spatial divides are perhaps most notable (with)in big South African cities where infrastructure is, for many residents, still "poorly located, inadequate and under-maintained" (NPC, 2012: 25) despite city governments' numerous attempts at repairing the divided spatial landscape as well as providing infrastructure and basic services to under-serviced areas. Given that South African cities are seen as the drivers/engines of the national economy (NPC, 2012), it is imperative that city governments devise measures at countering spatial disparities and/or advancing the socio-economic situation of all its citizens via provision of infrastructure. It is for that reason that spatial segregation and the uneven repartition of infrastructure in cities – and measures at mitigating these trends - directly speak to the focus of this study.

City governments are, in the quest to integrate their different sections, increasingly implementing innovative initiatives under the banner of 'spatial transformation'. Arguably leading the pack has

[1] Following the attainment of democracy in 1994, the national government embarked on a reconfiguration and/or integration of local space via merging previously disadvantaged municipalities (Black, Indian and Coloured Local Authorities) with well-off White Local Authorities. This led to a significant reduction in the number of municipalities in the country (from more than 450 municipalities to 284 municipalities). More importantly, this has meant that revenue generated in well-off areas within a consolidated municipality can be used to subsidise lagging sections within that municipality, as is the case with the Rea Vaya BRT project in Johannesburg (see following paragraphs).

been the City of Johannesburg (hereafter CoJ) whose integration attempts/programmes have been informed by concepts of Transit-Oriented Development (TOD) and densification along mass transit corridors. Feeding into this programme is the Integrated Strategic Public Transport Network (ISPTN), a long-term plan for the phased delivery of a network of public transport. Adopted in 2003 as part of the Integrated Transport Plan (ITP), the ISPTN is expected to lead to citizens' enhanced accessibility to – and navigation of - all areas of the City. Thus far, the flagship interventions that have been implemented through the ISPTN process are the Rea Vaya Bus Rapid Transit (BRT) Phase 1A and 1B and the Gautrain railway network. For purposes of this particular study, the focus was placed on the Rea Vaya 1a BRT mainly on the grounds that its first phase has linked one of Johannesburg's historically deprived neighbourhoods to the inner-city – where it is/was expected to ameliorate the lives of the residents as well as speak to densification and diversification of land uses. It becomes interesting to not only note whether these objectives have been realised in such areas but also evaluate the extent to which it is being realised.

1.2 (Un) Planning: History of Soweto

Geographic context

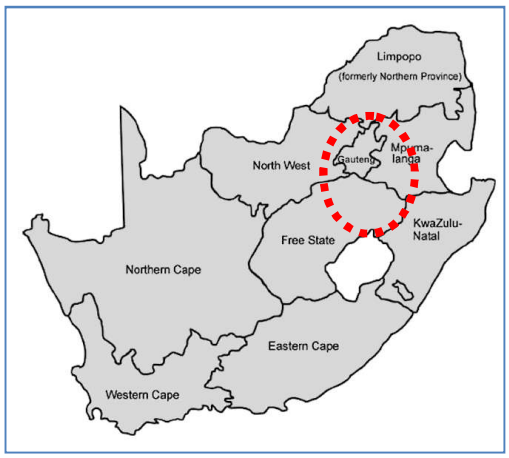


Figure 1 The Province of Gauteng in South Africa

(Source www.allaccom.sa, accessed 2016/03/10)



Figure 2 The City of Johannesburg within Gauteng.

(Source Gauteng.placestosleep.co.za, accessed 2016/03/10)



Figure 3 Soweto's Region D within the Municipality of Johannesburg (Source www.pikitup.co.za, accessed 2016/03/10)

> The history of the growth of Soweto as a part of Johannesburg is the story of an urban area, which, like many others in South Africa, was developed in a counter-urban manner (Guillaume, 2001; Mandy, 1984).

Soweto is the biggest township in the Johannesburg Metropolitan Municipality in terms of population number (CoJ-DED, 2008). The story of Soweto is, in a sense, the story of the making of the Apartheid City and its policy of spatial segregation and the story of the continued control of Black people's presence and movement in Johannesburg, the economic powerhouse of South Africa. The following paragraphs will provide an overview of Soweto's history with a specific focus on the legislative aspects of spatial segregation and the planning policies that shaped the delivery (or not) of infrastructure, services and housing to its population before and during Apartheid.

1.2.1 Gold Rush, Creation of the Municipality of Johannesburg in 1897.

The discovery of gold in the Witwatersrand region happened at the beginning of the 19th century. But it is only towards the end of the century that people started coming en masse to the area, seeking opportunities in the gold mining industry. By 1895, Johannesburg was already the largest town in South Africa. It was proclaimed a municipality in 1897, in the then Republic of South Africa (Transvaal) (Frescura & Radford, 1982). The current Central Business District (CBD) of Johannesburg represents the original extents of the proclaimed town. Very early, the proclamation of new townships and sale of land to property developers and speculators that happened in the late 1890's saw vast tracks of land in the hands of private individuals (Beavon, 2004; Frescura & Radford, 1982).

As early as 1903, the Johannesburg municipal authorities were determined to limit the presence of African people within the established boundaries of the municipality. It is at that very early stage that the concept of hostels, defined as compound or accommodation for single African males to be employed as menial labour, surfaced (Beavon, 2004). While it wasn't yet entrenched in any legislation, it was preferred that the employers of people such as street cleaners, garbage collectors, domestic workers and unskilled mine workers of African origin housed them in single-sex shared accommodation (Beavon, 2004).

1.2.2 Migration Waves into Johannesburg and the Birth of Soweto

The aftermath of the Anglo-Boer War (1899-1902) led poor Afrikaners whose farmland had been burnt to the ground to come and seek their fortunes in Johannesburg. With this wave, also came African migrants seeking employment in the city. These people settled in the inner-city squatters camps were people of all races lived together in squalid conditions. The Great Depression of the 1930 also brought another wave of poor white and Black migrants to the city (Gorodnov, 1983). The inner-city slums housed poor Blacks, Coloured, Indians and Whites in non-segregated neighbourhoods. These slums were characterized by appalling sanitary conditions, poor quality of housing, high mortality rates and lack of proper roads and services. Regardless of these poor living conditions, people stayed because of the proximity to employment opportunities and all other amenities offered by the Johannesburg CBD (Guillaume, 2001; Parnell, 1991).

Every wave of migration into the city was followed by waves of evictions and forced removals from the overcrowded slums. While the slums' populations were always mixed, the authorities made sure that the removals and relocations happened on a segregated basis. Nightingale (2012) observes that the tendency to segregate neighbourhoods on a racial basis was the norm in several cities in the world where different racial groups co-existed (i.e. Chicago in the United States).

The very first removal of Non-Whites from the Brickfields (present-day Newtown) happened in 1904, after an outbreak of the bubonic plague. In 1906; the Black people were moved to what is now known as Pimville, a cheap track of land 15 Km away from the CBD, next to the Klipspruit Sewage Farm (Beavon, 2004; Frescura and Radford, 1982). These people, removed because of the poor sanitary conditions in the Brickfields 'slums, were moved next to a sewage plant with similarly unsanitary conditions, with flies and foul smell polluting their living environment. Their condition was made even worse by the fact that they now lived far away from employment and amenities in the city.

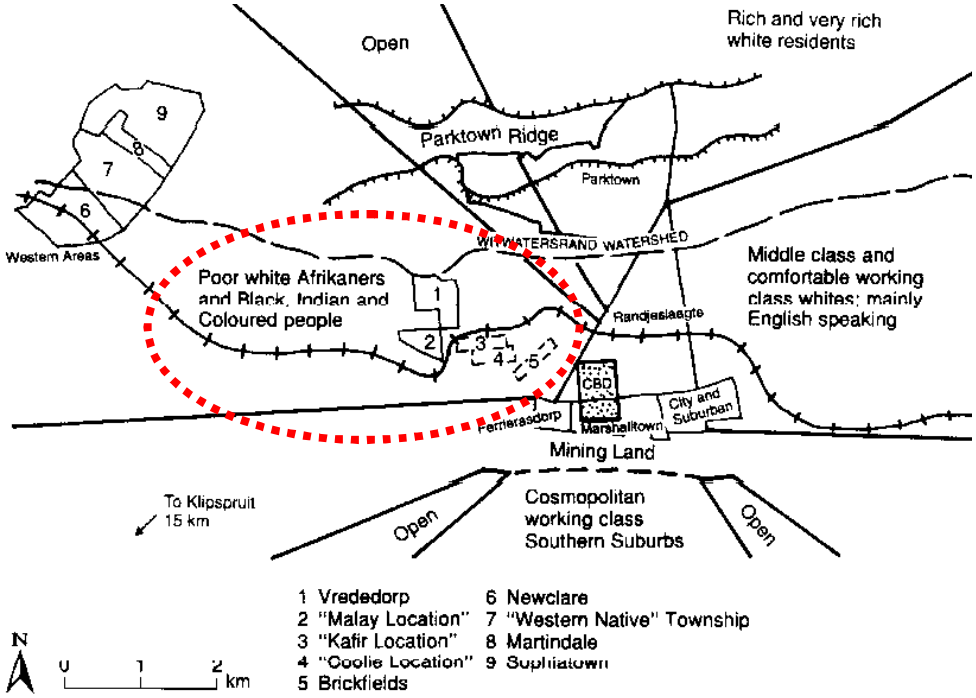


Figure 4 Map of Johannesburg Early Race and Class Population Repartition (Source Beavon, 2004)

The area was later to become the preferred location for the relocation of the successive waves of Black people who were removed from the city. It was named the South Western Native Area up until 1958 and renamed Soweto (South Western Township) in 1963(Guillaume, 2001).

The Johannesburg Town Council purchased land near Klipspruit in order to establish the suburb of Orlando for Black Natives in 1931. The Council proceeded to built single-sex hostels and free-standing family houses (Carr, 1990; Frescura &Radford, 1982). The need to control the influx of Black people also meant that the municipality exerted a very tight grip on the mechanism of supply of Black housing throughout its jurisdiction. These measures were not unique to Johannesburg, other municipalities in the country (Bloemfontein, Cape Town, Durban, Kimberley and Port Elizabeth) applied similar strategies to limit the migration of Black people into their municipal boundaries (Frescura &Radford, 1982).

While there was a strong drive to limit the permanent establishment of Black people in and around Johannesburg on one hand, on the other side there was pressure from some Black leaders for a right to housing and a place in Johannesburg. The municipality saw a rapid growth of the Black population between 1936 and 1946. Immediately after the Second World War , the Johannesburg municipal authorities were faced with the pressures of urban revolts and land invasions, such as the one led by

Sofasonke Mpanza and later Abel Ntoi (Carr, 1990; Frescura and Radford, 1982; Nieftagodien and Gaule, 2012).

The next decade (1950s) saw the very first massive housing program for the Black population of Johannesburg, the bulk of which was built in Soweto. In the face of the escalating housing crisis in the township, the government and mining companies provided finance for the erection of housing for black people. These houses were allocated to beneficiaries under leasehold contracts.

The Non-European Affairs Department (NEAD) of the City of Johannesburg supervised the construction of 70000 houses (Carr, 1990: 50). These houses had very low quality standard, were built on small plots and lacked basic services such as water, electricity and sanitation. The only essential service was water which was installed in every fourth plot. The bucket system was the form of sanitation planned and provided for and electricity was not supplied. The roads were not tarred except for a few major arteries into the township (Carr, 1990).

These houses did little to alleviate the crisis of Black housing .The influx control policy meant that the government discouraged the permanent settlement of African people and did not easily issue permits for Africans to come and reside in the cities. As a result, many people where staying in the township and other areas 'illegally' in overpopulated houses (Gorodnov, 1988).

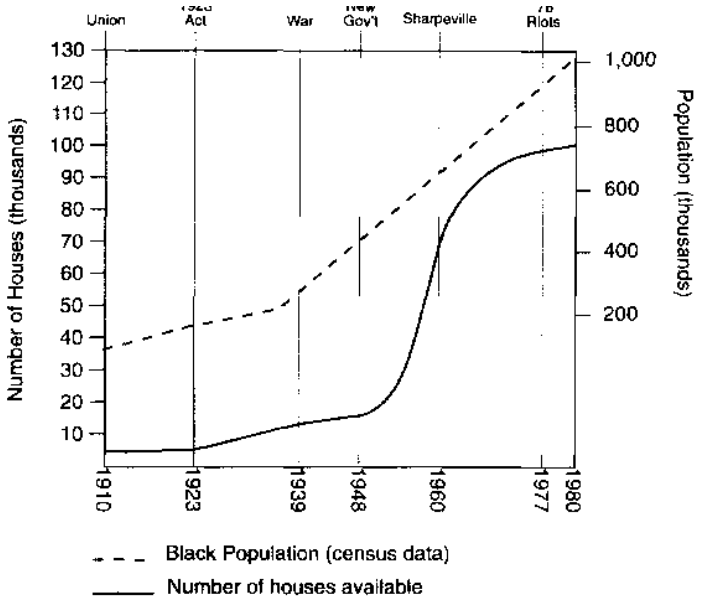


Figure 5 Black Population Growth vs. Housing Provision in Johannesburg. 1910- 1980 (Source Beavon, 2004: 35)

1.2.3 Enforcing Segregation through Legislation.

The Land Act of 1913 is the very first piece of legislation that set the tone for institutionalized spatial segregation in South Africa. The Act segregated the country at the national scale. It proclaimed the extent of the Bantustans or homelands, the parts of the country could be inhabited by the African 'Natives'. At the time of the proclamation, the homelands represented 7.3 percent of the surface area of the Union of South Africa. The Act was revised in 1936 to increase the extent of the Bantustans to 13 percent (Mandy, 1988). As discussed earlier, the municipal authorities around the country already had policies that supported the planning of urban settlements according to different racial groups. While they applied these policies everywhere they could, they had no legal basis for their enforcement. Various legislations where passed, prior and after the accession of the National Party to power, to ensure the enforcement of the segregationist policies of the governments in power. These acts had a deep and long-lasting impact on the spatial landscape of South African cities. The Native Urban Areas Act of 1923, the Slums Act of 1934, the Group Areas Act of 1950, the Native Resettlement Act of 1954 and their various iterations are some of the most impactful laws used to entrench Black people's status of mere 'sojourners' in cities. Black women's presence in urban areas was even more restricted than that of Black men in order to maintain the migrant labour system and prevent the establishment of Black families within municipalities or to 'avoid the multiplication of urban problems' (Mandy, 1984:175).

The Native Urban Areas Act of 1923 is the legislation passed to enable the enforcement of urban segregation and influx control. It laid down strict rules for the African presence in urban areas and provided for the means to finance the establishment of Black settlements in cities. For instance, it said that Africans could only be in the city if in possession of an employment contract or had to leave within 14 days. The act also established the principles of self-financing through a ring-fenced tax on alcohol. Black settlements were not to be financed through the fiscus (Gervais-Lambony, 1997 cited in Guillaume, 2001). This was a contested but crucial piece of legislation because its adoption and implementation by the Johannesburg city council led to the formation of Orlando. The act was fiercely opposed by the organizations that defended the rights of African people. In 1926, the Supreme Court of the Union declared illegal the provision of the Native Urban Act which stated that African people could only live in townships (Koch, 1983 cited in Guillaume, 2001).

The Slums Act of 1934 was the enabling legislation for the demolition of the city's slums (Koch, 1983; Mabin & Smit, 1997). Between 1934 and 1936, areas such as Doornfontein, Ferreirasdorp, Vrededorp, and Fordsburg are demolished and their population ordered to move to segregated townships. The removal of non-whites and their relocation to peripheral suburbs was by no means a

uniform process. Prior to the proclamation of the Slums Act, the municipal authorities were required to provide alternative accommodation to the people they were displacing (Beavon, 2004). But the act made no such demands on the authorities. The authorities merely needed to indicate the area were people had to move to. The enforcement of these acts had financial implications on the municipalities because evictions implied relocation and relocations implied housing and infrastructure provision for the evicted people. From then forward, they purchased cheap, empty tracks of land where people could re- build their squatter camps.

The Groups Area Act of 1950 was presented as an 'institutional barrier against violence' (Guillaume, 2001:341) used to protect the White citizens from the violence and the protests that regularly erupted amongst the non-White population. The act was meant:

'To provide for the establishment of group areas, for the control of the acquisition of immovable property and the occupation of lands and premises, and for matters incidental thereto' (Union of South Africa, 1950: 407).

The act defined, for every race (Black, White and Coloured as defined in the act), the conditions related to land ownership, occupation, purchase, transfer and inheritance. The act regulated private individuals and companies. It empowered the Land Advisory Board to make proclamations on the extent of the physical areas reserved for every racial group.

The Native Resettlement Act of 1954 enabled the eviction and relocation of people to designated racial areas. The eviction of Non-Whites from Sophiatown, an area close to the city centre that had remained multi-racial despite everything, started in 1955, immediately after the promulgation of the act. The Black people were forcibly removed from Sophiatown to Meadowlands, Orlando.

The period before the 1976 Soweto uprising was characterised by the progressive tightening of legislation regulating the presence of Black people in urban areas. The last iteration of the Native Urban Area Act (Act 36 of 1957) provided that no African could be in an urban area longer than 3 days (down from the initial 14 days) unless he (she):

a) Was born and permanent resident in such area
b) Had worked continuously for one employer for not less than ten years, or had remained lawfully in such area for a period of not less than 15 years
c) Was the wife, unmarried daughter or son of another such resident; or
d) Permission had been granted to him to remain, by an officer designated for the purpose' (Carr, 1990:58).

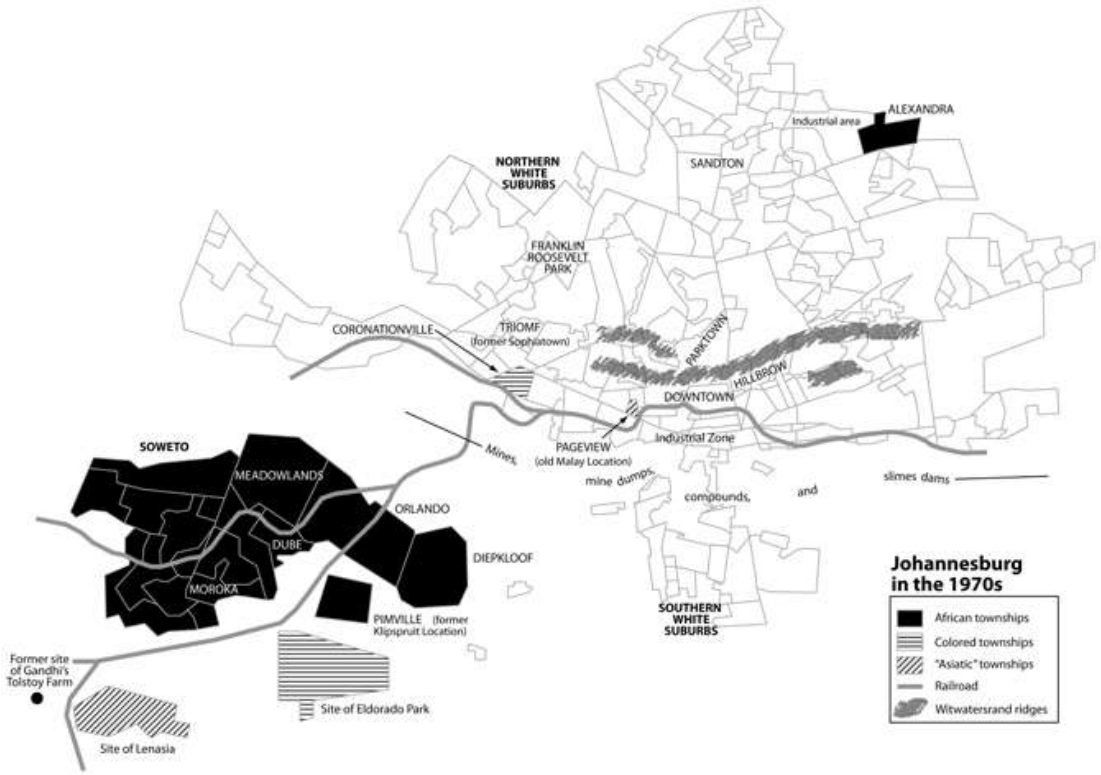


Figure 6 Johannesburg: 20 Years after the Implementation of the Group Area Act (Source Nightingale, 2012: 242)

1.2.4 Financing Soweto's Infrastructure

The financing of infrastructure in areas designated for Black people remained insufficient for the longest of time. A policy position or consensus on whether Black South Africans were permanent or temporary urban dwellers irremediably influenced the planning and interventions of the municipal authorities on all matters related to Africans. As early as 1946, the 'Natives Law Commission' or Fagan Commission had judged this policy position to be totally impractical because Black people were moving to the cities for their own economic survival; they had very little prospects in the rural areas. The commission also noted that there were not only migrant African labourers in the cities but also 'a settled, permanent Native population' (Mandy, 1984:94). These people had nowhere to go back to, no other place that they called home and could be resettled to. These findings were completely ignored by the National Party after it won the National elections in 1948.

During the 1970s, the ultimate goal of the hard-liners within the Apartheid administration was to return all Black people to their homelands (Bantustans) (Beavon; 2004, Carr, 1990). The National Party incentivised Industrial Development Zones (IDZ) in the Bantustans in order to retain Black people there stop their influx into White areas (cities). They also considerably reduced their infrastructure and services spending in Black urban areas and diverted it to the Bantustans. This was

accompanied by deliberate restriction on the expansion of new businesses within urban areas, especially areas close to the townships.

Soweto was under the control of the Johannesburg City Council and its Non-European Affairs Department. The land belonged to the city and was only leased to the inhabitants. Black areas were transferred from the jurisdiction of their municipal councils to the jurisdiction of the national government under the Bantu Affairs Administration Board set up in 1973 (Carr, 1990; Gorodnov, 1988).

The promise of service provision and guaranteed land tenure was often used as a mean to placate the skilled and semi-skilled Black people because they risked losing the relative stability they had in their lives. In 1970, water connection was granted to one in four dwellings and electricity to 15 percent of the houses. Black people were not entitled to full, perpetual ownership of any land in the Republic. The maximum they could obtain was a 99 year-lease on land. This right was not unalienable once acquired. The authorities in charge of Native Affairs could at any time decide to reduce or revoke the lease on the land. These leases were held by one individual and could not be passed-on as part of an inheritance to their spouses or children. Once the leaseholder was dead, another adult family member had to re-apply for it and face eviction from the property. At the height of the contestations during the 1970's, the then Minister of Native Affairs said the following:

> 'If we grant the blacks title to property […] they are also entitled to political rights, and I am not prepared to endanger the future of the white people' (Gorodnov, 1981:73).

There were four main types of tenure in the townships: (i) 99-year lease land tenure with monthly rental for the land, (ii) monthly rental of council -owned house, (iii) monthly rental of room in council-owned single-sex hostel and (iv) illegal land occupation in Informal Settlements and squatters camps.

One portion of the rent was dedicated to the actual renting of the houses and the rest to various administrative expenses such as school tax, communal expenses and the functioning of the West Rand Administration Board (WRAB). Another source of revenue came from the State's owned liquor stores selling of alcohol in the townships. Section 21 of the Native Urban Areas Act enabled Municipalities to brew and sell beer in order to finance the administrative costs incurred through the management of Black affairs (Gorodnov, 1981; Carr, 1990). The Native Urban Areas Act (1923) stipulated that the profit made from the trade of alcohol should be ring-fenced and only used for projects in the townships (Carr, 1990). Even though some parties such as the churches questioned the morality of allowing a state organ to partake in the production and sale of liquor to the

population, some argue that without that money, the Johannesburg City Council wouldn't have had the money to finance the construction of housing and provide social and healthcare services in the Townships.

The increasing political tension after the 1976 Soweto Uprising led the government to direct more funding to the upgrading of infrastructure in the townships. The 1980's saw a push from the government for the upgrading of infrastructure in Black townships. In Soweto, the electrification, upgrading of roads, sewer, water and storm water infrastructure happened with loans raised from local and foreign finance institutions (Mandy, 1984). In 1983, the Apartheid government initiated a program to sell a large portion of state-owned housing to the population on the townships. This is initiative was dubbed 'the Big Sale'. Only a small percentage of Soweto's dwellers had enough financial means to be able to raise the mortgage necessary in order to purchase their house. Others did not see the need to purchase a property while renting was still cheaper than the proposed mortgage repayments. These reasons, coupled to the context of complete distrust and defiance which prevailed between the population and the State, led the 'Big Sale' initiative to fail (Wilkinson, 1984)

1.2.5 Location and Transport Infrastructure.

The railway from Kimberley (principal diamond mining town at the time) to Johannesburg was completed in 1892. The railway was built in order to break the isolation of Transvaal from the coastal provinces. Its layout was important in shaping the direction of the growth of Johannesburg. The main axis run East-West direction and clearly divided Johannesburg into the North and the South. The gold reef and the mine dumps reinforced this separation and have become one of the main features of the city's spatial identity. The railway link to the Klipspruit farm was built in 1906 to link the squatters and labourers evicted from Brickfields to their places of employment (Beavon, 2004; Guillaume, 2001).

After the land invasions, and informal settlements crisis, it became clear that together with new housing, the railway line had to be extended beyond Orlando East into the planned new townships of Orlando West and Meadowland. In the mid-1960, an average of 400 000 trips were recorded daily (200 000 each way) (Carr, 1990).Alternative modes of transport were required. The Public Utility Transport Corporation (PUTCO) provided bus services for the commuters. It is also at that time that the taxi industry developed to cater to the need of the commuters.

Many factors made Soweto an undesirable location to inhabit. The imperative to link Johannesburg to Pretoria (the centre of power of the country) and to the other mining towns to the North of

Johannesburg.; the pollution caused by the constant blowing of the mine dump's dust towards the south of the Main Reef; and the lack of road and other infrastructure across the dumps caused the city's wealthy inhabitants to establish themselves to the North of the city. The South was just an undesirable area to inhabit and as a result, the land was never considered prime property and was very cheap to acquire (Frescura and Radford, 1982). The emergence of an industrial belt along the railway line provided employment for blue collar segment of the population (Frescura and Radford, 1982; Gorodnov, 1988). Soweto was also considered the perfect location for a Black township because it was far enough from the city, the land was cheap for the city to acquire and offered perfect site for the security forces to control the population's movements. The average Sowetan was much better off financially than the Black people in the rest of the country but still much worse off than their white counterparts (Gorodnov, 1981; Mandy, 1984).

1.3 Present Day Soweto and the Rea Vaya BRT

Poverty vs. Affluence? A Chequered Picture

Soweto is one of the areas with the largest concentration of people in the Gauteng region (see map below). The majority of the population is Black, living in formal housing structures. Twenty percent (20%) of the population does not have any form of income and those who earn an income are mostly in the low-income brackets. Very few people possess a qualification higher than a Matric certificate. Region D fares the worst of Johannesburg's 7 regions with the highest percentage of people who are either unemployed or not economically active (Stats SA, 2011).

The picture is not that homogenous when one takes a closer look. Some areas in Diepkloof, Orlando and Pimville (the older suburbs of Soweto) are known for housing the higher income inhabitants of Soweto. Diepkloof Ext 3 was dubbed the 'Rich man's acre' or 'Diepkloof Expensive'. The area was developed in the late 1980s for the middle class Black population. The average stand was much larger than the average stand in the rest of the township and people were allowed to build their own houses there. Over the years, many properties have been extended and upgraded from the standard 51/9 'matchbox' houses built during Apartheid. Some properties are now worth well above a million Rand (Maliza, 2015).The old Black middle class and the new affluent professional who have selected to stay in Soweto instead of relocating to the historically 'white suburbs' have invested in residential and commercial properties in the area. There has also been new shopping centres such as Jabulani Mall, Protea Gardens Mall and Maponya Mall (to name a few) that have been developed in the past decade (Lesejane, 2011; Maliza, 2015).

The City of Johannesburg is consistently spending significant portions of its budget on infrastructure and service delivery in Soweto. According to the 2013-2016 IDP, since 2001, every R1 of R5 of the CoJ's budget has been spent in Soweto (CoJ, 2013).The majority of the population now has access to basic services (water, electricity, sanitation and refuse removal), delivered by the CoJ (see Annexure A for a profile of Soweto based on Census 2011 data). In spite of the spending mentioned above, the Regional Spatial Development Framework (RSDF) for Region D describes Soweto as an 'historically rich area' that 'remains economically entrapped' with few ' significant sites for commercial, retail and industrial development) (CoJ, 2010: ii).

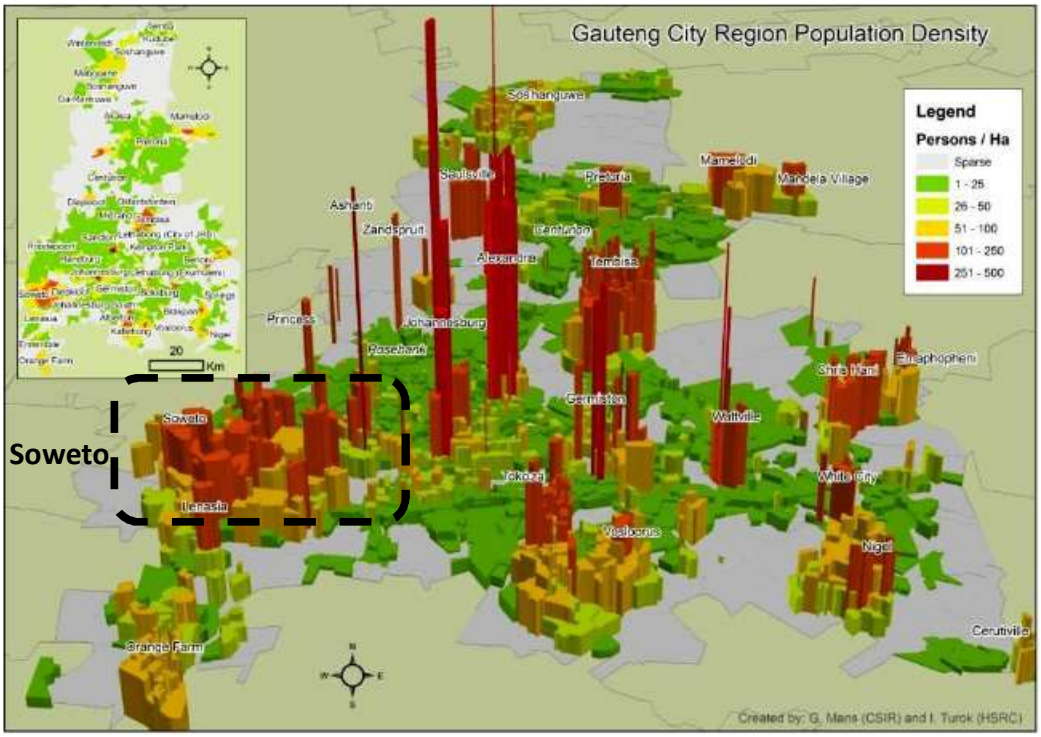


Figure 7 Soweto Population Density in the Gauteng City Region Context (SACN, 2011 used in Turok, 2012:27).

Soweto remains a priority area for the CoJ in terms of infrastructure and services, housing delivery, and public transport investment. In terms of transport, the public transport priority areas for Region D are as follows:

- The existing rail corridor and the stations precincts
- Nodal precincts that coincide with transportation interventions (i.e. Jabulani, Baralink, Kliptown and Orlando Stadium)
- Phase 1 of the Bus Rapid Transit System (CoJ, 2010: 17)

The investments around and along these high-density transportation systems aim to intensify and diversify land uses around formal and informal activities and create higher densities of residential and mixed-use developments (CoJ, 2011).

The Rea Vaya BRT plays a very important role is shaping and directing the nature of the interventions that the CoJ plans for Soweto and as such is very important in guiding the investment spending of the municipality in Region D. This study's focus lies not in evaluating the system itself but rather in evaluating its impact in terms of the other strategic objectives of the CoJ, those around densification and diversification of land uses. The following section will provide a brief description of the system and its place in Johannesburg transportation planning as a background to this study.

Rea Vaya and Johannesburg Transportation Planning

'Cities are to a large extent 'movement economies' and the efficiency of the urban system is, therefore, directly related to the efficiency of the movement system' (CoJ, 2003: 14).

The first Integrated Development Plan (IDP) and Integrated Transport Plan (ITP) are the two documents set the path for the conceptualization and the implementation of what is the Rea Vaya BRT system in the city of Johannesburg. These two documents read in conjunction help to understand the interface between Spatial and Transportation Planning in the city.

The Spatial Development Framework (SDF) 2002, adopted by the municipal council in December 2001 had the task to formulate a coordinated vision for the newly demarcated metro. The SDF had three main objectives: 'to create a sustainable urban environment; to ensure efficiency of the city's various components and to ensure optimal accessibility to opportunities and city experiences for all its inhabitants' (CoJ, 2003: 6). The document identified six 'strategic elements' the city should focus on in order to realize its objectives: the enforcement of an Urban Boundary, the amelioration of the movement system across the city, support for nodal and corridor developments, better environmental management and the creation of sustainable neighbourhoods and settlements (CoJ, 2003: 7). The drive for new developments and re-developments to happen around identified nodes and activity corridors stemmed from the recognition that higher densities of residential development and diversification of activities represent a more efficient use of urban land. Sustainable neighbourhoods are characterized by amongst other things 'reduced travel and transactions costs, appropriate housing typologies, optimal use of infrastructure and resources and adequate provision of social and economic amenities' (CoJ, 2003: 7). The city's approach was to consolidate around the existing nodes in Johannesburg and create new nodes in the historically disadvantaged areas.

The Integrated Transport Plan (ITP) 2003-2008 was built upon the 'Mobility and Connectivity Programme' developed in the SDF 2002. The Programme identified 'roads that improve accessibility, promote integration of communities and promote development 'as roads which needed to be prioritized for upgrade (CoJ, 2003:50). The gist of the ITP is that transportation interventions had to be aligned with the SDF and the spatial transformation vision, that public transport should be prioritized over private transport. Bringing commuters over to public transport would be done by adopting 'carrot and stick' strategy. On one side making public transport more attractive and providing incentives to commuters and, on the other side, making private cars less attractive by the use of travel demand management such as tolling, congestion pricing and charging for public parking spots amongst other measures (CoJ, 2003).

The ITP identifies 5 key priorities for the upgrading of public transport (CoJ DT, 2003: 6)

- 'Implementation of all-day, frequent and cost-effective transport services in core transport corridors and nodes
- Implementing routeing plans to support the spatial structure and customer travel needs
- Invest in improved transport information services
- Invest in dedicated public transport infrastructure and inter-modal connections at key nodes
- Stimulate appropriate competition for and on routes to drive innovation and improved services'

One of the major takeaways from the 2003 ITP was the Strategic Public Transport Network (see Annexure B for the full network). it was generated through a study of data gathered from the Gauteng Household Surveys and cross-referenced with Gautrans Road Network, the Gauteng Transport Study Zones, the 1999 CPTR information, the Johannesburg Road Referencing System, the 1996 South African Census GIS dataset, the South African Road Network dataset, the Johannesburg Municipal Planning Unit Dataset (CoJ, 2003) . What came of it was a network of the existing major movement systems in Johannesburg (Freeway, Railway, and Public Transport). But most importantly an indication of the most constrained axes that needed serious public intervention in order to improve the mobility of people across the city. The aim of the SPTN is 'to place 85 percent of the municipality's residents within 1km of an integrated rapid public transport network trunk or feeder route (CoJ, 2013:21). The flagship project route (in yellow on the map in Annexure B) was identified for the creation of a public transport system that would directly connect key density nodes across

the city (CoJ, 2003; CoJ, 2013). In 2006, the BRT system was selected as the system to implement along that Flagship Route of the SPTN.[2]

Description of the Rea Vaya Phase 1A

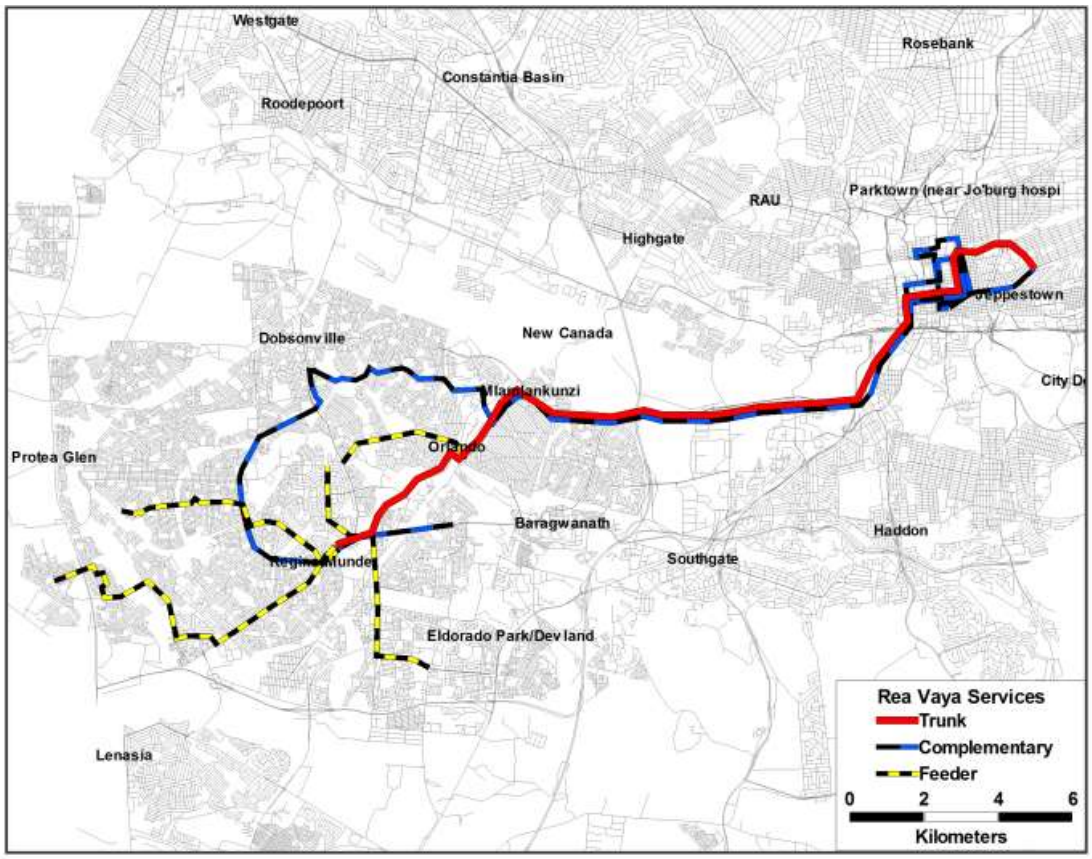


Figure 8 Rea Vaya Phase 1A Network Map (from CoJ, 2013:14)

Phase 1A of the system links Thokoza Park in Soweto to Ellis Park via the Soweto Highway.

The system is designed to guarantee a superior, fast and reliable passenger experience and provide quality customer services to attract and retain commuters into the mass transit network system .The system in general is characterised by Trunk routes and complementary/feeder routes.

The following features apply to the entire network operations:

- Pre-boarding fare collection and access control

[2] See Section 4.3.1 of this report for an account of the selection process from Rehana Moosajee, MMC for transport at the time.

- Fares set by the CoJ, not the operators
- Larger and newer vehicles [than existing public transport]
- Automated cash-free fare collection system,
- Centralized control centre using vehicle control technology
- New operating company, owned by the displaced operators (CoJ, 2013: 21)

The trunk route has the following features:

- Median busways dedicated lanes segregated from the rest of the traffic
- Closed and staffed median bus stations (CoJ, 2013: 21)

The complementary/feeder routes operate along normal roadways within neighbourhoods, collecting passengers to bring them to the trunk routes.

Infrastructure built by April 2013	Phase 1A (in full operation since Feb 2011)	Phase 1B (due to open in second half of 2013)
Bi-directional busways (km)	22	14.8
Single-lane busways (km)	8.68	1.9
Bi-direction busways in transit-only roads in operation (km)	4.15	0
Mixed traffic lanes used by complementary buses (km)	25.6	15.6
Mixed traffic lanes used by feeder buses (km)	29.1	36.6
Stations	31	17
Rea Vaya Bus Depot at Meadowlands		
Rea Vaya Control Centre and ITS systems		

Figure 9 Rea Vaya Phase 1A and Phase 1B[3] Networks in numbers (from CoJ, 2013: 22)

Phase 1B is already operational and links Soweto to the CBD via Auckland Park. Phase 1C in being built and will be linking the Parktown to Sandton via Louis Botha Avenue.

1.4 Personal Motivation

The motivation for this research and the specific angle I used to explore the topic of the BRT implementation and Spatial Transformation comes from what I would call my own professional anxieties about the impact of governmental, professional actions on the Built Environment. A lot of hope and expectations have been put on the Rea Vaya bus system to be at the core of change. Not only change of the daily circumstances of its commuters but also, of the physical environment in which their practice their lives. It is only fair to wonder how the people for whom the project is

[3] See Annexure C for the Phase 1B Route

meant to benefit the most are responding to it and what is their understanding of the spatial implications of such an investment in their neighbourhood.

A specific moment comes to mind that have shaped my approach to this project. I am a Congolese national; I was raised and studied in the Democratic Republic of the Congo, a country that faces a multitude of developmental challenges. My mother, who worked for a government agency, came back from a meeting with representatives of the IMF one day and told us that, given the fact that all economic, financial, developmental, social indicators used to monitor and rank the level of development of a country were in the red, our country was as good as dead. Yet I lived in a thriving city, with very active economic activity, people were importing goods, trading, building, working, studying, and carrying on with the business of living with a lot of zest and determination. I learnt that official reports did not necessarily paint the reality of a situation and that one had to make the effort to dig deeper, change the vantage point from which they evaluated a situation. I learnt that those who have the formal knowledge, those who are trusted to bring the solution, often sit in a position from which they cannot understand the reality on the ground. Their tools simply cannot capture all aspects of reality. This is a reality that applies to many countries on the African continent. As a professional in the Built Environment who wishes to work beyond the borders of South Africa, I will be expected to have the solutions, the answers and I wish to always remember to look, further, look deeper and ask different questions, not just the obvious ones.

1.5 Rationale of the study

In scholarly literature on BRT as it relates to spatial change/transformation, the focus has been on the best ways of using transit investments to encourage both the public and private sector to not only take advantage of the opportunities offered by the proximity to mass transit network but also to invest into greenfield land development or infill urban regeneration schemes (see for instance Suzuki, et al, 2013). There appears to be a dearth of literature that speaks to the direct implications of mass transit networks – and other spatial transformation attempts for that matter - for individual property owners and residents in low-income areas, especially in the cities of the developing world where massive infrastructural/service backlogs are still the norm. That having been said, the impact of the provision of new public transportation infrastructure and services to areas such as Soweto – a microcosm of the spatial implications of segregationist/apartheid planning in Johannesburg - in reversing spatial disparities remains to be assessed. This study is attempting to contribute to filling this void by evaluating the response of individual property owners on the ground (in Soweto) to the implementation of the Rea Vaya BRT Phase 1A. There are 10 BRT Stations within Soweto (see Fig.

13); from Thokoza Park to the Soweto Highway. The Orlando Police Station, in Orlando East, and the Ghost Town Station, in Diepkloof, were selected as the best stations around which to conduct this research through a process of elimination explained in Chapter 3.

1.6 Aim and Objectives

This research aimed to uncover the nature of the spatial impact of the implementation of Phase 1A of the BRT in an area where Apartheid spatial planning policies have produced long lasting and damaging effects that the planning fraternity is still grappling with twenty one years into democracy. While there are different types of properties in the study areas; this research focused on the impacts of spatial changes in the private residential properties, the most dominant housing typology in Soweto.

The study's central objective is to explore the degree to which the environments, everyday activities of the residents of Diepkloof and Orlando East – the two Sub-areas selected for this study (see Chapter 4) – have been affected by the said intervention. Another objective of the study was to explore the correlation between the spatial changes and the presence of the BRT trunk route. For instance, given that the number of backyard dwellings is on the rise in townships of big South African cities, the research sought to understand whether developments such as Rea Vaya influence this rise. Moreover, the study aimed to assess whether the spatial changes effected by Rea Vaya Phase 1A are aligned with the CoJ's strategic objectives for the area. The significance of the study is highlighted by the fact that transit-oriented development projects linked to spatial transformation are on the increase in big South African cities – cf. Gautrain, AreYeng BRT in Tshwane, MyCiti BRT in Cape Town to mention a few.

Framing Spatial Transformation. Densification and Land Uses.

The concept of spatial transformation is quite broad and can be approached form different perspectives. Yang (2010) defines spatial transformation as:

> ' *structural change of a city in terms of its demographic, social, and spatial structures as a result of industrialisation, globalisation, and urbanisation processes'* (Yang, 2010:4 cited in Ndebele and Ogra, 2014: 453)

Spatial transformation and its meaning in the South African context will be discussed in more detail in the literature review. As indicated in the title, this research report will focus on changes in the spatial structure, the physical aspects of spatial transformation through densification of the residential built form and the land-uses which occur within the said built form (private properties).

The backyarding phenomenon, extensions/renovations /addition to an existing building, addition of a second/third storey on an existing building, consolidation of multiple properties or subdivision of a stand are the kind of changes that this study will be tracking through the various datasets (densification maps, Town Planning Records, survey).

Densification. Rubin and Gardner (2013:8) define densification as 'the increased use of space both horizontally and vertically within existing areas/ properties and new developments accompanied by an increased number of units and/or population thresholds'. Given the fact that the study area already has a residential (mostly) built form, the type of densification that is more likely to occur is an 'incremental densification'(as opposed to large scale new developments). Incremental densification describes ' small-scale densification which is almost invisible [such as] 'the subdivision of a residential property or the construction of a second dwelling' (Rubin and Gardner, 2013:8).

Land Use. It relates to the daily activities that take place within the existing buildings (residential, commercial, education, businesses, educational, entertainment).

This study does not seek to make a normative judgment on the quality (solid construction vs. corrugated sheeting 'shacks'), but seeks to record what has been occurring within the study area.

1.7 Research Questions

What is the nature of the spatial transformation- related changes that have occurred around the Rea Vaya BRT stations in Orlando East and Diepkloof/Soweto following Phase 1A's implementation ?

The research sought to assess the spatial impacts of Rea Vaya's Phase 1A on the residents of Soweto (particularly Orlando East, Diepkloof). The research was particularly concerned with the degree to which the aforesaid project colludes and/or feeds into the principles of transit-oriented development, a concept that has been adopted and incorporated by the CoJ (CoJ, 2011) and other big South African cities. In the 'dissection' and answering of the aforementioned research section, I used the following sub-questions as a guide:

i. *What is spatial transformation in the Soweto/Johannesburg and/or South African context? What criteria can be used to evaluate it in Soweto?*
   The post-Apartheid governments have made spatial transformation one of the main objectives of their programs for the past 20 years. Planning academics have also written quite extensively on the subject. A review of government policy documents and the planning

academics papers will serve to capture what is understood by spatial transformation and what are its objectives in post Apartheid South Africa.

ii. *How does the BRT facilitate spatial transformation?*

This sub-question aims to explain what planning principles link public transit infrastructure and changes in the patterns of land development and land use along transit corridors. The question will be answered through a review of the literature on the implementation of the BRT and its impact in different cities in the world. Special emphasis will be put on cities of the developing world that also face similar challenges of rapid urbanisation and infrastructure delivery backlogs in the age of neo-liberal governance.

iii. *How do private actors contribute to spatial transformation around BRT stations?*

An important part of the spatial transformation relies on the private sector to respond to the opportunities presented by public investment and invest into property development and other business ventures. The literature review will explore the different ways in which this is achieved.

iv. *Can the spatial changes in the study area(s) be attributed to the BRT's implementation?*

How much of these changes can be attributed to the implementation of the BRT Phase 1A? Prior to the introduction the BRT, the residents of Diepkloof and Orlando East had access to other forms of public transport in the form and trains and mini-bus taxis. It is therefore important to understand the motivations of the people who have either invested in upgrading buildings or establishing new activities in the study area. The voice of the study area inhabitants forms a crucial part of this research. As such, the survey questionnaire will include questions related to the residents' perceptions of the opportunities that the BRT brought in their personal lives and in their environment. Pre and post BRT implementation aerial photos and records of the Development Planning and Urban Management Department of the CoJ will also be analysed to assist in evaluating spatial change in the study area.

v. *How can the CoJ use Rea Vaya as leverage to further its spatial transformation agenda in deprived neighbourhoods?*

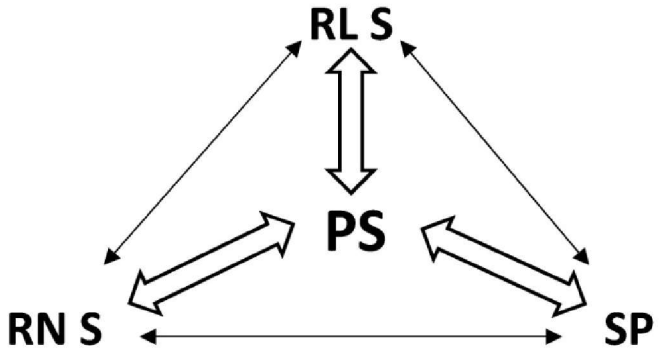
1.8 Hypothesis

Although Phase 1A of the Rea Vaya BRT project has impacted the spatial and land-use patterns of the Soweto townships situated along its route, this impact still falls below the expectations of the CoJ.

1.9 Conceptual Framework: Spatial Theories

There are disciplines (such as Architecture) which deal with the physicality and characteristics of space rather than its meaning. Social scientists, on the other hand, conceive of space as abstract, absent and meaningless outside of human experiences or human perceptions (see Kant, 1993; Madanipour, 1999; Mayhew and Penny, 1992; Speake, 1979; Zevi, 1957). Seminal scholars such as Lefèbvre, Soja and Harvey bring a more complex way of analysing space with the recognition that the social context and power relations within society play an important role in the production and consumption of physical space. For instance, Lefèbvre's (1991) seminal work on the production of space offers a conceptual framework that brings together the different and complex aspects of the enquiry and theories of space. The triad of Representations of Space, Spatial Practices, and Representational Space has been used in planning and in other disciplines which engage with space-making and human interactions with(in) space. *Representations of Space* are produced by groups who derive power and legitimacy from their statutory mandate, professional expertise and financial resources to influence the way the urban environment is conceived and created - the state, politicians, professionals in the built environment as well as corporations (Lefèbvre, 1991). *Spatial Practices* are the routine/everyday actions of ordinary people in a particular society (ibid.). Ordinary people engage with their physical environment and try and adapt to it or change it to their liking; and the type of amenities and services, as well as the state of the infrastructure in that, are the theatre of their daily lives. *Representational spaces* belong to the domain of the imaginary, the artistic renditions of what cities could look like and what urban living could be. They are the aspirations of the underground, non-mainstream social groups wanting to change the status quo (ibid.).

The two diagrams below represent what the ideal vs. the current influence of the three elements of the Triad.



Legend

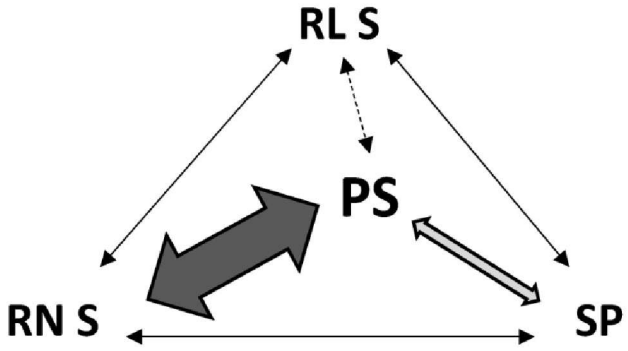
RL S: Representational Space

RN S: Representations of Space

SP: Spatial Practice

PS: Production of Space

Figure 10 Ideal, Balanced Production of Space Triad (Diagram by author)



Legend

RL S: Representational Space

RN S: Representations of Space

SP: Spatial Practice

PS: Production of Space

Figure 11 Status Quo, Unbalanced Production of Abstract Space (Diagram by author)

Lefèbvre (1991) denounces the fact that these three concepts do not have an equal bearing on the production and governance of contemporary cities. The lack of consultation and input from the public creates alienating spaces which do not reflect the aspirations and experiences of urban citizens. In the abstract space - the result of an unbalanced triad - the state, investors and built environmentalists (Representations of Space) have a disproportionate influence in comparison to ordinary citizens (Spatial Practice); and the imaginary's contribution (Representational Spaces) is absolutely negligible (Lefèbvre, 1991; see Figure 11 above).

The Triad as a Multi-Disciplinary Tool of Enquiry (Beyond Social Production of Space)

The strength of the Triad is that it brings together a multi-disciplinary framework of enquiry into space. Lefèbvre brought together three conceptualisations of space: the mental, physical and social (Lefèbvre, 1991; Madanipour, 1999). So one can approach their research subject from any of these

perspectives (depending on their primary field of study), expand the framework and arrive at a study that goes beyond the focus of its primary subject matter.

The Triad has often been used by Lefèbvre and other scholars as a framework for research related to the Social Production of Space. But Smith (2010) and Stanek (2014) point to instances where Lefèbvre used the Triad as a framework for the analysis of the process of production of physical spaces. In his critique of Le Corbusier modernist planning principles, Lefèbvre contends that Le Corbusier's use of an ' authoritarian and brutal spatial practice' has produced 'regular' ordered and predictable' urban spaces and buildings(the trademark of modernist planning)that are alienating to the ordinary urban dweller (Smith, 2010: 39-40). Lefèbvre also used the Triad to enter the realm of empirical spatial practice and architecture through his study of the production of tourist-centred urbanisation in the town of Nova Huta in Spain (Stanek, 2014). In his study of the production of low-income housing in Ibadan (Nigeria), Jaiyeoba (2012) contends that the production of housing can indeed be categorised as what Lefèbvre terms 'everyday spatial practices' for low-income households.

1.9.1 Critiques of the Triad

The triad conceptual framework has been criticised both by Lefèbvre himself as well as by others. For instance, Liggett and Perry (1995: 8) suggest that Lefèbvre's work be made richer by the use of semiotic analysis (the analysis of signs and symbols) whilst Castells (as discussed in Stanek, 2008) laments the lack of practical and empirical data to support Lefèbvre's arguments. Thus, the Triad cannot be used as a generic, abstract model for analysis but it has to be situated in a historical, social and spatial context, otherwise it 'loses its force' (Lefèbvre, 1991; Stanek, 2008). The Triad may not be used in the exact same manner in different cases. Since the production of space is a 'process', the notion of time cannot be neglected in constructing a framework of analysis (ibid.). The triad alone is but a still image, taken at a very specific moment in time (Lefèbvre, 1991). As well, Lefèbvre has a very dim view of the power of the state and the way it influences the spatial evolution of society. He also laments the passivity of the masses vis-a-vis the imposed transformation of space but does not suggest clear ways in which they can become involved in this process except for a total revolt against the system.

There has been a significant change in South African politics from an oppressive regime to a democratic, inclusive society. How then does the assumption that the State is always serving the interests of the 'elite' reconcile with the billions of Rands and efforts that have been invested throughout the country for the past 21 years in a bid to uplift the disenfranchised majority of South Africans? For a scholar in the field of Development Planning, it is difficult to find the positive place

and meaning of public-sponsored infrastructure and spatial transformation projects within Lefèbvre's perspective of Abstract Space. Beyond the balance of powers, human action is always bound to affect the characteristics of an existing space and give it new meaning and value. How these changes fit within the broader critique of the imbalances present within the current mode of production space is a question that is beyond the scope of this research. This report seeks to explore the responses and actions of people (i.e. Spatial Practice) and to suggest ways of supporting and optimising them.

The implementation of Phase 1A of the BRT is a transportation project that was led by the City of Johannesburg Municipality in order to achieve certain objectives (stated in Chapter 2). This research is not an evaluation of the Phase 1A BRT systems itself. The research sought to understand how the people living in the areas directly affected by this project have reacted to the changes in their environment and how they, in turn, are changing the landscape of their everyday experiences. As it has already been stated, there is no clear framework to discuss the topic of this dissertation or any other topic for that matter. However, one can find direction in the definition of Spatial Practice.

1.9.2 Spatial Practice, Competence and Performance

> 'Spatial Practice ensures continuity and some degree of cohesion. In terms of social space, and of each member of a given society's relationship to that space, this cohesion implies a guaranteed level of *competence* and a specific level of *performance*.'
>
> (Lefèbvre, 1991:33; original emphasis)

The everyday or *habitus* of individuals in their social space is based on the way people read, understand and act within a space that they know and use in their daily lives (Prigge, 2008). Lefèbvre (1991) borrows the concepts of competence and performance from Noam Chomsky's theory of language. Yet, Lefèbvre (1991) does not draw any other inference between linguistics and Spatial Practice (Lefèbvre, 1991). This then solicits a look at Chomsky's (1965: 4 as cited in Taylor, 1988: 149) own definition of competence and performance: "We thus make a fundamental distinction between *competence* (the speaker-hearer's knowledge of the language*)* and *performance*, the actual use of language in concrete situations." What is clear from this definition is that the terms competence and performance can be interpreted as knowledge and action, respectively. After living in an area for a while, people are highly likely to develop a deep knowledge of their environments - where the best-lit streets are, which pavements are most practicable for pedestrians, what is the shortest path from point A to point B. Largely informed by this knowledge, they may make decisions about which ways to take or avoid on their daily travels. Two types of spatial practices can then be

identified: competence-based Spatial Practice - which 'involve being able to read a place' (Modan, 2007: 309 - 311) - and performance-based spatial practices (ibid.).

Competence results in people knowing what type of activities are appropriate in a certain space as well as what activities are allowed (Modan, 2007). Performance-based spatial practices occur when people act on their knowledge of a specific space, from playing soccer in a quiet street to gathering in a park for a community event. People can also transgress the knowledge they have about a place, for instance contravening existing by-laws (ibid.). Performance also entails activities outside of the immediate surroundings of the area where people's daily lives occur. For instance engaging the local authorities (city council for instance) to raise or discuss issues regarding the area where they live. At this level, individuals are not just mere spectators of the production of their own neighbourhoods. They perform actions that they deem necessary in order to transform their daily lives.

Chomsky's competence and performance binary has been criticised and expanded on by other scholars in the field of applied linguistics (McNamara, 1995; Taylor, 1988). While much has been written on this topic in the field of applied linguistics, Chomsky's revised model acknowledges that there are more factors to be taken into account when evaluating an individual understanding and use of language. Essentially, in-between knowledge and action, there is also the ability or capacity to act on that knowledge. The notion that spatial practice also requires individuals to have an ability to perform the actions that they wish to engage in is self-evident. For instance, one may have the competence to understand that they could gain from providing rented accommodation on their property situated along the BRT route. However, one might not be able to perform the action of building back rooms because the town planning rights on the property do not allow for the construction of more than one residential dwelling. The competence-performance binary has thus been revised to include a critical step: the ability to act on knowledge of ability to perform.

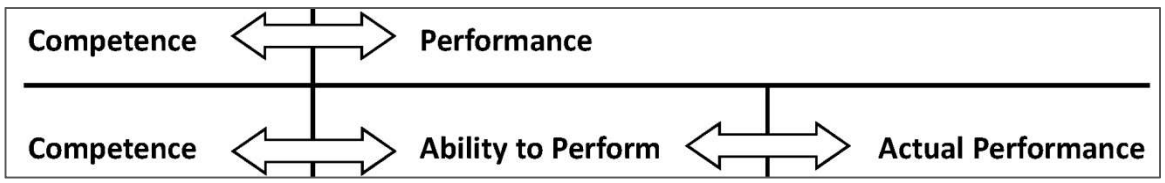


Figure 12 Revised Spatial Practice Competence-Performance Model (Diagram by author)

The three elements make up the structure of the spatial practice framework. In order to operationalise this framework, it is necessary to determine criteria (within the framework) that will be used to answer the research questions. Carey (20120 and Kumar (1994) work on low-income housing and backyarding were used to set out these criteria. Carey (2012) identifies the elements

which affect low income property owners in their ability to build backyard rooms. They include the recognition of an opportunity, market readiness, access to resources (finance/ materials) and obtaining the required planning permission. Kumar's work (1994) brings elements such as ownership/tenure, the nature of state intervention, building regulations , availability of finance, These elements will be expanded on through a review of local and international literature in similar context (see last section of Chapter 2).

The framework from which the residents of Soweto react to the implementation of Phase 1A of the BRT, in terms of spatial transformation, can be adapted from a revised Spatial Practice Model, whose attributes are outlined in Table 1 below.

Table A Spatial Practice Model and Development Planning Terminology (based on Carey, 2012 and Kumar, 1994)

Expanded Spatial Practice	**Development Planning Terminology**
Competence (Knowledge)	Recognising opportunities : Knowledge of the potential benefits of proximity to public transit nodes
	Knowledge of the town planning rights and constraints on their property and other statutory requirements
Ability to perform	Physical Constraints on property
	Tenure
	Access to Finance
Performance	Council Application
	Construction of New Accommodation (formal or informal)
	Starting of New Businesses (formal or informal)

1.10 Structure of Report

The research report is comprised of six chapters. The contents of the chapters are outlined in the six paragraphs below.

Chapter 1 introduces the backdrop and context within which the main research question emerges. The chapter presents the research aims and objectives, research questions, theoretical framework brought about by the review of academic/theory-based pieces of literature. The conceptual framework constructed at the end of this chapter was critical in the explanation of the perspective through which this research was undertaken, uncovering the voice and agency of the 'weaker actor' in spatial transformation – the ordinary citizen. This framework defined the structure of the questionnaire for the survey while the content of the questionnaire will emerge from the literature review.

Chapter 2 presents a review of the literature required to answer the sub-questions. The first section explores the concept of spatial transformation in international and local literature and explains the South African vision for spatial transformation. The second section establishes the link between the Bus Rapid Transit System and Spatial Transformation. The third section discusses the role of private actors in spatial transformation. The notions of Third Way governance and strategic planning are key to understand that role. The fourth section uses literature related to the context of the study to operationalise the Spatial Practice Framework

Chapter 3 introduces the research methodology used to underpin an evaluation research based on the Spatial Practice Framework. A description of all the datasets gathered throughout this project ensues. The GIS dataset, the Town Planning dataset and the interview questionnaire are presented to the reader. Concluding reflections on the challenges and lessons learnt from the data gathering process are presented at the end of the last two sub-sections.

Chapter 4 presents all the information contained in the datasets gathered for the purpose of this study. A further contextualisation of the Sub-Areas used as case studies is presented. The contextualisation focuses on the population and physical profile of the sub-areas as well as the planning regulations and policies applicable to the properties visited during the survey. The data has been sorted, aggregated, consolidated and presented in a way that makes it easy to engage with. Visual data such as maps, graphs, tables and diagrams are used extensively to explain the relationships, differences and particularities that emerged through the analysis of the dataset.

Chapter 5 consolidates the information unpacked in Chapter 4 and presents and analysis based on different themes or concepts. These themes are based on the Spatial Practice Framework. The results are analysed in conjunction with the literature and the other information gathered through the personal interview and analysis of maps to arrive at findings specific to the context of the study.

Chapter 6 concludes this report. It summarises the findings made in Chapter 5 and presents reflections, questions and suggestions for further studies. A commentary on the relevance of each element of the Spatial Practice Framework in light of the findings of this study is also presented.

Chapter 2: Developing and Transforming Urban Spaces in Post-Apartheid South Africa

2.1 Introduction

Yet what really is 'spatial transformation' and how has it manifested in the South African context, particularly in the context of development projects such CoJ's Rea Vaya? Moreover, how do transit-oriented development projects such as Rea Vaya facilitate the notion of spatial transformation? In attempting to answer these questions, this chapter uses the research sub-questions presented in the introductory chapter as guideline for investigation.

What is Spatial Transformation?

> The desire to change the existing urban order, and replace it with something more fair […] rises and sinks over time and place as and when the four basic ingredients of (1) a *realisation* of the injustice, (2) the *belief* that it can be addressed/overcome, (3) the *willingness* to do what it takes, and (4) the *ability* (human/technical and financial) to get it done, come together.
>
> (Rydin, 2013 as discussed in Oranje, 2014: 36; original emphasis)

In their analysis of the direction being taken by strategic spatial planning in Western Europe as well as its implications for regional governance in the sub-continent; Albrechts, et al (2003: 114) note that one of the buzzwords driving spatial planning processes is sustainable development. Sustainable development, note Albrechts, et al (2003: 114; original emphasis),

> …has become a widely used term expressing the concept of potential for creating a positive-sum strategy combining economic, environmental, and social objectives in their manifestation. *Territorial development* holds the promise of translating this concept into specific investment programmes and regulatory practices.

This appears to be the case in nations such as New Zealand where there is a mounting realisation that sustainable development, instead of the institutions striving for it, "needs to become the rules of the game" (Heslop, 2006: 3). By virtue of the fact that spatial transformation is not just an embodiment of the idea that urban areas have changed significantly over time but also "offers … particular insight into what form that change has taken, and whether it is broadly positive or negative in *socio-economic* or *ecological* terms" (Turok, 2014: 74; added emphasis); it can perhaps

be considered as a feature and/or part and parcel of sustainable development. Yet, the questions still remain: what is spatial transformation?

While there is no clear definition of spatial transformation in the literature reviewed for the study – thus showing the 'fluidity' and complexity of the term – there are some scholars who are beginning to demonstrate how spatial transformation manifests itself on the ground. For instance, Turok (2014) studies urban transformation using a wide range of international precedents from both 'Developed' and 'Developing' world contexts, and then compares them to the South African context. Turok's (2014) findings in this regard suggest that spatial transformation in the urban arena does not follow one path but takes many different forms. It may be in the form of transit-oriented development (development following major transport routes/arterioles), polycentric development, and densification, to mention but a prominent few (ibid.). Notes Turok (2014), as spatial transformation has different meanings for different contexts, South Africa is no exception. Turok (2014) argues that spatial transformation in the South African context implies 'social integration and racial mixing', a reconfiguring of the 'urban structure' as well as attention to the 'local texture'. This view is more or less in line with that of Bickford (2015) in his study of how transportation projects such as Rea Vaya contribute to the notion of spatial transformation in big South African cities. According to Bickford (2015), such transportation projects need not only speak to spatial change (reversing the apartheid spatiality) but also have to address socio-economic issues (poverty and strife of citizenry, especially in formerly disadvantaged areas) if spatial transformation is to be optimally realised in South African cities.

According to Oranje (2014), attempts to intervene in urban space and/or respond to urban socio-economic and spatial inequalities by the elites/powerful are not a new phenomenon but they date back to "the late nineteenth century in an uncommon coming together of reason and spirit" (Oranje, 2014). The late 19th century was a period of the second Industrial Revolution, in which industrial cities – most notably those of the United Kingdom (Manchester, Leeds, Birmingham, Leeds, Sheffield, to mention but a few), Europe and North America – had grown rapidly as centers of population, production, and profit following the growth of modern industry (ibid; Boundless, undated). The economic growth of these cities had attracted a large volume of migrants from rural areas in search of employment opportunities in the cityscape (ibid.). The urbanisation rate had brought with it many urban problems – poverty, pollution, many working class deaths from contagious diseases (ibid.) as well as pronounced socio-economic disparities. Whereas the cities' elite few (professionals, business people and politicians) lived extravagantly, the working class lived in total squalor (Oranje, 2014).

While the literature reviewed shows that there is no clear-cut definition of spatial transformation – and while scholars argue that spatial transformation in South Africa takes on a different form compared to developed countries – there is one commonality re spatial transformation in different contexts. The commonality is that whilst spatial transformation may be implemented differently in various city contexts, it is a notion responding directly to both spatial issues (spatial disparities) and context-specific socio-economic issues (poverty, strife and squalor). Having gotten a glimpse of how the elite/powerful have attempted to transform urban space in some First World contexts, it is imperative to understand how spatial transformation is understood in South Africa. The next section attempts to do this via a review of policy and academic scholarship. The next section also attempts to provide an understanding of the objectives and challenges revolving around spatial transformation as a feature of sustainable development in South Africa.

Tracing Spatial Transformation in post-Apartheid Urban South Africa: 'Origins', Objectives, Issues, Challenges

As noted by Oranje (2014: 36), "The post-apartheid transformation of South Africa's cities has been a topic of serious debate and focus of research since the 1970s […] Post-1994; it also has been a focus in political manifesto, and of legislation and policy attention." Indeed, the idea of the post-Apartheid city had already permeated the minds and academic discourse of the planning fraternity before 1994. These ideas, together with the global urban trend of the compact city, influenced the formulation of urban planning policy strategy at the dawn of democracy. Strong criticism of the Apartheid planning policies and the segregated spatial development that it created led planners in academia to thinking and proposing ideas to transform the urban areas. Planning academics from the University of Cape Town led the way in conceptualising the physical form that the Post –Modern Post-Apartheid South African city should take (Todes, 2006). One of the resulting proposals was Dewar and Uytenbogaardt (1991) *South African Cities: a Manifesto for Change*. Published three years before the advent of democracy, the programme is focused strongly on the design aspects of spatial transformation especially the two concepts at the centre of its discourse - compaction and integration – are affiliated with spatial transformation. These were to be achieved through high density residential developments along public transit corridors, web of public services and high economic activity at points of high access and along corridors. The planning reduced to a 'minimal' of producing the 'structuring system' of road networks and amenities, in short, creating desirable conditions for private investment to create developments and businesses (Dewar and Uytenbogaardt, 1991).

The transformation of urban space is a multi-layered process which also depends on the transformation of planning practice and planning tools such as zoning and land use management tools (Harrison, et al., 2008; Oranje, 2003; Todes, 2006). A year after the attainment of democracy, the Development Facilitation Act of 1995 was introduced to guide spatial development processes during the local government transitional period. Following the restructuring of municipalities, the Integrated Development Plan (IDP) was introduced as a legislative requirement for medium-term planning at municipal level. Its purpose was to ensure that all municipalities produced contextually-grounded plans, having taken into account the social, spatial, infrastructural and economic realities of their environment to chart their future. The content, public participation process and the intervals at which the IDP need to be revised are described in the Municipal Systems Act 32 of 2000. The Spatial Development Framework (SDF), a requirement of the IDP, ensures that the municipalities decide the location of the interventions (RSA, 2000). Urban Development Frameworks (UDFs) and Precinct Plans are not required by legislation but can be prepared by municipalities in order to guide development in a specific node. The SDFs, UDFs and Precinct Plans form part of the strategic spatial planning tools because they indicate the urban development intent; the types of developments that are supported in principle by the municipal authority(Todes,2012). The zoning and Land Use Management plans on the other hand are legal documents that can only be modified by individual property owners following pre-established administrative processes in terms of the appropriate Town Planning Scheme. This is where a link between the strategic vision (Land Use policy direction) and the Land Use Management Plans which are not automatically updated to align with the municipality's objectives (Todes, 2012; Todes, et al, 2010).

Whilst spatial transformation has been a topic of serious debate pre-1994, its national acceptance only took effect post-1994 with the implementation of the Reconstruction and Development Programme (RDP) policy. A national policy, the RDP policy set one of the fundamental roles of post-Apartheid planning as "breaking down Apartheid geography through land reform, more compact cities, decent public transport and the development of industries and services that use local resources and/or meet local needs" (NPC, 2012: 260). Beyond the physical aspects of it, there were strong expectations that, in transforming space, other aspects of the lives of particular disadvantaged groups would also be addressed (Beall and Todes, 2004; Beall, et al., 2002; Todes, 2006; Todes and Posell, 1994). The policy placed a strong emphasis on 'growth through redistribution' of resources to the formerly disenfranchised racial group – Black citizens – via provision of state-subsidised housing units to households with an income less than R3,500 (Charlton and Kihato, 2006).

Yet, according to several scholars, the national government interventions in the built environment have gone against, rather than support, the very principles of spatial transformation. The delivery of millions of free-standing houses built on cheap, poorly located land at the periphery of urban centres, far away from employment, business opportunities and amenities and away from major public transport networks – what Bond (2000) has termed 'toilets in the veldt' - has undermined the very objectives of compaction and integration (Huchzermeyer, 2002; 2003). Moreover, these new settlements are exclusively comprised of low-income housing, which defeats the notion of 'social integration and racial mixing' as called for by Turok (2014). The inhabitants have to use a significant portion of their households' income on transport to reach areas of employment and business opportunity. Not only that, some of the housing units delivered are of poor quality and thus do not satisfy their users (Huchzermeyer, 2003). In a nutshell, the very low densities patterns, the location and quality of some RDP housing projects such housing units have hindered the spatial vision of the post-Apartheid South Africa – a vision that was re-affirmed in the NDP, a national plan for the elimination of poverty and reduction of inequality by 2030 - which argues for "densifying cities, locating jobs where people live. Upgrading informal settlements and fixing housing markets gaps" (NPC, 2012: 34).

Another challenge to the realisation of spatial transformation in the post-Apartheid city has been the lack of alignment between different spheres of government. The delivery of RDP houses has highlighted what Watson (2003; 2009) terms 'conflicting rationalities' between the imperatives of the different government agencies' mandates. The absolute urgency of the housing crisis put the government under tremendous pressure to deliver housing at all costs. The Housing Department[4] and its implementing agencies constantly have to play a balancing act between the cost of acquiring and servicing land and the number of low-cost houses to be delivered to alleviate the backlog on the waiting list (Huchzermeyer, 2003; Todes, 2006). On the other hand, municipalities are trying to contain urban sprawl and encourage densification along their main transport and infrastructure corridors. Other areas of conflict emerge between the expectation for a rapid 'spatial restructuring' which suggest a comprehensive overhaul of an existing urban form and the 'path-dependency' and slow rate of change that characterise urban development (Bertaud, 2004; Williams, 2000). In South Africa, the resistance to spatial transformation is also coming from the old societal power relations

[4] The Department of Housing was renamed the Department of Human Settlements in 2009 to reflect the fact that its role was expanded beyond that of merely delivering housing. The new mandate includes providing sustainable human settlements and quality of household life. The delivery of sanitation was also added to the department's mandate (DHS, 2016).

and the middle-class resistance to low-cost developments in their vicinity (NIMBY[5] phenomenon; see Section 3 for the role of private actors in spatial transformation).

In light of the challenges to the realisation of spatial transformation in contemporary South African cities, scholars such as Pieterse (2003) may be justified for arguing that the spatial transformation of urban South Africa is a work in progress and it is constantly analysed, critiqued and fine-tuned to respond to an ever evolving context. The critique of what has been achieved so far ranges from a position of total failure (Pieterse, 2003) to a position of unrealistic expectations that need to be revised (Harrison et al., 2008). The vision, the processes and the expectations set at the dawn of democracy were not in tune with the realities of a developing country. The direct borrowing of Western traditions and assumptions, the disjuncture between rationality and modernity, the uneven spread of capacity, the limits of local government, the challenges of informality are all elements that have hindered progress in transforming South African cities (Harrison, 2006; Harrison et al, 2008; Oranje, 2003; Watson, 2009a). The next section uses different case studies to explore the link between BRT projects and spatial transformation in cities, particularly the extent to which such projects contribute to urban spatial transformation.

2.3 Linking BRT and Spatial Transformation

There is no doubt that "infrastructure is central to several of the dominant contemporary approaches to shaping urban form such as transit-oriented development and smart growth" (Todes, 2012: 1) especially since infrastructure "changes the form, substance and overall dimensions of urban space" (Williams, 2000: 169). This then solicits a probe into the link between transportation projects and spatial change in cities. The relationship between transportation, land use and land value in urban area have evolved with the changing nature and form of urban agglomerations. Von Thünen (1863 as cited in Debrezion, et al, 2007) explains the differences of farmland values in function of their proximity to the market place. The closer a piece of land is to the market place; the more its value increases because the cost of transporting goods to the market decreases (ibid.). Location theory has evolved over time to respond to the increasingly varied and complex actors, activities, needs and technological advances.

[5] NIMBY (not-in-my-backyard): People tend to oppose new developments that they perceive to be detrimental to the amenity of their environment or the value of their properties. For instance, the introduction of low-cost housing next t middle class suburbs is often met by resistance from the middle class property owners. These stakeholders use the public participation process or the courts to block the implementation of the projects they object to (Hendler and Wolfson, 2013; Vaggione, 2013).

The Chicago School of Sociology produced seminal work on the spatial organisation of cities and the central concepts of expansion, metabolism and mobility (Burgess, 1925). Burgess contends that the central business district (area of commerce and light manufacture towards which all transportation converges) is the central organising locus of the city and that the city grows around it in different concentric zones (deterioration zone or slums; blue-collar worker; immigrant's zone; industrial zone, residential zone and suburbia) (Burgess, 1925). The particularity of the School laid in that its scholars (Burgess, Small, Park, Thomas to name a few) placed a great emphasis on the value of qualitative research to understand the dynamics of urban growth (Lutters and Ackerman, 1996). Burgess uses the terms mobility to describe two concepts. Mobility insofar as it relates to a person's 'state of mutability' or their willingness to change or their detachment to established groups, and locations. Secondly, Burgess (1925:77) defines mobility as 'the number of contacts' a person is able to have with its environment. The mobility of a population is therefore measured through the number of annual train rides per capita, the number of cars on the road. This second definition goes beyond physical contact to embrace other forms such as 'telephonic contacts' as indices of mobility. Different types of infrastructure and services thus become enablers of mobility (train, highways, and telephones lines). Mobility and movement are correlated as Burgess found that the land with the highest values in a city is located next to the area of highest mobility (Burgess, 1925).

As described above, mobility and movement are critical role in the growth and the functioning of urban space. As such, the proximity to transit corridors has become an important characteristic when it comes to evaluate the value of a piece of land. There is a 'scarcity value' to land parcels that are located next to high-speed transit corridors. The travel time savings benefits that people residing and living in the vicinity of these corridors commend premium prices in the land market because there is a finite number of properties with those characteristics (Cervero and Kang, 2011). The improvement of existing transit services and/or the creation of new transit services and infrastructure are bound to affect the land market in one way or another, or at least that is the general assertion stemming from the theories explained above. New infrastructure can enhance the mobility of people through public or private transport. But the focus of this research lies in the impact of a new mass transit project.

According to Fernandez-Maldonado (2012), the principles of Transit Oriented Development (TOD) were born out of the city's model of integration between transportation and land use planning. The introduction of a BRT system in an urban setting has the potential to influence the existing spatial and land-use patterns provided that a deliberate, coordinated strategy is put in place to support the principles of TOD.

The BRT system was first implemented in the Brazilian city of Curitiba from the late 1970s as the "surface metro" (Cervero and Dai, 2014:127), a "cost effective alternative to urban railway investment" (ibid.). While rail remains the mode of mass transit that can carry the highest number of commuters, the capital and operational costs that come with a railway network are extremely high. The proponents of the long-term approach to urban transit planning argue that the long term benefits of rail far exceed the short-term affordability of BRT systems (Cervero and Dai, 2014). Yet, this view is not shared by the world development agencies such as the World Bank which prefer the 'soft approach' of maximising the use of existing infrastructure and financing cost-effective transit systems if the existing ones are insufficient (Wright, 2003 cited in Chakwizira, et al, 2011: 62). The City of Curitiba, under the leadership of the visionary mayor Jaime Lerner, managed to integrate the development of its social, economic and environmental growth in a way that was "innovative, imaginative and practical" (Suzuki, et al, 2010: 3; also see Smith and Raemaekers, 1998). The fact that this success was realised in an environment of serious resource constraints made it a worthwhile precedent for other cities of the developing world. Curitiba planning authorities managed to successfully integrate land use, street networks and public transportation plans and policies to realise their developmental goals (ibid.).

The ability of BRT to influence city-shaping on the scale at which railways have done for cities such as New York and Hong Kong is still up for debate (Cervero and Dai, 2014; Deng and Nelson, 2011; Cervero and Kang, 2011). However, it certainly has an advantage over traditional bus systems. Traditional bus systems do not usually have an impact because they travel at the same speed as cars and do not offer substantial benefits. Furthermore, bus systems are perceived as temporary - they can be discontinued at any time and do not arouse investors' confidence (ibid.). These conclusions have been arrived at after studies conducted in cities such as Seoul, Bogota, Los Angeles, Brisbane, Ottawa, and Pittsburgh, which bring forth some interesting findings discussed below.

Studies conducted in Los Angeles found that the BRT had small negative impact on residential properties and positive impact on the value of commercial properties (Cervero, 2004). By contrast, cities such as Brisbane, Ottawa, and Pittsburgh all saw higher densities and diversification of land uses due to BRT (Levinson, et al, 2002). This appears to have been the case in Bogota as well - the gold standard for BRT - where for properties adjacent to the TransMilenio project, the value of rent increased for housing units located next to the transit corridors, and kept increasing with the expansion of the network (increased mobility across the city) (Rodriguez and Targa, 2004). A study of land value and people's perception within 250 m of BRT Stations along BRT corridors showed that secondary factors in the built environment - pedestrian environment, amenities, perceptions of

safety and security, to mention but a few - also impacted BRT usage (ibid.; Estupinan and Rodriguez, 2008). Higher densities, land uses and lower income levels in neighbourhoods also resulted in higher rates of BRT usage. Improvement of walking environment and control measures to reduce car usage were seen to be the two biggest determinants of increased BRT usage in Bogota (ibid.).

Seoul is one of the fastest growing cities in the world with a density of 16,500 residents per square kilometre. The total population is 24.5 million people (Cervero and Kang, 2011; Jun, 2012). The BRT network is 81 km long and comprises 7 different corridors. In Seoul, the increase in property value was most evident within 150 metres of the BRT stops and up to 300 metres away from the bus stops. There was also a reversal from pre-BRT implementation when the properties closest to traditional bus stops were cheaper (ibid.). The land-use changes were more significant in the residential property market. Private property owners converted their single-family units to multi-family units to capitalise on the improved accessibility. Property developers built more high-rise residential apartments and mixed-use buildings (Cervero and Kang, 2011). Generally, there was intensification of land-uses in the vicinity of BRT stops. In terms of city form, Jun (2012) finds that commercial and industrial activity moved from the periphery to the CBD, and notes an increase in non-residential rent in the city centre. In terms of housing, there was an increase in rent prices in the CBD and a decrease on the periphery, although the rates of change were not as high as for non-residential. These findings point to a redistribution of growth and activities. Although it has a negative effect on existing developments in the periphery (in the short term), it has a positive impact on city form because of the re-densification of the centre (in the long term).

The aforesaid studies consistently show that there is a difference between the rate of change in property value and the rate of change in land uses. The second tends to be slower and dependant on many more factors than the implementation of a new rapid transit corridor. The same studies also demonstrate that the patterns of change for residential and commercial properties are not similar, even in the same geographic location.

BRT in South Africa

BRT networks have been built and continue to be built in many South African municipalities. The Rea Vaya system in Johannesburg (first to be launched), the MyCiti system in Cape Town, the AreYeng in Pretoria are already operational even though there are plans to extend the networks. Durban, Rustenburg, Bombela and Port Elizabeth are at an advanced planning stage of their BRT networks. In Johannesburg, TOD was adopted by the CoJ as official policy in 2008; and the CoJ identified Public Transport Management Areas (PTMAs) as priority infrastructure development and

upgrading areas where to channel funds (CoJ, 2013). The BRT is the backbone on which the Corridors of Freedom TODs will be built and is at the heart of the CoJ's 2040 Growth and Development Strategy (GDS 2040) of linking infrastructure spend and spatial planning (CoJ, 2013; Todes, 2012).

There have been a few studies conducted on the early impacts of the various BRT systems in South Africa. A study conducted by Chakwizira, et al (2011) on the impact of the BRT and Gautrain projects on the mobility and accessibility of the poor in three South African townships - Hammanskraal, Soweto and Soshanguve - finds little impact of the projects on the three townships. According to Chakwizira, et al (2011), this is due in large part to the fact that the routes run parallel to or replace existing public transport routes; and the scholars suggest that as the networks expand, they need to reach underserved routes as well. In the case of Gautrain, the target market has been found to be anti-poor especially since it aims at attracting car-captive commuters from the onset and its networks are not wide enough in terms of geographic spread (ibid.). In terms of land use, Rea Vaya is commended for setting high quality standard of service even though it is not necessarily aimed at a lower-income group (Chakwizira et al, 2011). Vaz and Venter (2012) make similar findings in terms of accessibility in their study of Rea Vaya Phase 1A impact on poverty reduction in Soweto. According to Vaz and Venter (2012), Rea Vaya is priced higher than the train and attracts more middle-income commuters than poorer people who still prefer the train (Metrorail) due to its affordability. Yet, in terms of mobility, Rea Vaya does give greater access to a variety of services and amenities within Soweto. It is not just used as a means to take long trips to work outside Soweto (ibid.). People reported that they appreciated the quality of the buses and the station's infrastructure. A study by Vaz and Venter (2012) finds that no private car user within the sample of interviewees changed from travelling to work by car to commuting with the Rea Vaya. Of the entire sample, 6.8 percent had reported using their own private vehicle to travel to work.

In Cape Town, Grey and Behrens's (2013) study of the long-term sustainability of the MyCiTi Phase 1 finds that there was a real threat of MyCiTi's capacity being under-utilised in the long term if the appropriate policies to support densification to a minimum of 25 dwellings/ha, and travel demand management to increase the MyCiTi modal share to between fifty and sixty percent of total travel, are not implemented as a matter of urgency (Grey and Behrens, 2013). Land use change is a slow process, and it may become non-existent if left solely to market forces and investors, especially in areas that are not considered prime development areas. A study of people's awareness of TOD's requirements by Ndebele and Ogra (2014) along the BRT Rea Vaya Phase 1B corridor (Johannesburg CBD to Alexandra) concludes that people are generally not aware of the importance of key elements that make a successful TOD. The principal elements are high density of residential uses and car usage

reduction measures (car-pooling and off-street multi-storey parking for instance). The findings however indicate that people do acknowledge the importance of quality public transport, appealing walking environment, and access to amenities such as recreational parks. The study does show a lack of public awareness regarding the CoJ vision for its urban transformation. Yet, it is not really clear about what needs to be changed to increase public awareness and how that would contribute to the realisation of spatial transformation objectives for the Louis Botha BRT corridor. Adewumi and Allopi (2013), in their analysis of the technical and operational aspects of the system, and the cost efficiency for passengers, find that the Rea Vaya is commuter friendly, safe and cheaper than other modes of transport over long distances.

While there is a growing literature on the implications of BRT for poverty reduction and the lives of low-income residents in South African cities, the literature appears to have been silent on the ways in which low-income private home owners have responded to the introduction of BRT in their environment. This may then give the impression that low-income home-owners in South African cities have not taken advantage of the development and/or socio-economic opportunities presented by BRT. This particular study aims to contribute to filling that gap by tracking land use changes and densification which have resulted from Phase 1A of Rea Vaya in sections of Soweto.

The next section aims to hint at the role of private actors/stakeholders such as home owners in spatial transformation in general. This role is framed within the current trends of strategic planning, third way governance and some of the theories that have influenced the current practices in spatial planning.

2.4 The role of the 'private sector' in Spatial Transformation

Investment in amenities and infrastructural upgrades, beyond the immediate improved service provision, purport to catalyse transformation through appreciation of property values, creation of opportunities for new business ventures and improved standards of living overall . For low-income property owners in particular, the strategy aims at using urban economics principles in order to "bring them into economic citizenship" (Jaiyeoba, 2012). It is expected that the rise in property values created by infrastructure investment in their respective neighbourhoods will see them "able to sustain consumption through credit securitized by the investment value of the house" (Allon, 2010: 368; Forrest, 2008; Huchzermeyer, 2003). In other terms, low-income property owners will have the opportunity to borrow money from financial institutions (mortgage) against the improved value of their property in order to finance income-generating ventures, preferably on their property or within the same area. Mass transit infrastructure implementation in particular is accompanied by

land use relaxation in order to encourage densification of the urban form and diversification of land uses (Burgess et al, 1994; Huchzermeyer, 2003; Jaiyeoba and Aklanoglu, 2012).

Understanding the role of the private sector or non-state actors in spatial transformation brings Lefebvre's Triad back to the fore (see Chapter One). Private investors are considered to be 'on the other side of the fence' because they are separate from the state and government entities responsible for spatial planning. Yet, Lefebvre (1991) classifies private investors (people with financial resources) together with professionals/experts and the government as part of the Representations of Space, while the ordinary citizens represent Spatial Practice. Even though ordinary citizens and investors can be classified as private actors in spatial transformation, they do not yield the same power or the same influence, do not have the same financial means, and thus cannot be 'lumped together' with influential private investors in the discussion about spatial practice (ibid.). As mentioned before, this study focuses on Spatial Practice.

According to Allmendinger and Haughton (2010: 803), "spatial planning draws from multiple theories such as structuration theory, relational geographies, sociological institutionalism, institutional capacity building, discourse analysis and frameworks". These various theories are not necessarily in tune with one another (ibid.). The early examples of spatial planning emerged in the urban transformation projects for post-Fordist, post-manufacturing derelict inner cities in the UK and the US in the 1980s. The heritage-based strategies were based on restoring derelict but historically-significant areas of city centres (iconic buildings and public spaces) so as to attract local and international tourists to the cities. Property and commerce-led urban regeneration, together with investments in the physical infrastructure of their target areas, create policies (mixed use zoning) and incentives (special inner city tax rebates for instance) to attract businesses and property developers back to distressed areas.

Strategic planning processes seek to develop consensus around the plans through the consultation of stakeholders at inter-departmental, inter-governmental and community level (Todes et al., 2010). Participation, co-operation, consultation and partnerships are key elements present in the drafting and implementation processes of (MOP, 1996; RSA, 2000; CoJ, 2003; CoJ, 2012; CoJ, 2013). These stakeholders intervene at different stages and are expected to play different roles towards the realisation of the strategic vision. The literature on planning theories locates this trend in the strand of communicative planning theory that focuses on communication as a critical tool to ensure just processes and outcomes, which take into account 'local knowledge' and participation of civil society (Fainstein, 1995; Forester, 1989; Healey, 1999). Sandercock's (2000) work on diversity and multi-cultural planning stresses the importance of acknowledging the extant differences between various

groups in society and allowing these differences to be articulated through planning. While there are diverging opinions, for instance in the affirmation that just processes do not necessarily produce just outcomes, there is a trend emphasising the importance of 'local opinion' as opposed to 'expert opinions' and a shift to a focus on local government as the primary site of spatial planning decision-making (Watson, 2002). Bottom-up processes that lead to political and economic empowerment of the masses become very important outcomes in all projects.

The redistribution of powers and responsibilities between the different spheres of government is in the light of new public management (NPM) principles and the devolution of powers which were so far concentrated at national level in the UK (Allmendinger and Haughton, 2010). According to Watson (2002: 31), there is a renewed "interest in the power of local government and local organisations to take forward the idea of democratic planning." The focus of these normative theories tends to be on the ways in which civil society can influence the actions of the state, pressurize the state to be more responsive or in ways that civil society can resist state planning (Harrison, 2006; Watson, 2002). The concretisation of spatial planning requires physical action and the laying of physical infrastructure, housing, and services after the plans have been discussed, drawn and ratified by various stakeholders. The participation of civil society at local level in the implementation phase of projects is often one of oversight. In Porto Alegre in Brazil, however, the participation process went a step further in including communities in the budgeting process for capital and operational expenditure of municipalities and the management of municipal resources (Vaggione, 2013).

The 'Third-way'. Neo-liberal governance and spatial planning

The Third Way politics, neo-liberal governance adopted by left-leaning political parties, particularly in the English Speaking countries such as the United States and the United Kingdom has had a profound impact on governance in general and on the planning practice in post-Apartheid South Africa in part (Harrison, 2006).

Planning practices that have emerged from the neo-liberal planning paradigm are centred on an entrepreneurship mindset on the part of institutional stakeholders (Allmendinger, 2002 as discussed in Gulersoy and Gurler, 2011; Burgess et al, 1997; Harrison, 2006). From the comprehensive and restrictive method of modernist planning, there has been a shift to the production of frameworks and strategic plans aimed at providing guidance for development. The focus of planning has moved from projects to policies, from an emphasis on the imposition of restrictions to an emphasis on

'enablement'; the creation of conditions conducive to the realisation of strategic objectives (Burgess et al, 1997; Watson, 2003). In terms of project implementation, planning authorities have moved from a needs-based approach to a competitive, growth-led and partnership-based planning. Para-statal agencies emerged in the Unites States and the United Kingdom in the late 1970s in order to devise strategies, coordinate stakeholders and manage the implementation of urban regeneration and redevelopment projects (Allmendinger, 2002). The urban development/regeneration strategies that emerged during this period were centred on a catalysing project or feature such as historic and cultural heritage, tourism, property development and mass transit nodes (Gulersoy and Gurler, 2011).

This model has influenced the creation of similar agencies in South Africa. The Johannesburg Development Agency (JDA) and the Gauteng Growth and Development Agency (GGDA) are two examples of this trend. The JDA is a semi-autonomous agency of the CoJ which is the implementing agent for many of the CoJ's urban regeneration projects. The Gauteng Provincial Government (GPG) created the Gauteng Growth and Development Agency (GGDA) from the merger of the GEDA (Gauteng Economic Development Agency) and Blue IQ. This agency is tasked with facilitating trade and investment as well as supporting the development of more economic infrastructure in the province (GGDA, 2015). The same emphasis on 'human agency' and entrepreneurship is expected from non-governmental actors such as NGOs, property developers, corporations and private individuals (Allmendinger and Haughton, 2010; Watson, 2002).

In South Africa, the devolution of power to local government happened at the same time as the function of local government expanded to fostering economic development in addition to its traditional role of being a supplier of public services and infrastructure (energy, water, transport and communication) to its residents. As such, the delivery of productive public infrastructure (to support economic activity) to the market became as important, and sometimes more important than the delivery of infrastructure for the consumption of the general public (Watson, 2003; Toledo Silva, 1997).

Heritage-oriented regeneration is based on the restoration historic districts and buildings of heritage value together with the promotion of entrepreneurial activities and tourism. The success of early projects in the UK and the US led to the creation of guidelines for Heritage based regeneration and cultural tourism by the UNESCO (2001) and the European Union (EU, 2011). In Johannesburg, the revitalisation of Vilakazi Street in Soweto and its branding as the only Street in the world to have housed two Nobel Peace prize winners - Nelson Mandela and Desmond Tutu - is an example of

heritage-based regeneration. Florida and the rise of the creative classes[6] focused on urban transformation in order to attract 'creative' individuals (Florida, 2002; 2004), and Porter focused on taking advantage of the competitive advantage of cities to stimulate economic development (Porter, 1997; Porter and Van Der Linde, 1995). In the housing sector, enablement policies focus on the regularisation of property rights, the total or partial privatisation of state-owned housing stock, the development of mortgage finance, the targeting and rationalisation of housing subsidies (Harrison, 2003).

Literature focused on spatial transformation through densification[7] around mass-transit corridors reveals three important observations. Firstly, it is easier to plan and execute the construction of the transit infrastructure itself. The integration with land-use planning and spatial transformation projects is much more difficult because oftentimes, the responsibility for transportation and land-use planning are located in different departments. Secondly, it is easier to build new, high-density developments in areas with very-little-to-non-existent building stock (Behrens and Wilkinson, 2003). Thirdly, the type of investment required to effect spatial transformation demands vast amounts of capital. The capital-intensive nature of spatial transformation means that private actors of a high economic profile are the most likely to be partnering with the state in the physical implementation of projects.

The need to 'leverage private investments' and proactively include private investors in the planning and implementation of transit and urban development programs are some of the recommendations made by UN-Habitat and the World Bank (see best practice examples from Bogota, Hong-Kong and Jakarta in Suzuki et al, 2013; Vaggione, 2013). In South Africa, Todes (2006) notes that the early spatial plans did not give sufficient regard to the role of 'private property interests' or the economic and social context in which these plans would be implemented. The CoJ Strategic Integrated Transport Plan 2013 (ITP) refers to the need to take into account developers' requirements for parking and the need to recover the cost of new infrastructure through development fees (CoJ, 2013).

One of the criticisms levelled against neo-liberal theory is that it has "conceptually downgraded the significance of the different political, social and cultural contexts in which markets operate" (Burgess et al, 1997: 149). Watson (2003) warns against the neo-liberal planning strategies in post-Apartheid South Africa that seek to replicate successful interventions (best practice) in different contexts and

[6] Creative Class: people who work in the information-age economic sectors and industries driven by innovation and talent. Florida contends that the creative classes are drivers of economic growth and increase the competitiveness of the cities where they live and work (Florida, 2002; Florida, 2004).

[7] Densification : 'the increase use of space both horizontally and vertically within existing areas …and new development s accompanied by an increased number of units and/or population thresholds (Rubin and Gardner, 2013:8).

often overlook context-specific spatial informants. The CoJ recognises that in the townships, the municipality has to shoulder a greater burden in terms of financing and driving spatial transformation because the private developers are still disproportionately attracted to, and driving new developments in, the Northern , more affluent, suburbs of the municipality (CoJ, 2011).

The CoJ fears the fact that, even though infrastructure investment does have a positive impact on the economic development of its surroundings, over time, the distortion between historically rich and poor areas will continue to grow if there is no deliberate and sustained intervention to support transformation in low-income areas (Amis, 2002; CoJ, 2011; Rakodi and Nkurunziza, 2007). In Johannesburg, there has been a tremendous growth in greenfield projects in the Northern suburbs of the city (CoJ, 2011). In terms of existing, built-up areas, the urban regeneration of the inner-city has received much investment, both from the CoJ through the JDA and from the private sector. The townships have seen investment in public infrastructure from the CoJ but very little private investment (Behrens and Wilkinson, 2003; CoJ, 2011). These considerations are important to this topic because the history, the state of existing infrastructure and the socio-economic context in which spatially transformative investments are made have an impact on the success of the projects in the long run. Ensuring the integration and alignment of spatial planning with other economic and social development plans is also crucial.

The following section is based on the Spatial Practice Framework proposed at the end of Chapter 1. It unpacks the elements that will be used to track spatial transformation in the study area. The first part discusses the elements grouped under the knowledge category and the second part discusses those grouped under the ability to perform category. The third category (performance) is what will be uncovered in Chapter 4 and discussed in Chapter 5 of this report.

2.5 Spatial Practice. Criteria for Analysis

> Well directed human settlement policies cannot be based solely on economic and physical development plans. Unless there is investment in the public environment (schools, clinics, parks, police stations, recreational facilities, libraries and other amenities), which contribute to positive perceptions of a neighbourhood, individuals are unlikely to invest in their own environments.
>
> (Department of Housing, 1997: 21)

This section is based on a review and discussion of the processes through which people personalise and invest in their own environments. The review draws on literature available for environments similar to that of Soweto; that is firstly, urban settlements in the developing World; secondly,

settlements where most of the inhabitants belong to the lower-income category of the population; and thirdly, infill development contexts.

The dearth of literature on this specific topic compelled me to constantly expand the review of literature to topics that overlap with some aspects of this research and find information that can be used to build up a comprehensive understanding. The literature on backyarding, small-scale rental and township landlords has been quite useful in this regard. As Shapurjee et al (2014: 19) remark, "[B]ackyard housing is a prominent driver of urban spatial change in South Africa."

2.5.1 Competence

Environment

The presence of basic services is often cited as a premium reason for the 'attractiveness' and/or aesthetics of an accommodation for low-income people. Ii is for this reason that backyarding in serviced areas is more attractive than informal settlements in South Africa (Rubin and Gardner, 2013). Informal settlements are often established on non-serviced sites and lack basic services such as water, electricity and sanitation while backyard dwellings are located on fully serviced sites (Carey, 2012; Lemanski, 2009; Shapurjee et al, 2014). Other factors that determine the attractiveness of an area are the location and flexibility, the accessibility and mobility (transport) as well as proximity to work opportunities. Yet, some low-income residents do not have the latitude to select their accommodation, largely due to a failure of housing policy (not enough houses available for low-income earners in desirable areas) (Lemanski, 2009; Kumar, 1994). Kumar (1994) finds that migrants are motivated by either proximity to employment opportunities or the ease of mobility to access employment opportunities. This factor makes inner city dwellings and areas accessible by cheap public transport very attractive to low-income people.

Shapurjee, et al (2014) study of the spatial patterns of backyarding in Gauteng suggest that the municipal strategic planning acknowledges the inevitability of backyard dwelling growth and plans to deliver basic services and public transport accordingly.

Knowledge of Regulations and Policies

The quality of construction, the building standards and the minimum conditions required for human habitation are a central concern when it comes to low-income accommodation (Lemanski, 2009). The risks of overcrowding, the spread of diseases, poor living conditions, vulnerability to natural and

manmade disasters are serious considerations in areas where backyarding is prevalent (Lemanski, 2009; Shapurjee ,et al, 2014). Given the importance of backyarding in providing accommodation for low-income people, there is growing recognition that the regulations, standards and policies that apply to mainstream housing should be relaxed to give people access to housing(Carey, 2012; GPG-HS, 2015; Lemanski, 2009).

In his analysis of spatial practice in Ogbere, a low-income neighbourhood of the city of Ibadan (Nigeria), Jaiyeoba (2012) uses Lefebvre's Triad and concept of social production of space to study the quality and socio-economic issues in the production of the built environment by low-income people. In his view, the quality standards required by 'faceless governments' lead to the production of 'standardised housing' designed for 'imaginary users' without any considerations for the future users' cultural and socio-economic characteristics (Coulomb et al, 1991 as discussed in Jaiyeoba and Aklanoglu, 2012). He contends that it is in contrast to the "diverse, of varied standards, admirably adjusted to the need of the users and not socially alienating" (ibid: 857) housing produced socially by private actors. The typical example is that the typical state-subsidised housing is still designed based on a traditional family structure of a household with two parents and their children. The number of families matching this description keeps on declining both in the developed and the developing world. Similar criticism has been levelled against the housing delivery program in South Africa (Huchzermeyer, 2003).

Studies by Gordon and Taljaard (2006) and Gordon and Nell (2006) on small-scale landlords in Johannesburg finds that knowledge of, and compliance with, legislation is really minimal. Johannesburg's inner city small landlords were found to have very little knowledge of the Urban Development Zone (UDZ)[8] tax incentives, the rental housing legislation, the building standards and the local government regulations. The landlords found the municipality to be a hindrance to their business more than anything else. They assumed that the results would be the same for the other small-scale landlords outside of the Johannesburg inner-city. In Ogbere (Benin City, Nigeria), the removal of legal restrictions to ownership is seen to not have had any impact on the inhabitants' decision to build or not build (Jaiyeoba and Aklanoglu, 2012).

The attitude of local authorities with regard to the enforcement of legislation plays a role in determining whether sub-standard accommodation will proliferate or not. In Lehae, a new RDP settlement in the south of Johannesburg, there is a very strong level of enforcement of by-laws and the erection of backyard dwellings is strictly prohibited (Shapurjee et al, 2009). The same appears to

[8] UDZ Tax Incentive: incentive scheme created to attract property investors back to the inner city. It applies to new developments and building renovations within a demarcated area of the inner city (CoJ, 2015)

be the case in Cosmo City, in the north of Johannesburg, where by-law enforcement officers and building inspectors do not want to see a single corrugated sheet in sight (ibid.). Yet, in other areas of the city, such as Orlando East, they are simply ignored and people are left to build as they please within their yards (Rubin and Gardner, 2013).

While, as has been noted above, the residents hardly have knowledge of the kind of regulations that they have to adhere to, the authorities in charge of housing standards and town planning requirements have often created initiatives to ensure the respect of the minimum building standards and regulations (Jaiyeoba, 2012; Lemanski, 2009; Rubin and Gardner, 2013.). In Johannesburg, Cape Town, Makongeni and Benin City, some low-cost housing projects provide the housing beneficiaries with houses that have pre-designed opportunities for extension. This is done in an attempt to control the density of buildings on a plot and prevent overcrowding. It also guarantees a certain level of uniformity and character in a settlement (Jaiyeoba, 2012; Lemanski, 2009; Watson, 2009b) (See Annexure D and D1 for examples of pre-designed extension to buildings).

2.5.2 Ability to Perform

Land Tenure ,security, legality and kinship

Most studies on land tenure and housing policy are conducted either to determine the impact of government housing policy or to describe housing conditions (Rakodi, 1995). Studies on low-income rental tenancy and rental housing market in the developing world (Rakodi, 1995) in South Africa (Joseph, 2012; Rubin and Gardner, 2013; Lemanski, 2009; Mayson, 2014; Shapurjee et al, 2014; Watson, 2009 land management and housing policy (Hendler and Wolfson, 2013; Planact, 2007; Urban LandMark, 2013; Wilkinson, 1984 landlordism and housing production (Jaiyeoba, 2012; Jaiyeoba and Aklanoglu, 2012; Kumar, 1994; Kumar, 1996). Crankshaw et al (2000) produce a detailed history of backyarding and the rental market in Soweto. .UN-Habitat (UNCHS) regularly compile Global Reports on Human Settlements with a view to analyse global human settlement trends and provide policy direction and guidance, especially when it comes to managing rapid urbanisation in the mega-cities of the developing world (UN-Habitat, 2013).

The range of tenure arrangements is quite broad between ownership and rental. In her extensive review of urban tenure types in the developing world, Rakodi (1995) suggests that the two broadest categories of tenure be the ones that involve monetary exchange and the ones that do not. Another way of differentiating tenure is whether it is held by the private or the public sector. According to

Urban Landmark (2013), in the rural areas, a mere verbal testimony of an individual suffices to affirm the tenure rights of an individual or a group of individuals.

The issues around land tenure and land management take a particular importance in the South African landscape, given the extensive efforts that were made in order to control the access of the different population groups to land. Be it in rural or urban settings, beyond the spatial segregation laws that dictated 'where' people could live; there was also 'how' people could inhabit and 'what' they were entitled to do within those spaces. In urban areas, the 'Stallard principle[9]' dictated that Black people were to remain temporary sojourners, not to ever establish themselves permanently in the 'White' cities (Hendler and Wolfson, 2013; Wilkinson, 1984). As such, the National Party administration resolved never to grant freehold land tenure, the most comprehensive type of individual land tenure, to Africans.

Land tenure is a really complex and fragmented concept in South Africa, with traditional African and western legal principles applying in different parts of the country. Urban LandMark (2013) has recorded over a hundred different land tenure types across urban and rural South Africa. Ninety percent of people living in rural areas live on communal land managed under customary law. Similarly, 90 percent of individual properties in urban areas are formally registered. Rural farmland, mostly owned by white people under freehold tenure, is administered under the Dutch-Roman laws of property. According to Urban Landmark (2013: 2), three main categories of tenure can be identified: Established tenure (registered and secure in formal, mainly urban areas); Evolving tenure; as well as Emerging tenure (unregistered and insecure). While the South African statutory land management system is well documented and organised, it is costly to access and cumbersome to access (for instance, property transfer requires payment of transfer duty tax). This leaves low-income populations, both in urban and rural areas, in a position where they are unable to access the system to challenge or register their claims to land tenure or defend themselves when their rights are being challenged.

There are three types of established tenure, namely: (i) title deed (for private ownership, communal property association, Share Block Company, co-operative, rent to buy from property company); (ii) lease (from private owners, employers, municipalities); and (iii) deed of grant (for housing subsidised by government) (Data compiled from Urban LandMark, 2013: 23 and Hendler and Wolfson, 2013: 29).

[9] The Stallard Principle conceives of, "The native in the white urban area ... as a 'visitor' who has come to offer his services to his own advantage and that of the white man" (Wilkinson, 1984: 35).

Considerations around land tenure are important in the context of spatial transformation initiatives because they define the range of actions that people can undertake, specifically when they require an engagement with municipal authorities and other formal institutions (e.g. banks).

Access to finance

Okpala (1994: 1572 as cited in Huchzermeyer, 2003: 592) writes that "it is the type of financing which has... determined the dominant type of urbanisation in Africa cities." Interestingly, Kumar (1994: 11) notes that, "most households in Third World cities construct their housing without formal sector finance." They (Hendler and Wolfson, 2013) recommend that urban development initiatives pay special attention to not reinforcing the financial and spatial exclusion of previously disadvantaged population groups. They warn that at the one end of the entrepreneurial spectrum, there are 'survivalist, emergent and household investors' who also have a stake in spatial transformation. They do not have access to finance and cannot take advantage of policy incentives such as tax rebates like more established investors. They require more support in areas such as mentorship and training and access to finance (this is a critical limitation in this category).

Accessing finance needed to purchase the material and labour in order to make improvements to existing property in low-income areas is always a challenge. As mentioned earlier, the preferred model of housing delivery to the low-income people is through the grant subsidy for free-standing houses on individual sites (Huchzermeyer, 2003). Home improvements and rental receive very little support compared to owner-occupier housing schemes (Irurah and Boshoff, 2003). In the context where infill development is the only option, government still opts for delivering a 'product' (backyard room) rather than financing individuals (Huchzermeyer, 2003; Carey, 2012). Thus, individuals have to make means with the formal and informal sources of financing available to them. Informal sources of finance include interest-free loans from family and friends, personal savings and loans from unregistered money lenders constitute the largest form of finance for low-income dwellers in the developing world (Jaiyeoba, 2012; Kumar, 1994).

The level of access to finance is closely linked to the type of material used in the production of the buildings (Jaiyeoba, 2012; Lemanski, 2009). The financial situation and stability of the household is also a determinant of whether or not low-income residents will produce new rooms to rent out (Kumar, 1994; Lemanski, 2009).

Following the adoption of the Breaking New Ground (BNG) policy in South Africa, there was a realisation that the housing program could no longer focus only on the standard model of housing delivery that had been implemented since the dawn of democracy (Huchzermeyer, 2011; Rubin and

Gardner, 2013). There is also recognition that s support for small-scale landlords is required in order to improve supply of rental accommodation (Watson, 2009, GPG-HS, 2015)

2.6 Concluding Reflections

Spatial transformation is a complex term that takes on different meanings in different contexts and manifests itself in many forms on the ground. Spatial transformation can take the form of polycentric development, TOD, densification, to mention but a prominent few. Scholars focused on spatial transformation in the post-apartheid South African city context argue for a conception of the term in socio-economic and socio-spatial terms – the provision of infrastructure, services and amenities with sensitivity to the historical and political context as well as an attention to local texture. Although spatial transformation is not an entirely new concept in South Africa – it was lobbied for by researcher and social groups in the 1970s – it only to life post-1994 with, among other things, municipal restructuring, the roll-out of infrastructure and services to the previously under-served areas of the country and the provision of state-subsidised RDP housing units to previously disadvantaged populations, usually on the outskirts of cities. The impact of these initiatives on spatial transformation remains contested.

A review of the ways in which BRT contributes to spatial transformation in 'Third World cities' such as Johannesburg shows that BRT is positively perceived by its low-income users. While considered unaffordable for some low-income citizens, has indeed allowed for easier access to, and navigation of, the city. This begins to speak to the diminishing of distances covered by the urban poor, thus the notion of spatial transformation. Literature has somehow been silent on the extent to which BRT has influenced land use and densification in low-income areas of South Africa and the world.

The principles of TOD place a significant emphasis on the creation of conditions conducive for private developers to take part in the spatial transformation strategies along and around mass transit corridors and transit stations. This principles requires that a specific type of actors (with the means to raise capital) take the opportunities presented by the measures (land use relaxation) and other investments made by planning authorities to support TOD. This model is found to be problematic in a neighbourhood like Soweto.

The literature on spatial transformation in low-income neighbourhoods similar to Soweto reveals that backyarding is a driver of densification and diversification of land uses, even though it comes with its own challenges. The Spatial Practice Framework was used to guide the review of literature on backyarding in South Africa and cities of the developing world to extract criteria of analysis that

can be linked to the BRT as spatial transformation in Soweto. Factors such as the presence of infrastructure and services, the knowledge of property related rules, standards and regulations; the availability of finance and resources and land tenure were found to be important in determining the actions of private residents in those neighbourhoods.

The next chapter unpacks the reasons why this research was structured as an evaluation case study. Secondly, the process used to select the two study areas out of the ten possible options along the T1 Trunk route is explained with the aid of aerial photographs. Thirdly, the sampling process for the interviews is explained. Lastly, the other sources of information used to triangulate (cross-reference) the information obtained through the interviews are presented.

Chapter 3: Research Methods- Tracking Spatial Practice

3.1 Introduction

The focus of this chapter is to explain the research design and the methods used to answer the research question and sub-questions. The first part explains the choice of the case study type. In the following section, I will describe the process used for selecting the two Rea Vaya stations that I used as case studies for the conduction of personal interviews. The next section deals with the main sources of data used throughout the research. The records for land-use changes within the study area since the implementation of the BRT are one set of data. The GCRO spatial change aerial mapping constitutes the second set. Personal interviews with key stakeholders from the municipality and the community in Orlando East constitute the third set. The last set of data is made of the personal interviews conducted within the two selected study areas. The origins of the data sets reflect the rationale used to set out this project. There is always a contrasting of elements coming from the exploration of Spaces of Representation and Spatial Practice. The last parts of the two last sections (Sections 3.6.3 and 3.7.3) serve as reflections on the obstacles encountered during the study as well as the lesson learnt.

3.2 Research Design: Evaluation Case Study

> 'More discoveries have arisen from intense observation than from statistics applied to large groups (Kuper & Kuper, 1985 cited in Flyvbjerg, 2006:226).

I have chosen to conduct an evaluation case study as the best approach to respond to my research question and sub-questions. Evaluation studies look at the link between the implementation of a project or program and its effects in order to predict the potential outcomes, identify obstacles, diagnose the reasons for failure or identify cases of best practice (Baxter and Jack, 2008: 547; Bless and Higson-Smith, 1995; Yin, 2003).

Evaluation research differs from correlation or explanatory research because the link between public transport infrastructure and spatial transformation has been widely studied and there an extensive amount of literature dealing with it. This research just brings in a different context (low-income neighborhood). Correlation research seeks to establish the 'existence of a relationship 'between two

variants (Bless & Higson-Smith, 1995: 46-53). It is followed up by an explanatory research. In the case of this study, the positive impact of investment in public transit has been presented as one of the strategies for spatial transformation because of evidence from other countries and projects (see Chapter 2). Evaluation research is aimed at assessing the 'design, implementation and usefulness of social interventions' (Bless & Higson-Smith, 1995:47).

Qualitative case study research is criticized because of the generalization of the results to a much larger group from relatively small sample. The unreliability of the date and the high risk of the researcher tainting the results of the research by being so close to the subjects of her observations (i.e. researcher bias) are other criticisms leveled against the use of qualitative research.

However, the fact that a case studies and qualitative research in general are so contextual grounded makes them the best option for the acquisition of expert knowledge on a specific topic (Flyvbjerg, 2006).

The fact that this research is retrospective also comes with its own sets of challenges. Prospective research sets out to analyse a phenomenon from a baseline (in the present) into the future. As such, the researchers design the research questions, methodology and evaluation criteria and follow-up times in advance. While these types of studies have their own shortcomings, there are often preferred to retrospective studies that are designed to look into the past and analyse event that have already taken place. Bitektine (2007) suggests that retrospective studies are prone to many shortcomings in the design of the research methodology and data collection. The fact that the researcher has prior knowledge of the certain outcomes of his research topic before she formulates the hypothesis may lead to many flaws such as selective bias (bias that leads the researcher to consider some data more relevant than other or to overlook some information because of pre-established knowledge) or post-rationalization (Bitektine, 2007). But this bias is not absent from quantitative research because there is always a selection of some variables which are deemed more important than others.

There are methods and strategies that can be used in order to minimize the impact of the inconvenient of the case study research mentioned earlier. Triangulation of the research data or the use of multiple sources of data is important not only because it increase the credibility and the validity of the research outcome but also because it helps uncover the shortcomings of the other datasets (Baxter and Jack, 2008; Yin, 2003). Theoretical sampling is another method where the samples are chosen specifically because they represent opposing ends of a phenomenon. It ensures that different perspectives of a topic are brought to the fore (Flyvbjerg, 2006; Godehart, 2006;

Sarantakos, 2005). While the use of many sources of information bring richness and depth of analysis to a topic, Baxter and Jack (2008) warn of the dangers for the researchers to let themselves become overwhelmed with the variety and richness of the information they gather and suggest that, in analyzing data, the researcher should always keep sight of the main propositions that they are testing.

3.3 Choice of Stations to be used as Case Study Areas

The selection of Soweto as the broader area within the Johannesburg municipality that best suited for the conduction of this research report has been dealt with in the first chapter of the research report. Phase 1A of the BRT comprised the trunks routes T1 and T2. The two routes are identical between Thokoza Park in Soweto and Library Gardens in the Johannesburg CBD and split after Library Gardens. Because this research is based in Soweto, only the ten stations between Thokoza Park and Soccer City were considered as potential case studies.

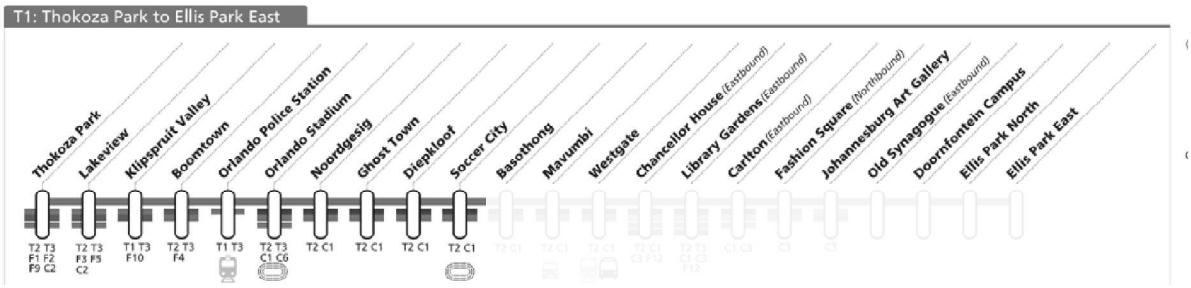


Figure 13 Rea Vaya T1 Trunk Route Bus Stations (Rea Vaya, 2016)

3.3.1 Survey of Potential Case Study Stations

Station 1. Thokoza Park Station/ Chris Hani Rd



- Reasonable density beyond Green Belt
- Tourism hub: within 400 metres of Regina Mundi and 800 metres of the historical Vilakazi Street precinct

Figure 14 Thokoza Park (Image from Google Earth, annotated by author)

Station 2. Lakeview Station/ Chris Hani Rd



- Low density beyond Green Belt
- Tourism hub : located within 400 metres of Regina Mundi and Vilakazi Street

Figure 15Figure 14 Lakeview (Image from Google Earth, annotated by author)

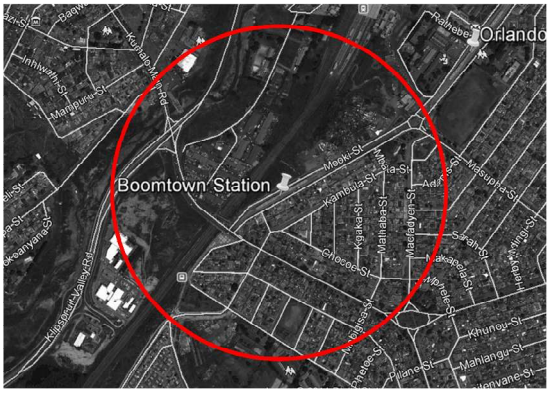
Station 3. Klipspruit Valley Station / Klipspruit Valley Rd



- Very low building density, the green belt takes up most of the space around the station.
- Located 20 minutes away from Maponya Mall

Figure 16 Klipspruit Valley (Image from Google Earth, annotated by author)

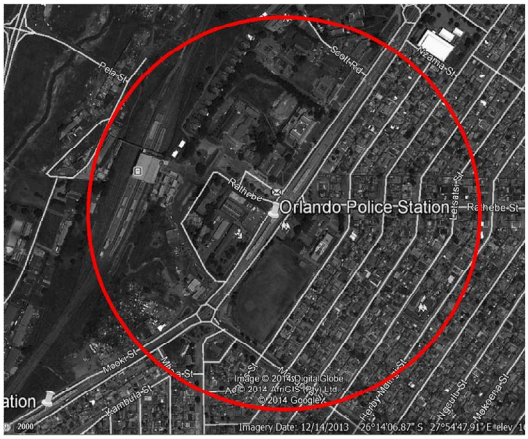
Station 4. Boomtown Station / Mooki Street



- Located within 600 metres of Orlando Railway Station
- Appropriate building density

Figure 17 Boomtown (Image from Google Earth, annotated by author)

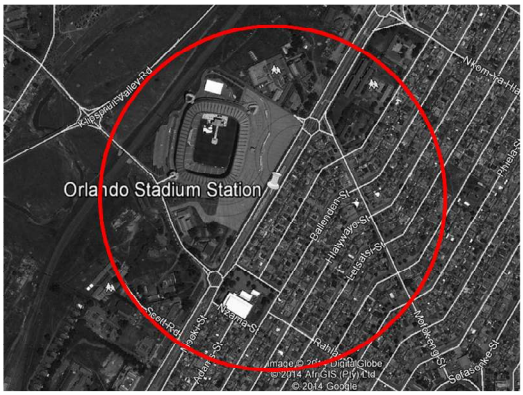
Station 5. Orlando Police Station's Station / Mooki Street



- Located within 200 metres of Mlamlankunzi Railway Station
- Appropriate building density
- Study about the impact of the BRT on poverty alleviation was conducted around this station
- Civic node of Orlando East. The police station and library fall within walking distance of the station. Region F municipal offices are located 15 minutes away from the station

Figure 18 Orlando East (Image from Google Earth, annotated by author)

Station 6. Orlando Stadium Station / Mooki Street



- Appropriate building density

Figure 19 Orlando Stadium (Image from Google Earth, annotated by author)

Station 7. Noordgesig Station / Soweto Highway



- Appropriate building density
- Good land uses mix with residential and businesses
- Located within 1000 metres of Orlando Railway Station, but appropriate building density

Figure 20 Noordgesig (Image from Google Earth, annotated by author)

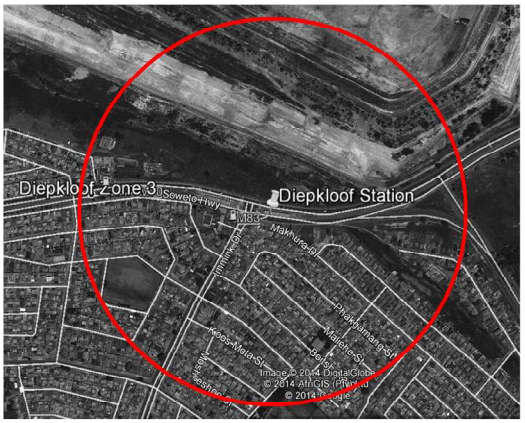
Station 8. Ghost Town Station / Soweto Highway



- Appropriate density South of Soweto Highway and lower density North of the road
- Appropriate building density.
- Good land use mix with many other activities. Appears to be a business node. Differences in building typology with more double storey buildings than other potential study areas.

Figure 21 Ghost Town Station-Diepkloof (Image from Google Earth, annotated by author)

Station 9. Diepkloof Station / Soweto Highway



- Appropriate density South of Soweto Highway but mine dump North of the road

Figure 22 Diepkloof Station-Diepkloof (Image from Google Earth, annotated by author)

Station 10. Soccer City Station / Soweto Highway



- No other activities or buildings in the immediate vicinity of the stadium except ones directly related to soccer and the Nasrec Exhibition precinct.

Figure 23 Soccer City (Image from Google Earth, annotated by author)

3.3.2 Sampling

After exploratory trips on the T1 route, analysis of aerial photos, consultation with some professionals and a desktop study of the available research, the location of the study areas was further narrowed down to Orlando East. East Vaz and Venter (2011) conducted a study on the impact of the BRT Phase 1A on poverty alleviation around Orlando East Police Station. Even though the study does not touch exactly on the same subject, the themes of land tenure, transit choices and access to finance overlap with this research. Secondly, I was introduced to a community activist member of the Orlando East Resident's Association through one of my classmates, who had worked on a project in Orlando East during her internship at Planact[10].

In order the choice of the study area was determined by 3 factors:

- Reasonable density of dwellings within a 10 minutes (800m) walking distance from the station
- Reasonable mix of land uses within 800m[11] radius of the Rea Vaya Station
- Availability of previous research and data to facilitate my understanding of the existing context.

The selection criteria for the second case study area was that it had to have a similar built-up area but have a different character to the civic node around the Police Station. The area around the Ghost Town Station in Diepkloof responds the best to these criteria.

[10] Planact is an NGO that works towards promoting and supporting integrated human settlements; strengthening community-based organisations; and contributing to the transformation of local government in South Africa (Planact, 2012)

[11] The shorter the walking distance to a transit station, the higher the likelihood of people choosing to ride public transport over other travelling modes. The spatial transformation benefits of proximity to mass-transit are the highest in within a short walking distance to the transit station (see Calthorpe, 1993; Cervero, 1993; Cervero, 2007; Daniels and Mulley, 2013). There is no consensus on the exact walking distance but between 400m to 1000m is usually considered reasonable walking distance. 800m or 10 walking distance is most used radius (See Moran, 2013).

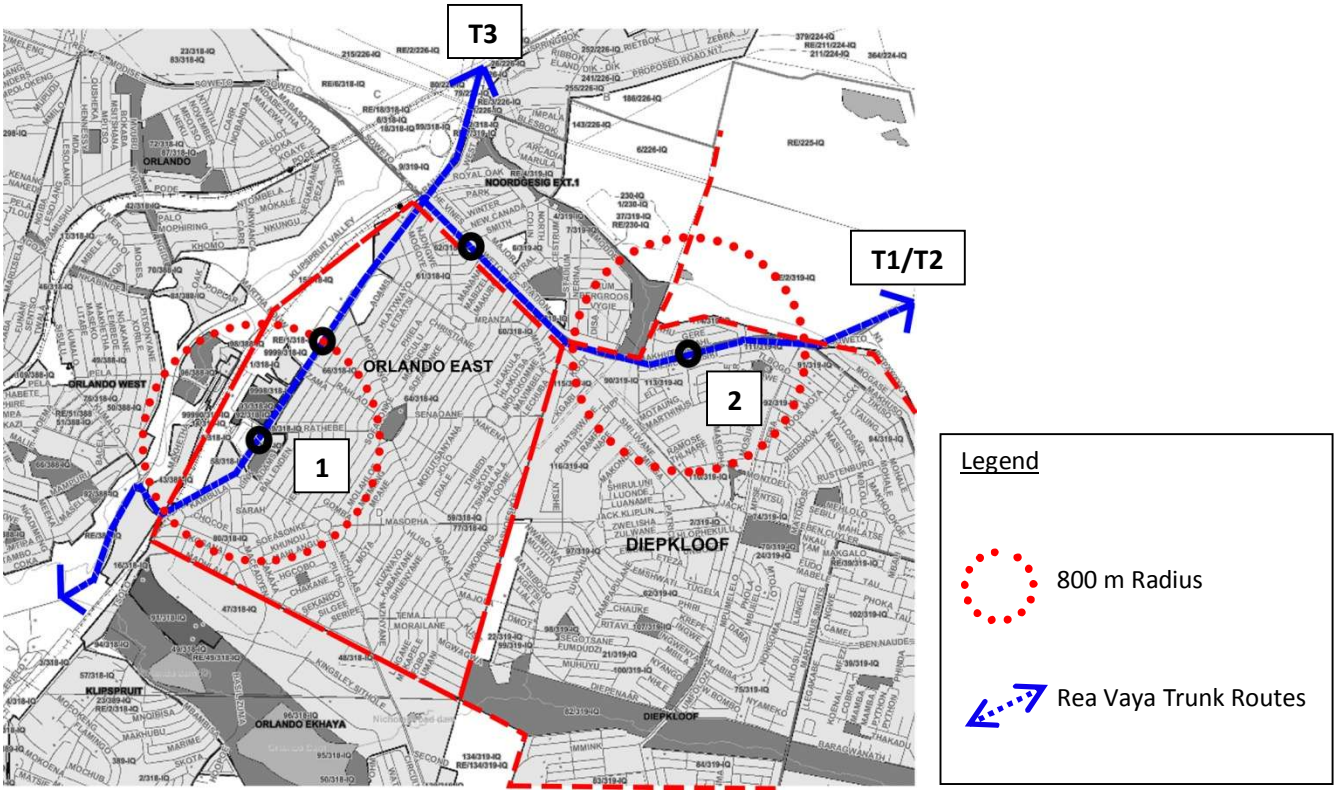


Figure 24 Location of Case Study Areas 1 and 2 (map by T. Mbuyi author)

3.4 Representation of Space data:

3.4.1 Spatial change information recording

There are quite a few initiatives aimed at recording, monitoring and modelling spatial change in South Africa, especially in the big metropolitan areas. These initiatives are led by a variety of public and private institutions in order to plan for infrastructure and housing delivery, transportation planning, spatial development and growth management. Provincial governments and municipalities (Gauteng Provincial Government, the metropolitan municipalities of Johannesburg, Tshwane, Cape Town and eThekwini), research units at universities (University of Johannesburg, University of the Witwatersrand) and research entities (GCRO, CSIR). According to a review on spatial modelling initiatives conducted by the GCRO and SARChI (the NRF Chair in Development Planning and Modelling at Wits University), the South African models are mostly static databases used to record the status quo or conduct retrospective analysis of historical growth patterns (Wray , et al., 2013).

There are two databases available online for free that give spatial transformation information for Johannesburg's administrative area. The one is hosted on the CoJ's website and the other one belongs to the GCRO. These were the first sources that I consulted when conceptualizing this study.

But each website presents the information in a format that suits the purpose for which the organization makes the information available and its operational constraints. The information provided is not actualized on a regular basis. The metadata sources vary and the available layers are not the same. Even though the type of information that they seek to convey is similar, the sources and classification of the information make it very difficult to use the two together or to compare the information.

The CoJ has also digitized the information that was previously held on maps and other documents in its archives and added those layers to its GIS platform to make it easier to access, manage and analyse. The CoJ's online GIS portal offers free information to the public. In terms of growth, it is possible to visualize the growth of Houses, Townhouses and Informal Settlements (www.joburg.org.za) . This information is not updated in real-time but some of the layers contain information that is two, three, five or more years old depending on the time when the data is collected, processed and uploaded on their systems. Any data that is not formally recorded (unregistered informal settlements and backyard structures) can only be gathered through the study of recent aerial photographs.

The GCRO data comes from the analysis of land cover changes. This was done through the comparison of satellite imagery generated between 1991 and 2009.

3.4.2 City of Johannesburg Town Planning and Building Control Applications Management Systems

City officials advised me to look for information on the CoJ's Town Planning and Building Control Application systems in order to obtain recent information that has not yet been captured on the GIS systems. The City of Johannesburg's Building Application System (BAS) and Township Application System (TAS) are two databases that the municipality uses to record and manage applications related to spatial change. The BAS records building plans approval and the TAS, Town Planning related queries. They do not record the same type of information either. So the data on densification and land-use changes cannot readily be analysed together. One has to collect both data sets and match the stand numbers in order to look at the trends in conjunction.

The BAS, managed by the Building Control Department, is used to manage the applications of people who either don't need Town Planning approval because what they what to build falls within the primary rights attached to their property or the applications that have already received approval

from Development Planning. The system records the details of the applicant and the property. It also records how many square metres the applicant intends to build in order to calculate how much she will be charged for processing the application (information gathered from Personal Interview with CO, 2015). The purpose for the new construction is not recorded. The plans are not uploaded to the system, they remain in a file. These plans can only be accessed on presentation of a proof of ownership unless they have been moved to the Building Control's archives.

The TAS, managed by the Development Planning, is available for public scrutiny at the Metro Centre in Braamfontein. The portal records the details of the applicants, the details of the properties, the type of application, the name of the planning officer in charge, the date when the file was opened, the comments made by every department that the application was circulated to and the outcome of the application. All applications made since the creation of the unified Metropolitan Municipality of Johannesburg in 2002 have been uploaded to the system.

Given the time and capacity constraints I encountered for this project, I had to decide which data set would be of more benefit to the quality of information used in this research. The BAS data, which is essentially about spatial growth and densification trends, was available in a graphic form through the GCRO and the COJ's website. So I focused on the information from the TAS which is not available in any other format. The data collection and processing happened in four steps.

Step 1 I retrieved all the stand numbers that fell with my two study Sub-areas and recorded them in two Excel spreadsheets.

Step 2 Between September 2014 and December 2014 I went to the City Council on Fridays at lunch time to search the TAS database for all applications made in Orlando East (Sub-area 1), Noordgesig ext. 1 and Diepkloof (Sub-area 2).

Step 3 I captured all the applications into two Excel spreadsheets (one for each Sub-area)

Step 4 I matched the applications spreadsheet stand numbers and the Sub-areas spreadsheet stand numbers to obtain the ones that appeared on both.

The type of applications recorded relate to:

- Consent : Relaxation of Building Line, Consent-Normal, Consent- Other, Consent – Land Use, Consent – Coverage and Consent - Site Development Plan (SDP), Consent- Place of Instruction, Consent - Tavern
- Removal of Restrictions
- Rezoning

- Subdivision of property
- Consolidation of property

This was a lengthy and painful process that could have been drastically shortened if I had had access to the database administrators and obtained a file with all these applications from them. But the department was not keen on giving me that access.

3.5 Personal Interviews

3.5.1 Sampling

In keeping with the idea of contrasting Representations of Space and Spatial Practice as presented in the Conceptual Framework of this study, the personal interviews were selected in order to obtain contrasting perspective on the research questions. This method is described as theoretical sampling where the researcher tries and achieve maximum contrast between the samples of respondents selected (Godehart, 2006; Sarantakos, 2005). The three interviewees are a politician, a professional planner from the Development Planning Department and a community activist from the Orlando East Residents Association. All three either played a key role during the implementation of Rea Vaya's Phase 1A or continue to play a key role in the domain of spatial transformation in Soweto. These people had a specific or expert knowledge of certain aspects of the Rea Vaya implementation and its impact on the communities living around the stations. The other interviewee was selected because of their active role within the community living around some of the BRT stations selected for this study. The interviewees were very cooperative and willing to share their knowledge and experiences of the topic.

3.5.2 Content

The interviews took the form of semi-structured engagements. I prepared a mix of close-ended and open-ended broad questions on the topic and allowed the respondent to develop and bring in elements that they felt were necessary to understand their vantage point on the implementation of Rea Vaya Phase 1A and the way the communities living around the stations use the opportunities created by the mass transit system and the changes it brought to their neighborhoods. The interviews lasted an average of one hour and a half with the longest one going over two hours.

3.5.3 Concluding Reflections

The most salient point of my interviews is the fact that I became aware of the impact my own frame of reference as a Development Planning student had on the type of assumptions and expectations I had developed while preparing for the personal interviews. My understanding of the meaning and role of a 'residents' association' and the kind of issues that its members concern themselves was really challenged when I interviewed the activist from the Orlando East Residents Association. I realized that my knowledge was based on my previous research on the BRT implementation in the Northern Suburbs of Johannesburg, my experience as a resident living in one of Johannesburg's older, established suburbs. I assumed that I would be discussing matters related to property value, densification, the content of the Orlando East UDF, densification trends, Town Planning rights and similar matters that are often the concern of property owners in the suburbs. However, at the onset of the interview, I quickly discovered that the main concerns of the Resident's Association were about the high levels of unemployment in Orlando East and Soweto in general, high levels of crimes, constant interruptions in electricity supply and other failures of service delivery. This kind on misunderstanding never happened during my engagement with the two other respondents. In qualitative research, the researcher needs to be aware of her own frame of reference in order to convey an accurate interpretation of the respondent's opinion (Bulmer, 1983; Pole and Lampard, 2001).

3.6 Spatial Practice Data - The survey

3.6.1 Sampling

The questionnaire was administered in the Orlando East and Diepkloof during the months of June and July 2015. Some interviews took place during on weekends and others on weekdays. This was to ensure that the sample of respondents also captured employed people who are typically absent from their homes during the week. Sub-area 1 (around the Orlando Police Station's Station) counts 10 parallel streets. Two interviews were conducted on each street, one on each side of the main road. The interviewers went up the main road turned into one street, walked for a few minutes and randomly went into the properties that looked inhabited to ask to interview people. They first asked if the potential respondents if they were residents (owners or tenants) on the property. The same process was used in sub-area 2.

3.6.2. Content

The complexity of this research topic is reflected in the wide range of aspects that had to be brought together in the questionnaire. There have been articles and research projects around the introduction of the BRT system in South Africa, there haven't been many surveys conducted on the ground about the BRT and spatial transformation specifically. I drew questions from a few survey questionnaires and on issues that arose in personal interviews in order to cover all the aspects of my research that I wanted the participants to respond to. These aspects stem from, and are organized based on the Spatial Practice Framework presented at the end of the literature review. The questionnaires I used, which had the advantage to have already been piloted and revised, were based on the work of Karam and Rubin (2014), FinMark Trust (2014) and Vaz and Venter (2012). They will be briefly discussed in the following paragraphs.

The general layout of the questionnaires is based on an evaluation case study that was conducted by Karam and Rubin (2014) on the impact of the World Cup on the area around Ellis Park, one of the two stadia that hosted the World Cup games in the city of Johannesburg. Ellis Park, similarly to our study area, received quite a substantial amount of public investment through infrastructure upgrade. More significantly, it shares an important similarity with our study area; it is seated at the end of the BRT Rea Vaya Phase 1A trunk route.

The part of the questionnaire that deals with people's competence and ability to perform (Chomsky, 1965; Lefebvre, 1991) seeks information about the participant's knowledge vis-à-vis legal and statutory planning requirements, their aspirations with regards to their living environment and their ability to access finance in order to realise these aspirations. The questions related to Title Deed ownership and the awareness of the statutory requirements around land-use emerged from the personal interviews that I conducted. I could not find a survey that spoke directly to the correlation between these two issues. I had to study the available literature on these topics, devise and test the questions before adding them to the questionnaire. The questions around title deeds and land ownership proved to be quite contentious as I will discuss later in this chapter. The questions regarding access to finance were based on a FinMark Trust questionnaire for a survey on people 'formal and informal levels of access to financial products and services' (FinMark Trust, 2014) in Swaziland. Even though the scope of the research was different to this report, FinMark Trust objectives included the identification of drivers and barriers to financial inclusion. The questions directly related formal and informal access to finance intersected with questions that arose in the literature review.

Another project that provided me with inspiration for this questionnaire is the research conducted by Vaz and Venter (2012) on the Effectiveness of the Johannesburg BRT as part of a poverty reduction strategy. The researchers conducted a survey of 150 households in the Orlando area in the very early days of Phase 1A (between December 2010 and April 2011). The extremely detailed and extensive questionnaire (thirty pages long) covered aspects such as household composition, income, migration, transport and education needs, food security, security of tenure, service delivery and social capital of the respondents and the other members of their household. The questionnaire had a section focused on people's perceptions of the Rea Vaya BRT specifically but the questions focused on the BRT as a system and what direct benefit it brought to them as commuters and did not quite capture the aspects related to property ownership , land use and densification that are the focus of this study. The questions relating to economic activity (rather than employment or occupation) give more detailed choices and even though they did not correspond to the typical census categories, they reflect the reality of South African's livelihoods more accurately. The same observation applies to the question about the participant's main sources of income.

3.6.3 Concluding Reflections

Using a unique questionnaire to survey randomly selected people will raise various issues. Even though the survey was conducted within a very small geographical area, it quickly became evident to the interviewers that the sample of interviewees was not homogenous at all. The first issue encountered was the language barrier. As I do not speak any South African official language other than English, I could not go to the field on my own. I had to make sure that I was accompanied by someone who had a decent commend of at least two other South African languages but also the lingo specific to Soweto. The person also needed to have an understanding of the purpose of this research and the concepts related to transport planning, spatial planning and transformation. The first round of interviews was conducted with a student in Architecture and the second round with BCom law students. It would have been ideal to be accompanied by Development Planning students or graduates but the students who made themselves available also had knowledge of spatial transformation issues in the South African context as well as legal issues related to property development. I had to trust the ability of my translators to ensure conceptual equivalence when administering the questionnaire in languages other than English. While it would have been ideal to translate the questionnaire beforehand and test the accuracy of the translation, the limited time and resources I had to complete did not allow me to do so (Bulmer and Warwick, 1983). I took the time to explain the concepts and intent behind every single question to the other interviewers in order to make sure that they understood their meaning and could convey it in a different language. The critical importance of the language barrier on the ability to collect valid and reliable data in a survey

was confirmed when one of our prospective participants specifically asked not to be interviewed in English. Even though we started the conversation in English, she jokingly mentioned that if she were to be interviewed in English, she would answer 'yes' to every single question.

The issue of 'equivalence in measurement' (Bulmer and Warwick, 1983) occurred in relation to the question about the value of the rent that people paid for their accommodation. The interviewee is not asked to divulge the exact amount that she pays for rent but has to choose between different cost brackets.

18. If you own or rent your place, how much do you spend on?

i. Rental_____
   a. R0 – R1500 ____
   b. R1501-R3000 ____
   c. R3001-R4500 ____
   d. R4501-R6000 ____
   e. R6001 and above _____

In the research about the impact of the Soccer World Cup in the area around Ellis Park Stadium in Central Johannesburg, the answers to this question spread across a few of alternatives proposed to the interviewees. The exact same question did not yield quite the same variety of results in Soweto. Because firstly the cost of rent is generally cheaper in Soweto, and secondly the most common rental unit is a single backyard room or shack. The purpose of this question was to try and establish a correlation between the cost of rent and the type of unit rented (i.e. is there a difference between the cost of rooms made of bricks and the ones made of metallic sheeting). The assumption that the cost brackets would be similar in both areas rendered the question obsolete because all the rentals came below R1500. Had I realized that earlier, I would have modified the question to use much smaller increments for the rental brackets i.e. R300 increments instead of R1500.

The questions around property ownership and the status of the property title deeds revealed interesting social dynamics in the study areas. Many participants categorically refused to answer these questions despite the guarantee of anonymity and the fact that there were no witnesses to the interview. People indicated that they did not want to involve themselves with these issues. While I was hoping for obtain clear answers to these questions, people's reluctance to answer and even to explain why they didn't wish to answer revealed the contestation and complexities around property ownership in the study area. Beyond the hurdles that people experience to access legal resources, there are also deep issues around family ties and social relations that create barriers to the regularisation of ownership.

19. If you own the property, please provide details on type of ownership

a. individual ownership
b. Shared ownership (Spouse)
c. Shared ownership (relatives)
d. Still disputed
e. Other.....

20. Does the title deed reflect the current ownership of the property?

a. Yes
b. No

If not, why?.....

Confidentiality

> 'Confidentiality involves questions of maintaining the anonymity of the of research sources, questions of revealing or not revealing the content of research findings and observations, and questions of restrictions on the purposes for which particular research information may be used' (Carroll; 1973: 277)

I asked the interviewers to record any information they deemed important to the research on the back of the questionnaire. Some of the information volunteered by a particular respondent raised issues of confidentiality. The inclusion of that piece of information would prejudice not only the respondent whom revealed it but also the other residents of the Sub-area, exposing them to negative public sentiment and the possibility of adverse action. Even though everything was done for the respondents to remain anonymous (as explained on the Ethics Clearance Application form for this report), I felt that the particular piece of information should not be included in this report in any form as it would be easy to recoup the information to a specific location in the study area.

The following chapter (Chapter 4) unpacks all the information obtained from the various datasets (Personal Interviews, Survey Questionnaire, TAS and GIS data). The first section paints a better picture of the sub-areas Orlando East and Diepkloof in terms of their demographics, and Town Planning and Spatial policies. The following section presents a spatial analysis of growth in both sub-areas. The second last section deals with the information obtained from the TAS data. The last section introduces the personal interviews and survey data (the bulk of this information is contained in Annexure M).

Chapter 4 Presentation of Results

4.1 Introduction

This chapter presents the findings of all the different datasets that were gathered through this research. The first section of this chapter looks specifically at the two Sub-Areas selected as case studies in the previous chapter (Section 3). This contextualisation is followed by the presentation of the GIS data, the information from the CoJ's TAS, the personal interviews and the survey. These different sets of data will later be analysed per theme in Chapter 5.

4.2 Orlando East and Diepkloof Context Presentation

This section serves to profile the population and the built form of the two sub-areas. It also presents an overview of the regulations, plans and policies that influence Spatial Practice in Diepkloof and Orlando East.

4.2.1 Population Profile and Existing Built Form

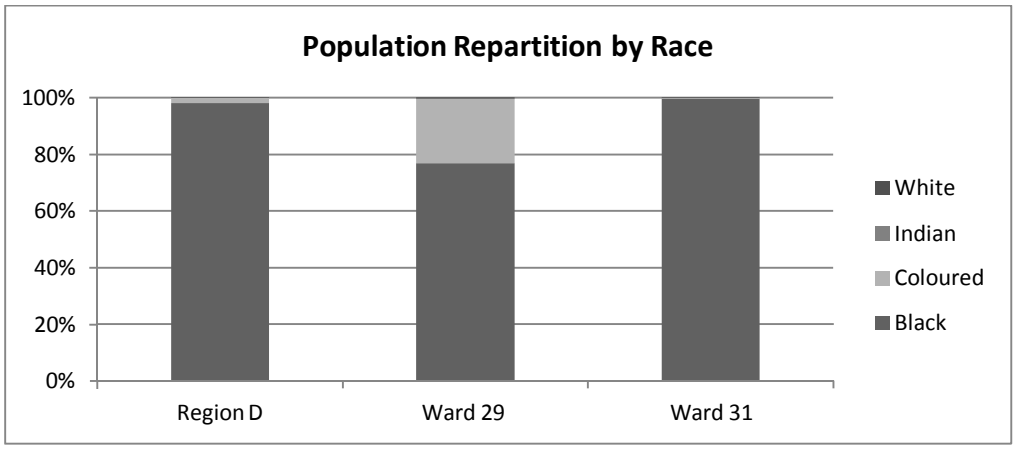
Orlando East is situated in Ward 31 and Diepkloof in Ward 29 in Region D of Johannesburg. Although there are a number of institutional buildings such as schools, libraries and municipal buildings, the urban fabric is mostly made of residential plots. Very few properties have retained the 'matchbox' typology of the houses that were built by the Apartheid government. Well-off residents have made improvements to their original dwellings and people are operating income generating activities from their dwellings as well. As mentioned in Chapter 1, the income picture is chequered with a mix of affluent and impoverished residents. This mix is reflected in the variety of sizes and types of properties in Diepkloof and Orlando East. The most important change in the built form is the proliferation of backyard dwellings (Crankshaw et al., 2000; Lemanski, 2009; Rubin and Gardner, 2013). Given the socio-economic profile of the population of Noordgesig and Orlando East, the people driving spatial transformation mostly fall in the category of small-scale landlords[12].

[12] See Annexure E1 and E2 for Images of Orlando East and Diepkloof Public Environments and Building Typologies

The following charts are based on Census 2011 data for Region D, Ward 29 and Ward 31 collected from the CoJ's GIS website (www.joburg.org.za) (See Annexure F for the breakdown of the data)

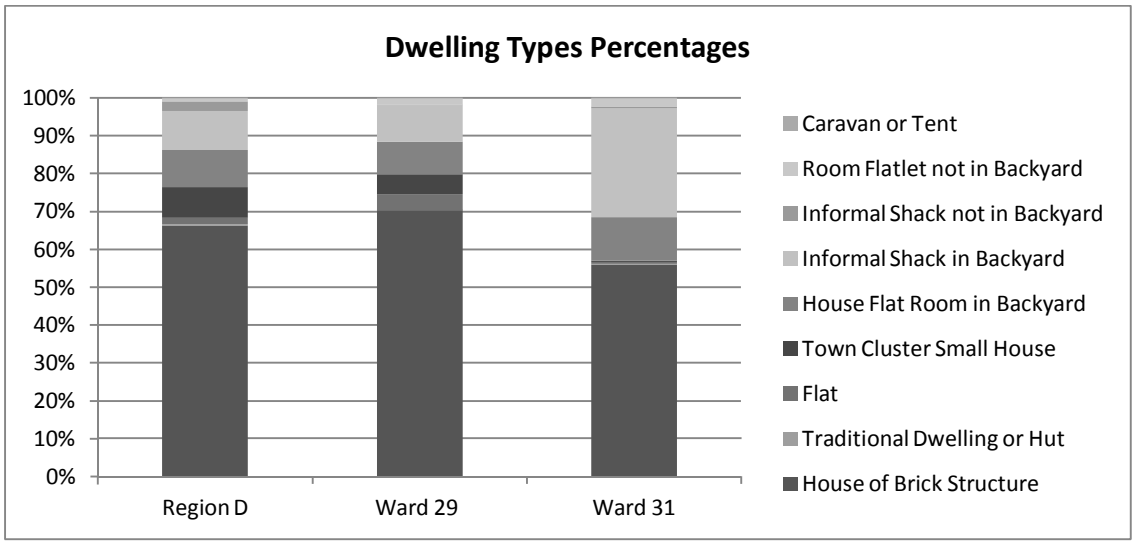
Population

Black people constitute the vast majority of the wards' population. This still reflects the Apartheid pattern of racial spatial segregation. However, there are a few Coloured people inhabiting Ward 29. They mostly reside in Pennyville and Noordgesig, North of the Soweto Highway. The Pennyville mixed housing development built by the CoJ in line with the BNG policy provided housing for beneficiaries from Riverlea and Westbury (previously classified as Coloured areas) (CoJ, n.d.).



Graph 1 Population Repartition by Race for Region D, Ward 29 and Ward 31 (Data based on Census 2011)

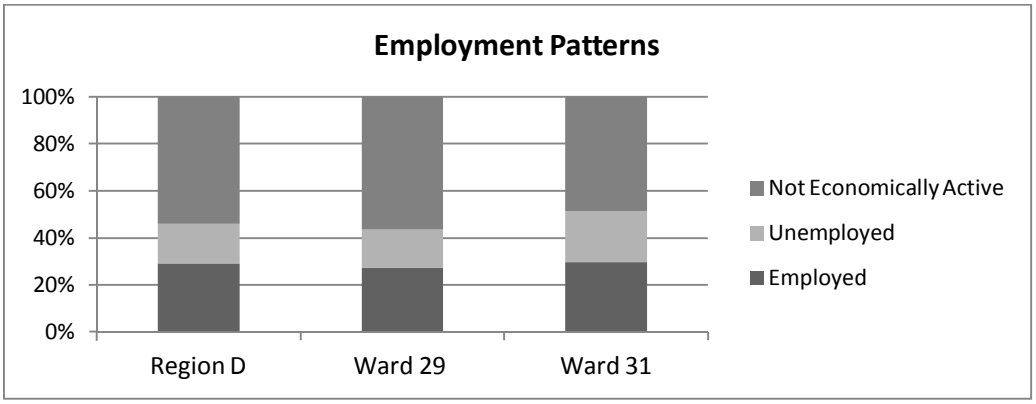
Dwelling types



Graph 2 Dwelling Types Comparison for Region D, Ward 29 and Ward 31 (Data based on Census 2011)

More than 50 percent of dwellings are houses of brick structure in Region D and in the two wards. The second most common type of dwelling is informal shacks in backyard followed by flat rooms in backyards. Informal settlements (informal shacks not in backyards) are not a common feature in the two wards.

Employment Patterns



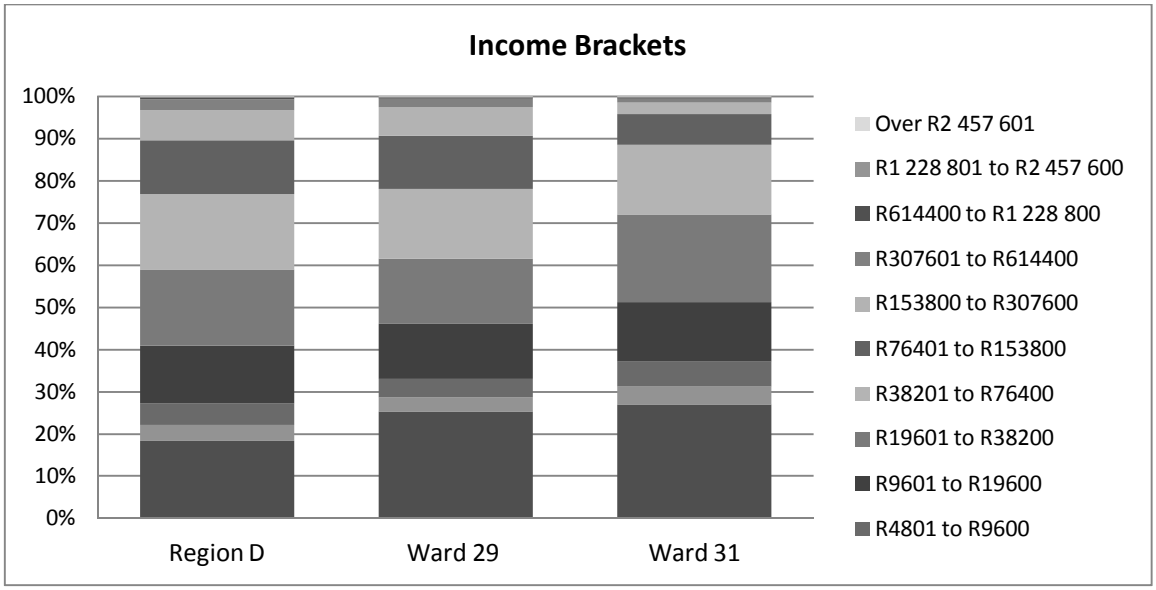
Graph 3Employment Patterns for Region D, Ward 29 and Ward 31 (Data based on Census 2011)

The levels of employment are alarmingly low and confirm the status of the area as a low-income area. Less than 30 percent of the residents are employed in both Wards. Around 50 percent of people are considered Not Economically Active[13]. These people are adults who, for one reason of another, do not earn an income and do not seek to earn an income (e.g. university students and stay-at-home parents).

Income

The very dire economic status of the Wards is further exposed when looking at the Income brackets of the population. In Ward 31, almost 30 percent of the inhabitants do not have any kind of income. That is almost one in three adults. The difference between the two wards is negligible.

[13] Stats SA considers someone 'not economically active' if 'they are able and available to work in the week prior to the survey but did not work, did not look for work, and did not try to start their own business' (university students and adults caring for children are included) (Africa Check, 2014).
An unemployed person is someone 'capable of work or starting a business but has not done so. They need to have actively looked for work or tried to start a business at some point in the four weeks preceding the survey (Africa Check, 2014).



Graph 4 Income Levels Repartition for Region D, Ward 29 and Ward 31 (Data based on Census 2011)

4.2.2 Town Planning Legislation and Zoning Rights

The Town Planning legislation currently used to manage all property and Town Planning related matters on the residential sites visited for the survey is the Black Communities Development Act (BCDA) of 1984 and its Annexure F[14].

The BCDA of 1984 was last amended in 1994 to remove all provisions related to 'racially based land measures' in line with the Abolition of Racially Based Land Measures Act 108 of 1993 (RSA, 1994). The amendments targeted the racially based restrictions on land tenure by Black people and other unconstitutional measures (e.g. the impossibility for Black people to obtain freehold tenure of land).

Annexure F is the Town Planning Scheme that applies to all areas designated as Black areas outside of the Homelands i.e. in urban South Africa in terms of the BCDA (RSA, 1994).

The properties that formed part of this survey fall under the Residential 1 zoning. In terms of Annexure F, the following uses are permitted as Primary Uses[15] for Residential 1:

- Residential Units : free-standing unit of accommodation

[14] The Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA) was promulgated in May 2015 (PMG, 2015). It brings together all The Johannesburg Consolidated Town Planning Scheme is meant to consolidate all the different Town Planning Schemes and Ordinances has not come into effect yet so Annexure F still applies (CO, 2015).

[15] Primary Use is a 'land use that is permitted....without consent other than building plan approval' (RSA, 1984:3)

- Town Houses: 'unit of accommodation that is part of a row or group of linked or attached units of accommodation'. The self contained unit spreads over the two storeys (RSA, 1984:6-10).

The Consent Uses[16] are as follows:

- General Residential Buildings (block of flats, hostel, compound, boarding house or other primarily residential units with at least one accommodation unit above ground floor)
- Hotels
- Places of Instruction
- Places of Worship
- Community Facilities (place of assembly, crèche, clinic, hospital, social or welfare institution)
- Shebeens
- Shelters (unit of accommodation which does not comply with the standards of durability required by the Building Regulations) (RSA, 1984:6-10).

The scheme also provides additional rights for residential sites as follow:

- 'Any occupier of any unit of accommodation may utilise such unit for any social, religious, occupational or business purpose'. These uses are allowed as long as the main purpose of the property remains residential, the uses should not disturb the neighbours and the neighbourhood must remain amenable (RSA, 1984: 37).
- 'Land zoned for street purposes may be utilised for business purposes'. The use must not impede on the movements of pedestrians and vehicles and the neighbourhood must remain amenable (RSA, 1984:37).

The scheme prescribes Building Lines, Height, Parking, Coverage and Floor Area restrictions linked to the different types of land uses. The standard residential unit has a permissible Height of two storeys, Coverage of 80 percent and restrictions of Floor area (RSA, 1984: 18).

This Town Planning scheme is quite lenient in terms of the land uses allowed as Primary and Consent Uses. However, the size of the plots is quite limiting, especially for medium to high-density residential projects (see Annexure G for simulations of the requirements for different types of land uses). The policy position of the Planning Department is also an important consideration that affects the type of developments that will happen on a site. The SDF details what types of

[16] Consent Use is defined as 'land use that may be permitted with the consent of the council' (RSA, 1984: xii)

developments are supported in principle and that the CoJ is willing to grant consent for. For instance, the Department of Development Planning decided to no longer issue Consent for Shebeens (taverns) even though they are listed as consent use in Residential areas (CO, 2015). Detailed Precinct Plans or UDFs are prepared for specific nodes that the CoJ considers of importance.

4.2.3 Spatial Plans and Policies Affecting the Sub-Areas

The Corridors of Freedom, the Orlando East Noordgesig Precinct Plan and the Gauteng Backyard Rental Housing Policy are the main spatial policies and plans affecting the two Sub-Areas.

The Corridors of Freedom policy applies to both sub-areas. In short, the Corridors of Freedom policy aims to facilitate the development of high density mixed-use developments within 500m of Rea Vaya Trunk Routes and aims to attain densities of 25dewlling units/ha (CoJ, 2013). This policy was adopted in 2013 but the city had already adopted strategic densification along the SPTN as a policy in 2008 (see Chapter 2).

The CoJ commissioned a precinct plan for Orlando East and Noordgesig (see Annexure H). This plan guides the municipality's investment and interventions in the precinct. It also provides guidance on the types of developments that are supported within the precinct. The plan supports densification along the BRT trunk routes (Mooki Street and the Soweto Highway) and mixed-use commercial along the main movement axes within the precinct (e.g. Sofasonke and Rathebe Streets). The plan also proposes the development of new mixed-use commercial nodes at the intersections of the main roads and a gateway node at the intersection of Mooki Street and the Soweto Highway. The JDA has already spent R14million in public infrastructure upgrade within the precinct as an extension of the Rea Vaya investment. The investment consisted in improving paving, walkways, installing street furniture and public seating areas and resurfacing existing roads (Rubin and Gardner, 2013). The capacity of storm water, drainage, water and electricity reticulations was also upgraded in order to support higher densities of population at the same time as the BRT trunk routes were being built (Moosajee, 2015). There is no specific Precinct Plan for Diepkloof. It is important to note the existence of a neighbourhood shopping centre in Diepkloof, even though it sits outside of our study area.

The Gauteng Province chose Orlando East to pilot the Gauteng Backyard Rental Housing Policy (Rubin and Gardner, 2013; GPG-HS, 2015).The policy came into effect in 2015. It recognises the importance of backyard housing as a means to provide affordable rental accommodation and its contribution to spatial transformation through densification of existing human settlements. In terms

of the policy, the Gauteng Provincial Government must work together with all municipalities in order to plan and 'promote the development and sustainability of backyard rental accommodation' (GPG-HS, 2015).

4.3 Mapping and GIS Data

The GIS data available from the CoJ and the GCRO websites are not presented in the same format. They both present the changes in urban form at ten years intervals. The layers available on the CoJ's GIS website reflect spatial change for 2001 and 2009. The baseline year is 1991. One is able to see the change by switching the different layers on and off, depending on the type of information required. Separate layers record spatial change in for Housing, Informal Settlements, Townhouses and Small Holdings. The type of land use changes is also recorded (see legends on maps).

4.3.1 CoJ GIS Mapping

Diepkloof Urban Growth (see Fig 25 and 26)

A comparison between the maps for 2001 and 2009 doesn't show significant changes within Sub-Area 2. The only noticeable change between 1991 and 2011 is the apparition of an Informal Settlement to the South of Sub-Area 2.

Orlando East Urban Growth (see Fig 27 and 28)

A comparison between the 2001 and 2009 maps shows that there hasn't been much change in Sub-Area 1. An Informal Settlement appeared on the empty land tracks next to the railway line between 1991 and 2001.

4.3.2 GCRO GIS Mapping

A significant difference between the layers of information available on the CoJ's website and the GCRo's website in terms of spatial change, is that the GCRO has a separate layers dedicated to Backyard Structures. Given the context of our study area, there is no land available for entirely new construction.

Diepkloof Spatial Change (see Fig. 29)

The map below shows that most of the change has happened on the periphery, along the edges of the mining dumps and the Green Belts to the North of the study area. Within Sub-Area 2, the most changes happened between 1991 and 2001 (shown in green). Between 2001 and 2009, two housing projects happened, one to the North West (in Noordgesig) and the other to the East of the study area. As opposed to the CoJ's map, the map below does not record the position of the informal settlement to the South of Sub-Area 2.

Orlando East Spatial Change (see Fig. 30)

As for Sub-Area 2, the most growth around the Orlando Police Station BRT stop happened between 1991 and 2001. Very little growth occurred between 2001 and 2009.

The analysis of the GIS data available from the CoJ and the GCRO show that very little has happened in terms of spatial change in Sub-Area 1 and 2. Growth seemed to have occurred on the edges of the green belts, mine dumps and open field along the railway tracks.

It was evident that these maps did not capture the real picture of densification in Diepkloof and Orlando East.

4.3.3 Analysis of Aerial Photographs

In order to ascertain the real picture of spatial change in the study areas, I undertook to do my own analysis of the aerial maps of a sample portion of each study areas. With aerial photographs from 2003, 2009 and 2015 obtained from the CoJ as basis, I used 2003 as a baseline to map the footprint of residential buildings on every stand and layered it over 2009 and 2015 maps to track densification on each stand.

Both Orlando East and Diepkloof maps show that residents of most property owners have been adding more rooms/ buildings/ shacks on their stands. A very small percentage of properties have remained unchanged since 2003 despite the dearth of space available for new construction (see Fig. 31 for Orlando East and Fig. 32 for Diepkloof).



Figure 25 Diepkloof 2001 (Image from www.joburg.org.za)



Figure 26 Diepkloof 2011 (Image from www.joburg.org.za)

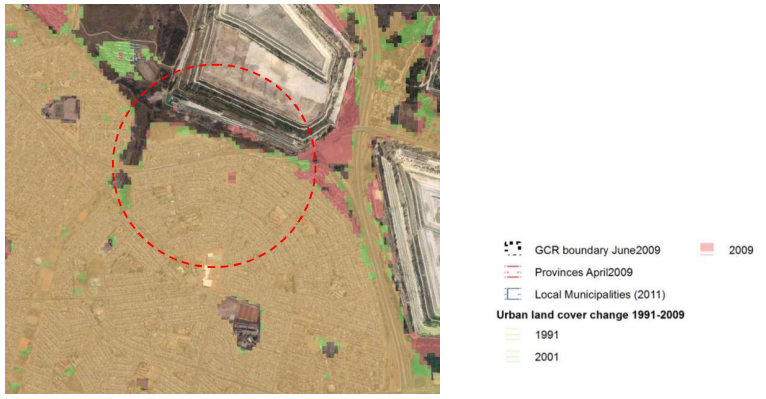


Figure 27 Diepkloof Spatial Change 2001-2011 (Image from www.gcro.co.za)

Figure 28 Orlando East 2001 (Image from www.joburg.org.za)

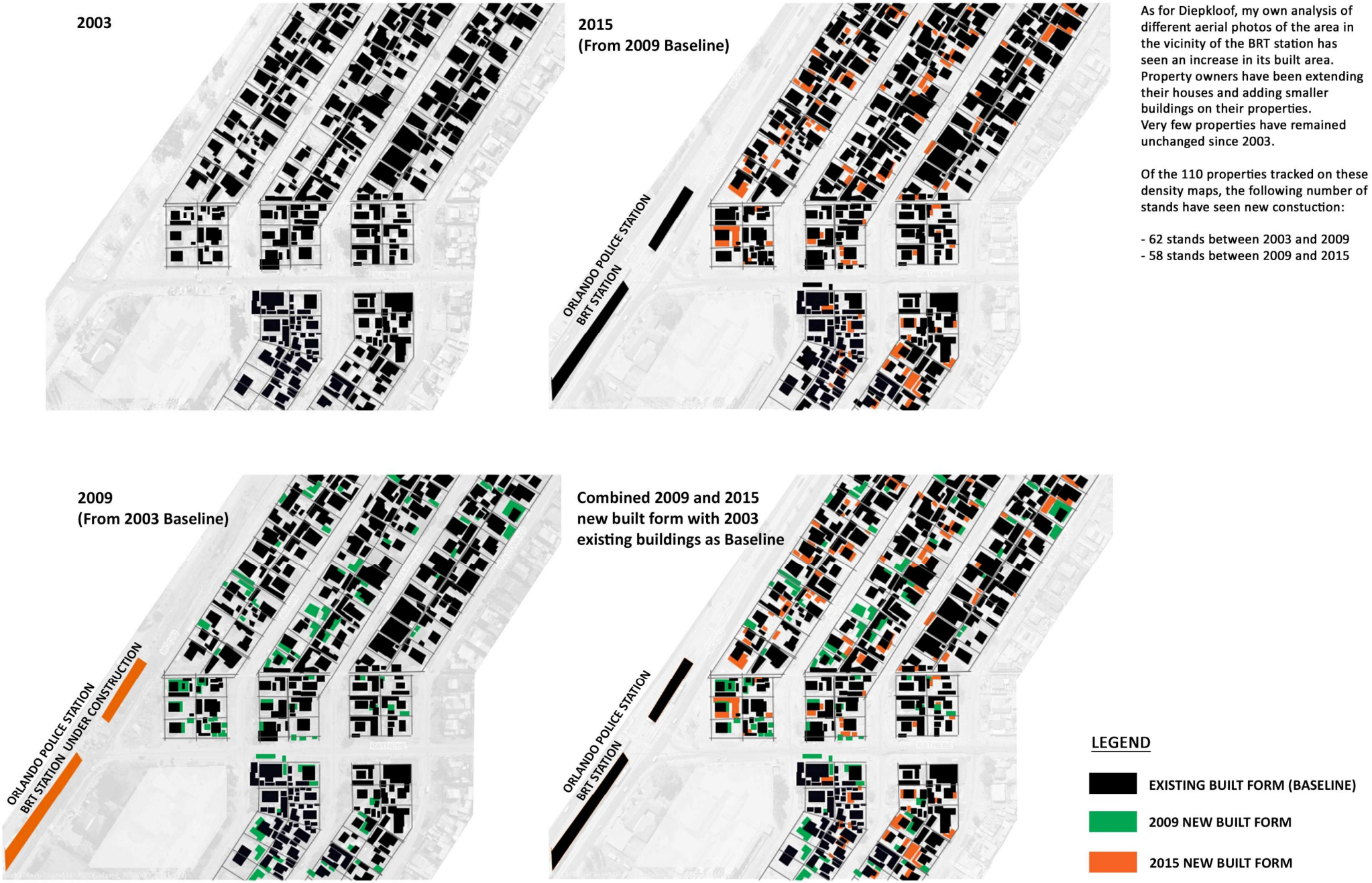
Figure 29 Orlando East 2011 (Image from www.joburg.org.za)

Figure 30 Orlando East Spatial Change 2001-2011 (Image from www.grco.co.za)









As for Diepkloof, my own analysis of different aerial photos of the area in the vicinity of the BRT station has seen an increase in its built area. Property owners have been extending their houses and adding smaller buildings on their properties.
Very few properties have remained unchanged since 2003.

Of the 110 properties tracked on these density maps, the following number of stands have seen new constuction:

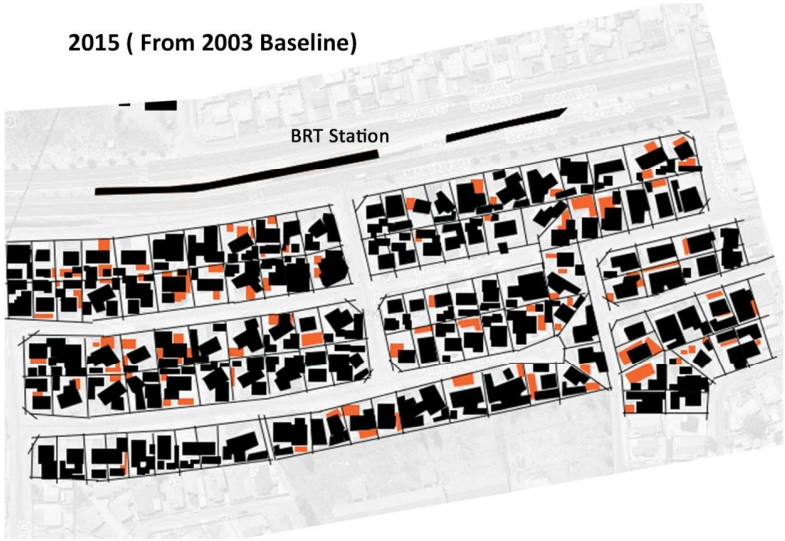
- 62 stands between 2003 and 2009
- 58 stands between 2009 and 2015

Figure 31 Orlando East Densification Maps. By T. Mbuyi

2003



2015 (From 2003 Baseline)



The GIS spatial change maps from both the CoJ and the GCRO do not show any kind of densification for the area since 2001. (see Fig. 27, 28 and 29). A detailed analysis different density maps shows that regardless of the small size of the original plots, the property owners have been adding new buidlings to the existing ones.

Of the 119 stands tarcked on these density maps, the number of stands that seen their building areas being increased:

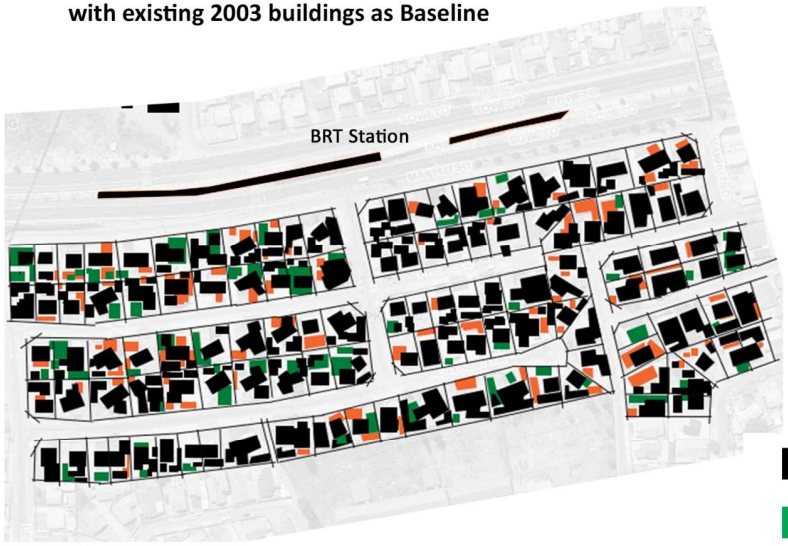
52 stands between 2003 and 2009

65 stands between 2009 and 2015

2009 (From 2003 Baseline)



Combined 2009 and 2015 new built form with existing 2003 buildings as Baseline



LEGEND

EXISTING BUILT FORM (BASELINE)

2009 NEW BUILT FORM

2015 NEW BUILT FORM

Figure 32 Diepkloof Densification Maps

4.4 TAS Data

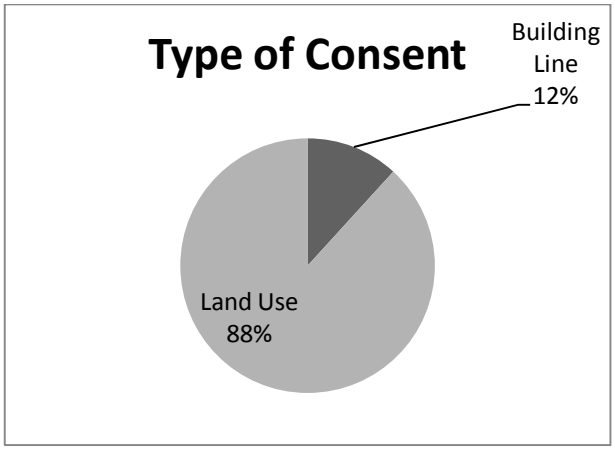
The following data detail applications that are available on the TAS portal. They represent applications that were submitted since the creation of the City of Johannesburg Metropolitan Municipality after the Local Government Elections of 2001. While most of the application had all the required entries completed, some had missing information regarding submission or decision dates and decision records amongst other things. A full breakdown of the Townships concerned by this research (Diepkloof, Noordgesig , Orlando East, Orlando Ext), the stand numbers, type and detail of applications, application and decision dates, empowering legislation for the application (Town Planning Scheme) and the type of applicants can be found at the end of this research report (see Annexures I, J and K).

4.4.1 Sub- area 1 Orlando East

The table below summarizes all the applications recorded on the TAS for the township of Orlando East in total and the application which fall within Sub-Area 1. In Sub-Area 1 the totality of applications submitted were related to consent. Only two applicants wanted the existing Building Lines to be relaxed, the rest wanted to be granted consent to depart from the primary land use allowed in the Town Planning scheme. Very few applications were rejected.

Table 1 Orlando East Town Planning Applications

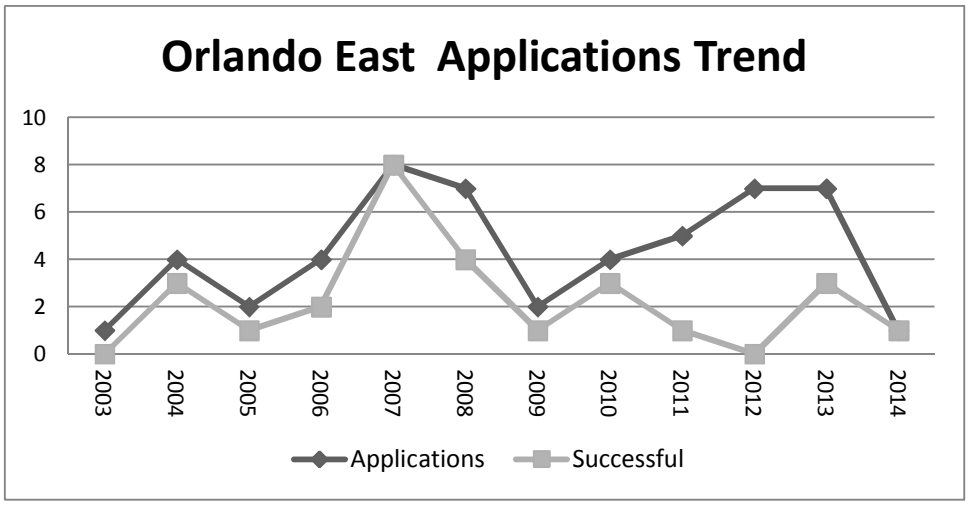
		Orlando East Total	Sub – Area 1 (800 metres)
Applications Total		53	17
	Approved	27	10
	Refused	15	2
	Legally Incomplete	4	2
	In Evaluation	4	2
	Withdrawn	1	1
Rezoning		1	0
Consent		51	17
	SDP	0	0
	Building Line	8	2
	Land Use	41	15
	Tavern	2	0



Graph 5 Applications for Consent Types

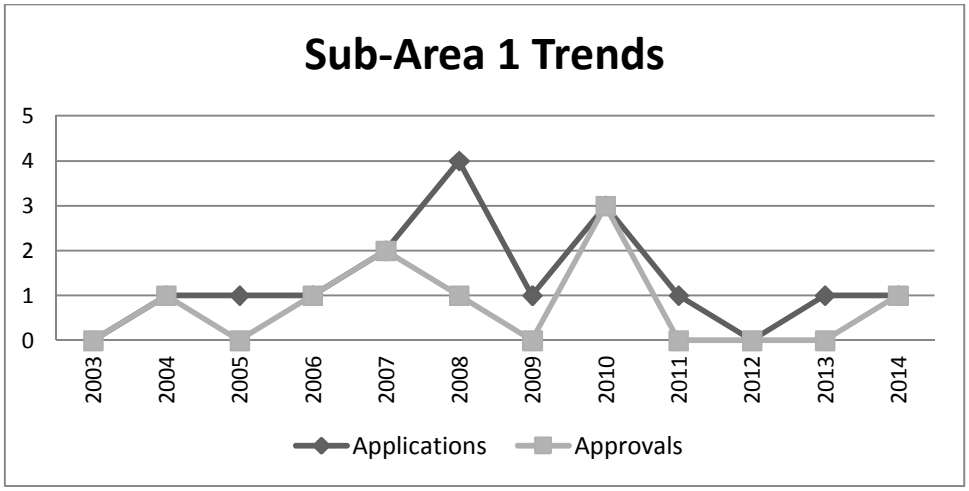
Applications trends over time

When looking at the frequency of applications over time, one can notice a sharp increase of the number of applications in 2007 and 2008. The number of applications started rising again between 2011 and 2013. While the success rate almost matched the applications up to 2010, the CoJ clearly started rejecting a lot more applications from 2011.



Graph 6 Orlando East Applications Trends since 2003

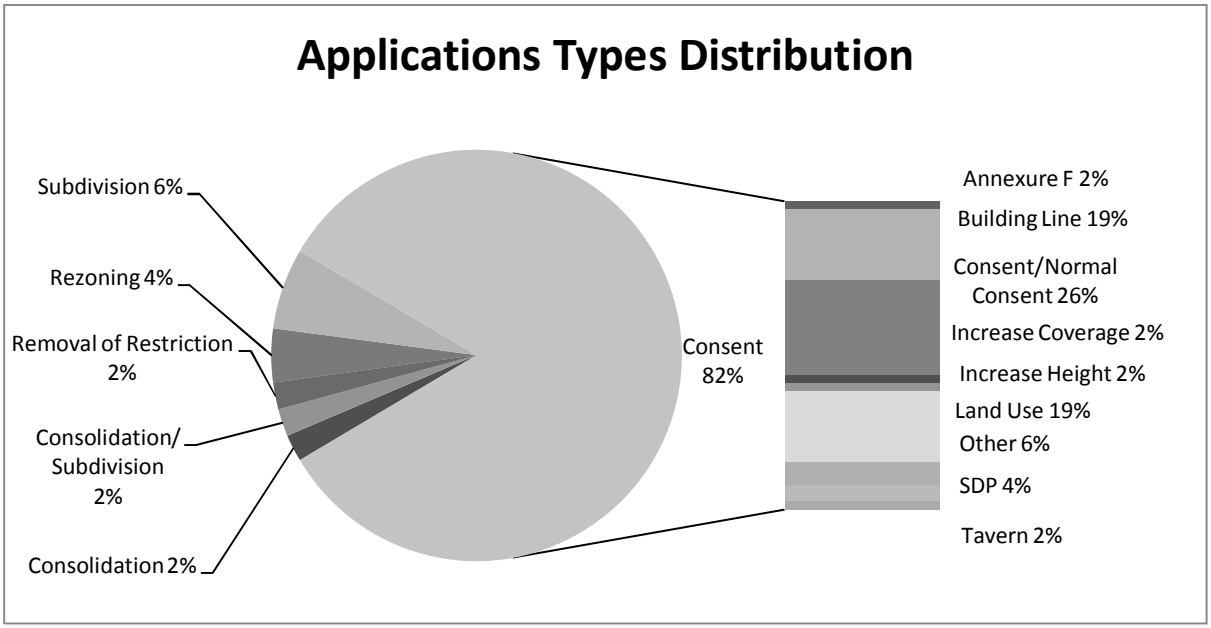
In Sub-Are 1, the number of applications peaked in 2008 and 2010. The number of approved applications doesn't quite match the applications trends. In fact there have been a few years when none of the applications were successful.



Graph 7 Sub-Area 1 Applications Trends since 2003

4.4.2 Sub- Area 2 Diepkloof and Noordgesig

Diepkloof is much more active than Orlando East in terms of the inhabitants' interactions with the Development Planning department. The number of applications over the same period of time is three-times that of Orlando East. There is a much wider variety of applications as well.



Graph 8 Diepkloof Applications Types

Applications for consent make up the majority of all applications. Normal Consent, Land Use Consent and Building Line Relaxation Consent constitute the bulk of the applications.

Table 2 Diepkloof Town Planning Applications

		Diepkloof Total	Sub – Area 2 (800 metres)
Applications Total		158	47
	Approved	104	27
	Refused	14	1
	Cancelled	2	2
	In Circulation	1	1
	Legally Incomplete	7	3
	Legally Non Compliant	8	4
	In Evaluation	5	0
	In Verification	2	2
	Pended	3	2
	Returned	3	1
	Withdrawn	3	2
	Not Clear	6	2
Consent		143	39
	Annexure F	2	1
	Building Line	42	9
	Consent/Normal Consent	49	12
	Increase Coverage	1	1
	Increase Height	1	1
	Land Use	25	9
	Other	11	3
	Place of Instruction	3	0
	SDP	4	2
	Tavern	5	1
Consolidation		2	1
Consolidation/Subdivision		2	1
Removal of Restriction		3	1
Removal/ Rezoning		1	0
Rezoning		3	2
Subdivision		4	3

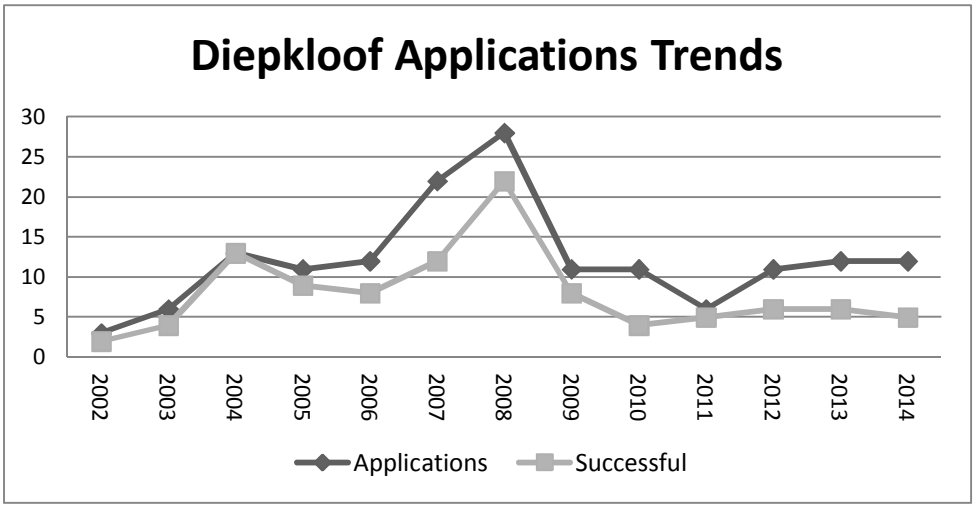
Noordgesig Applications

None of the applications submitted for Noordgesig fell within our study area. (See annexure J)

Table 3 Noordgesig Town Planning Applications

		Noordgesig Total	Sub – Area 2 (800 metres)
Applications Total		14	0
	Approved	8	0
	Refused	1	0
	Legally Incomplete	4	0
	In Evaluation	1	0
	Withdrawn	0	0
Consent		11	
	Building Line	6	
	Consent	2	
	Land Use	0	
	SDP	2	
	Tavern	0	
New Township		1	
Rezoning		1	
Subdivision		1	

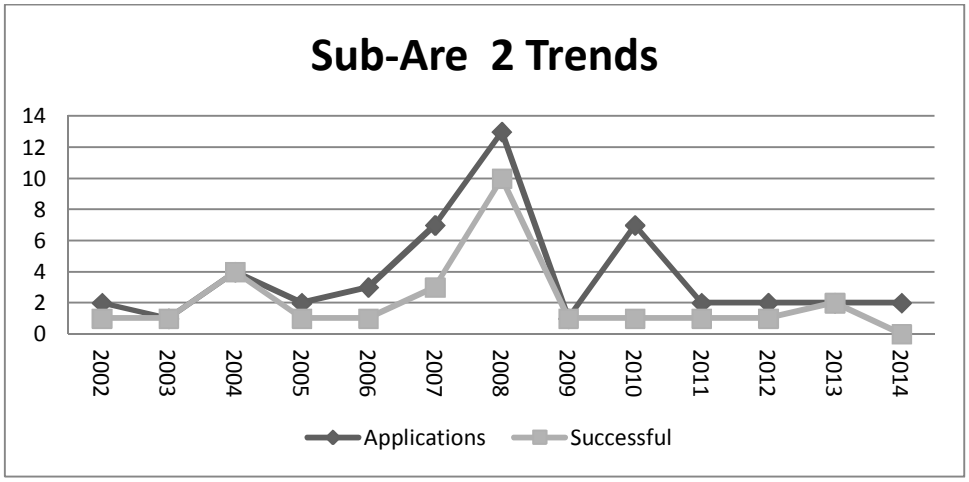
Application Trends Diepkloof



Graph 9 Diepkloof Applications Trend since 2002

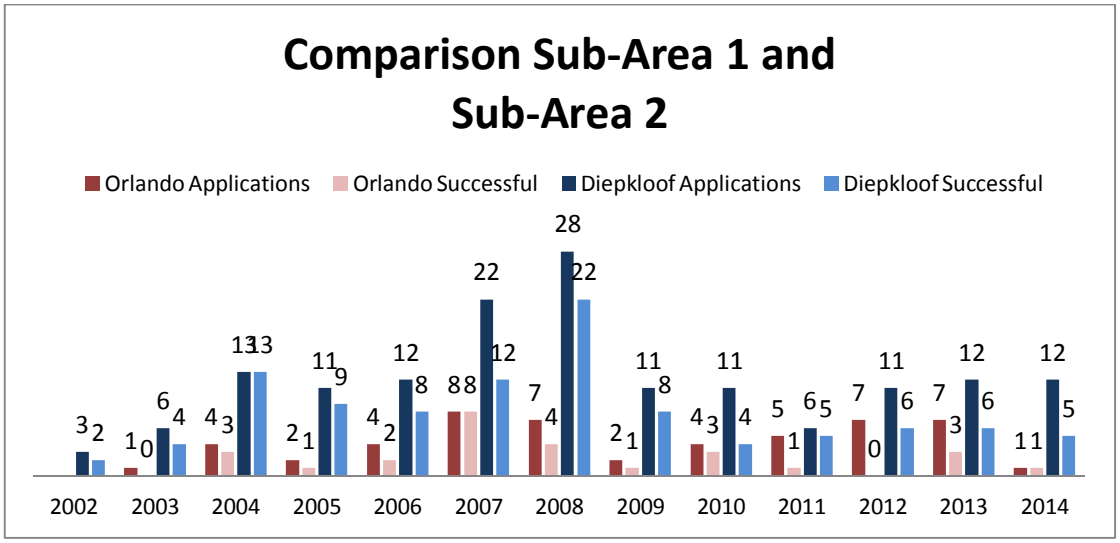
The curve of applications seems to have peaked in 2007 and 2008. It is closely matched by the curve of successful applications. Except for the peak in 2007 and 2008, the numbers have been steady since 2004 with a decline only in 2011.

When looking at the numbers within Sub-Area 2 only, one can notice that, as for Sub-Area 1, 2007, 2008 and 2010 are the years that saw the most applications being submitted to the CoJ. While a significant number of applications were successful in 2007 and 2008, in 2010 it wasn't quite the case. The numbers have remained quite steady since 2011.



Graph 10 Sub-Area 2 Applications Trend since 2002

The difference in the nature and activities that occur in the two nodes, with Orlando East being more of an institutional node and Diepkloof being a business node, might be the reason why Diepkloof had a significantly higher number of application compared to Orlando East. Every year since 2002, the numbers for Diepkloof have been higher than those of Orlando East.



Graph 11 Applications Trends Comparison between Diepkloof and Orlando East

4.4 Personal Interviews

Refer to Annexure L

4.4.1 Interview with Rehana Moosajee, Politician, MMC for Transport for the City of Johannesburg from 2006 to 2013. (Interview conducted 23.02.2015)

4.4.2 Interview with an Official (CO) from the Planning Department of the CoJ. She elected to remain anonymous. (Interview conducted in March 2015)

4.4.3 Interview17 with a Community Activist (CA) from the Orlando East Residents Association. He elected to remain anonymous (Interview conducted 17.01.2015).

4.5 Survey Data Analysis

Refer to Annexure M

[17] This interview was reconstructed (see Allen, 2010) from handwritten notes taken during the interview. The audio recording file was corrupted and could not be transcribed.

Chapter 5 Discussion and Consolidation of Results

5.1 Introduction

The focus of this research has been to uncover the way in which the inhabitants of Soweto have responded to the introduction of the Rea Vaya BRT. The main hypothesis is that although Phase 1A of the Rea Vaya BRT project has had an impact on the spatial pattern of the Soweto townships situated along its route, this impact still falls below the expectations of the CoJ.

This chapter discusses the findings presented in Chapter 4. The discussion is organised around the research conceptual framework. The first section presents a profile of the respondents of the interview based on their origins and their relation to the property they currently inhabit. This is important to anchor the discussion as the respondents are the main proponents of Spatial Practice, the concept around which this study was constructed. The following sections discuss the data based on the three tenets of the Spatial Practice framework developed in Chapter 1. The reader will often be referred to Graphs and Tables that were presented in Chapter 4. The other findings gathered from the TAS, the personal interviews and the GIS data are presented in support or in contrast to the data obtained through the interviews and the literature presented in Chapter 2. The following section consolidates the findings in order to answer the research sub-questions. The last section contrasts the findings of Orlando East and Diepkloof.

5.2 Respondents Profile

All the respondents are Black people; the majority born and bred in South Africa (Graph 14). This is consistent with the data from the Census 2011 for Ward 31 in which Sub-Area 1 is situated. But Ward 29 in which Sub-Area 2 is situated has 75 percent of Black people and 25 percent Coloured (Graph 1). As discussed in Section 4.1, the Coloured population is located to the North of the ward in Pennyville. Only one respondent in each Sub-Area originated from outside South Africa (Somalia and Kenya). The census data for Ward 29 shows that 76 percent of the South African citizens in Orlando East were originally from Soweto. In Diepkloof, this number was even higher; 84 percent of all the respondents were born in Soweto. The other people came from different provinces such as Limpopo, KwaZulu –Natal and the Eastern Cape (Table 4). People established themselves and hardly

ever moved; the majority of the respondents have lived on the same property for more than 20 years (Graph 16). Almost half of the respondents in both Sub-Areas have lived on the same property since their birth. In one instance in Orlando East, we found four generations of the same family living together. They had built some backrooms in brick and mortar and other in corrugated irons over the years. They did not have any tenants renting out either. The children of the owner grew up, had children and grand children but never moved out. The CA who was also born in Orlando East and still lived on the property where he was born mentioned that it was a common trend in the neighbourhood. Many people's financial circumstances were dire and they could not afford to move out (CA, 2015). In summary, the population is quite stable; the majority of respondents have lived in the same accommodation for a very long time. The percentage of migrants from outside of the country and South African from other provinces is very low.

5.3 Spatial Practice Competence

The literature defines competence as 'knowledge' or the 'ability of a person to read a place'; to understand the context within which they find themselves (Taylor, 1988; Modan, 2007). This knowledge informs the way a person engages with their environment, the way their react to changes around them and the actions they take to change their circumstances. This section of the discussion relates to the manner in which people read the language of spatial transformation in their surroundings, as it relates to Phase 1A of the Rea Vaya BRT and the environment in which they live.

According to the Spatial Practice framework, people's competence to perform, is based on two elements. Firstly, their knowledge of the effects the proximity to the Rea Vaya station has on their environment and daily lives; secondly their knowledge of the policies and rules which regulate their actions within their environment (Town Planning, Building Regulations and By-Laws).

5.3.1 Perceptions of Changes in the environment since the implementation of BRT.

Infrastructure, Services and Amenities

The residents of the two Sub-Areas have seen improvements in their environment in the recent past. The perceptions around the quality of amenities, sewerage, police presence, refuse collection, parks, electricity, water, transport, security, street lights, pavements and roads is generally positive. Orlando East respondents are more positive about the improvement of the quality of infrastructure and services since the implementation of the BRT than Diepkloof residents. But there are still areas

that need to be improved on. The biggest areas of concern, both in Diepkloof and Orlando East are around Security and Police Presence, crime levels, drugs and the need to keep children out of the streets for their safety. The respondents also have concerns about electricity supply. Despite the generally positive sentiment, people indicate that the construction of the Rea Vaya infrastructure has had a negative impact on the access of some residents to their properties. The access to the properties along the trunk route has been compromised as vehicle owners need to go over a kerb to enter their stands (Respondent OR 7). It has also affected the storm water drainage patterns in the immediate vicinity of the trunk roads. Some respondents in Orlando East indicated that, ever since the completion of the construction works, the main road and the side roads are flooded every time there is a heavy rain. The flooding points to design and engineering errors in the project implementation. It also points to a lack of maintenance as these issues have still not been corrected 5 years down the line.

The importance of improving the pedestrian experience is felt through the responses of some of the residents when asked what the most important service/amenity in their neighbourhood:

- OR 21 Roads, because before water wouldn't flow and people couldn't walk.
- OR 9 Pavements because that is the only thing we see.
- OR 20 Pavement because I am no longer walking on sand, there was too much sand.

The literature on Backyarding indicates that, for low-income populations, access to services is a strong determinant of the attractiveness of a neighbourhood. In South Africa's urban areas, backyard dwellings in established neighbourhoods are more attractive than informal settlements because of the access to public services (Carey, 2012; Lemanski, 2009; Shapurjee, et al, 2014). The last mile experience of Mass Transit users is an important feature for the success of TODs (Cervero & Dai, 2014; Estupinan & Rodriguez, 2008; ITDP, 2013); especially for people who are not public transport captive users (i.e. they have the ability to choose between different modes of transport such as their private cars and minibus taxis).

The CoJ reports having spent 50 cents of every Rand of its infrastructure budget in Soweto since 2003 (CoJ, 2013). This is a massive commitment to the transformation of the previously disadvantaged township. Precinct specific plans also make a substantial difference to people perception of their area. The CoJ through the JDA spent R14 million on the public environment upgrade in Orlando East and Noordgesig and the results are being felt (CoJ, 2015). When comparing Orlando East and Diepkloof, it is evident that Diepkloof residents are not as satisfied with their environment as the residents of Orlando East. While the improvements have been welcome, there

are a few concerns around the timing and coordination of initiatives. The new pavements and road resurfacing work were completed at the end of 2014; more than 4 years after the Rea Vaya started operating (Moosajee, 2015; CA, 2015). Issues around urban management and maintenance and repair need to be addressed continuously.

Rea Vaya Operations and Services

Perceptions of Rea Vaya's Impact on Transport

The respondents felt that transport was much better since the implementation of Phase 1A (Graphs 32 and 33). Many respondents, in Diepkloof more so than in Orlando East, indicated that they used Rea Vaya for business purposes and to look for employment. Three respondents indicated that they used the Rea Vaya to go purchase stock in the Johannesburg CBD (T1 Route) or China Mall (T3 Route to Auckland Park). The bus is cheaper, they do not have to pay an additional fare for their goods and, according to respondent DK 10, it is safer than taxis. People also mentioned that they used the Rea Vaya when they went looking for employment as it was much more convenient. The usage patterns also vary because some people use it during the week and not over the weekend and for other

Vaz and Venter's study (2011) had a much larger sample of 150 households and not a single respondent indicated that they had shifted from using their cars to using the Rea Vaya as a mode of transport (Vaz and Venter, 2011). In 2015, four years down the line, quite a few respondents indicated that they regularly used the BRT as an alternative to their car for their daily commute to work. There is an overwhelming agreement with the statement that 'more people use the BRT instead of their cars'. 75 percent of Interviewees in Diepkloof and 85 percent in Orlando East agreed with that statement. Some people indicated opting for the BRT even though the train was cheaper because it was more reliable (OR 10). Significantly, one respondent indicated that they would be using Rea Vaya 'when they have a job'. Employment levels and the location of employment opportunities along the network also have an impact on the usage of the BRT System.

Vaz and Venter (2011) and Chakwizira (2011) found that the BRT did not significantly improve accessibility to transport as it was running along a major taxi route and that it had effectively duplicated an existing service. These studies focused on Phase 1A of the Rea Vaya BRT. Phase 1B of Rea Vaya, an extension of the system, was launched in 2013, linking Soweto to the Johannesburg CBD via Auckland Park. The direct link between Soweto and Auckland Park did not exist before and has had a significant impact on the mobility of the residents of Orlando and Diepkloof. The responses are varied when it comes to the cost advantage of the system. Some people report that it

is more expensive than taxis and others that it is cheaper. Respondent OR 13 says that:" It (the BRT) is cheaper. I am now using one bus instead of three taxis".

This sentiment is echoed by many other residents who find that the Rea Vaya has made their lives easier and given them alternative options to the taxis, the Metrobus, the train and their private cars. The increased mobility has particularly benefitted the university students who now have a direct line to the many campuses of Wits University, University of Johannesburg and other colleges situated in Auckland Park, Braamfontein and Parktown (CA, 2015; CO, 2015; Moosajee, 2015). People's satisfaction with the new routes introduced with Phase 1B confirms the notion that the geographic reach of the network is critical in order to increase the attractiveness of the system (Chakwizira, et al, 2011). The Rea Vaya has started attracting private vehicle owners. The quality and reliability of the service have also attracted train users even though the BRT fare is more expensive than the train. While this is a testimony to the fact that quality public transport is appreciated, it highlights the issue of two public mass transit systems competing with each other along the same route. Ideally this should not happen.

Perception of Rea Vaya's Customer Service and Safety

The users generally agree that customer service and the safety are better than that of the taxis and trains. People raised their concerns about the lack of customer care, the lack of safety, the hours of operation and the irregularity of public transport in the National Household Travel Survey 2003. These complaints guided the team responsible for the Rea Vaya project to push for higher standards for the entire system (Chakwizira, et al, 2011; Moosajee, 2015).

The respondents raised concerns around the safety of the passengers in general and children in particular whilst boarding the bus at the stations. The gap between the bus and the platform is too wide; there is no railing on the sides. People run the risk of falling, especially at peak time when commuters shove each other around. The lack of transparency in the fee structure and the loss of money through operational glitches is a worrying matter. According to respondent OR 10 'the train was cheaper but not reliable. The BRT doesn't disclose the balance of trips, it is more expensive than taxi and charges penalties but it is safer and quicker'.

One person indicated that they stopped using the bus because they couldn't understand the fare system .The issues around fares really affect the reputation of Rea Vaya in a negative way as one respondent indicated that "...I stopped using it. It is a money making scheme" (OR 19). Another respondent complained about customer service and the bad attitude of the employees (OR 18).

While people are generally satisfied with the quality of services, the Rea Vaya operating company and the CoJ Department of Transport should address the concerns of the users, especially with regards to the safety of the users and the fare system, to avoid losing users.

Personal Experience riding the Rea Vaya

While exploring the system, I had two negative experiences regarding customer service and fares. The first time around, I tried boarding the bus at Park Station in the Johannesburg CBD but I couldn't because the bank card terminal was out of service and I could not load money on my Rea Vaya SmartCard. The customer service lady informed me that all the stations in the immediate vicinity of Park Station had the same issue and that I should just go and catch a taxi to Soweto. I later found out that she could have sold me a Single Trip Ticket. The second time around, I was already at the C1 Route terminal in Meadowlands and making my way back to Orlando East (Trunk route). I boarded a bus that didn't register my trip because the SmartCard reader was out of service. I got of inside the station and proceeded to tag out of the station as I wanted to walk to the train station. Money was immediately removed from my card because the system flagged me as someone who had fraudulently entered the Rea Vaya network even though I was not responsible for the defective card reader. Whilst I lost money, all the other passengers whom exited the Complementary bus before we arrived at the station rode the system for free. These are some of the daily experiences of many Rea Vaya users. Otherwise, my other trips were generally pleasant and uneventful, with buses arriving within 5 to 10 minutes of the scheduled time. But I must admit that I have always used the BRT to Soweto on Saturdays when there are not as many commuters as during peak-time during the week. My opinion could be different if I was using the system during peak-time.

Perceptions of the Impact of BRT on the Property and Rental Markets

While relying on people's perceptions of the property market might not seem ideal; it is quite useful from a Spatial Practice point of view because it reflects a resident's empirical reading of her neighbourhood. When asked whether they thought that properties around the BRT stations were more attractive than properties further away, 55 percent of respondents in Orlando East agreed or strongly agreed but only 35 percent of respondents in Diepkloof felt the same. In Orlando East, questions around an increase in the value of rent and the value of properties drew almost the same number of positive and negative answers. Half of the respondents in Orlando East felt that the rent had increased while the other half either didn't know of felt that the rent hadn't increased at all.

Only 35 percent of the respondents agreed or strongly agreed that there had been a rise in property values. In Diepkloof, 40 percent of respondents didn't know the answer to both questions.

The questions around the supply and demand for accommodation yielded significantly different results. There is strong sentiment that more people are looking for accommodation around the BRT Station. 75 percent of respondents in Diepkloof either agree or strongly agree with the statement. 55 percent feel that more people are renting accommodation around the BRT station. But only 50 percent feel that people are taking up this opportunity and building accommodation around the station. In Orlando East, the respondents indicated that there was an increased demand for accommodation around the station. 70 percent of respondents felt that more people were renting accommodation around the station and 65 percent of people felt that more people were looking for accommodation around the stations. As for Diepkloof, 50 percent of respondents felt that, on the supply side, there was more accommodation being built around the stations. According to the respondents, the accommodations that have seen the highest level of change are backyard rooms and free standing houses (Graphs 34, 35 and 36).

In Bogota and Seoul, the value of properties and rent next to the BRT corridor increased (Rodriguez and Targa, 2008; Jun, 2012). In Seoul, property owners living in single unit family accommodation in low-income neighbourhoods next to the BRT converted them into multi-unit accommodation to capitalise on the improved mobility (Jun, 2012). People's general perception of their environment does not quite fit these findings. The information above suggests that there is a strong demand for accommodation in both Sub-Areas and that people have been responding to that demand (Diepkloof specifically). However, it has not had much effect on the value of the properties and the cost of rent. The rent ceiling for Soweto is quite low .The CO (2015), who also lives in Soweto, believes that the cost of rent in Soweto remains low (R500 maximum) because of the dearth of employment opportunities in the township. The fact that traffic is still one-directional at peak-times (i.e. flowing out of Soweto in the morning and into Soweto in the evenings) shows that it remains a dormitory township (CO, 2015; Moosajee, 2015). People, especially migrant workers, would rather pay a higher rent and live much closer to their place of employment than to pay a lower rent and still commute to work (Kumar, 1994). One new market that is developing and that attracts guaranteed high rentals (R2500) is the student accommodation market. The University (UJ) has set standards for the quality of the rooms and the maximum cost of rent is regulated through the bursaries (CO, 2015).

Perceptions on the Impact of BRT on Businesses

The respondents were asked to what extent they agreed with the following statements: 'existing businesses around the station have more customers' and 'more businesses have started around the station'. Both questions yielded positive answers, especially in Diepkloof. 80 percent of respondents in Diepkloof agreed with both statements. None of the respondents disagreed with the statements. In Orlando East, the results were slightly less positive than in Diepkloof. 15 and 20 percent respectively disagreed with the two statements. According to the respondents, the businesses which have seen more changes are informal businesses and spaza shops. Formal Businesses and Shebeens have also seen changes but not to the same extent (Graph 37).

The interviews reveal that the BRT has benefited existing businesses in two ways: firstly through reducing the cost and logistics around procuring new stock; and secondly through bringing new customers because of the increase in the quantity of rental accommodation and the foot traffic around the stations.

When asked if the implementation of the BRT had benefited them directly, here is what some of the respondents said with regards to businesses:

- 'Yes, because I am able to rent my house and receive money from it' (OR 2)
- Yes, I use the BRT to go buy stock (OR14)
- 'I use the BRT to go to China Mall to buy hair products and its nice because it brings me back safely' (DK 10)
- 'Yes, during the week I can travel and stock for my shop. It's very close and cheap' (DK 6)
- 'Yes, because I have some people passing by my house to buy 'kotas' (bunny chows) which means I have more customers now' (DK 13)

One person indicated that, in her opinion, furniture makers and vegetable sellers were the ones who had benefited the most from the Rea Vaya. The furniture makers benefited because the increased number people renting accommodation in the area bought new furniture. The vegetable sellers and other informal traders located next to the station benefited because of the increased foot traffic a peak-time (OR 5).

According to the respondents, the businesses that benefitted to most from the BRT are informal businesses and spaza shop. These types of businesses are part of the existing fabric of Soweto in general (CoJ-DED, 2008). The Department of Economic Development of the CoJ contends that 'significant job creation strategies' are critical to the spatial transformation of Soweto (CoJ-DED, 2008:5). The BRT has not brought that kind of change to the two Sub-Areas.

5.3.2 Knowledge of the Regulatory Environment.

Annexure F of the BCDA allows for 80 percent coverage and double storey residential building as primary rights in all the Residential Stands in Sub-Area 1 and Sub-Area 2. Town houses are also permitted as primary right (RSA, 1984). This means that people only have to submit building plans to the Building Control department. They need not get approval from the Development Planning department. In addition, the BDCA allows people to use their accommodation for 'social, religious, occupational and business purposes' as long as the main purpose of the property remains residential (BCDA, 1984:37). Since 1984, the land use policy for the Sub-Areas has allowed, in principle, for a mix of uses on residential properties provided that the people obtained consent from the municipality.

The majority of people in the two Sub-areas indicated that they didn't know what their property rights were (Graph 25). Some respondents indicated that officials from the municipality had told them not to build over the service pipes (water supply and drainage pipes). Only one person specifically mentioned that they had to ask for the municipality's permission to extend their house. A higher number of residents in Diepkloof claimed to know about their property rights than in Orlando East. Only three people responded in a manner that demonstrated an awareness of the need to apply if they wanted to add land uses other than the primary residential use (backyard rooms and a registered business, and a triple storey building). The knowledge often came from the built form in their neighbourhood. People often mentioned that they could 'build a double storey' because the neighbour had done the same.

People also didn't know which department of the municipality dealt with applications for Building Permit or Consent for other land uses. Most people are under the impression that the Housing department is responsible for these matters. Some of the respondents reported that they had applied for Building Permits but, in general, most respondents had never applied for anything (Graph 26). This is quite telling because a lot of respondents actually indicated that a new building had been erected on the property in the recent past. In Diepkloof, 55 percent of people said that there had been a new building in the past five years and 20 percent reported a new construction in the past 10 years (Graph 13). That is a total of 75 percent of properties that have a new building in the past 10 years but only 20 percent engaged with the municipality for approval. Another 20 percent probably didn't need to engage the municipality because the buildings were built by the municipality itself (see Rubin and Gardner, 2013 for Backyarding Pilot Project). In Orlando East, the numbers are similar, except that 45 percent of people reported some building activity in the past 5 years and 30 percent of people actually applied for Building Permits.

Modan (2007) indicates that, in performing Spatial Practice, it is possible that people will deliberately transgress certain rules that they have a knowledge of. People's knowledge of the regulations would not necessarily guarantee that they would abide by them. Jaiyeoba (2012) makes similar findings in Benin City. Firstly, people's awareness of regulations is very low at best, secondly they do not necessarily follow the regulations; they build according to their needs (Jaiyeoba, 2013). Gordon and Taljaard (2006) found that small –scale landlords in the inner city of Johannesburg had very little knowledge of regulations related to their rental accommodation. The fact that the municipal employees tell people not to build over pipes suggests that backyarding is accepted *de facto* and that there is very little by-law enforcement or initiative to prevent people from building without municipal approval. The situation is completely different in Cosmo City where the erection of backyard dwellings is strictly monitored both by the municipality and the private property developers (Rubin and Gardner, 2013).

5.4 Spatial Practice. Ability to Perform

The second element of Spatial Practice is the ability of individuals to perform the actions that they feel necessary in order to effect change in their environment. In this context, the ability to perform is determined by two elements. Firstly, the type of tenure that people hold over the land that they occupy. Secondly, their ability to garner the resources and finances required to implement their vision.

5.4.1 Tenure

Three main types of tenure emerged from the interviews. The respondents either owned the property, rented the property or stayed with their parents /relatives (Graph 22).

Ownership Tenure

Ownership was acquired either through the purchase of the property or through inheritance. The majority of people inherited their properties. Property ownership can also be classified according to the number of people it is shared with and the relationship between the co-owners (Graph 23). Orlando East had the highest number of single property owners i.e. only one name reflected on the Title Deed. There were also quite a few properties where the ownership was still disputed. One respondent shared ownership of the property with his spouse and two others shared it with their relatives. Some people simply refused to answer the question. One can assume that it is because the ownership of the property is still disputed. In Diepkloof, the most common type of ownership was ownership shared with a spouse, followed by ownerships shared with relatives and the last type was

individual ownership. No disputes were reported. While people declare that they have ownership of the property, probing further reveals that all the legal requirements to confirm ownership were not necessarily fulfilled. For instance, people revealed that the property had not yet been transferred in the new owners' names at the Deeds office. In Orlando East, only 37 percent of the property owners indicated that the Title Deeds reflected the current ownership of the property. In Diepkloof, more than half of the owners indicated that the current ownership was reflected on the Title Deed (Graph 24). The reasons for these discrepancies might be that in some families where the property was inherited, there is consensus on whom the property belongs to even though the legal process has not been completed[18]. The CO admitted that her and her two brothers still hadn't transferred the property in their names even though their father had passed away in 2005 (CO, 2015). Property owners dying without a will, siblings' rivalry and the high cost of conveyancing fees are some of the reasons why people found themselves in limbo (Ca, 2015; CO, 2015). Some residents just didn't see the use of regularising the 'paperwork' of the property.

A good number of applications reflected on the TAS database were not even considered by the Development Planning department because they were 'legally incomplete' or 'legally non compliant' i.e. the applicant could not prove that they had received the authorisation to apply from the person's whose name was reflected on the Title Deeds (Table 5). Of the 47 applications made within Sub-Area 2 (Diepkloof), 15 percent could not be considered for those reasons. In Orlando East, 2 of the 17 applications fell under the 'legally incomplete' category (Tables 1 and 2). The CO also confirmed that some people could not apply for Building Permit or any Town Planning Permit because they didn't have Title Deeds.

Rental Tenure

Very few people rented the place where they stayed i.e. they had no relationship with the owner of the property. This is consistent with the responses people gave when asked about the purpose of the last building erected on their property. In Orlando East, more of the people's last building project were done in order to accommodate family (6) than for rental purposes (3). When asked about their wishes for their properties, many indicated that they wanted to renovate and extend for their growing families. In Diepkloof however, family accommodation (4) and rental (4) weighted equally.

The fact that family accommodation occurs equally or more frequently than rental is puzzling because the majority of the respondents in Diepkloof and Orlando East felt that more people were

[18] A study by Urban LandMark (2013) found that in some rural areas , a handshake or a verbal testimony are sufficient to confirm tenure rights. While people might agree between themselves on collective ownership, their tenure remains disputable in the absence of up-to date legal documents.

renting or wanted to rent accommodation in the vicinity of the station. This was also confirmed by the Community Activist who stated that 'there was a constant movement of people and there were always people looking for accommodation' (CA, 2015). Watson (2009b) and (Kumar, 1996) found that the majority of private property owners who rent out accommodation on the same property they occupy do not pursue rental as business but just as a way of supplementing income. They do not aggressively pursue the income-generating opportunities their properties present. Rubin and Gardner (2013) classify this type of landlords as Small Scale Private Landlords.

Another possible explanation comes from the selection of candidates for the survey. The very low percentage of tenants in the respondents sample could be explained by the fact that they did not feel comfortable being interviewed about someone else's property. In many of the properties we entered, when we asked to interview someone, we were directed to the 'right person' to interview, often the owner or one of his relatives.

Family Relation Tenure

Only 10 percent of respondents in Diepkloof stayed with their parents/relatives. In Orlando East, the ratio was up to 25 percent or a quarter of the respondents (Graph 22). Not many interviewers were staying with parents/ relatives who did not claim any stake to the ownership of the property. Rakodi terms this phenomenon 'rent free tenantship' and has identified it in Kumasi (Ghana) where the 'property is owned by a lineage rather than an individual' (Rakodi, 1995: 796).

Conclusion

The regularisation of tenure remains a challenge in the Sub-Areas. Issues such as family feuds, disputes around ownership and the high cost of legal processes for regularisation are barriers to the regularisation of tenure. While the absence of the Title Deed does not prevent people from building backyard rooms and small extensions to their houses illegally given the lax by-law enforcement environment, it does prevent people from obtaining the necessary Town Planning approvals for more substantial projects. However, people find ways and means of working around the legal hurdles to realise their projects. This is consistent with Kumar (1996: 325) 'full ownership is not a prerequisite for production of new building. The physical possession of land rather than the legal possession determines whether a person will produce on land or not'.

5.4.2 Access to Finance

Access to finance is a critical issue in this context because the regular mechanisms for property and business finance rely on the ability of people to demonstrate a regular source of income and/or ownership of assets that can be used as collateral against a loan[19]. The opinion of the three people who were interviewed on this topic is quite telling.

'The risk is a bit high for townhouses and flats in Soweto. Because, from property developers point of view, they cannot sell those units' (CO, 2015).

'How we could move existing home owners there [Orlando and Diepkloof] within the 500 to 800metres radius to begin to densify, to create mixed-uses on their properties, to see their properties a wealth generating opportunity? I think people are really scared' (Moosajee, 2015).

'Most people can't go to banks because their names are not on the title deeds. They just take personal loans. It is a higher interest, but that's the only way they can go' (CO, 2015).

'People cannot take mortgages. The communities fear to engage the banks with their only asset [home], they have nowhere to go' (CA, 2015).

These statements from Moosajee, the Co and the CA illustrate the different standpoints from where the city and the community look at the same issue. On the one side, the CoJ feels that it is providing a tremendous opportunity and on other side, the residents fear losing everything. The residents are being asked to gamble with their 'family home' while even property developers find the area too risky. Research by Shisaka Development Management Services and Pernegger and Godehart show that, for township property owners, the social value of a paid-up property is more important than its financial value. As such, their houses are not just financial assets to be leveraged but rather social assets (something to leave to their children; a 'safety net' for family members who have fallen on hard times) (Pernegger and Godehart, 2007; Shisaka, 2011:28). In a study of township property markets conducted by FinMark Trust, none of the respondents indicated that they would be willing/ had the desire to sell their properties (FinMark Trust, 2004 cited in Pernegger and Godehart, 2007: 16).

The vast majority of respondents were not content with the current state of the place they lived in. Regardless of whether they were tenants or owners, most people had dreams and aspirations about the improvements they would love to see in their living environment. Extending to accommodate a

[19] This is standard model TODs rely on for Spatial Transformation in residential neighbourhoods (Allon, 2010; Forrest, 2008)

growing family, adding a second story, renovating, plastering and paving, separating the tenants' entrance from the owners' , opening a restaurant, opening a business, these are some of the changes that people would like to effect where they live. The most common response regarding what is stopping them from acting is that they do not have the financial means required to implement their vision (Graph 27).

Emergency Finance

In case of emergency, the people of Diepkloof will rely on their family and friends to obtain money. The respondents from Orlando East equally rely on the bank and on their families and friends (Graph 29). Some people will go to the informal lenders. One respondent in Orlando East reported that she takes her SASSA[20] card to the informal lenders to obtain money in case of emergency. She collects the card back after reimbursing the money. Even though this is not legal, it shows that people have found ways and means of accessing money outside of the formal lending market.

The number of people who are economically active (employed or self-employed) is quite high in comparison to the statistics for Ward 29 and Ward 31. When the two categories are combined, 65 percent of the respondent in Orlando East and 60 percent of the respondents in Diepkloof are either employed or self-employed. The remaining people are unemployed, retired or not economically active (e.g. students) (Table 10). However, they struggle to obtain finance.

Construction Finance

The difference between the two Sub-Areas is quite flagrant when it comes to the source of finance for the respondents' latest building project. Diepkloof relies mostly on personal savings and family loans. In Orlando East; people reported obtaining loans from the bank, from informal lenders (loan sharks), and from their families as well. The beneficiaries of the Backyarding program effectively received a grant from the government (Graph 14). The number of people who are employed and rely on their salaries as main source of income does not match the number of people who have used the banks to finance the construction of their latest building project. When asked if they had ever applied for construction finance, 35 percent of participants in Orlando East responded positively. In Diepkloof, the number was much lower. In Diepkloof, there are a lot more people relying on their small businesses as main source of income.

[20] SASSA: the entity charged to administer the payment of Social Grants to beneficiaries.

Conclusion

The fear of losing their only asset (their family home) is a strong factor that prevents people from seeking finance from the banks. Other factors such as the lack of income and the absence of regularised Title Deeds also prevent people from accessing the formal lending market. As the literature review alluded to, access to finance remains the main stumbling block in the way of low-income private actors. According to Kumar (1994) accessing finance from the formal sector is very difficult for most low-income households in the Developing World. People rely on their personal finance, informal lenders, and social networks to raise the money necessary for their projects (Jaiyeoba and Aklanoglu, 2012; Kumar, 1994). Governments are also not an option for these household because they prefer delivering a product to beneficiaries rather than loaning money for them to manage (Huchzermeyer, 2003). Indeed that is the method that was used to deliver the backyard room units for the Gauteng Backyard Housing Pilot project. According to Robin and Gardner (2013) the grant allocation for Backyard rental is the same as the one for a RDP house. It provides finance for one unit of accommodation. This policy does not align at all with the need to provide medium to high density accommodation along the BRT trunk routes. The Backyard Rental Housing Policy acknowledges that there is a need for alternative finance mechanisms for this market since the conventional lenders are not attracted to this market (GPG-HS, 2015). But there are signs that people are looking for different ways of making their projects come to fruition. The CO mentions that people purchase building materials directly from the hardware store (CashBuild) on credit. This way, they do not need to have a proof of ownership in order to proceed with construction. From the property developers' front, some are looking for a financing model that will allow them to build accommodation on an existing property, recover their investment and make a profit by collecting rent for the following 10 years, then hand the property over to the owners.

5.5 Spatial Practice. Performance

This section looks at the performance of spatial practice through densification and land uses trends reported by the respondents.

5.5.1 Densification

The housing density is generally high. The average property has a minimum of three or four separate buildings. Some properties have six, seven and eight different buildings and one property

had nine separate buildings. Gardner (2004) study of Backyarding in Orlando East found that 3 dwellings per property was the average density but also found one property with 18 units.

The size of the buildings varied. On some properties, there were few separate buildings but the buildings had many consolidated rooms. While on other properties there were many separate individual units built in a haphazard fashion.

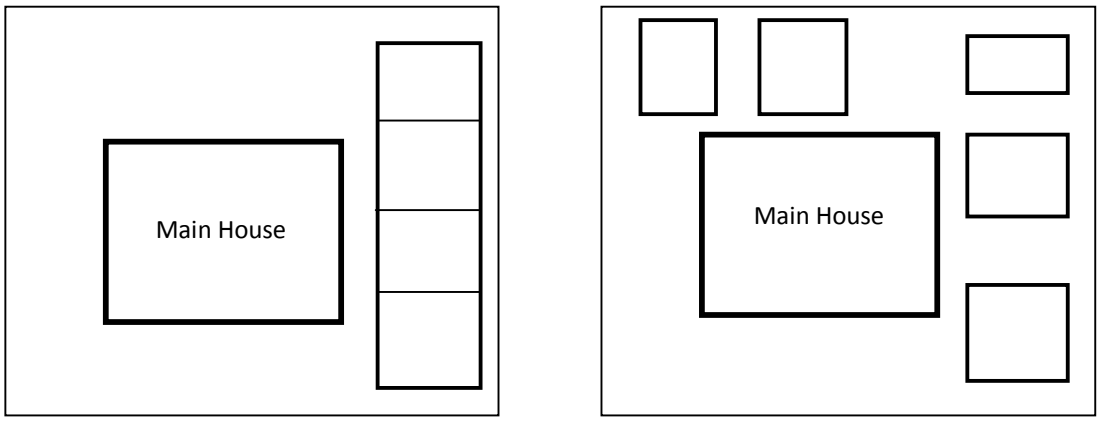
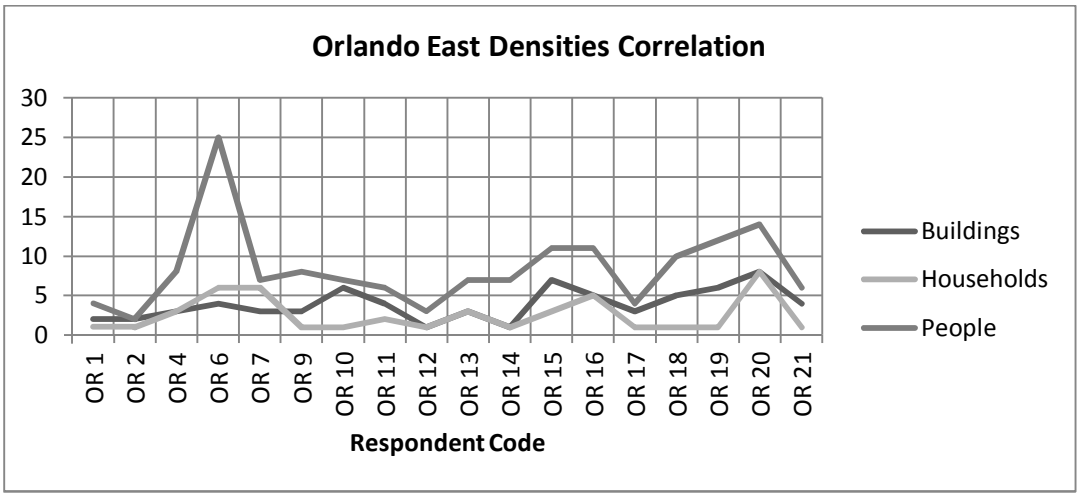
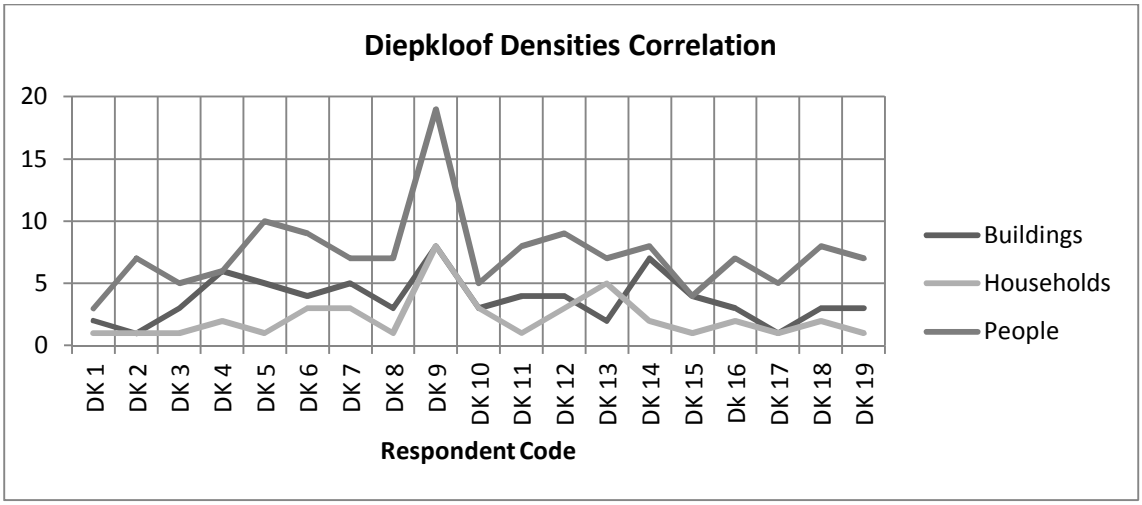


Figure 33 Consolidated Backyard Rooms vs. Haphazard Rooms

It is difficult to identify a definite trend between the number of buildings, households and people found on the same property. As the graphs below shows, it is rare to find instances where the number of buildings is equal to the number of households. In many instances, one household is scattered across many buildings and in other instances, there is more than one household in a single building. The number of people per stand doesn't quite match any of the other two trend lines.



Graph 12 Orlando East. Densities Correlation



Graph 13 Diepkloof. Densities Correlation

The average number of people living on a single site is between 6 and 10 people. The maximum amount of people was 25 in Orlando East and 19 in Diepkloof.

It is very import ant to note the trends in densification in the recent past. The five past years, which coincide whit the inauguration of the Rea Vaya Phase 1A, one has seen acceleration in the rate of new constructions in both Sub-Areas (Graph 17). The five past years have seen double the amount of new construction than the previous five years. Even when one removes the number of units built as part of the Backyarding Pilot project[21] (Tables 5 and 6), the number of units built is still higher than that of the previous five years. And the number of new constructions that happened between 10 and 20 years ago is smaller than the number of construction that happened between 6 and 10 years ago. When comparing the two Sub-Areas, one can notice that Orlando East has the highest number of properties that have not changed for over 20 years.

The GIS data from the City and the GCRO do not reflect this densification at all within the established built-up residential areas. If one was to base its analysis of the Sub-areas based on the GIS data available, the conclusion would be quite misleading. The data from the BAS (Building Application System) of the CoJ would also not be helpful because, as most of the respondents have indicated, they have not applied to Building Control for approval before proceeding with their construction projects (Graph 22). However the mapping of the change in built form over time (Fig 31 and Fig 32) shows that there has been a progressive densification of residential stands. Very few stands still have the original matchbox house unchanged and recognisable.

[21] The respondents referred to the backrooms built through the pilot project as RDP houses.

Materials

The additional buildings were made of two main types of materials, bricks and mortar and the typical corrugated sheeting informal shacks. One container in Diepkloof and another in Orlando East were also identified. 30 percent of buildings in Orlando East and Diepkloof were informal shacks which mean that the majority of people live in brick and mortar buildings. This is consistent with the Census 2011 data for Ward 29 and Ward 31 (Graph 2). Only one person reported having used recycled materials to build his extensions. We did not observe any unconventional building materials on the properties of the people we interviewed.

5.5.2 Land Uses

The Town Planning Scheme for Sub-Areas 1 and 2 allows for a variety of land uses provided that people apply for consent (see Section 4.1 for Primary and Consent Uses). South African townships in general are known for hosting a variety of small business activities such as spaza shops, taverns, home enterprises and crèches. These SMMEs are often owned by self-employed people who have few employees and operate these businesses from their homes. People are therefore forced to look for employment outside of the township, commuting everyday to the Johannesburg CBD, Sandton, Midrand and other areas of economic opportunity in the Gauteng City Region.

In Orlando East, 30 percent of the people indicated that the latest buildings that had been added to their properties were built for business purposes. These businesses included rental accommodation, a spaza shop and a tavern. The numbers for Diepkloof were similar.

Residential use (rental included) is the most common land use on the properties. In Orlando East, 75 percent of properties are exclusively residential. 25 percent have two different activities such as residential and business (offices), residential and commercial (spaza shop, tailor, furniture maker, hair salon), residential and entertainment (tavern). One property hosted three different uses: family accommodation, a contact centre for Standard Bank customers (formal business) and a spaza shop. In Diepkloof, the number of stands with more than one land use was slightly higher than in Orlando. 60 percent of properties had only residential use. 30 percent had two land uses including residential and educational (crèche), residential and commercial and residential and entertainment. There was also one stand that had three land uses (residential, entertainment and commercial).

The data from the Township Application System (TAS) reveals some important trends about the type of applications that were made in the past 10 years. The system records applications for any development that does not fall within the Primary land use rights attached to a particular site. It

records applications for subdivisions, consolidation, rezoning, removal of restrictions, increase coverage, increase height and change of building line.

The most salient observation is that there was a significant increase in the number of application between 2007 and 2010 both in Orlando East and Diepkloof (Graphs 6 and 9). The trend is similar when one reduces the scope of applications to the ones that fall within Sub-Areas 1 and 2. According to the CO (2015), the people were trying to take advantage of the opportunities presented by the World Cup 2010. The majority of people applied for consent in order to be able to open Bead and Breakfast accommodation for the potential tourists. The CO (2015) also indicated that as a rule, they no longer granted applications for taverns. The data shows that there hasn't been any application for a tavern within Sub-area 1 since 2003 (Table 1). However, one respondent in Orlando East indicated that the latest building he had erected on his property was a tavern (Table 5).

The diagrams in Annexure G illustrate how the size of the existing stands constrains the type of development one can implement on a single site. In order to be able to build a decent multiple –unit accommodation and still meet the requirements for parking and other restrictions, people would have to consolidate two or more sites together. But there have been very few applications for consolidation of land. In Orlando East, there hasn't been any application for consolidation. In Diepkloof, three applications for subdivision and two for consolidation were recorded since 2003. CO (2015) contends that these applications are linked to the Pennyville Housing Project (CoJ, n.d.). None of the respondents ever applied either for consolidation or subdivision of their properties. Three people in Diepkloof indicated that they had applied for purposes other than a Building Permit (i.e. consent, rezoning and business) (Graph 26).

5.6 Diepkloof vs. Orlando East.

Diepkloof and Orlando East as Sub-Areas were selected for this study even though they are in close proximity to one another (less than 2 Km between the limit of the Sub-areas) and they have similar density profiles. There is a difference in character between the two nodes which can be felt from observing the activities that take place within the two nodes (see Section 3.4). This difference was confirmed through most of the data and graphs presented in the findings. Diepkloof emerged as a more entrepreneurial node than Orlando East. Respondents in Diepkloof seem to have more appetite for business than Orlando East. There are more people who rely on their small businesses as primary source of income. Their ways of financing their business and their perceptions of ability to access finance also differed significantly from those of the Orlando East respondents. The most salient difference between the two Sub-Areas is noticeable through the analysis of TAS applications. Diepkloof has almost thrice as many applications as Orlando East. And the diversity of applications

made is also quite significant (Table 2). The reason for these differences is not really clear but this is worth noticing, especially because the CoJ is focusing its efforts on the Orlando East Noordgesig Precinct. There might be an opportunity to transfer local expertise from one node to the other and to foster greater synergies between the two nodes.

Chapter 6: Summary and Conclusion

6.1 Overview of the Research

This research asked the question '*What is the nature of the spatial transformation- related changes that have occurred around the Rea Vaya BRT stations in Orlando East and Diepkloof/Soweto following Phase 1A's implementation?*'

In order to answer the question, the research was narrowed down to two stations out of the ten that are located in Soweto. The Orlando Police Station Rea Vaya station in Orlando East and the Ghost Town Station in Diepkloof were selected as Sub-Areas for the case study. The choice of the Spatial Practice Framework illustrates the approach taken to answer the research question because the backbone of the study is based on the experiences and perceptions of the residents of the two Sub-Areas. The other datasets such as the personal interviews, the analysis of GIS data and Town Planning records are used to triangulate the findings and fill up some information gaps. The sub-questions were useful in organising the literature review and help to operationalise the Spatial Practice framework. They also guided the setting up of the questionnaire.

The history of Soweto, as related in Chapter 1, reveals that during the Apartheid era, the township had been starved from investment in infrastructure, services and amenities and the socioeconomic conditions of its resident was a big concern. Spatial transformation in Soweto aims to reverse the lack of infrastructure and services, the state of Dormitory Township and the housing crisis while pursuing the vision of a compact and integrated city. The literature review suggests that the following criteria can be used to evaluate the level of achievement of those objectives: delivery of infrastructure and services, densification, housing provision, increase public transport mobility and increase employment and economic opportunities.

Infrastructure and service delivery has significantly improved through the CoJ sustained capital investment projects. The 2011 Census data on Soweto (see Annexure 1) shows that more than 90 percent of the residents have access to basic service supplied by the municipality (electricity, sanitation, refuse collection, and piped water)(Stats SA, 2011). The Rea Vaya BRT is an investment that uses mass transit in order solve a public transport problem and to catalyse, through the

application of the principles of TOD, other outcomes such densification and land-uses changes along the transit corridor (strategic planning principle).

The context and socio-economic conditions within which spatial transformative initiative are undertaken determines the form and extent of the outcomes. The inhabitants of Soweto recognise the impact Rea Vaya has had on their environment and daily lives; they recognise the benefits and opportunities presented by being located next to the Rea Vaya whether those benefits directly relate to them or to other individuals and businesses in their communities. They have acted to take advantage of these opportunities. This report did not seek to establish a normative judgement of formal and informal responses but to address their implications for spatial planning.

Rea Vaya.

The study did not focus on the Rea Vaya system itself but on the aspect of the system that helped answer the research question. The geographic spread of the system is important to increase people's mobility within the city. Phase 1A had no impact in this regard as it operates along existing public transport routes. That changed quite significantly with the introduction of Phase 1B. Phase 1B was not part of the scope of this research but had to be considered because it became operational during the time frame covered by this study. The opening of a new direct public transport route between Soweto to Auckland Park has increased the mobility of Rea Vaya users. The respondents who used the system did not all agree on the affordability of the system. Some reported that it was cheaper and other that it was more expensive but used it nonetheless because it was more convenient, reliable and safe. The public infrastructure upgrade around the station did improve people's perception of the quality of infrastructure, services and amenities in their neighbourhood. This is truer in Orlando East than in Diepkloof because Orlando East recently benefitted from a public environment upgrade program implemented by the JDA on behalf of the CoJ.

6.2 Densification- Backyarding

Residential density has always been high in Soweto. But the rate at which it occurs has accelerated over the past five years. This is an indication of a correlation between the implementation of Phase 1A that happened in June 2009 and the increased rate at which people are building new structures on their properties. This densification is horizontal rather than vertical and is taking the form of backyarding[22]. We did not observe many multiple-storey buildings in the Sub-Areas. The supply of accommodation around the Rea Vaya station remains insufficient as people indicated that there were always people looking for accommodation. The high demand has not resulted in a rise in the

[22] See Rubin and Gardner (2013:8) for their definition of densification.

price of rent (which is expected along mass transit corridors) because Soweto as a whole is still not a prime location for would –be- renters. The perceptions around the rise in property values do not align with the principles of TOD either. People felt that the value of properties hadn't really risen since the BRT was implemented. The physical constraints linked to the fact that the Sub-Areas are built-up areas with relatively small residential plots do constrain the type of constructions happening in the area. There haven't been many applications for consolidation of land registered on the TAS databases. Property owners have not attempted to consolidate multiple stands into larger properties.

6.3 Diversification of Land Uses

Mixed-uses on residential properties were permitted as far back as 1984 (BCDA) provided that property owners obtained consent from the municipal authorities. Spaza shops, home enterprises and the likes were allowed and even trading from the sidewalks was also permitted. The residents perceive that the number of people partaking in these activities has grown since the Rea Vaya started operating. Informal businesses in general, those who rely on foot traffic and the new tenants[23] in the vicinity of the station in particular, have benefitted the most. Traders find it easier and cheaper to use the BRT to travel and purchase stock in the different trade centres such as the CBD and China Mall. There has not been much change in terms the creation of employment in Soweto itself. The same commuting patterns remain, people going out to work or look for work and returning in the evenings. However, some people find it easier to use the BRT to go and look for employment (the geographical reach of the network makes a difference).

6.4 Property Rights and Planning Regulations

The majority of residents are not aware of their property rights and the regulations to follow in order to action those rights. In fact; some of the residents link Town and Spatial Planning issues to the department of Housing. The residents' actions are therefore guided by their needs and the opportunities they perceive rather than by policies and plans that they are not aware of. There is a *de facto* acceptance of the backyarding phenomenon and a laissez-faire attitude to backyarding in Soweto and certain other parts of Johannesburg and in others not. For instance, illegal backyarding (not approved by municipality) and informal buildings (constructed with corrugated sheeting and other materials not compliant with the Building Regulations) are not accepted and are actively prevented in Cosmo City. In Orlando East and Diepkloof, people are simply advised not to build their backyard rooms over service pipes.

[23] Furniture traders for example

People engage with the municipality for approvals when third parties establish strict requirements for the accreditation of businesses accommodation. The University of Johannesburg has established standards of out-of-campus accommodation that are acceptable for students who benefit from bursaries. The bursary allocation for accommodation is attractive (R2500 rental) so people who want to tap into that market are forced to apply for council approval. The same happened before the FIFA World Cup when property owners were hoping to provide FIFA accredited Bed and Breakfast and guest houses for the football fanatics and the tourists.

6.5 Access to finance. Social assets and the TOD 'enablement' model.

The TOD spatial transformation model hinges on an[24] 'enablement' model which doesn't work in the low-income, historically poorly located (See Chapter 1[25]) Soweto at the moment. Firstly, the Northern suburbs of Johannesburg continue to disproportionately attract private sector property investors. Secondly, the majority of property owners living in Soweto do not have access to formal finance; at least on the scale required for property investment. People cited the lack of finance as the biggest stumbling block for them to realise their construction projects. This applies even to the people who are employed. Their access to finance is stifled by many factors. The issues around property ownership and regularisation of title deeds are some of the barriers. There is also a general reluctance of property owners to risk the paid-up houses they view more as a social asset than a financial asset to be leveraged. The people see their houses as something to be passed-on to their children and a safety net in times of hardship. They are unwilling to risk this to obtain finance and join the property development speculation market.

The other aspect of the TOD model which doesn't quite work in Soweto is the assumption that property prices and rents will rise in the vicinity of a mass transit system. The majority of the respondents felt that the cost of rent had not risen after the implementation of Phase 1A of Rea Vaya; even though the demand had risen. The rent ceiling in Soweto remains quite low because of the dearth of employment opportunities in the area, another legacy of Apartheid spatial planning. The Soweto market still has some appeal because people are constantly looking for alternative models of financing and implementing their property projects (both private individuals and property developers).

[24] See Chapter 2 for Third Way governance and enablement

[25] First settlement next to the Klipspruit sewage farm in the early 1900. Very cheap land because of poor location

6.6 Reflections on Policy Coordination and Initiatives.

Given that the need for spatial transformation in Soweto is accepted as an imperative for the CoJ, the strategy to achieve the objectives of densification and diversification of land uses need to be reassessed.

The lack of coordinated strategies and actions from the various entities within the CoJ and the GPG that are involved in the area needs to be rectified. This lack is identifiable firstly at policy formulation level and secondly at implementation level. The Soweto Economic Development Plan was developed by the CoJ Department of Economic Development in 2008 consultation with a broad array of economic actors in Soweto. Yet the strategy did not align with the Spatial Development Framework which clearly stated that densification along public transit corridors was a policy of the city. In fact the document barely mentions the SPTN and the Rea Vaya Network which was already under construction at the time (2008). The Backyarding Pilot project that was conducted by the GPG delivered single residential units (with 3 rooms) in Orlando East. This pilot project was an opportunity to test alternative building types that are more in line with the densification policy along mass transit corridors. For instance, building vertically instead of reproducing horizontal patterns that are the norm in low density neighbourhoods. Vertical construction would also respond better to the constraints of the small existing sites and provide more accommodation units to alleviate the housing crisis.

There is no doubt that the fact that many properties do not have clear and identifiable owner/s is stumbling block in the way of spatial transformation in Diepkloof and Orlando East in particular and the larger Soweto area in general. The inability for the residents to produce legal documentation acceptable to the municipality and the formal lenders prevents them from going beyond the casual, low-tech, informal constructions into projects that will add significant value to their properties. The municipality should establish a program to educate people of the importance of the regularisation of their Title Deeds and assist people through the engagement process with the Deeds Office. They should also educate people about the potential presented by the rights attached to their properties and build awareness and buy-in for the CoJ's spatial transformation policies and initiatives.

6.7 Reflections on the Spatial Practice Framework

The spatial practice framework was very useful in keeping the research focused on the practices of the ordinary residents of Diepkloof and Orlando East. As t the research project unfolded, it emerged that some of the elements of the framework weighted more in the resident's process of identifying opportunities and realising their vision. The processes leading from the identification of a need or an

opportunity to the realisation of a project were grouped into three steps: Competence, Ability to perform and Performance (see Fig 12). The following table summarize the relevance of the various elements in the context of this project. It is followed by a few paragraphs expanding on the statements made in the table. This framework can be used in other context and yield different observations of the relevance of these elements.

Spatial Practice in Development Planning	**Relevance in the Study Area's Context**
Competence (Knowledge)	
Knowledge of the potential benefits of proximity to public transit nodes	This is quite important in the context of the study. Identifying trends and changes, and deciding to act is the first step
Knowledge of the Rights, Standards and Regulations	This is not a critical determinant of action, especially in the context of lax enforcement of regulations.
Ability to perform	
Physical Constraints on property	This is quite important. Space limitations determine whether new buildings or new spaces for activities are feasible
Tenure	Important. Determines who has the decision-making power. Gives rise to power struggles when contested or when it is held collectively. Physical tenure more important than legal tenure (see Kumar, 1996)
Access to Funding (or resources)	Critical in this context. Often is a stumbling block to action
Performance	
Council Application	This is not a critical determinant of action, especially in the context of lax enforcement of regulations.
Construction of New Accommodation (formal of informal)	Dependent on the important elements above
Starting of New Businesses (formal or informal)	Dependent on the important elements above

Competence (Knowledge) . Competence is a critical point for a spatial transformation strategy based on the principle of 'enablement'. In this context, the opportunities (increased demand for accommodation and the resulting larger customer base for businesses) presented by the introduction of the Rea Vaya BRT in the study areas have well been identified by the people living in the vicinity of the BRT stations. The knowledge of the norms and regulations pertaining to Building construction and Business on their property is not that important because of the laissez-faire attitude of the municipal authorities regarding the enforcement of planning policies and by-laws.

Ability to perform. The extended Spatial Practice Model introduced the category 'Ability to perform' as a critical link between Knowledge and Action. This has been confirmed throughout this research. Physical Constraints, Tenure and Financial means are the pivots that allow knowledge to be turned into action. Tenure is a critical element for spatial practice because it determines which individuals have the decision-making power within a household. As mentioned in the table, in a context where Title Deeds have not been kept up to date, or there are disputes amongst descendants of the original property owner, physical tenure is more important than legal tenure. Finances are probably the most critical element of all. In a context where unemployment is rife, the ability to raise money, through savings or borrowing, determines if a project will go ahead or not. While most respondents expressed the desire to extend or upgrade their properties, a good number of them could do so because of a lack of access to finance. The physical limitations of the properties are quite important. Even though the Town Planning schemes allow for double storey buildings as primary rights and up to four storeys as secondary right (see Annexure G). Vertical expansion requires more technical and financial means than the ones required for erecting single storey buildings. As such, horizontal expansion remains the easiest and most common form of expansion in the study area.

Performance . The performance of spatial practice identified three categories. First of all, engagement with Representations of Spaces (RN S), in this instance the CoJ's Town Planning and Building Control Departments, is not a critical requirement in the study area. As such, the rapport of forces between the different elements of the Triad leans more towards Spatial Practice (see Fig. 11). Similar to the competence aspect, the relationship with RN S is not prominent and does not really impact on people's decision making. Different actors of RN S reinforce the importance and values of the others and RN S asserts itself over Spatial Practice through constant control and law enforcement. Formal access to finance and approval of building plans from the municipal authority are both dependent on the ability of the applicant to produce a proof of property ownership (Title Deed). In the absence of the later, property owners are alienated from interacting and depending on

the RN S nexus and its, regulations and standards. The nature of the spaces produced outside of RN S's control is therefore guided solely by necessity, opportunity and means

6.8 Limitations of the Study, Questions and Possible Future Research.

The research give a lot of weight on local knowledge, the perceptions of the respondents as it main source of information. The study could have benefitted from more property data from Real Estate Agents and from the banks and other formal and informal lenders. The fact that the research was entirely self-funded meant that I had certain budget limitations and I could not access certain information and reports that had to be paid for. Reports on the property market performance and GIS data from private data suppliers were out of my budget's reach and i had to rely on free data available on the Internet. The topic would benefit from a survey with much larger population samples to rely test the trends that were established with the rather small sample of interviewees.

Questions and Future Research

Many of the respondents revealed that many of the properties effectively belong to groups of individuals spreading over more than one generation, and that the ownership of the property was often disputed. A study on the power relations and decision-making dynamics within these kinds of properties, in Soweto specifically, would uncover important information that will allow the city to better engage with the area.

In closing, spatial transformation is a process which warrants constant engagement, assessment and re-assessment of the impact of policies and projects, re-calibration of focus and actions. I hope to have made a contribution to this challenging yet rewarding endeavour.

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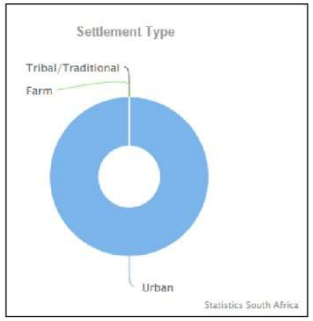
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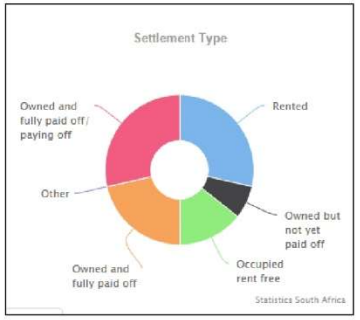
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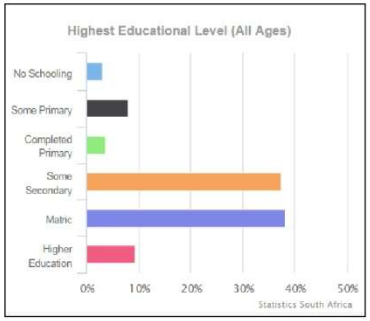
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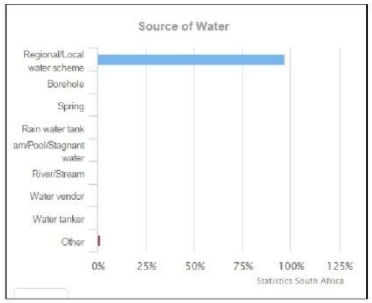
Key Statistics2011

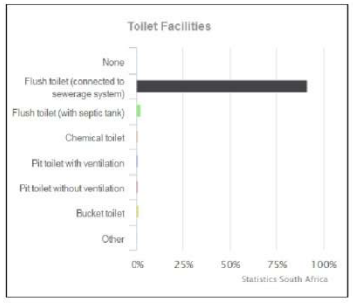
Characteristics	
Total population	1,271,628
Young (0-14)	24,7%
Working Age (15-64)	71%
Elderly (65+)	4,2%
Dependency ratio	40,8
Population density	6357 p/km2
No schooling aged 20+	3,1%
Higher education aged 20+	9,3%
Matric aged 20+	38,3%
Number of households	355,331
Average household size	3,4
Formal dwellings	84,2%
Flush toilet connected to sewerage	91,6%
Weekly refuse removal	96,5%
Piped water inside dwelling	55%
Electricity for lighting	93,1%

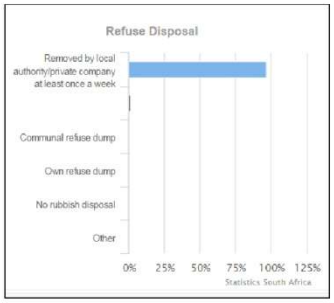


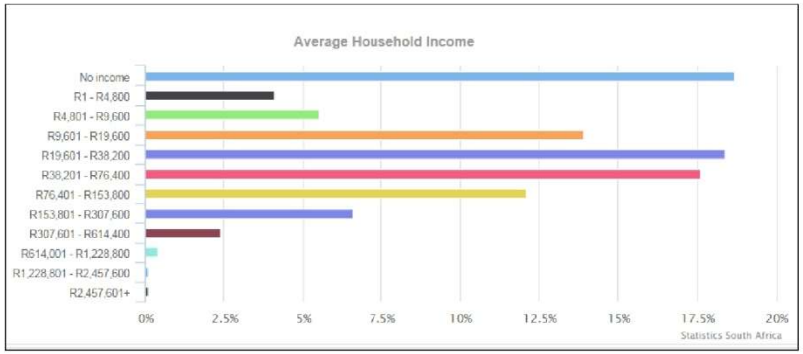












Soweto Census 2011 in Images (Stats SA, 2011)

Annexure B

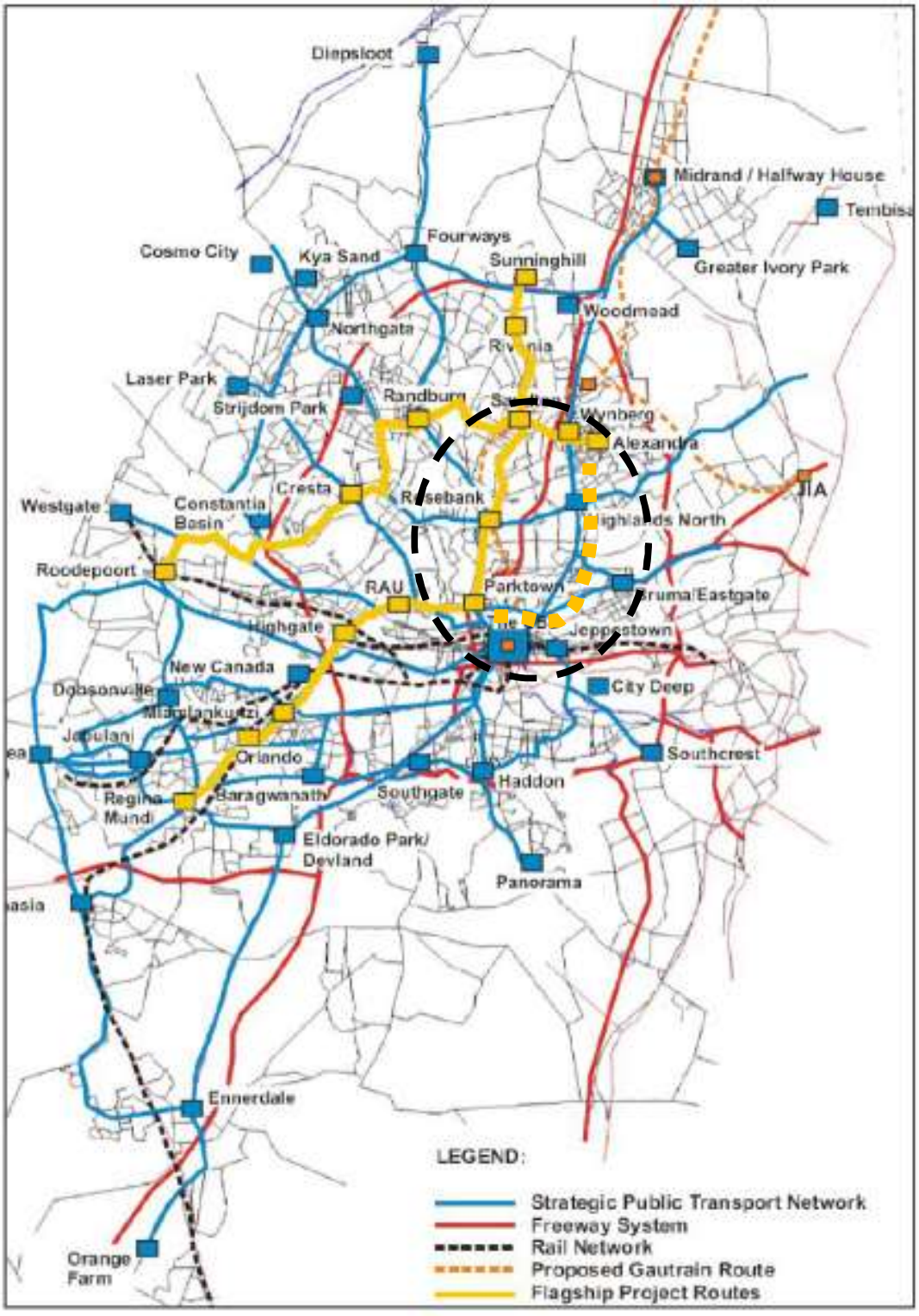


Figure 34 Johannesburg's Integrated Public Transport Network (From CoJ, 2013:20, annotated by author) [26]

[26] Portion of the route initially planned from Parktown –Rosebank- Sandton- Alexandra via Oxford Rd has changed to Parktown – Highlands North – Alexandra – Sandton via Louis Botha

Annexure C

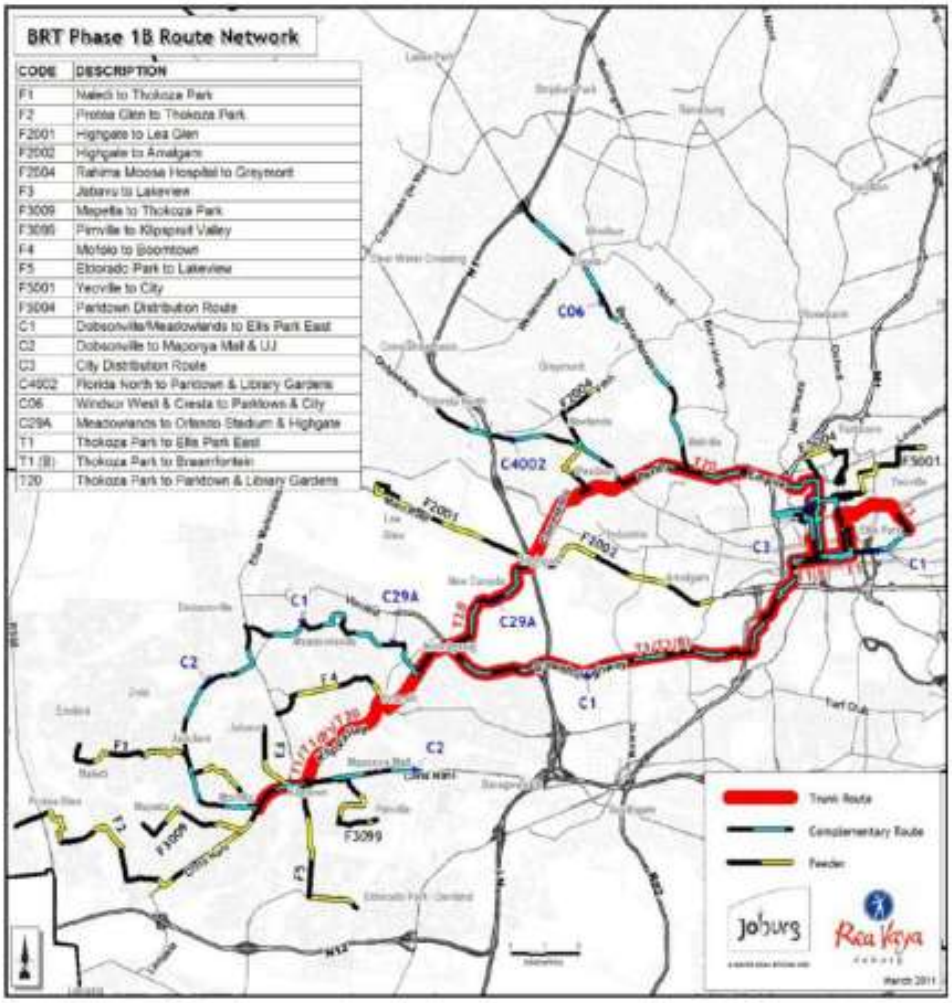
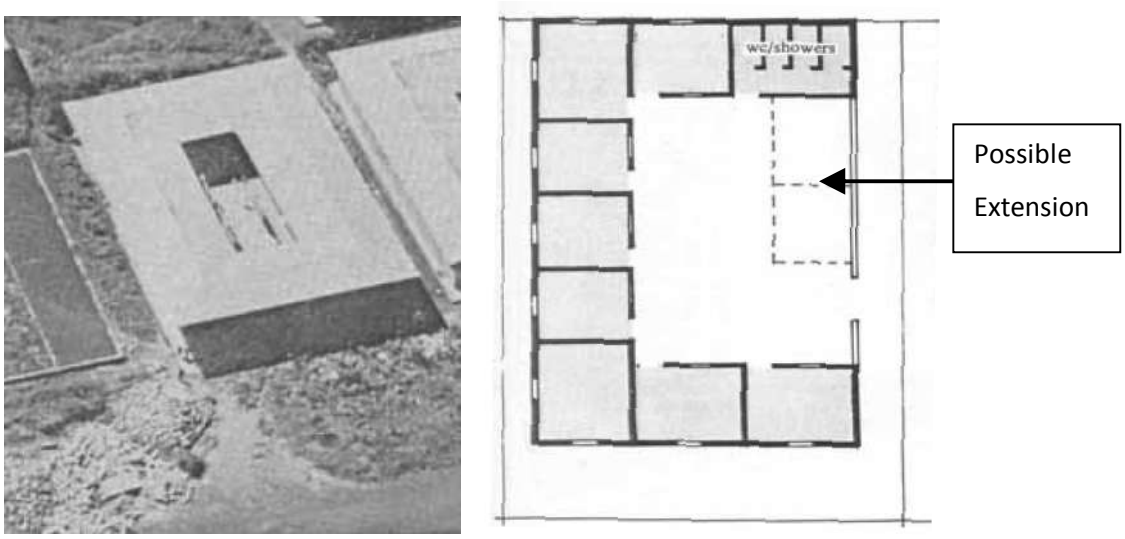
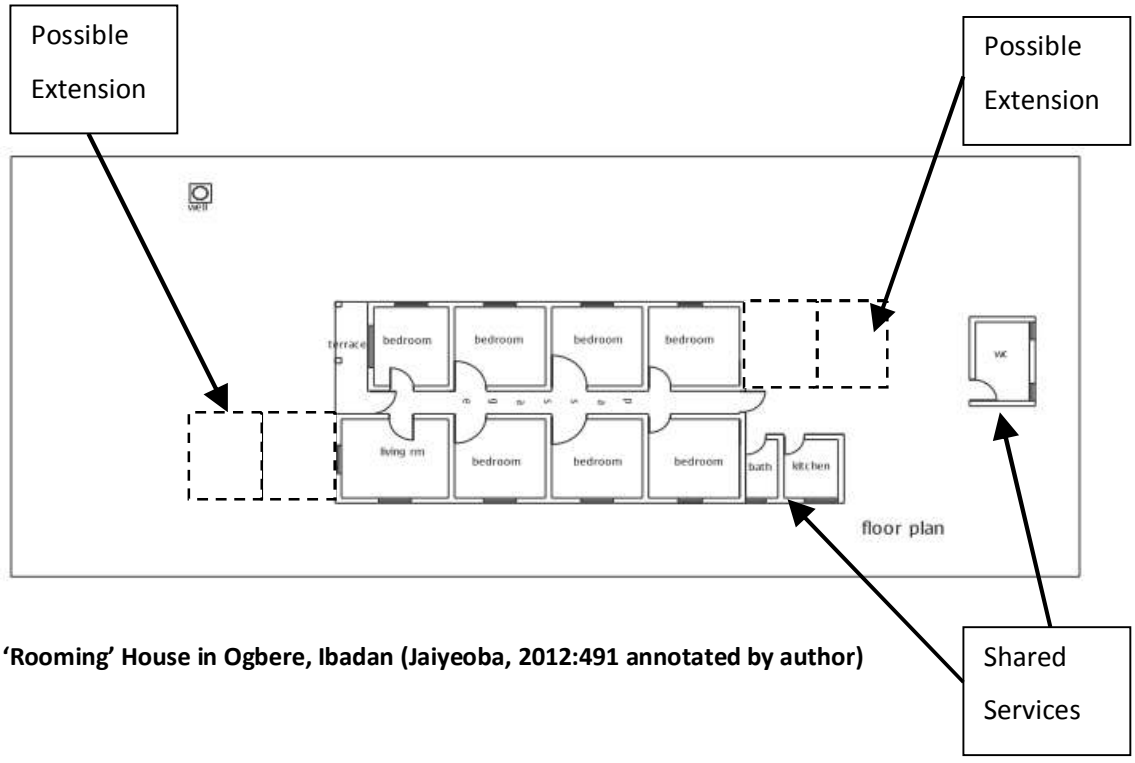


Figure 35 Rea Vaya Phase 1B Route (From CoJ, 2013:14)

Annexure D

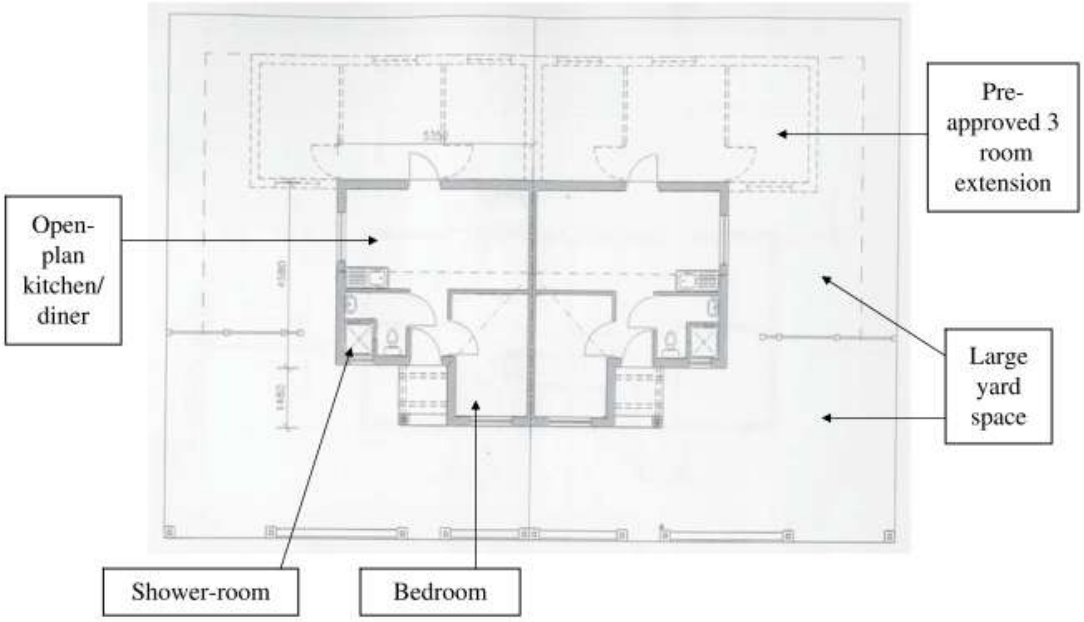


Courtyard Typology in Makongeni, Nairobi (SOURCE: Watson, 2009b: 12 annotated by author)



'Rooming' House in Ogbere, Ibadan (Jaiyeoba, 2012:491 annotated by author)

Annexure D1



Westlake Village in Cape Town. Semi-detached House Plan with Pre-approved Extension (Drawing by Rabie, et al, 1998 annotated in Lemanski, 2009: 476)

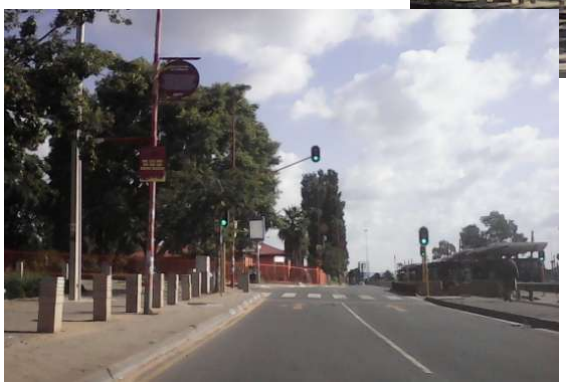
Annexure E1 – Orlando East Photographs

(All Photographs taken by the author)

Sub –Area 1 Orlando Police Station Rea Vaya Station and Surroundings









Mooki Street – Institutional Node

The Orlando East Public Library and the Police Stations are situated on Mooki Street, within 2 minutes walking distance of the Orlando Police Station Rea Vaya station. The sidewalks and public environment have been upgraded with new paving, street lights and the planting of trees. There is an open public space with seating just opposite the Orlando East library. The capacity of the services infrastructure such as sewer and stormwater reticulations have been upgraded along the trunk route to support the future demand expected from higher densities of dwellings . The CoJ's Region D administrative offices are located just outside Sub-Area 1, within a 15 minutes walking distance of the station.

Sub-Area 1 – Public Environment







Sub- Area 1 – Public Environment

The state of the public environment within Sub-Area is not consistent. Rathebe Street, the main road leading up from the station into Orlando East has recently been upgraded as per the Orlando East-Noordgesig Precinct Plan. Paving, public seating, planting as well as Rea Vaya signage can be observed on the street. The streets perpendicular to Rathebe Street still don't have paved sidewalks. The pedestrians are forced to walk on the road. There are also issues around urban management, especially refuse collection in the area.



Sub-Area 1 – Housing Typology









The houses are really diverse. Different densities, materials of house layouts can be observed throughout. There are very few of the original 51/6 houses left. Most have been modified, extended and/or renovated. Double story buildings are a rare feat even though they feature as primary right for Residential 1 in the area. The backyard rooms are made of corrugated iron on some properties, and brick and mortar on others. There are a few informal businesses around (spaza shops, hair salons, etc...) but the majority of properties are residential.

Annexure E2- Diepkloof Photographs

Sub- Area 2 – Housing Typology



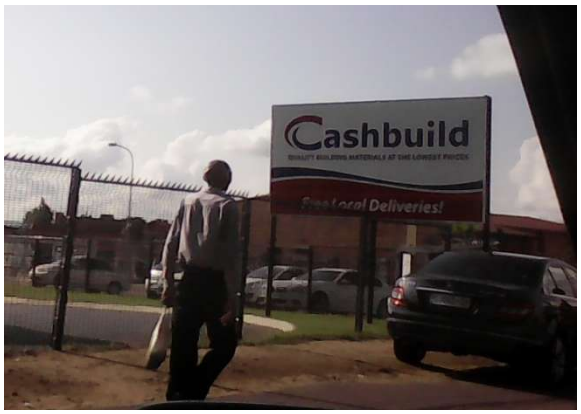






As for Sub-Area 1, Sub-Area 2's housing typology is varied. There is a mix between old and new. Double storey buildings are more frequent than in Orlando East. The pedestrian experience is not consistent. The main arterials do have paved pedestrian walkways while the smaller streets do not. Some of the old 51/6 matchboxes are still recognisable and backyard rooms, workshops and all sorts of extension are visible all around.

Sub-Area 2 – Business Node







The trait that really differentiates the two sub-areas is the presence of formal businesses and a local shopping centre within 15 walking distance of the Ghost Town station. Well established retailers and franchises trade from that shopping centre. The CO mentioned that Cashbuild provided credit on construction materials to the inhabitants of the area as an alternative to the banks.

Sub-Area 2 – Formal and Informal Business in Residential Area

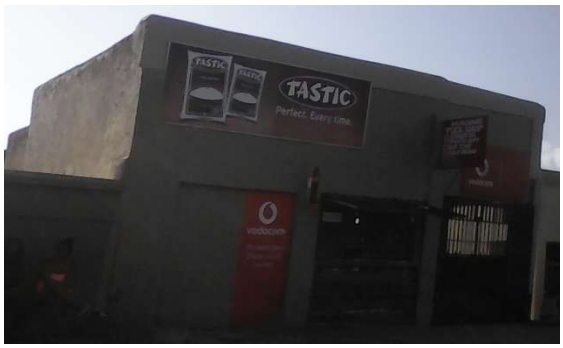












People operate a great variety of businesses from the Residential properties. Professional services such as doctor's rooms, furniture and spaza shops, catering businesses and specialised businesses such as sound and stage hire are ubiquitous throughout the sub-area.

Annexure F

Census 2011 Data: Region D, Ward 29 and Ward 31

Population		Region D	Ward 29	Ward 31
	Black	1074768	23295	27462
	Coloured	19548	6792	57
	Indian	1302	90	30
	White	1281	120	30

Dwelling Type		Region D	Ward 29	Ward 31
	House of Brick Structure	198636	4656	5160
	Traditional Dwelling or Hut	645	3	12
	Flat	5331	273	48
	Town Cluster Small House	24321	351	39
	House Flat Room in Backyard	29070	570	1062
	Informal Shack in Backyard	30888	633	2634
	Informal Shack not in Backyard	7602	18	54
	Room Flatlet not in Backyard	2676	114	207
	Caravan or Tent	120	3	3

Employment Statistics		Region D	Ward 29	Ward 31
	Employed	319935	8271	8190
	Unemployed	186015	4968	6030
	Not Economically Active	593037	17109	13467

Income Statistics		Region D	Ward 29	Ward 31
	No Income	55278	1677	2511
	R 1 to R4800	11592	216	387
	R4801 to R9600	15486	291	555
	R9601 to R19600	41430	867	1308
	R19601 to R38200	54522	1029	1923
	R38201 to R76400	53838	1095	1527
	R76401 to R153800	38682	828	687
	R153800 to R307600	21456	450	249
	R307601 to R614400	7851	135	90
	R614400 to R1 228 800	1257	18	18
	R1 228 801 to R2 457 600	438	12	21
	Over R2 457 601	366	6	6

Data compiled from www.joburg.org.za

Annexure G

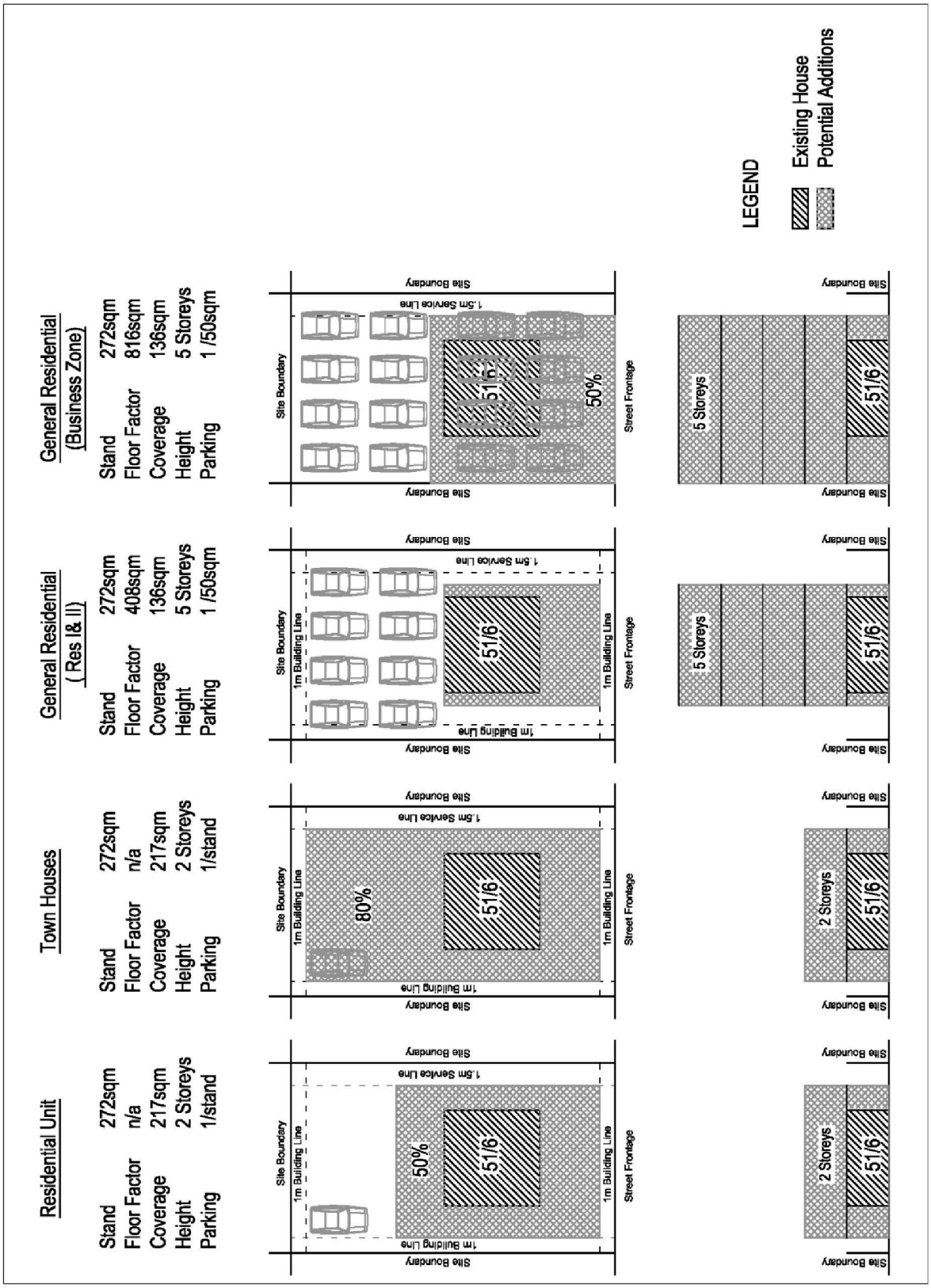


Figure 36 Densification Simulations as per Current Town Planning Rights for Residential 1,2 and Business Zoning (Diagrams by author)

Annexure H

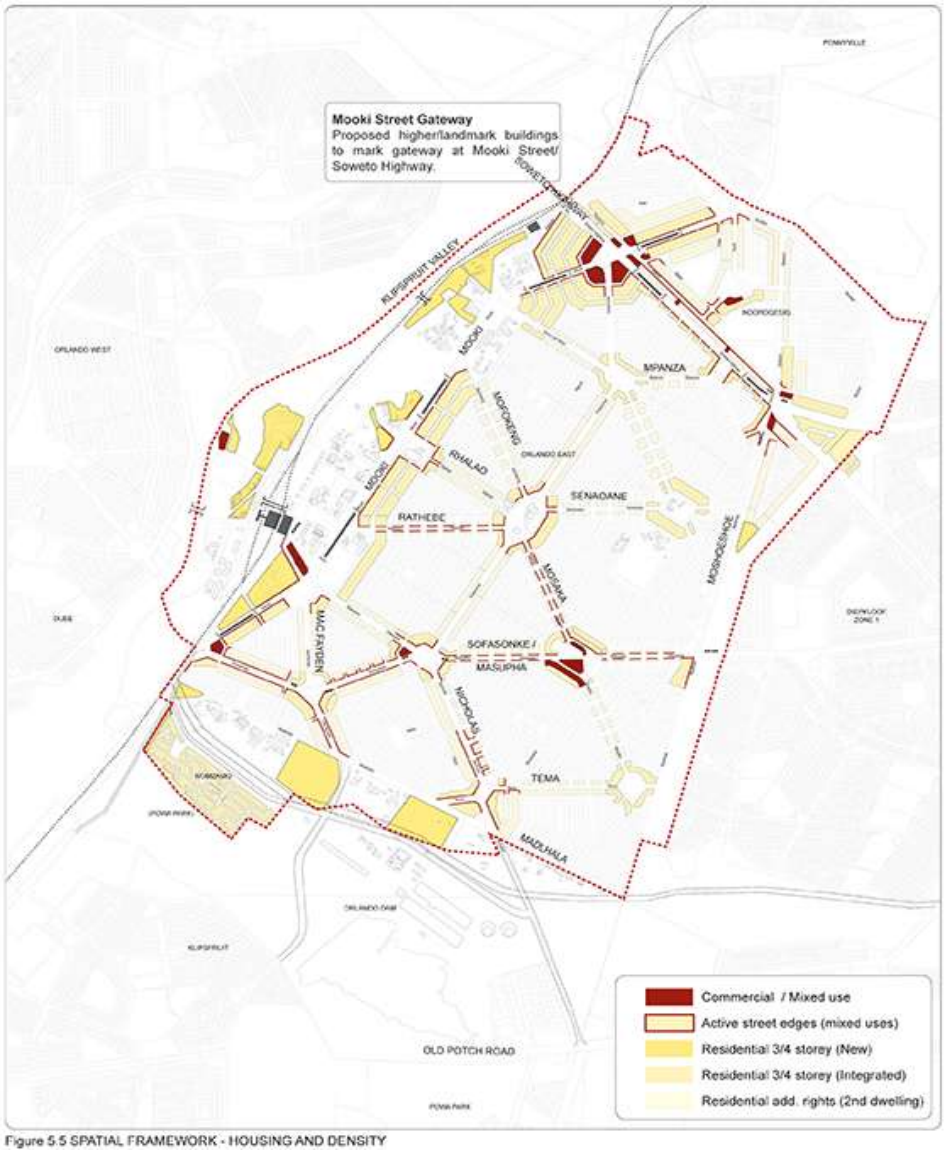


Figure 5.5 SPATIAL FRAMEWORK - HOUSING AND DENSITY

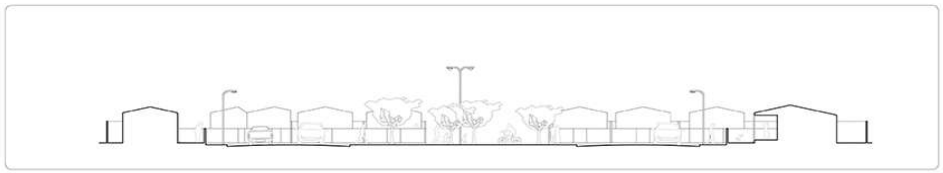

Figure 5.17 SOFASONKE / MASUPHA NODE EXISTING


Figure 5.18 SOFASONKE / MASUPHA NODE PROPOSED

Figure 37 Orlando East and Noordgesig Precinct Plan and Street Section (From www.jda.org.za)

Annexure I

SUB-AREA 1 : ORLANDO EAST APPLICATIONS 800 M RADIUS

TOWNSHIP	STAND NUMBER	APPLICATION TYPE	APPLICATION DETAIL	LEGISLATION	APPLICATION DATE	DECISION	COMMENT	DECISION DATE	APPLICANT
Orlando East	404	Consent	Normal	BCDA 1984	2004 Jun	Approved		2004 Jul	Individual
Orlando East	464	Consent	Normal	BCDA 1984	2011 Nov	Legally Incomplete		2012 Feb	Company
Orlando East	600	Consent	Land Use	BCDA 1984	2012 Dec	Refused		2013 Dec	Individual
Orlando East	669	Consent	Land Use	BCDA 1984	2010 Jul	Approved		2010 Sep	Individual
Orlando East	721	Consent	Land Use	BCDA 1984	2008 Feb	Refused		2013 Jan	Individual
Orlando East	755	Consent	Normal	BCDA 1984	2013 May	Approved		2013 Nov	Individual
Orlando East	857	Consent	Land Use	BCDA 1984	2008 Sep	Approved		2010 Nov	Individual
Orlando East	1145	Consent	Land Use	BCDA 1984	2012 Jul	Refused		2013 Sep	Individual
Orlando East	1205	Consent	Normal	BCDA 1984	2004 Apr	Approved		2004 Jul	Individual
Orlando East	1394	Consent	Land Use	BCDA 1984	2013 Dec	In Evaluation			Individual
Orlando East	1458	Consent	Land Use	BCDA 1984	2013 Apr	Approved		2013 Dec	Company
Orlando East	1587	Consent	Land Use	BCDA 1984	2012 Jul	Refused		2013 Mar	Individual
Orlando East	1606	Consent	Tavern	BCDA 1984	2004 Sep	Refused		2006 May	Individual
Orlando East	1766	Consent	Land Use	BCDA 1984	2013 Jan	Refused		2013 Apr	Individual
Orlando East	1794	Consent	Consent	BCDA 1984	2004 Jun	Approved		2004 Jul	Individual
Orlando East	1920	Consent	Consent	BCDA 1984	2005 Aug	Approved		2006 Feb	Individual
Orlando East	2016	Consent	Consent	BCDA 1984	2006 Jan	Refused		2006 May	Individual

TOWNSHIP	STAND NUMBER	APPLICATION TYPE	APPLICATION DETAIL	LEGISLATION	APPLICATION DATE	DECISION	COMMENT	DECISION DATE	APPLICANT
Orlando East	2040	Consent	Land Use	BCDA 1984	2012 Nov	Legally Incomplete			Individual
Orlando East	2553	Rezoning	Rezoning	BCDA 1984/ TPTO 1986	2011 Nov	TP refuse			Individual
Orlando East	2672	Consent	Land Use	BCDA 1984	2013 Aug	Approved		2013 Sep	Individual
Orlando East	3080	Consent	Land Use	BCDA 1984	2007 Nov	Approved		2010 May	Individual
Orlando East	3133	Consent	Land Use	BCDA 1984	2013 Jan	Refused		2013 Jun	Individual
Orlando East	3159	Consent	Land Use	BCDA 1984	2007 Oct	Approved		2010 May	Individual
Orlando East	3424	Consent	Land Use	BCDA 1984	2012 May	Refused		2013 Mar	Individual
Orlando East	3435	Consent	Land Use	BCDA 1984	2012 Sep	Refused		2013 Mar	Individual
Orlando East	3456	Consent	Land Use	BCDA 1984	2010 Jul	Legally Incomplete			Individual
Orlando East	3593	Consent	Land Use	BCDA 1984	2007 Sep	Approved		2008 Jul	Individual
Orlando East	3601	Consent	Tavern	BCDA 1984	2003 Nov	Refused		2004 Sep	Individual
Orlando East	4136	Consent	Consent	BCDA 1984	2006 Nov	Approved		2007 Sep	Individual
Orlando East	4187	Consent	Land Use	BCDA 1984	2010 Aug	Approved		2010 Dec	Individual
Orlando East	4264	Consent	Consent	BCDA 1984	2005 Mar	Refused		2005 Nov	Individual
Orlando East	4544	Consent	Normal	BCDA 1984	2008 Dec	Legally Incomplete		2009 Mar	Individual
Orlando East	4550	Consent	Land Use	BCDA 1984	2009 Mar	Withdrawn		2009 Jun	Individual
Orlando East	4687	Consent	Land Use	BCDA 1984	2011 Apr	Refused		2012 Feb	Individual
Orlando East	4706	Consent	Normal	BCDA 1984	2008 May	Approved		2010 Jun	Individual
Orlando East	4918	Consent	Consent	BCDA 1984	2006 Aug	Refused		2008 Nov	Individual

TOWNSHIP	STAND NUMBER	APPLICATION TYPE	APPLICATION DETAIL	LEGISLATION	APPLICATION DATE	DECISION	COMMENT	DECISION DATE	APPLICANT
Orlando East	5156	Consent	Land Use	BCDA 1984	2012 Feb	In Evaluation			
Orlando East	6177	Consent	Land Use	BCDA 1984	2011 Feb	Approved		2011 Nov	Individual
Orlando East	6418	Consent	Normal	BCDA 1984	2007 Dec	Approved		2010 May	Individual
Orlando East	6504	Consent	Consent	BCDA 1984	2011 Sep	In Verification			Company
Orlando East	506	Consent	Building Line	BCDA 1984	2007 Nov	Approved		2008 Feb	Individual
Orlando East	857	Consent	Other	BCDA 1984	2008 Sep		Day Care	2008 Oct	Individual
Orlando East	983	Consent	Building Line	BCDA 1984	2007 Jul	Approved		2009 Feb	Individual
Orlando East	1019	Consent	Other	BCDA 1984	2014 Jan	Approved		2014 Mar	Individual
Orlando East	1200	Consent	Building Line	BCDA 1984	2007 Jul	Approved		2008 Jan	Individual
Orlando East	2068	Consent	Consent	BCDA 1984	2010 Apr	Approved	Day Care	2010 May	Individual
Orlando East	2162	Consent	Building Line	BCDA 1984	2006 Aug	Approved		2007 Nov	Individual
Orlando East	2566	Consent	Building Line	BCDA 1984	2008 Jun	Approved		2008 Jun	Not specified
Orlando East	3870	Consent	Land Use	BCDA 1984	2013 Aug	In Evaluation			Individual
Orlando East	4037	Consent	Building Line	BCDA 1984	2009 Mar	Approved		2009 Apr	Individual
Orlando East	4910	Consent	Building Line	BCDA 1984	2008 Apr	Approved		2008 Jun	Individual
Orlando East	5927	Consent	Building Line	BCDA 1984	2007 Nov	Approved		2008 Jan	Individual
Orlando East	6616, 6617, 6618			BCDA 1984					

Annexure J

SUB-AREA 2 : NOORDGESIG - ALL APPLICATIONS

TOWNSHIP	STAND NUMBER	APPLICATION TYPE	APPLICATION DETAIL	LEGISLATION	APPLICATION DATE	DECISION	COMMENT	DECISION DATE	APPLICANT
Noordgesig	52	Subdivision	Subdivision	JTPS /TPTO 1986	2013 Sep	Approved		2014 Feb	Individual
Noordgesig Ext. 3	186 /226-iq	Township	New Township	RTPS 1987	2005 Aug	In Evaluation	Housing for CoJ		Company
Noordgesig	195	Consent	Building Line	JTPS	2009 Dec	Approved		2010 Feb	Company
Noordgesig	907	Consent	Consent	BCDA 1984	2006 May	Legally Non Compliant		2005 Jun	Individual
Noordgesig	1037	Rezoning	Rezoning	JTPS	2005 Apr	Refused		2005 Dec	Individual
Noordgesig Ext. 1	1203	Consent	SDP	BCDA 1984 /JTPS	2012 Jul	Approved		2013 Oct	Company
Noordgesig Ext. 1	1213	Consent	Consent	JTPS	2007 Oct	Legally Non Compliant		2008 May	Individual
Noordgesig Ext. 1	1222	Consent	Other	JTPS	2011 Jul	Legally Non Compliant		2013 Aug	Individual
Noordgesig Ext. 1	1223	Consent	Building Line	BCDA 1984	2007 Sep	Approved		2007 Oct	Individual
Noordgesig Ext. 1	1231	Consent	SDP	BCDA 1984 /JTPS	2011 Oct	Approved		2011 Dec	Individual
Noordgesig Ext. 1	1257	Consent	Building Line	BCDA 1984	2009 Apr	Approved		2009 Jun	Not specified
Noordgesig Ext. 1	1264	Consent	Building Line	BCDA 1984	2008 Jun	Approved		2008 Nov	Individual
Noordgesig Ext. 1	1286	Consent	Building Line	BCDA 1984 /JTPS	2013 Oct	Approved		2013 Nov	Individual
Noordgesig Ext. 1	1287	Consent	Building Line	BCDA 1984	2008 Nov	Legally Non Compliant		2009 Apr	Individual

Annexure K

SUB-AREA 2 : DIEPKLOOF AND NOORDGESIG EXT. 1 APPLICATIONS 800 M RADIUS

TOWNSHIP	STAND NUMBER	APPLICATION TYPE	APPLICATION DETAIL	LEGISLATION	APPLICATION DATE	DECISION	COMMENT	DECISION DATE	APPLICANT
Diepkloof	23373 &23372	Consent	Normal Consent	BCDA 1984	2002 Nov	Approved			Individual
Diepkloof	24466 &24465	Consolidation Subdivision	Consolidation Subdivision	BCDA 1984	2002 Jul	Returned		2004 Mar	Company
Diepkloof	24456	Consent	Increase Height	BCDA 1984	2003 Jun	Approved			Company
Diepkloof	11854	Consent	Normal Consent	BCDA 1984	2004 Feb	Approved			Individual
Diepkloof	24456	Consent	Normal Consent	LFTA 1991	2004 Apr	Approved			Company
Diepkloof	23765	Consent	Tavern	BCDA 1984	2004 Jul	Approved		2005 Jan	Individual
Diepkloof	11854	Consent	Increase Coverage	BCDA 1984	2004 Apr	Approved		2004 Apr	Individual
Diepkloof	1/15984	Consent	Normal Consent	BCDA 1984	2005 Dec	Approved			Individual
Diepkloof	13558	Consent	Consent	BCDA 1984	2006 Oct	Approved		2006 Nov	Individual
Diepkloof	14989	Consent	Consent	BCDA 1984	2006 May	Legally Non Compliant		2007 Nov	Individual
Diepkloof	12185	Consent	Normal Consent	BCDA 1984	2007 Dec	Legally Non Compliant		2008 Aug	Individual
Diepkloof	21733	Consent	Building Line	BCDA 1984	2007 Nov	Approved		2008 Apr	Individual
Diepkloof	12185	Consent	Building Line	BCDA 1984	2007 Dec				
Diepkloof	23967	Consent	Consent	BCDA 1984	2007 Mar	Approved			Individual
Diepkloof	21733	Consent	Other	BCDA 1984	2007 Nov	Withdrawn			Individual
Diepkloof	22441	Consent	Land Use	BCDA 1984	2007 Oct	Approved		2010 May	Individual

TOWNSHIP	STAND NUMBER	APPLICATION TYPE	APPLICATION DETAIL	LEGISLATION	APPLICATION DATE	DECISION	COMMENT	DECISION DATE	APPLICANT
Diepkloof	14201	Consent	Normal Consent	BCDA 1984	2007 Nov	Withdrawn		2008 Feb	Individual
Diepkloof	18332	Consent	Building Line	BCDA 1984	2008 Feb	Approved		2008 May	Individual
Diepkloof	14989	Consent	Annexure F	BCDA 1984	2008 Nov	Cancelled		2009 Feb	Individual
Diepkloof	16450	Consent	Other	BCDA 1984	2008 Sep	Approved		2008 Oct	Individual
Diepkloof	14989	Consent	Building Line	BCDA 1984	2008 Nov	Approved		2009 Apr	Individual
Diepkloof	13558	Consent	Building Line	BCDA 1984	2008 Aug	Approved		2008 Sep	Individual
Diepkloof	14989	Consent	Building Line	BCDA 1984	2008 Nov	Approved		2009 Apr	Individual
Diepkloof	16450	Consent	Other	BCDA 1984	2008 Sep	Approved		2009 Oct	Individual
Diepkloof	21731	Consent	Land Use	BCDA 1984	2008 May	Approved		2013 Mar	Individual
Diepkloof	23373	Consent	Land Use	BCDA 1984	2008 Apr	Pended			
Diepkloof	14201	Consent	Land Use	BCDA 1984	2008 Sep	Approved		2011 Feb	Individual
Diepkloof	23765	Consent	Land Use	BCDA 1984	2008 Sep	Legally Non Compliant		2011 Jul	Individual
Diepkloof	1/15379 &15831	Consolidation	Consolidation	BCDA 1984/ TPTO 1986	2008 Aug	Approved		2008 Nov	Company
Diepkloof	1/15379	Restriction		RRA 1996	2008 Apr	Approved		2008 Oct	Company
Diepkloof	24466	Consent	Normal Consent	BCDA 1984	2009 Oct	Approved		2009 Jan	Company
Diepkloof	23967	Consent	SDP	BCDA 1984	2010 Apr	Approved		2010 Apr	Individual
Diepkloof	24459	Consent	Normal Consent	BCDA 1984	2010 Nov	Legally Non Compliant		2013 Mar	Company
Diepkloof	11985	Rezoning	Rezoning	BCDA 1984/ TPTO 1986	2010 Jul	Refused		2012 May	Company

TOWNSHIP	STAND NUMBER	APPLICATION TYPE	APPLICATION DETAIL	LEGISLATION	APPLICATION DATE	DECISION	COMMENT	DECISION DATE	APPLICANT
Diepkloof	11985	Rezoning	Rezoning	BCDA 1984/ TPTO 1986	2010 Jun	Cancelled			Company
Diepkloof	24465	Subdivision	Subdivision	BCDA 1984/ TPTO 1986	2010 May	Not Clear			Company
Diepkloof	11836	Subdivision	Subdivision	BCDA 1984/ TPTO 1986	2010 Oct	Legally Incomplete			Individual
Diepkloof	11836	Subdivision	Subdivision	BCDA 1984/ TPTO 1986	2010 Oct	Legally Incomplete			Individual
Diepkloof	24459	Consent	Land Use	BCDA 1984	2011 Jan	Approved		2011 Apr	Company
Diepkloof	24459	Consent	Land Use	BCDA 1984	2011 Sep	Pended			
Diepkloof	23218	Consent	Building Line	BCDA 1984	2012 Sep	In Verification			Individual
Diepkloof	23218	Consent	Building Line	BCDA 1984	2012 Sep	Approved		2011 Nov	Individual
Diepkloof	1/15984	Consent	Normal Consent	BCDA 1984	2013 Sep	Approved		2013 Oct	Company
Diepkloof	1/15984	Consent	SDP	BCDA 1984	2013 Sep	Approved		2013 Oct	Company
Diepkloof	22441	Consent	Building Line	BCDA 1984	2014 Jan	Legally Incomplete		2014 Feb	Individual
Diepkloof	21731	Consent	Land Use	BCDA 1984	2014 Aug	In Verification			Individual
Diepkloof	21731	Consent	Land Use	BCDA 1984	2014 Oct	In Circulation			Individual

ANNEXURE L - PERSONAL INTERVIEWS

4.4.1 Interview with Rehana Moosajee, Politician, MMC for Transport for the City of Johannesburg from 2006 to 2013. (Interview conducted 23.02.2015)

The central themes of the interview were about the history of the implementation of Phase 1A, the lesson she learnt from the process and her vision for the future of Johannesburg. She also shares her opinion on the character of the communities living along the trunk routes and why they have not taken up the opportunities presented by their ownership of a property along a mass transit corridor to better their financial situation.

How it all started ….. History of the Rea Vaya

"Around June – July 2006, we attended the South African Transport Conference, which is really the flagship annual event for the transport fraternity. The Minister of Transport is its patron. It convened a summit at the CSIR conference centre as they do annually. They had invited two experts, Todd Litman from the Victoria Policy Institute (Australia) and Lloyd Wright from an NGO called Viva Cities. They did some presentations on Bus Rapid Transit Systems at that conference and subsequently visited host cities. They presented the BRT technology as it had been used at the time in Bogota but also briefly spoke about Curitiba. When we watched the videos and the concept in the city of Johannesburg, there is that video called 'Making things happen with Bus Rapid Transit'. The video talks about the political ramifications and the political point-scoring that comes with introducing BRT systems, how they are so much cheaper than other modes of public transport, what flexibility they have and so forth…

More than all of that, in the BRT model, I think that what we saw as the city was …here is the opportunity to transform more than just kerbside infrastructure. Here lays the possibility to actually transform ownership patterns in the public transport sector. So, could you get the taxi industry to actually be involved in the provision of mainstream public transport? Rather than continuously just the informal transport? It was really against that background that we undertook the first study tour in Quito (Ecuador) around September October 2006. We invited on that study tour representatives of the Greater Johannesburg Regional Taxi Council, Top Six Taxi Management (Taxi associations), Putco as well as Metrobus, and the city. And obviously the 2010 office because this was also being looked at as a technology in the context of the 2010 transport requirements. The Mayor was saying to us that the city must use the opportunity of hosting the World Cup to leave decisive legacy projects beyond the event.

Essentially we came back from that trip having spoke to the taxi industry leaders that came to that trip and making a proposal formally to the council. That was the November 2006 seating of the city council to upgrade. So already all the work that had been done on the SPTN.

It wasn't about finding new routes. It was saying the SPTN has already defined what the public transport network for the city should look like in the ITP of 2003-2008. Let's take that SPTN and let's get it up a level to full BRT. That is how the project started. Obviously there was also the context of a change to the national department's requirements on public transport strategy and action plan and an integrated public transport network. That's really the genesis of the project.

Route Selection

When you look at the map for the city's public transport network. It had been derived from household travel surveys and lots of origin-destination surveys. It is a 330km network. And the issue was that we had to start somewhere. And even the SPTN, the same corridor that the BRT was built on was the same corridor that was being prioritized for the SPTN anyway. It think it was very much linked to the Confederation Cup and the WC. So of course what you had was a route from Soweto, via the Soweto Highway and Soccer City, coming through the inner city of Johannesburg, linking to Ellis Park… Obviously the understanding was that over a period of time you want full coverage of the entire 330km network. And Joburg being as large as it is, that is extensive. But you have to start somewhere. And given the timing, the idea was to start on the corridor that would provide for the WC.

I think it was also… I am not sure to what extent that factored into the decision, but if you look at the way Joburg approached Rea Vaya vis-à-vis Cape Town's approach to MyCiti. We went to the heart of taxi-land very early on. So the heart of the minibus taxi industry, Soweto, where the taxi associations are really tough…and we said…"Let's work through these issues with the taxi industry as opposed to starting with the periphery and then see where it is easier then we will see how to come into the more difficult areas". I don't think that that was consciously the starting point but as the project unfolded it became clear that by virtue of the corridor that we had selected, that it became a part of the path that we had taken.

Public and Stakeholders Participation

There is a clear discrepancy. I would have sometimes six public participation community consultants from the JDA around the table. The route had been divided into different sections and each one was handling a section. And when I looked at the feedback, it was crazy. You would have never said it was the same project. Depending on which neighbourhood they were dealing with, the dynamics were so different. And I knew, not so much in the Soweto area, but when they were coming to Westbury and so forth, I knew some of the community leaders that they were talking to because I had worked with them previously. And, for some people it is about being obstructive, about making sure that nothing ever goes ahead because you now ask for my permission. The thing about BRT is that we also had to get people to understand that this is not just about your immediate community but the corridor is much wider. It is about knitting together a city that was artificially kept apart. And transport is the biggest intervention. Whilst we can't move everyone physically from poorly located settlements, what we cannot do from that perspective, we can actually close the gap with a decent transport system.

The National Household Travel Surveys have been used in the ITP and what people had clearly said about their concerns on the quality of the public transport, the frequency, the hours of operation, the lack of customer care, the lack of safety, that all of that provided enough of an impetus to say that we were responding to what people have said they require. Of course they didn't say they require a BRT, they said these are the shortcomings of the current public transport system and we expect you as government ….I mean what is very interesting is that if you look back at the customers satisfaction surveys of the city, in 2006, on the list of the top 10 issue for households, transport did not even feature. By 2009, 2010 and the implementation of BRT, and by the time I left in 2013, transport was coming in at number 1 or number 2 on the list of concerns. So , as we were making the interventions, people were suddenly waking up to say "In fact this thing called transport impacts on my life directly because it is about my time, it is about whether I lose my job because my transport doesn't arrive on time, it's about my safety as a woman, it's about many other things. So that was quite an interesting dynamic that emerged through the customer satisfaction surveys and how increasingly transport came into the horizon of issues that people felt that needed to be looked at. We also had an external stakeholder's forum with academia, civil society organizations, business and labour and all of that where we would just give high level feedback on progress with the project.

You have to make the investment in people, in community leaders. You have to build them. I have been saying to JDA before I left, can you imagine if for every infrastructure project we did, we put aside 1% spend to actually build community leaders were we build infrastructure. So that you don't just leave infrastructure when you leave an area, you leave a community leadership that is capable of taking that area to the next level. And part of that module could include these kinds of things…How you begin to expose people, to give them a sense that they have agency, they have power, and they can shift a lot of what is going on in their local areas. There is also an overriding negativity and victim mentality that I think are remnants of Apartheid and getting people to believe that they are not capable of doing anything for themselves. And the sense that government has to come and do everything for us. And I feed government has fed into this perception, 'we will come, and we will deliver. You put an 'x' and we will deliver'. People are not being forced to have the agency that they should

Property development and how people have taken the opportunities or not.

I think people are afraid. I think we have to be real that for most of the communities we are talking about, the biggest comfort has been 'I own my single stand, I have paid it off. I want to be economically free'. But do I know enough, understand enough. Am I willing to risk and engage this idea of property economics, transformation?' I think people are very scared. That being done for areas like Orlando ..how we could move existing home owners there within the 500 to 800metres radius to begin to densify, to create mixed-uses on their properties. To see their properties a wealth generating opportunity. But it is not like you have developers lining up on these particular corridors because it is seen as a socio-economically depressed area.

So the city had some pretty clear vision and plans on what it wants done. But whether it has engaged the imagination of developers or the local community….For me it is more important that the local community accrues benefits from what was a transit investment but is intended to also economically kickstart the area. I think that the biggest issue, having grown up in Lenasia myself, it is not until I became councilor that I understood that there was something called zoning and zoning regulations, and that you needed consent to do certain things. You just don't know. You come to Melville and Auckland Park and people fight. You can't bring those densities… because you can walk into any person's house and they can tell you 'but the approved densities on the RSDF are this…'. We haven't learnt to engage the system.

Even though the mayor dubbed it the Corridors of Freedom and so on and so forth, I think that we need some intensive education to get people to understand that having a property on a transit corridor actually means that they have an asset. I think is evident if you just watch the transit on the corridor that the transit movements are still very apartheid spatial planned transit movements. It is also interesting that if you do a comparison of Phase 1A and Phase 1B. So Phase 1A is Thokoza Park to Ellis Park and Phase 1B comes up past Industria, UJ and Wits. What you see on 1B is by-directional movement. So buses are full both in the morning and in the evening in both directions. Whereas what you on 1A is still the classic apartheid movement where people moved out of the township in the morning and moved back into the township in the evening.

Last Mile Issues

I continue to challenge decision makers because I don't think you should be planning these things if you don't even know how people use it…For instance, the last mile issue. It is one thing to have a station. What happens in the last mile? What are your options? What does the lighting look like? Till what hour does the service run? All of those are really vital issues which from a commuter and user perspective are really important and often continue to be overlooked.

If you look at the original videos and promotional material and marketing that was done of the system, NMT was always part of the plan. I also feel somewhat culpable in that regard because I was so focused on getting this taxi industry negotiations sorted put that I probably lost of some of the other elements of the project which were supposed to be there upfront. Good pedestrian walkways, good cycling lanes. Now we are kind of retrofitting everything. That particular corridor in Orlando where KFW have made the funding available for the cycle lanes, I was horrified when I went on a site visit. I mean, we just built these side walkways. Now you are digging them up to put cycle lanes. Which is great. But it is wasteful expenditure. It doesn't make any sense to be doing that. I think, often, this is the challenge in government. People don't think logically.

For example, no one has spoken about the relaying of infrastructure that is non transit that has come through the project. Sewer lines, water infrastructure, electrical infrastructure upgraded. If you look carefully on the Rea Vaya, there is very specific lighting. We were adamant that lighting had to be for cars as well as for pedestrians. So there were pedestrian lights and overhead lights on the same pole. All those things have been thought through…It is not just about transforming apartheid spatial planning, it is about transforming space so that it becomes more people centered. That was really the intention. Even the idea about largely transparent stations, so that people can interface with the streetscape where they are. I personally have a view that public transport shouldn't go underground, shouldn't go overhead. And this idea of unapologetically taking away space from private cars and making it available to public transport was the 149that the city could make.

There are also people who feel that the costs have really escalated because of this wanting to find solutions with the minibus taxi industry. Personally I think we've moved a lot of economic transformation cost into a transit project. And I think we should be unapologetic for economic transformation. It is a personal view. The taxi industry is probably the best example of BBBEE and I cannot see why we'd have to continue with having to justify spending money on transforming a sector that is pretty much ready already, it is not like you are picking someone of the streets and say : 'lets' empower them'. These are entrepreneurial, business people who filled a gap in mobility when government quite frankly wasn't doing what it needed to do to move people.

We put too much emphasis on the infrastructure to be built and not enough on the repercussions and implications for communities and society. For example, the training on teaching staff, on training of bus drivers. I think we could go a lot deeper. Give people a real understanding of what their role is in mobility. And what mobility means to the economy. And what potential there is to envision Orlando or Diepkloof 5, 10, 15 years after the implementation of the BRT project. And what can it do for a whole range of things that happen in that community. I don't city the city has sufficiently capitalized of the intervention to reach a whole range of other objectives; which are more social objectives, economic objectives and political objectives rather than just transit objectives.

4.4.2 Interview with an Official (CO) from the Planning Department of the CoJ. She elected to remain anonymous. (Interview conducted in March 2015)

The City Official chose to remain anonymous given the fact that certain opinions she expressed do not necessarily align with the CoJ's policy position on Spatial Planning. I asked questions around her personal experience with public transport and her views on the Rea Vaya. The following questions were centred on the past and current patterns of land use change and densification in Soweto. The finally question was about her opinion on the best way of effecting spatial transformation in Soweto.

Personal Experience with Public Transport

I used the train for my tertiary education and my first few years of working. It is a good system, it was taking me a shorter time from home to here because I stayed closer to a station; compared to me driving. But it was more comfortable driving, and more reliable. You'd rather wake up early and be stuck in traffic but knowing that you're on time. Because with the train, it was not reliable. But I don't think Rea Vaya has the same problem of reliability but the strikes are the issue. The routes that were identified for Rea Vaya were actually the traditional taxi and bus routes. The Soweto Highway had a dedicated route that taxis used to use which are now the main Rea Vaya lanes. So Rea Vaya did not complement the existing transport. But the advantages are that it is quick, it has its own lanes, and you will never be stuck in traffic. So it has kept the status quo in the Soweto area. The destination is till mainly Joburg; that is the main problem. However UJ also benefits because there are buses going there. There was no direct transport going to UJ. I think the breakthrough would be that you can actually come to UJ directly from Soweto. Maybe in the Northern suburbs it will change something because there everybody has a car. There you have people to target to reduce using cars. But in the South, it's everyone's dream to have a car. For example, where I grew up, we only had one car in our street, the next street there were no cars, and the other street, there were about two cars. But today, almost every fourth house has a car. It was rare for Sowetans to own a car, it was unknown. If you owned a car, we would know that so and so had a car. It did not have to be a fancy car. Any car, you would be known for it. In the mind of the people, this has not changed. Yes, BRT is cheaper, that will attract people to it. But is it addressing the transport problem? I don't think so.

Land Uses and Applications Trends in Soweto

Question: What do people mostly submit in terms of building plans?

Response: It is evenly spread. Protea Glen Ext. 16, they get disappointed because their rights are not the same as in Soweto. They bring the plans and we turn them down because the densities don't allow many dwellings per Erf. It was done in terms of the Roodepoort town planning scheme, not Annexure F. The newer townships are a problem. Cosmo City, the density is restricted, people are building illegally. Diepsloot, 99% of the township is illegal. In Soweto, you have 60% coverage. You can go up to 60% and 2 storeys. The number of net dwellings is not limited. You don't have to apply. You just apply by means of building plans. That's it. That is taking place but it is not dictated by the bus route.

Question: What are people applying for in Soweto specifically?

Response: It is mainly dwelling units at the back. For consent, it is mainly crèches that are coming. The catering business is also increasing. Because most of the things are primary rights. You don't have to apply [for consent] for a spaza shop. You can just open it. The only requirement is that you must be the owner of the spaza shop. You must be the owner of the house, or the occupant. So you cannot rent a spaza shop to someone who doesn't stay on the property.

People also apply for taverns but we took a stand on that; we are not approving taverns anymore.

Question: How is the accommodation market?

Response: You get a room for about 500 Rands, in Orlando. Ideally, the services that a person use cost more than that. So it tells you that if the City was charging people rates accordingly, you know, the room wouldn't be 500 Rands. The interesting thing is that if you take the same room in Rustenburg, about 1.5 hour drive away from Joburg, the same room costs 1500 Rands. Now, Rustenburg is within a walking distance from work opportunities. It is mainly migrant labour. It is people who are from outside, who have good jobs there. So they can charge more money to stay there. What you get in Soweto, accommodation is there but it is not a desperate situation. You will never attract anybody who will pay more than 2000 Rands. Unless they are renting the whole house. But the only thing that is emerging is the students' accommodation. Now that it is regulated by the university through the bursaries, the students are paying 2500 Rands. That is the new thing that people are trying to take advantage of. We were shocked that we had a lot of applications for student accommodation from Naturena and the areas around it. But it makes financial sense, if you are going to have 2500 per student and you have 10 students there, they can even afford to have a bus to transport these kids.

Access to Finance

Question: Who is applying? Is it Private Residents or Property Developers?

Response: It's all risk. It is family members who decide to do rentals from their own property. And for some it's: "I studied, I left home, and I want to leave my mother with something". So they just build backrooms. You find out that there is an academic or someone who is doing well. He is just going to build a few units at the back in order to sustain the family. It is not really property developers. The risk is a bit high for townhouses and flats in Soweto. Because, from property developers point of view, they cannot sell those units. I know that the government wants to go the route of flats in Soweto but it is not that obvious. Once you're talking about flats, you're talking levies, joint services, and joint maintenance. And you don't want to do that to someone who is not earning much, to start getting them to pay levies. I have also heard of companies who want to take a different approach to that system [backyarding]. They want to come and build units at the back of someone's house and collect the rent for 10 years then leave the people. But I don't think they have found a legal way of doing it yet. It is a very risky exercise. They can do that [build] and the community chucks them out after they have built the buildings.

Question: How do the family members finance their construction projects?

Response: That is very interesting. As long as you can prove that you have a salary, you go to Cashbuild, you fill in the forms and they deliver the building materials. Then you pay them monthly.

Question: They don't go to the banks for loan applications; they go directly to building material suppliers?

Response: Most people can't go to banks because their names are not on the title deeds. They just take personal loans. It is a higher interest, but that's the only way they can go.

Impact of the World Cup

Question: There is a significant spike in planning applications in the areas around Orlando Police Station and the Noordgesig Station in 2007. What do you think drove that?

Response: What types of applications? Consent for crèches? Consent for taverns?

There was an influx of liquor applications around 2007. And applications for guest houses and BnB (Bead and Breakfast) because the World Cup was coming.... Only to find that FIFA came with their own rules. A lot of people were very disappointed because they invested a lot of money. And it was not what they thought it would be. You get a guy from Italy, most likely rich, and can't come and stay….you know. He will check what the rating of the place is. They didn't come to Soweto.

Question: Did you approve BnBs?

Response: We approved a lot of them, but taverns, we started turning them down. People know now, they don't even apply anymore.

Vision for the Transformation of Soweto

Question: In your view, what should be done to transform Soweto?

Response: Take businesses to the people. Let the development where people will not need transport, where people will drive, travel short distances. With the train, same as with the BRT, the first station in Naledi, the train is full, the second station, it's full. Then the other stations it's packed. Why is that? People from the first station, when they get to the next station, they are not getting off. But if it was like if it was that we're taking people, the next station, there are work opportunities. Some people are going out, others going in, and reverse transport, that would help. If we could have people staying in Joburg and working in Soweto, and vice-versa, the transport system would be less congested. It would be nice to have someone who stays in Sandton and comes to work in Soweto. Then there would be balance, but we don't have that now. We [the CoJ] have to reach a point where we make big decisions, like we're going to take a block of houses and knock it down. Because there is no new land. Even the SEZ [Soweto Empowerment Zone] is still on the outskirts. It is still going to ask people to move to the outskirts. A good area that I like is Lenasia. Go there in the morning; go there during peak traffic hours, very few people are leaving that place. They work there, they live there. There are offices, there are car dealerships, there are factories, they manufacture. Actually people come as far as Soweto, Kagiso, and Orange Farm to buy things in Lenz. It is a self-sustained township. The community there sustains itself. That is what we need to achieve.

4.4.3 Interview27 with a Community Activist (CA) from the Orlando East Residents Association. He elected to remain anonymous (Interview conducted 17.01.2015).

I have always been a resident of Orlando East. I am working on a project to revive the area. Our area of focus is heritage. I am working on creating a museum at the house of Sofasonke Mpanza. But the project is not funded yet.

What are the community associations present in Orlando East?

There are the Civic bodies SANCO . They are affiliated to the ANC. There is also a more radical group, it is community driven, the Orlando East Residents Association. There is a business association that also exists. But the lack of resources is a serious issue. The CDF (Community Development Forum) is defunct, it is no longer working. There were leadership battles and political interference from the government. People were fighting for resources. The NGOs are still around. And there are children programs as well. There are quite a few political parties represented here: ANC, DA, EFF, PAC, COPE and IFP. But I don't want to associate with them.

How does the community engage with the local government?

There is no real engagement. The city calls the community to meetings. Or they call the community structure (NGOs, etc...). or else they use the ANC members to try and convince us. The Ward committee is dead. The people [of the Ward committee] are more loyal to their party than to their constituency.

What would you say are the biggest challenges of the community? What do people need around here?

People want work. They need employment. There are also other areas of concern such as the environment ... the degradation of the environment. Electricity is a serious problem, especially in winter. There are no business opportunities. All the business projects around here are self-funded. They are funded with the help of friends, families; illegal deals... state funding only goes to the politically connected.

Which business activities do people partake in?

People have crèches, hair salons and small retail shops. The Pakistanis and Somalis are renting from the property owners. They rent containers and small rooms to which they make modifications. But the Pakis [Pakistanis] don't pay tax. They don't have trading licenses either.

What is the situation in terms of housing and accommodation?

There is a constant movement of people...coming in and leaving. There are always people looking for accommodation. And some of the people cannot afford rent.

[27] This interview was reconstructed (see Allen, 2010) from handwritten notes taken during the interview. The audio recording file was corrupted and i could not transcribe it.

The main type of accommodation is for families. With multiple family members sharing. In terms of home ownership...it is a very common problem. It affects 95 percent of the people. People had leasehold form the government. They are passed on from one generation to the other. But conveyancing costs are high... the house remain in the name of the deceased people. Another problem is sibling rivalry. Siblings are fighting over ownership because there are no wills. People cannot take mortgages. The community fear to engage the bank with the only asset that they have, they have nowhere to go.

Where do the people who are employed work?

There aren't many of them. They work in the CBD [Johannesburg CBD], Sandton, the West Rand. And some work in the shopping malls around the area [Soweto]. The situation is really bad. People are coming out of schools but not finding employment opportunities. So they resort to drug and alcohol abuse.

Do you use the BRT?

I use both the BRT and taxis. But I prefer taxis...because they do not stop. With the BRT, there are too many stops and delays. The costs are similar to taxis ...well it is almost the same. We were promised that it [BRT] would be cheaper but it is not. But there are some people who prefer the BRT because taxi drivers are rude. The other advantage of the BRT is that ...it helps people because of its proximity to big buildings, and people's places of employment are more accessible. With taxis you have to walk from the rank to your place of employment.

Have there been any community improvement projects around in the recent past?

Yes there has. Improvements are happening but they are managed. They are done because the government is trying to appease the people. It is just posturing. There are no deep changes and developments. Six months ago, they installed paving on Mofokeng Street and other streets around Orlando East. Not much else has happened. There is no qualitative measurement of output of government initiatives. There are no instruments to measure deliverables. There is a lot of money wasted on projects with no impact.

To your opinion, what should be done?

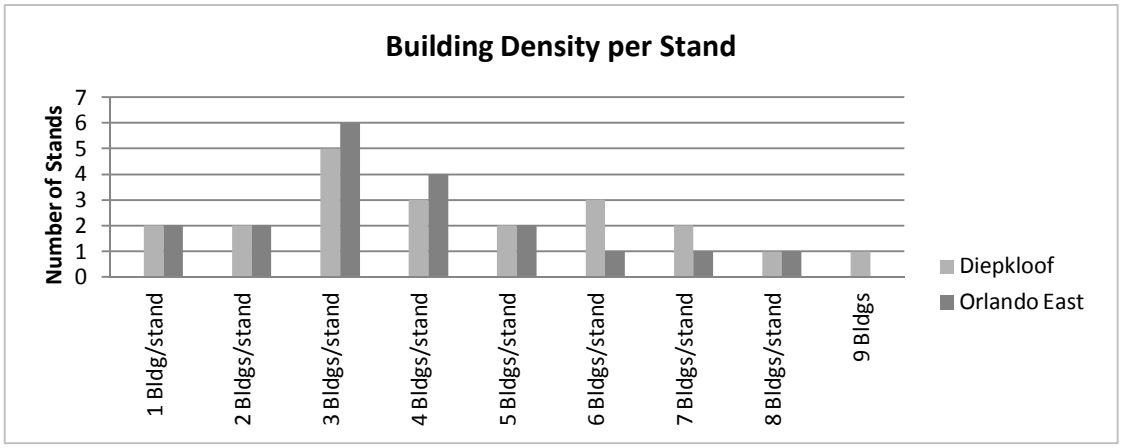
The area must be industrialised. There must also be programs to build technical studies. Programs to conduce small enterprise development, unlock the red tape. There are issues around collateral for investment. Black people have no money. We also need Black models; we need inspirations for the rise of the Black man. And we need to unite. Apartheid made sure that blacks are divided. There is more unity in country more than in urban areas.

ANNEXURE M– SURVEY DATA ANALYSIS

Existing Building Structures and Densities

The first questions aimed to describe the physical environment of the property where the respondent was residing. They required the interviewer to observe all the buildings on the stand and count the number of buildings according to their types.

At the time when the properties were built, the standard typology in the Old Soweto was one free-standing four-roomed house in the middle of the stand with an ablution facility outside of the house. Very few properties still match this description both in Orlando East and Diepkloof. Over the years, the residents have either extended their houses or built other rooms in their yards. The graph below shows that the majority of the properties visited had between three and four separate free-standing buildings, be it of brick structure or not. Nine buildings were identified in one instance in Diepkloof.

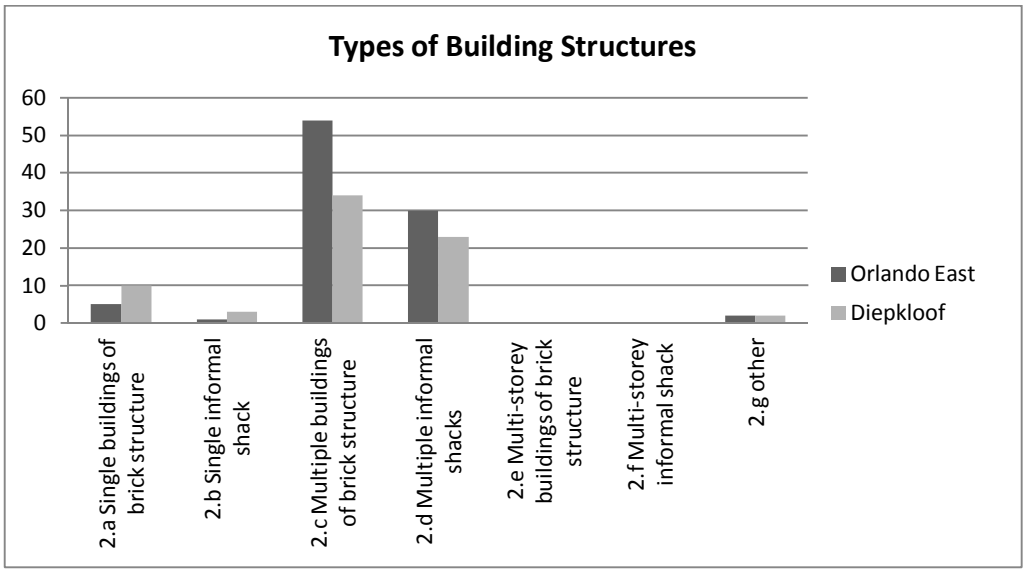


Graph 14 Building Densities per Stand.

Building Structures Types

In general, we counted more buildings of brick structure than shacks. However there is still a significant portion of the building stock in these two areas that is made of informal shacks with all the discomfort and risks that they represent. 30 percent of the buildings counted in Orlando East were informal. The ratio is similar for Diepkloof (See Appendix Table 1). Only one container was identified. The interviewer (observer) had to choose between different options. Single building of brick structure and single informal shack meant there was only one building of that type on the stand. Multiple buildings of brick structure or informal shacks mean that there were two or more

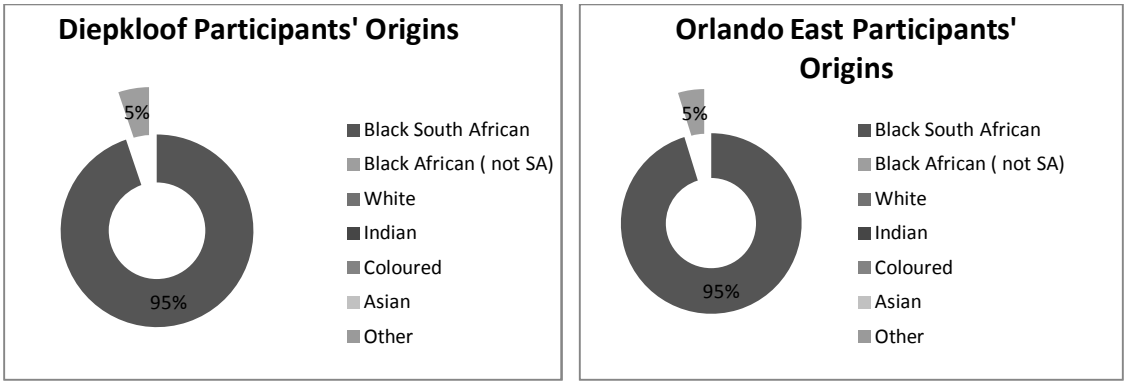
buildings of that type. There was not a single double-storey building in all the stands surveyed even though the Town Planning Scheme allows for double storey construction as a primary right.



Graph 15 Building Structures Types

Participants' Demographic Profile

The interviewers only conducted interviews with consenting adults that indicated that they were living on the property. All the participants identify as Black. Only two people came from outside of South Africa. There was one person from Kenya in Orlando East and another one from Somalia in Diepkloof.



Graph 16 Participants'' Race (Origins)

Place of Birth

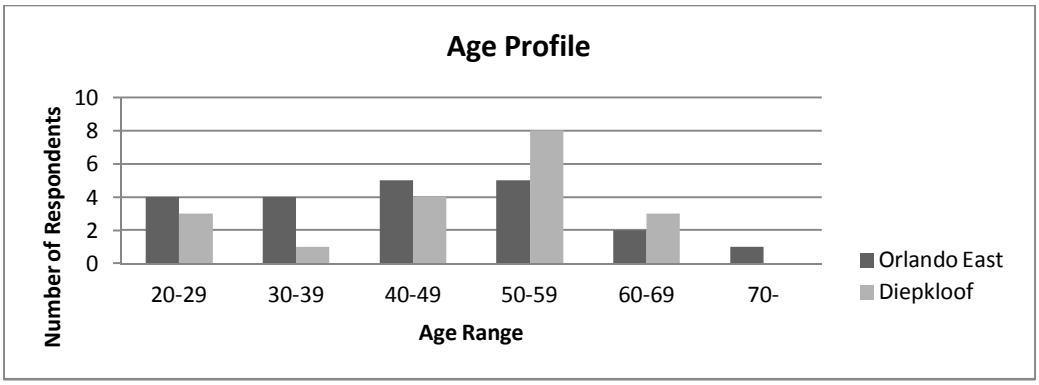
The vast majority of the participants reported that they were born in Soweto. Limpopo and KwaZulu Natal are the two other provinces that have more than one representative in the entire interview sample.

Table 4 Orlando East and Diepkloof Participants'' Place of Birth

Orlando East		Diepkloof	
Durban	1	Limpopo	1
Eastern Cape	1	Somalia	1
Kenya	1	Soweto	16 (84%)
Limpopo	1	Ulundi-KZN	1
Natal	1		
Soweto	16 (76%)		
Total	**21**		**19**

Age profile

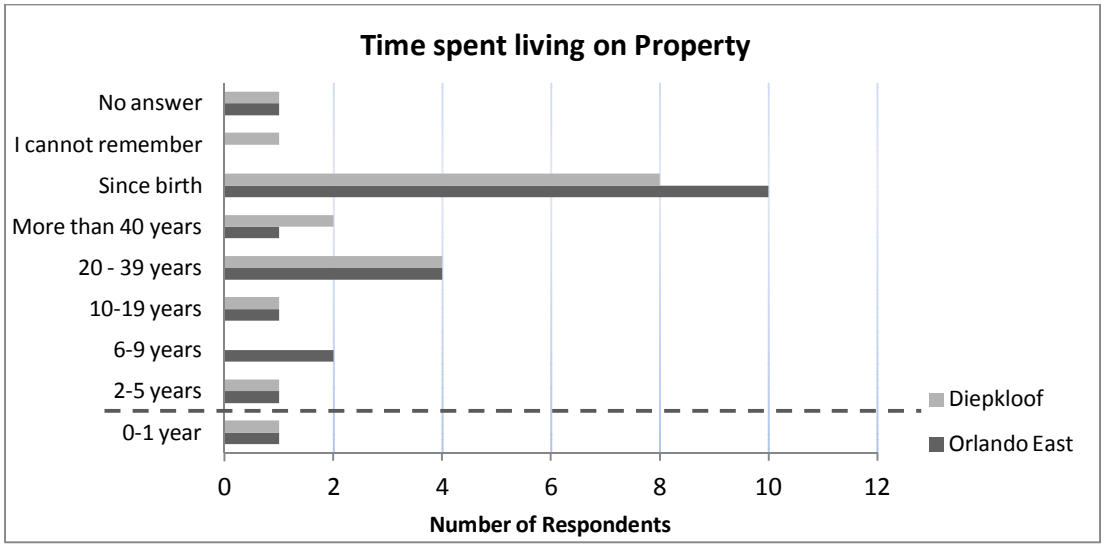
The demographics were well spread between twenty and sixty year olds in Orlando East. In Diepkloof, almost half of the participants were above the age of fifty.



Graph 17 Respondents' Age Profiles

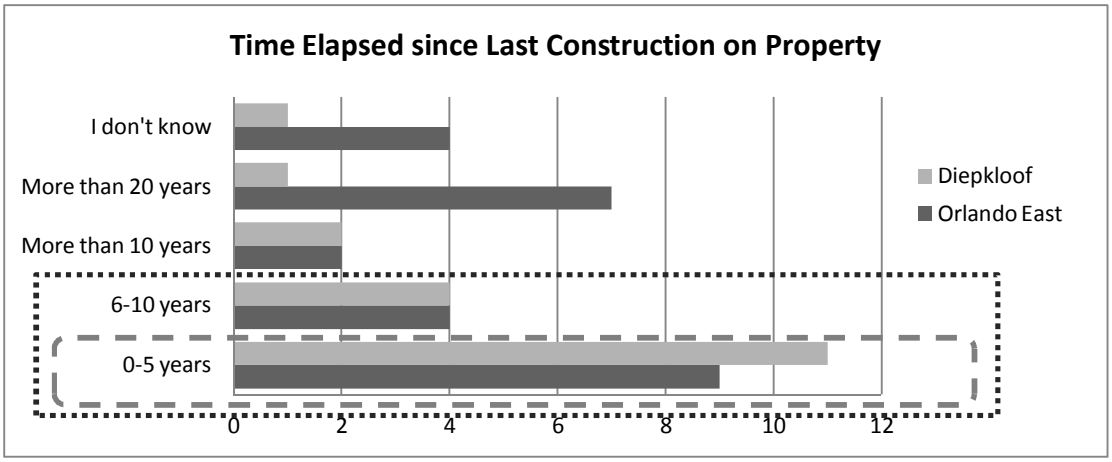
Time Spent Living on Property

A significant portion of the people interviewed was born on the property and had never lived elsewhere in Johannesburg or in the country. The dotted line across the graph shows that the population is very sedentary and stable. People do not tend to move, most people have been living in the same place for more than ten years.



Graph 18 Time Spent Living on Property

Last Construction Activity on Property



Graph 19 Last Construction on Property

While there have consistently been new constructions over the years, the number of new constructions in the past ten years is much higher than the previous decades and the past five years has seen the highest rate of new construction on existing properties that the two areas have ever experienced. This graph shows that people in Orlando East have been adding to and expanding their existing homes far more than the people living in Diepkloof except for the past five years.

Purpose of the last building erected on Property

This was an open-ended question and the participants reported a wide range of reasons for which the latest building on the property they lived on had been erected. The reasons range from the need to accommodate more family members, to adding ablutions facilities, improving the design style of the houses and housing new business ventures.

Orlando East

Table 5 Orlando East. Purpose of Last Building Erected on Property

Orlando East	
For family needs	
6	To accommodate family
Renovations	
1	To extend, to have a new design style
1	It was old
1	To add a bathroom
Government	
2	The government built a RDP house
For Business/To rent out	
3	To rent out
1	For business
1	To build a spaza shop
1	To build a tavern

Diepkloof

The responses of the participants in Diepkloof are more detailed and give more insights into the reasons that lead people to undertake new construction work.

Table 6 Diepkloof. Purpose of Last Building Erected on Property

Diepkloof	
For family needs	
1	Building a shack for boys out of the main house
1	We added rooms so there is privacy for my sister and her husband
1	My son was growing and he wanted his own room
1	Our family was growing and so we needed some houses
Renovations	
1	Building a kitchen
1	Extension
1	The main house has been here forever
1	Renovations

Government	
3	Government built a RDP House
1	The municipality built outside rooms for us. People rent at the back
For Business/ to rent out	
3	To rent out
1	For residential
1	To open a Spaza shop
1	To open the tuckshop

Different Land Uses on the Property

The majority of stands in the two Sub-Areas are solely used for residential purposes. Residential in this context includes family and rented accommodation.

Table 7 Orlando East. Land Uses Repartition

Orlando East					
	1 Land Use	2 Land Uses			3 Land Uses
	15 Stands	3 Stands	1 Stand	1 Stand	1 Stand
Residential	x	x	x	x	x
Educational					
Entertainment			x		
Commercial		x			x
Religious					
Community					
Business				x	x
Other					

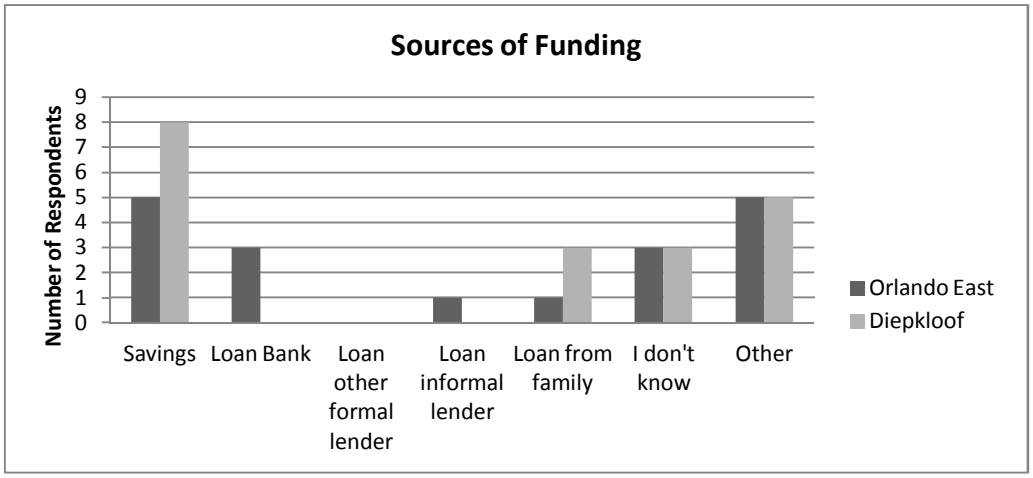
In Diepkloof, there are more properties with more than one land use than in Orlando East.

Table 8 Diepkloof. Land Uses Repartition

Diepkloof					
	1 Land Use	2 Land Uses			3 Land Uses
	12 Stands	1 Stand	4 Stands	1 Stand	1 Stand
Residential	x	x	x	x	x
Educational		x			
Entertainment				x	x
Commercial			x		x
Religious					
Community					
Business					
Other					

Source of Funding for Latest Construction Project

People rely on their own savings in order to implement the changes they desire to their properties. . In Diepkloof, not a single respondent relied solely on a third party lender, either a formal or informal one. They rely mostly on their own savings, loans form family members and some beneficiated form a government program for the building of backyard rental rooms. In Orlando East, some respondents obtained finance from the bank and one person borrowed money from an informal lender.



Graph 20 Construction Source of Funding

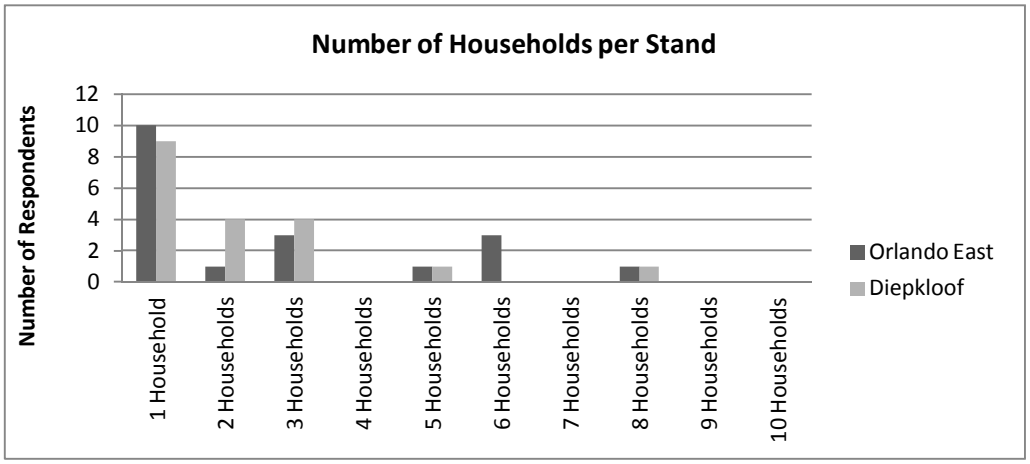
The categories did not cover all the possibilities. For instance, the fact that the government sponsored the construction of a few backyard rooms came up in the interviews. The possibility of mixed financing also came up during the interviews. One person reported that they had built the additions to their house with recycled building material that they collected from other construction sites.

Table 9 Source of Funding. Alternative Responses

	Orlando East	Diepkloof
Government Grant	4	4
Mix 95% savings 5% bank loan	1	
Mix Family and Bank loan		1
Recycled Material	1	

Household Density per Stand

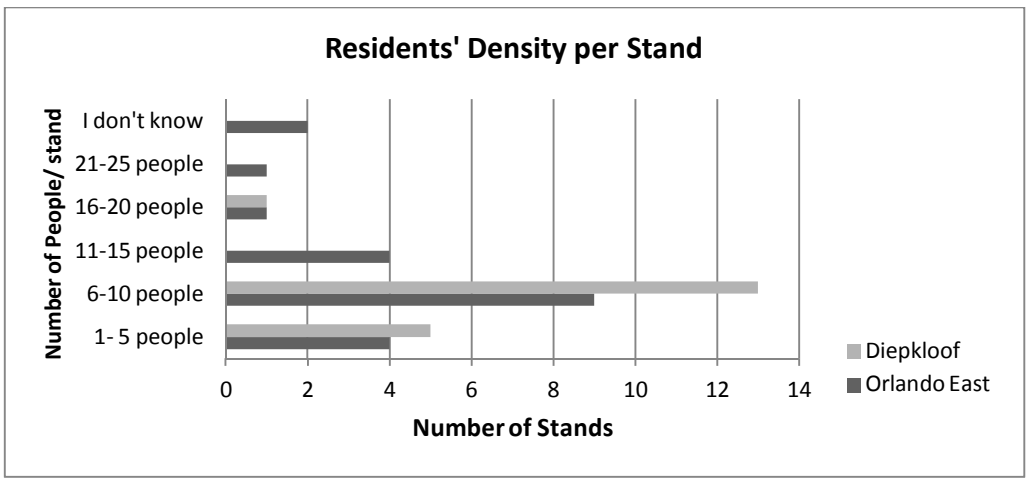
Almost close to 50 percent of the respondents in both Sub-Areas report that there is only one household occupying the entire stand. Here, the definition of household in terms of kinship as opposed to nuclear family is evident. Cousins and other family members are part of the same household even if they are married and have their own nuclear families.



Graph 21 Household Density per Stand

Individuals Density per Stand

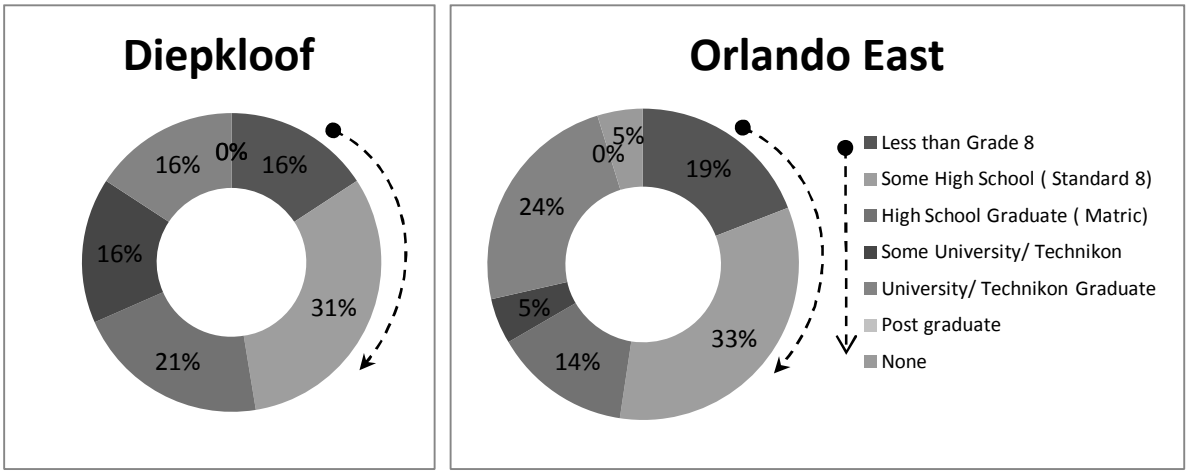
In Orlando East, the number of people living on one stand is general quite high, with one property registering an average of between 20-25 inhabitants on a single property.



Graph 22 Residents' Density per Stand

Education Levels

The level of formal education post-Matric is not very high. In Orlando East, five percent of the participants had no formal education at all and 57 percent of the people did not hold a Matric certificate. This number is reduced to 47 percent in Diepkloof. None of the people we interviewed had a post-graduate qualification.



Graph 23 Diepkloof and Orlando East Residents Education Levels

Employment

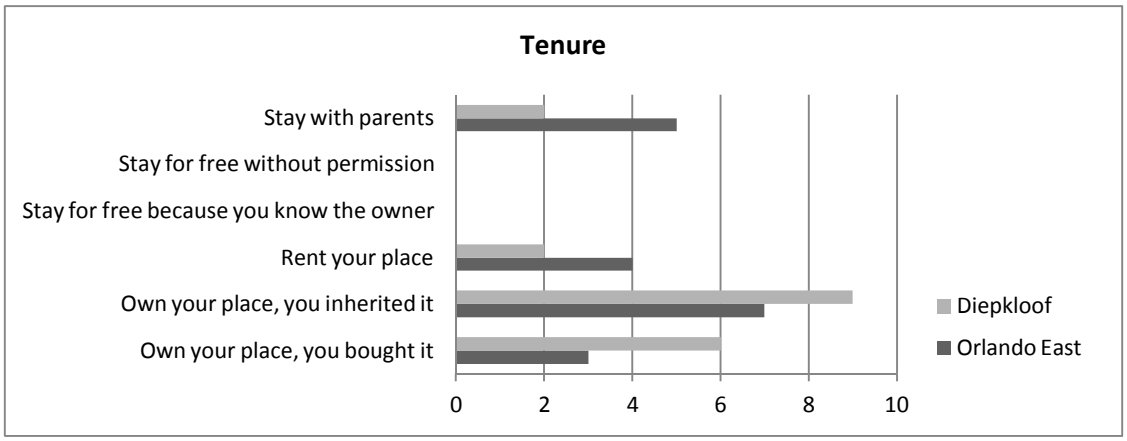
The level of unemployment was quite high in both Sub-Areas. In Diepkloof, 25 percent of the respondent were unemployed and in Orlando East, 30 percent of the respondents. There are more people who define themselves more self-employed in Diepkloof than in Orlando East.

Table 10 Orlando East and Diepkloof Residents Occupations

		Orlando East	Diepkloof
Primary Occupation			
Unemployed (total)		**6**	**5**
	Looking for work	4	1
	Not looking now	2	4
Employed (total)		**10**	**7**
	Formal Employment	9	3
	Informal Employment	1	4
Self-employed (total)		**3**	**5**
	Formal Business	0	2
	Informal Business	3	3
Student		3	2
Retired		2	2
Other		1	0

Property Tenure

The majority of people came into ownership of their property through inheritance.



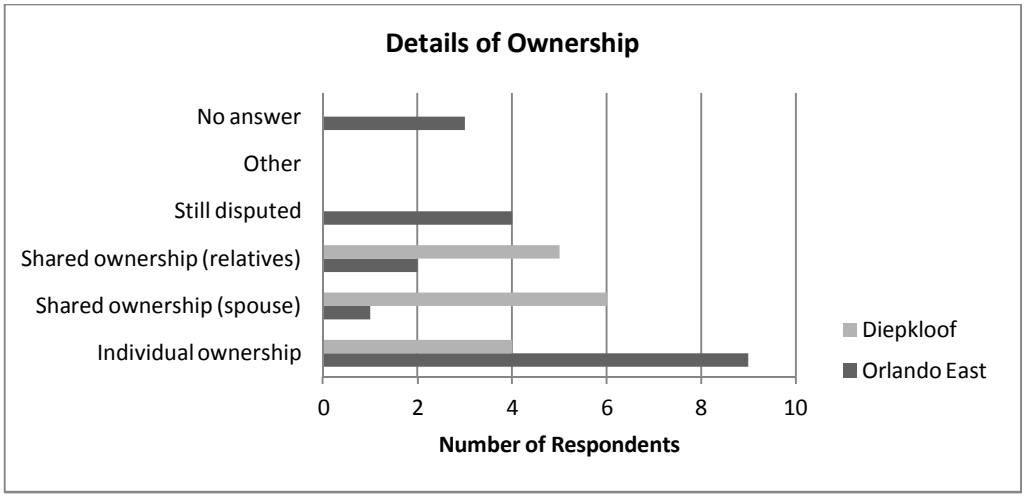
Graph 24 Resident's Tenure Details

Rent and Mortgage payments costs.

The question about rent payments did not yield results in different categories. All the people who were interviewed paid less than R1500 in rent. Only two people in Diepkloof and 4 in Orlando East rented their accommodation. In general, they rented a backyard room either in bricks or a shack. None of the respondents rented the main house on the property. The vast majority of property owners has inherited the property and do not owe any mortgage repayments on it. The people who received a house from the government do not make any repayments either. In Diepkloof, two people reported paying a mortgage on their properties. The one made monthly payments between R1501 and R3000 and the other person made payments between R3001 and R4500. In Orlando East, the two people who had mortgaged properties made repayments between R1501 and R3000 for their properties.

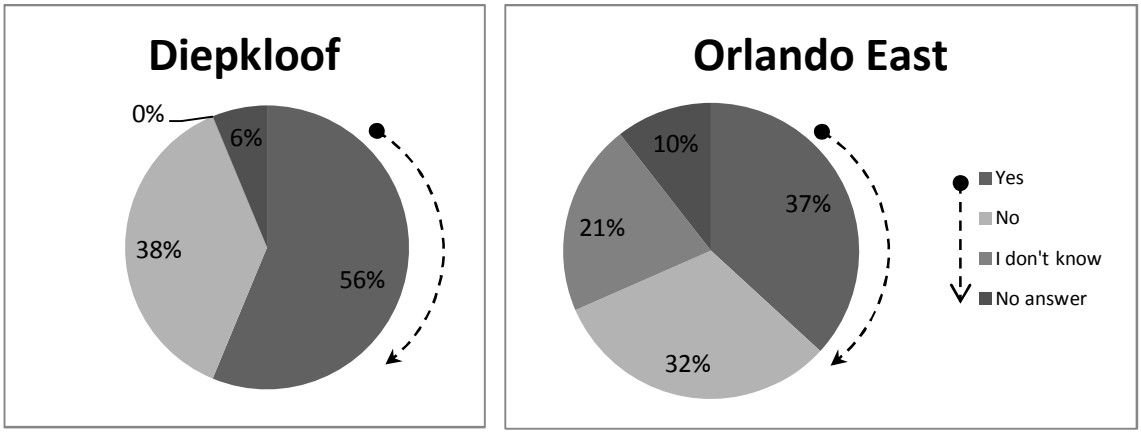
Details on type of ownership.

This particular question proved to be an uncomfortable one for many of the respondents. In Orlando East, one in four respondents plainly refused to answer the question. The sensitivities around who in the family holds the title Deeds, whose name appears the document and who has decision making power on matters regarding the property came out strongly. Some people only answered after we reaffirmed that their anonymity would be preserved in the research report.



Graph 25 Details of Ownership Tenure

Is the current ownership status reflected on the Title Deed?



Graph 26 Ownership Registration with the Deeds Offices

The participants gave a wide range of reasons for the Title Deed no reflecting the ownership of their property. In Orlando East, one person mentioned the lack of finance as the reason why they hadn't applied for a transfer of ownership of the Deed. Someone else just said: 'We have not transferred, it is a family house'. Another person admitted that 'family feuds' were preventing them from solving this issue and other people just admitted not having any interest in the matter and others preferred not answering the question.

Here are some of the answers given by the respondents in Diepkloof. One person also declined answering the question.

> 'It still reflects my mother and father who have long left us'.

'We are still fighting'.

'We haven't decided to change it since our parents passed away'.

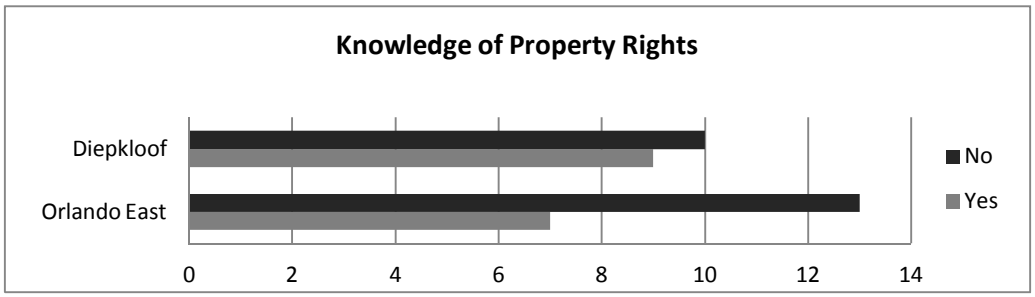
'We have not sorted it out'

Knowledge of Town Planning constraints and Municipal Entity

The following questions are an assessment of the people knowledge of their property rights and the processes that the need to follow before doing anything to their property.

Knowledge of Property Rights.

The majority of people admitted not knowing what type of improvements and / or activities they were allowed to do on their properties. This question was not answered easily and the interviewers often had to probe and explain the question further in order to obtain a response.



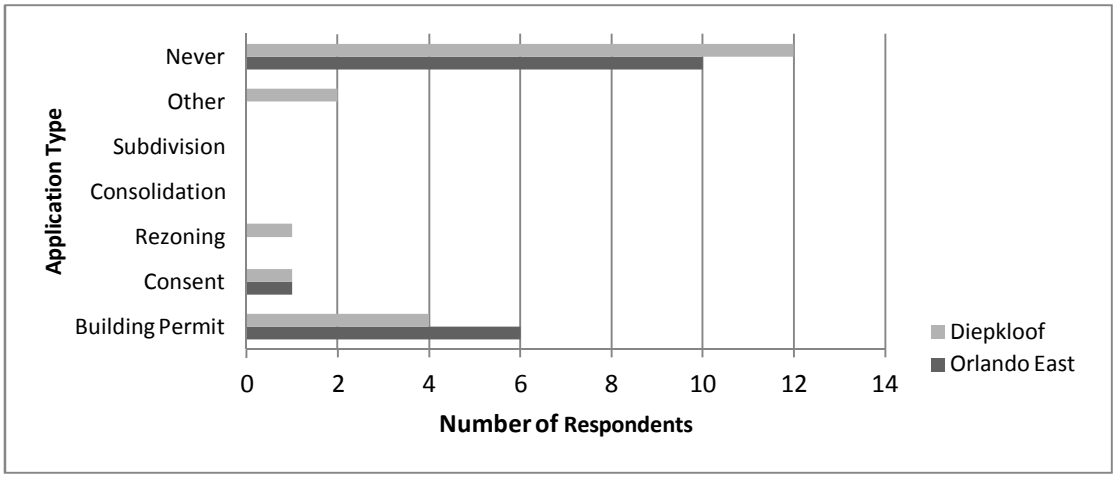
Graph 27 Residents' Knowledge of Property Rights attached to their Stand

The people who responded positively were probed further to assess their knowledge. In Orlando East, only four people described what their land use rights were. One person mentioned that that they were not allowed to build over the pipes (drainage system). The other three mentioned being able to build Backyard Rooms, Registered Business and add a second storey to their houses. One person mentioned being able to build a three-story building. This is not accurate in terms of the current Town Planning Scheme. In Diepkloof, two people said that the municipality had told them not to build next or over the service pipes (water supply and drainage pipes). Another person said that they knew they had to ask for the municipality's permission before extending their house. Another person simply responded 'Yes, I am educated and I know what I can and cannot do on the property'. They didn't provide further clarification.

Knowledge of Responsible Municipal Entity.

When asked if they knew where to find out about their property rights, half of the respondents in both Diepkloof and Orlando East responded affirmatively. When asked to name the place where they had to go, it became apparent that most of the respondents did not know which department deals with land use and building matters. The majority of people responded that they had to go to the Housing Department. A few other respondents said knew that they had to go to the municipality's offices but not what department of the municipality exactly. Others said that they would go to the office were they pay their rates and taxes.

Previous Applications at the Municipality



Graph 28 Respondents Previous Property Related Applications at the Municipality

The applications for Building Permits are the most frequent ones. People only need to submit building plans to the Building Control Department and wait for their response. Most applicants reported that their application had been approved, even though some had to make amendments to their original submission. In Diepkloof, one respondent said that he had never applied to the municipality because 'I haven't yet made serious improvements but just shacks'. Another respondent reported that he had applied to have a tent put in the streets for his cousin's daughter's business. This, again, highlights the fact that the properties served the needs of quite a number of family members.

Needs and Vision for the future

In Orlando East, most of the people interviewed, regardless of whether they were renting out a room or had a claim to the ownership of the property, had wishes for the improvement of the property they lived in. Many people expressed the wish to improve their confined, crowded living environment and have more space.

VOICES

- 'I would like to build an apartment for family '
- 'I would like it (my house) to be a double storey'
- 'I would like to build double storey house and add security '
- 'Renovations because my family is big and space is small '
- 'I would like to see my house bigger'

One person felt that nothing more could be added to the space even though all the buildings on the property were still single storey.

VOICES

- 'No because the way the place has been designed, there is no space for adding anything'

Other people only mentioned that they needed to renovate the existing structures, or repair the poor quality of the buildings delivered by the government.

VOICES

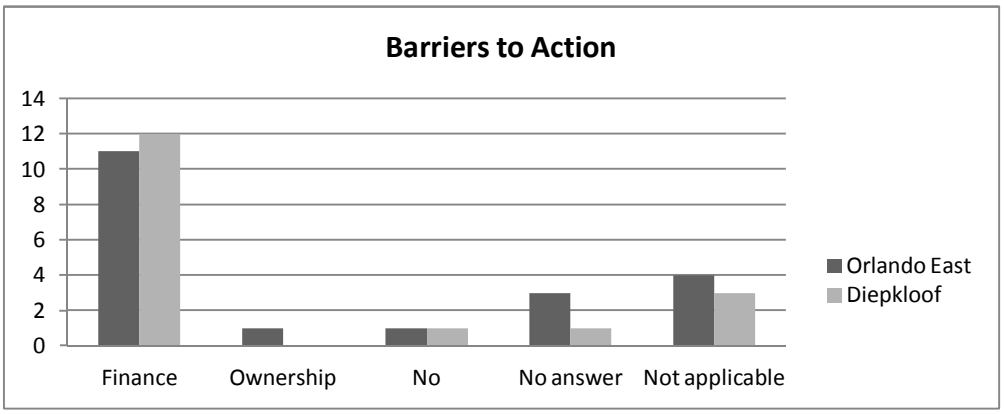
- 'We want to revamp the property'
- 'My house being renovated and transferred to my name'
- 'Changing the structure'
- 'Plastering and paving'
- 'The RDP rooms are not properly built, I would like to improve them'
- 'To have pavement, renovate and have a wall'
- 'To remove the toilet and have piping systems'

Only two people specifically mentioned that they wanted improvements related to an income-generating activity.

VOICES
- 'Separate entrance for tenants, more space'
- 'Open a restaurant or a business'

In Diepkloof, the concerns of the respondents were similar to the ones voiced in Orlando East when it comes to the need for renovations and the need for more living space for their families. A few other people mentioned that they would like to demolish the shacks on their property and replace them with brick buildings in order to generate more income. One person talked about extending their spaza shop and turning it into a supermarket.

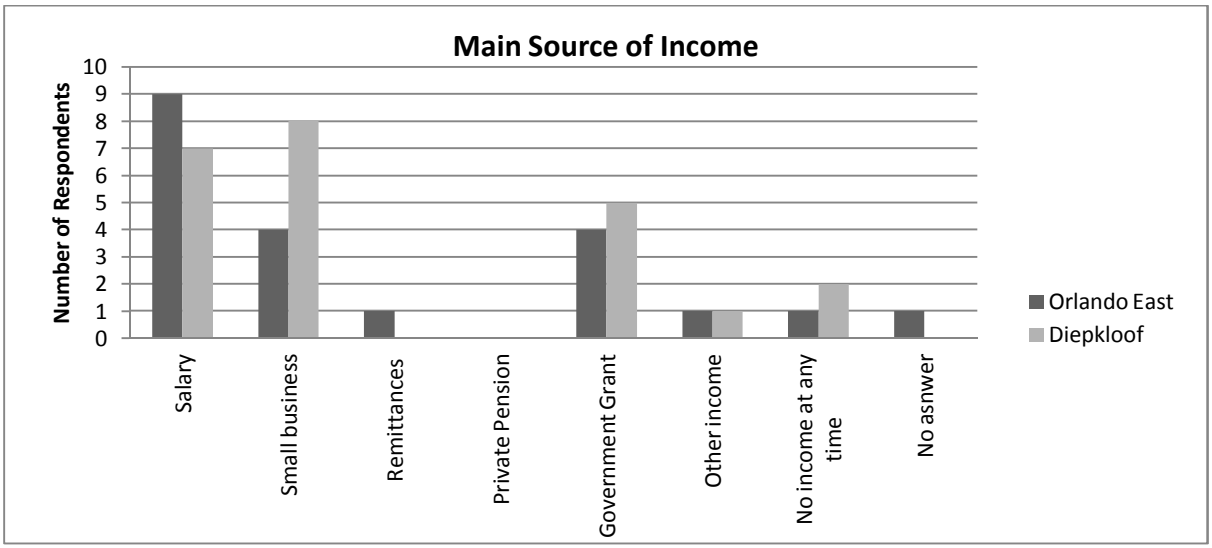
Factors preventing the respondents from implementing changes on their properties.



Graph 29 Respondents Barriers to Action

More than fifty percent of the respondents in both areas reported that the lack of money was the main reason why they couldn't put their plans to execution. The aged and the unemployed have no income against which they can borrow money. Some people reported that they did not want to borrow money from the banks and were saving to finance their projects. Only one person in Orlando East mentioned ownership issues as the main reason delaying their project. For others it is a long term goal that they will focus on at a later stage.

Main Source of Income

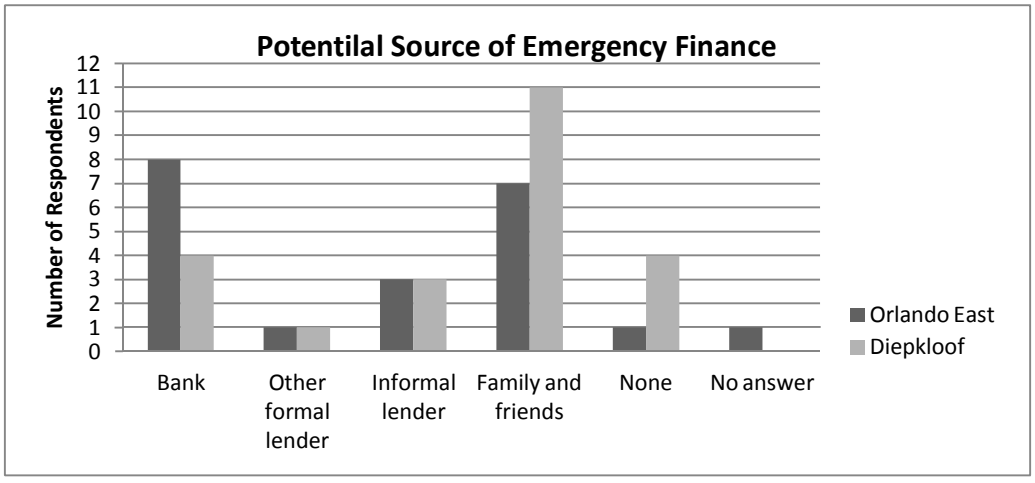


Graph 30 Respondents' Main Source of Income

In Diepkloof, more people rely on their own business as main source of income than on a salary. Diepkloof also had people reporting more than one main source of income. One person reported having three main sources of income: their salary, a small business and a government grant. Another person reported relying on a small business and a government grant. The third person relies on a small business and another source of income.

Potential Sources of Emergency Finance

This question wanted to gauge people's perception of their access to finance in case of emergency.



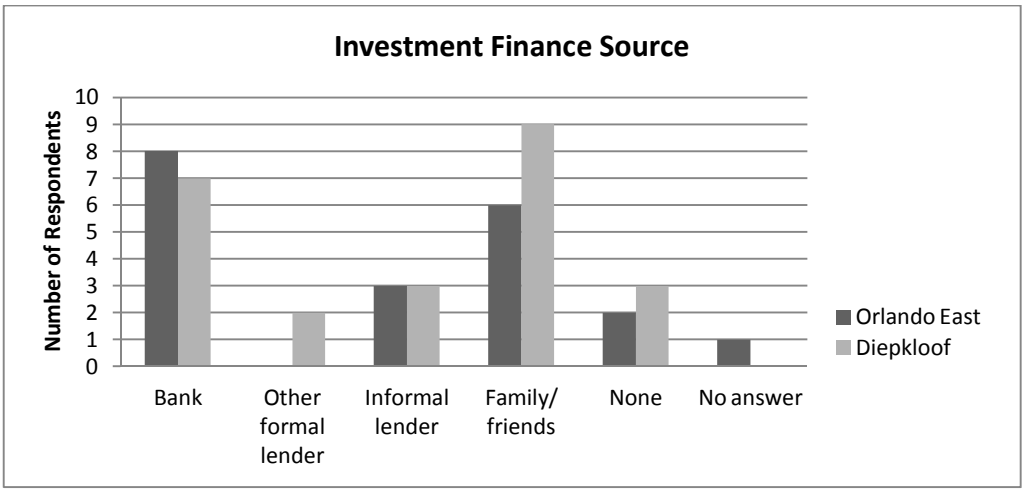
Graph 31 Respondents' Source of Emergency Finance

Once again the pattern of responses differs between Orlando East and Diepkloof. People in Orlando East rely more on the bank than any other avenue to obtain finance. This is not the case in Diepkloof

where people most people would consider asking for help from their family and friends. Only one of the Orlando East residents gave two alternatives (an informal lender and family and friends) while five respondents from Diepkloof indicated that they had more than one option to access emergency finance. The options are, firstly, a combination of a bank and another formal lender, secondly, a bank and family and friends and lastly an informal lender and family and friends. Only one person from all the interviewees mentioned their own savings as their first option for emergency finance.

Potential Source of Investment Finance

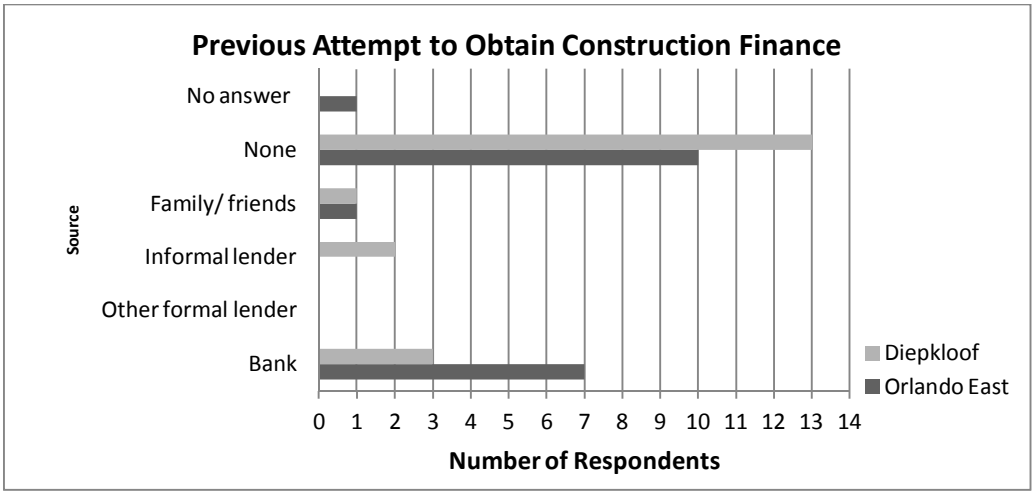
The patterns of responses are similar to the ones given for the question about emergency finance. These two tables (about emergency and investment finance) can be linked to the table showing the main sources of income. In Orlando East, people's incomes come mostly from their salaries and these people rely on the banks more than anything else to access funds. In Diepkloof, where the incomes originate from informal businesses, people tend to rely more on informal lenders and on their family and friends.



Graph 32 Respondents' Source of Investment Finance

Previous Attempts at Obtaining Finance

All the applications submitted were successful when people when to the bank and to Informal lenders. The friends did not have money to borrow.



Graph 33 Respondents Previous Attempt at Obtaining Construction Finance

BRT and Spatial Transformation

The last portion of the questionnaire is related solely to the Rea Vaya BRT and the perceptions of the respondents vis-à-vis the impact of BRT on the transformation of their environment. This a critical part of the questionnaire because it gauges the public's sentiment about all the infrastructure investment policy deployed in the area in the past decade. It also gauges whether the public links the type of changes linked to mass transit investment in an area to the changes and opportunities that they see around them.

Perceptions about Rea Vaya and Infrastructure and Service Delivery

This question asked people about their perception of change in the quality of infrastructure and services delivery in their area since Phase 1A of the BRT became operational. The table below shows that there is a positive sentiment about the improvement of services and infrastructure from the Orlando East residents. The main areas of concern are police presence, security and street lighting, all areas linked to people fear for their personal safety, that of their children and relatives as well as their belongings. The electricity crisis also had an impact on people's perceptions, half of the respondents felt that the situation that the electricity supply had either not changed at all or changed for the worse in the past five years. There is an overwhelming positive sentiment with regards to the improvements in transport, 75 percent of the respondents felt that transport was much better since Rea Vaya Phase 1A started operating. The quality of the roads, pavements and amenities has also been changing to the satisfaction of the residents.

VOICES

- OR 1 Library, to get educated ‘Separate entrance for tenants, more space’
- OR 15 Amenities because it helps the youth to stay away from things like drugs
- OR 6 Parks, because they keep the children of the streets

VOICES

- OR 12 Water because it is a basic need for humans
- OR 4 Water, the new meter in our yard didn’t work for 3 months, had to get water from the neighbours
- OR 8 Electricity and water, can't live without it
- OR 18 Electricity, street lights and drainage system
- OR 2 Sewage
- OR 13 Electricity because it plays an important role and transport because it's helpful to those who cannot afford a car

VOICES

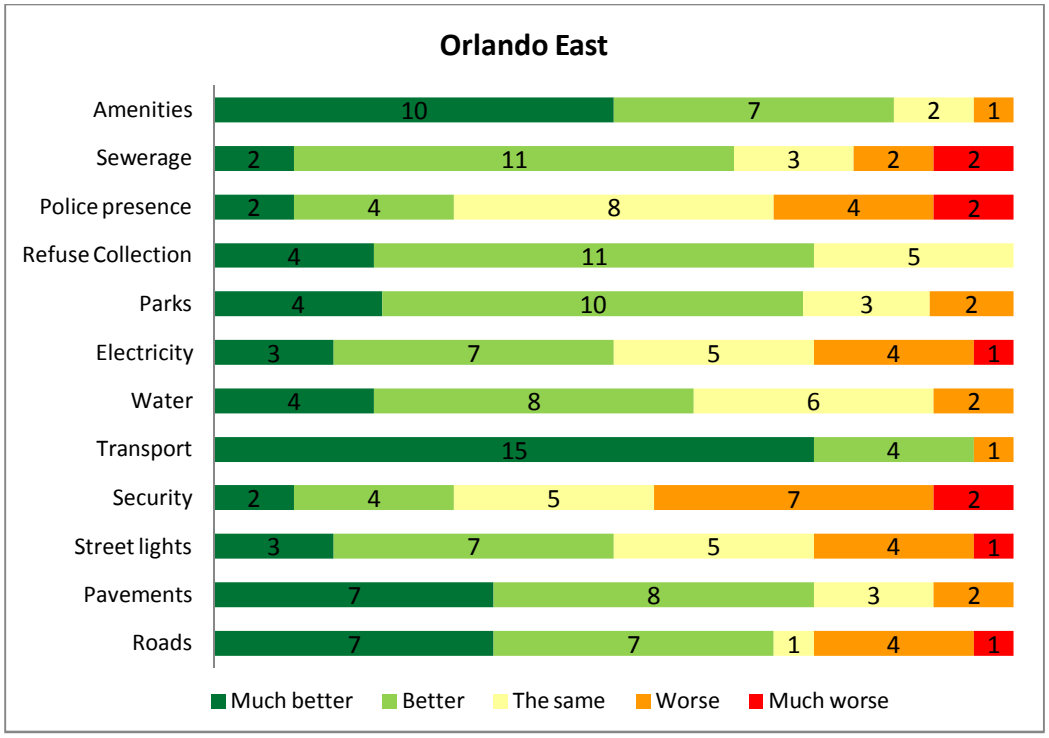
- OR 19 Transport because Rea Vaya gives us more options, we can chose
- OR 16 Roads, no more traffic
- OR 21 Roads, because before water wouldn't flow and people couldn't walk
- OR 7 Parking affects access to my property, floods after rain
- OR 9 Pavements because that is the only thing we see
- OR 20 Pavement because I am no longer walking on sand, there was too much sand

VOICES

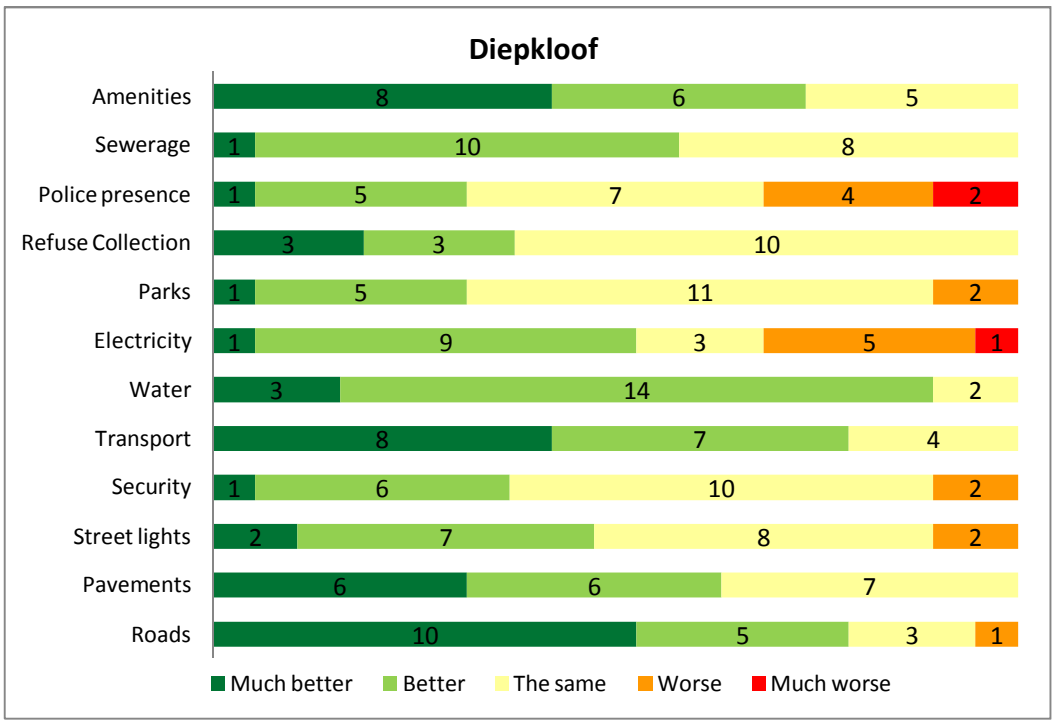
- OR 3 Police presence, to respond to emergencies
- OR 14 Police presence because we need their protection. Electricity because it plays a major role in today's modern world

VOICES

- OR 10 All of them
- OR 11 Everything is fine with me
- OR 17 None
- OR 5 I do not leave the house



Graph 34 Orlando East. Perceptions of the Quality of Infrastructure, Services and Amenities since Rea Vaya 1A



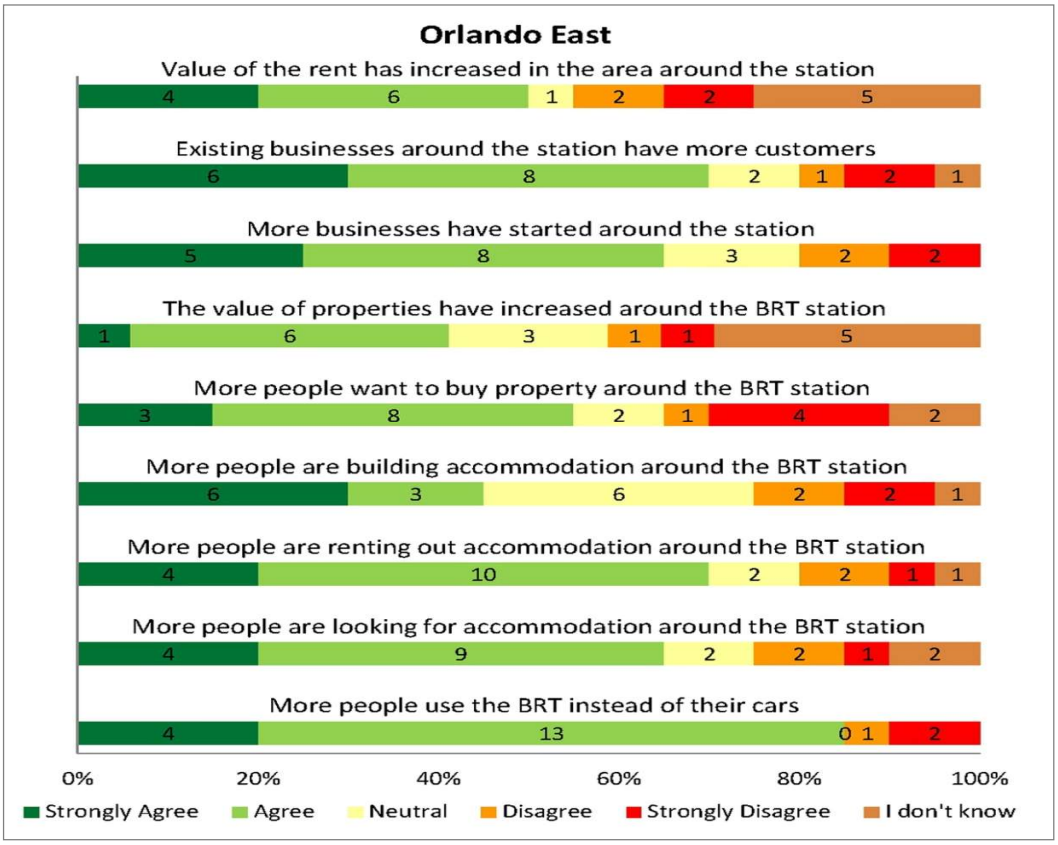
Graph 35 Diepkloof. Perceptions of the Quality of Infrastructure, Services and Amenities since Rea Vaya 1A

The respondents in Diepkloof raised similar issues to the Orlando East residents when they were asked about the most important element of service delivery. Their level of satisfaction with the pace of change in their environment is lower than the Orlando East residents. They have issues with

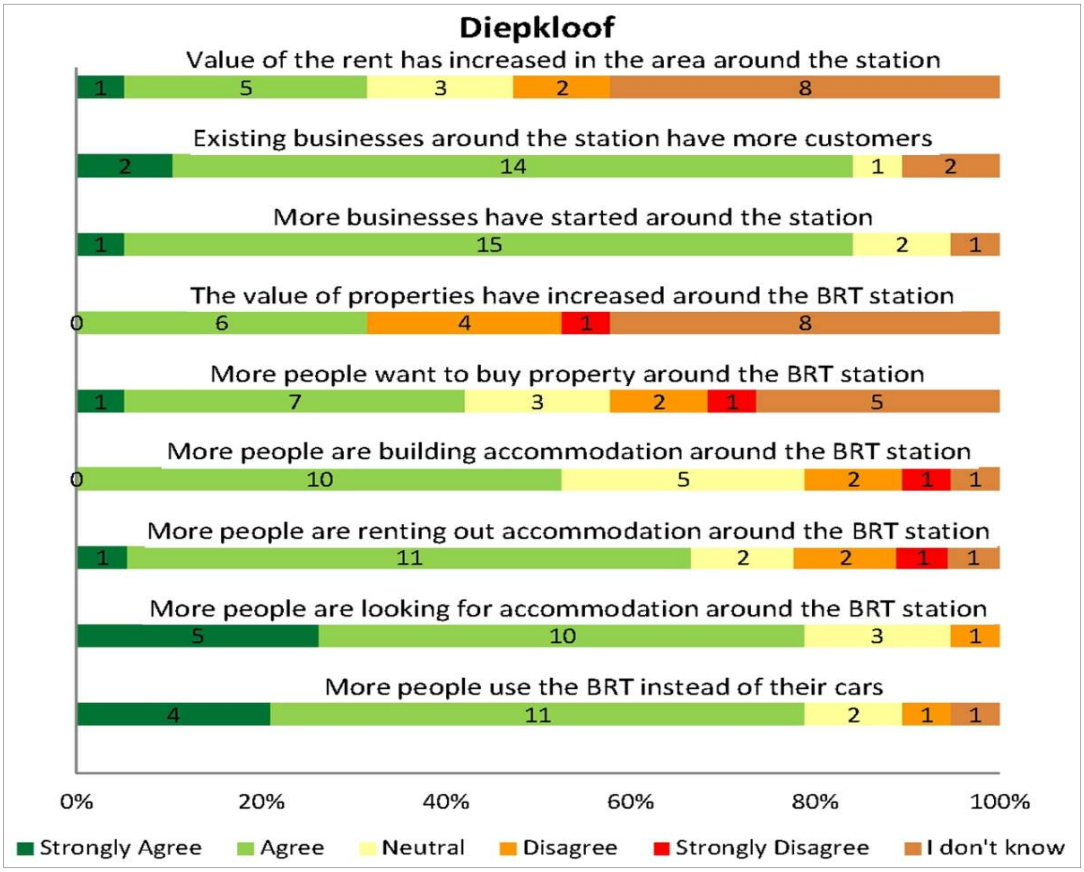
police presence in the area. The importance of amenities such as libraries to keep their children away from the streets and away from drugs came out strongly in their responses. Again, electricity, water and were cited as important for living decently in an urban setting. The issues of safety and police presence all featured prominently in people's concerns. Roads were the best improved infrastructure in their environment followed by transport and amenities. People also mentioned that it was now easier to move around thanks to Rea Vaya's positive impact on public transport availability.

Perception of the Impact of the BRT on the Rental Market

There is a general positive perception of the impact of the BRT on the rental and property markets.

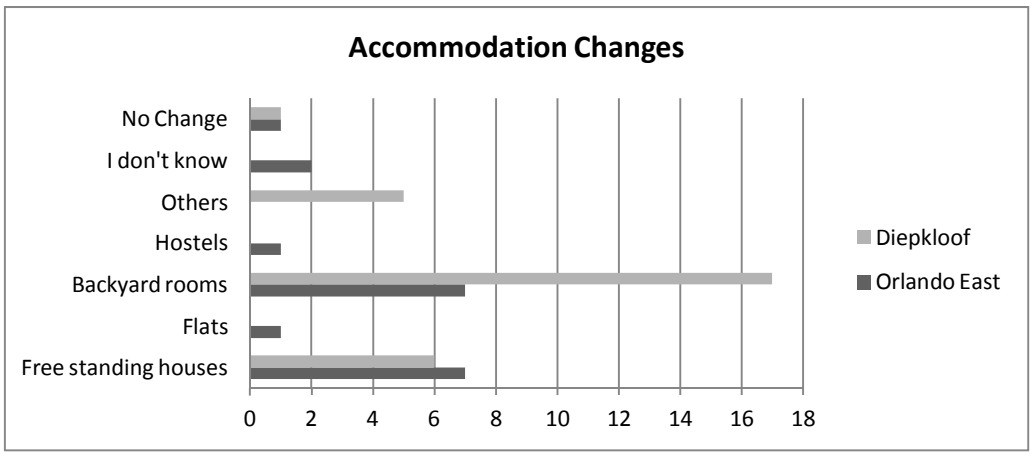


Graph 36 Orlando East. Perceptions of the Impact of BRT on the Property Market and Businesses



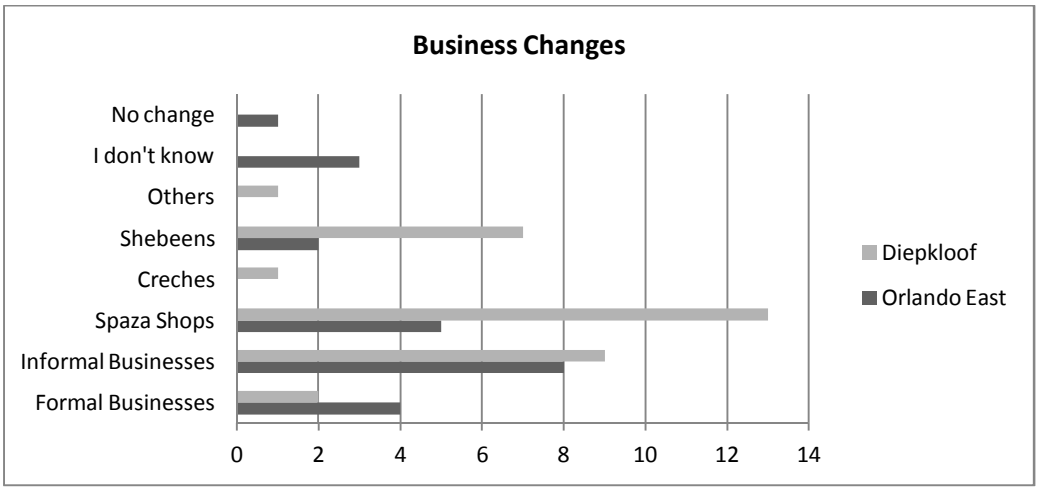
Graph 37 Diepkloof. Perceptions of the Impact of BRT on the Property Market and Businesses

Perceptions of Rea Vaya's linked changes in Housing Market



Graph 38 Respondents' Perceptions of Change in Accommodation Market

Perceptions of Rea Vaya's linked changes in businesses



Graph 39 Respondents' Perceptions of Change in Businesse

According to the respondents, the informal businesses around the BRT stations have benefitted from the increased foot traffic. Some of the respondents noted that the vegetable sellers and furniture makers had benefitted the most. The first ones set their stalls, tables or trolleys next to the stations and the second ones have seen their businesses improve due to the high number of people moving into the new backyard rooms and shacks that are being erected in the area. Diepkloof seems to see higher numbers of sheebens, spaza shops and informal businesses that Orlando East. Orlando East has seen slightly more formal businesses than Diepkloof.

Personal Experience of the Rea Vaya BRT

The last portion of the questionnaire relates to people's personal experiences of Phase 1A of the Rea Vaya and the changes that they have seen or effected in their own lives. In answering this question, people did not separate their experiences of Phase 1A (T1 trunk) and Phase 1B (T3 trunk) which was inaugurated at the end of 2013. Phase 1B also links Soweto to the Johannesburg CBD but it goes through Auckland Park. The following section relates people's answers to the following three questions:

- Has BRT changed your travelling habits? Please give detailed response:
  a. During the week?
  b. During the weekend?
- Do you think the implementation of BRT has benefitted you directly?

VOICES

OR 2:
- Yes, I am able to go to town early and leave late without having to worry about transport because you know the buses are available
- No answer
- Yes, because I am able to rent my house and receive money from it

OR 4
- No, I am not using the BRT but taxis, but there is traffic for the taxis as some streets have one lane
- No answer
- No, it has not benefited me directly in any way

OR 7
- No, it has not because I don't normally travel and when I do I use taxis or the train
- No
- It has benefitted the community in a sense but I have not benefitted, I am still unemployed and unable to generate an income from my house

OR 20
- Yes, but recently it has been giving problems in terms of customer service, its worse
- No answer
- No, I use taxis

OR 3
- Yes it has because it is helpful when I have to work late
- I usually use my car
- Not necessarily

OR 5
- Yes, there is a very early bus so I arrive early at the office
- No answer
- Yes ,because even if I come late from work, there is transport

OR 12
- Yes, it is cheaper than taxis, I am taking one transport instead of three
- I chose the BRT over my car
- Yes a lot, it makes me proud, it reminds me of the World Cup. It is next to the stadium and next to Maponya Mall.

OR 8
- I don't use the BRT
- I use taxis
- Yes , for someone using it because it doesn't have traffic

OR 17
- I don't usually use the BRT but I have used it once and it was good
- No answer
- No I have not benefitted directly

OR 9
- No, I use the train
- No
- The BRT is too expensive, the BRT gaps between station and bus is dangerous for children
- Thanks for interviewing me, I really hope this survey would help us, especially with regards to security and police presence

VOICES

OR 11
- No, still the same
- The BRT gives problems on weekends.
- Yes, when I buy groceries I take the BRT because I won't pay for a seat, in a taxi I have to pay

OR 14
- Yes, I use the BRT to go buy stock
- I don't use it
- Yes, it is a faster and more convenient mode of transport, for someone looking for a job, it is easier

OR 6
- It has because I no more use my car to drive to work instead I use the bus and only use my car over the weekends
- I don't usually travel over weekends because I don't work on weekends
- Yes it has because I am now able to save money which I could have used to buy petrol when using my car

OR 10
- Yes, I use the BRT every day, I used to take the train before
- Not really
- Yes, the train was cheaper but not reliable. The BRT doesn't disclose the balance of trips, it is more expensive than taxi and charges penalties but it is safer and quicker.

OR 15
- Yes, on off days, I leave my car at home
- Yes
- A lot in terms of transportation , the BRT doesn't reach my work, but I catch it to go to Cresta

OR 21
- Yes, it has made life easier and given me more options. I don't have to use the Metrobus
- I don't use it over the weekend, I take a kombi
- Yes, my travelling costs have been reduced

OR 16
- Yes, the BRT is cheaper than taxis
- I don't use it over the weekend
- It's cheaper and faster than taxis

OR 13
- I don't use it. I will use it when I find a job
- No answer
- No answer

OR 18
- No, I use the train
- No answer
- Rea Vaya brought changes in terms of time management because there are a lot of buses
- People who work for Rea Vaya are not effective in terms of customer service. They are rude towards customers. We need their services, which mean it has to be improved. T2 must be brought back because T3 consumes time, it goes around many places.
-

OR 19
- No transparency in fares so I stopped using it. It is a money making scheme
- It is empty over the weekends
- No answer

OR 1
- I don't use the BRT at all

VOICES

DK 10
- I use the BRT to go to China Mall to buy hair products and its nice because it brings me back safely
- I don't use it but I have buses on weekends
- No, I don't know

DK 8
- I use the BRT when I look for jobs or go to an interview at a place that is far
- No , I use the train or taxi
- Yes, there are more options of transport

DK 14
- No it hasn't because most of the time I use taxis and train
- no
- Not really, it hasn't benefited me directly

DK 5
- No, I use taxis
- No, I use taxis
- Yes. There is more order at the street. There are now few accidents

DK 12
- Yes it has because it operates in time
- Yes I usually use it in the morning
- Yes, because of accessibility

DK 16
- Yes, when I go, yes I can use it
- Yes because they are clean
- No it has not
-

DK 15
- Not really, except where I don't use my car and use Rea Vaya. It is easily accessible and just around the corner
- No, I don't even bother
- No, there is just too much traffic during rush hour

DK 11
- Not at all because I use taxis
- No
- It hasn't benefitted me individually or directly

DK 18
- No it hasn't because I use my own car most of the time instead of public transport
- Not at all
- yes it has benefited the community but not me in a specific way

DK 3
- No, I don't travel that much so I don't really use it. I use taxis whenever I travel
- No
- Yes, because I have some people passing by my house to buy 'kotas' (bunny chows) which means I have more customers now

DK 17
- Not really, I never use it
- I am always home over the weekends
- No, I don't see any benefit

VOICES

DK 1
- Yes, it helps me a lot when I go and do stocking in town
- Not really, I'm not travelling on weekends
- Yes it has, we have better and improved roads. It took BRT for government to build us new roads

DK 9
- No, I have used it once and got to work late and it is hard to connect
- No answer
- Yes, there is more traffic on the streets. It is unfair for us private cars

DK 19
- Yes it has because it is more convenient and readily available, accessible
- I usually use my car over the weekend
- Yes it has because it provides safe and reliable transport

DK 2
- Yes, it made travelling easier
- No, I don't travel weekends
- Yes, positively, it is easier to get around

DK 13
- Yes, it has, I get to travel with it and saving a lot of money for petrol
- No answer
- Yes, it has benefited me because I arrive early at work because there is no traffic for the buses

DK 6
- Yes, during the week I can travel and stock for my shop. It's very close and cheap
- Over the weekend I have used it once
- No, but t he BRT station looks nice and colourful

DK 4
- I no longer use it because of the system of tags
- No
- No it hasn't benefited because of the system of tags , more people need tags and I can take taxis

DK 7
- Yes, I can be late for work and the BRT will be there waiting for me to come
- Sometimes me and my family use it to go to town on weekends but because of the cards its difficult so we use taxis

Annexure N

Questionnaire: Rea Vaya Impact

Initials of Interviewer: _____ Date: _____
Location of interview: _____ Time: _____

PROPERTY DESCRIPTION *(by interviewer)*

1. How many buildings are on the property?

2. What types of building are on the property? *(Count number per type)*
   a. Single building of brick structure
   b. Single informal shack
   c. Multiple buildings of brick structure
   d. Multiple informal shacks
   e. Multi-storey building of brick structure
   f. Multi-storey informal shack

PERSON'S DETAILS

3. Race:
   a. Black South African_____
   b. Black African (not SA)_____
   c. White_____
   d. Indian_____
   e. Coloured_____
   f. Asian_____
   g. Other (please describe)_____

4. Age: (tick one)
   a. 20-29___
   b. 30-39___
   c. 40-49___
   d. 50-59___
   e. 60-69___
   f. 70+___

5. Where were you born? _____

6. Education: (tick one)
   a. Less than grade 8___
   b. Some High school (Standard 8) ___
   c. High School grad (Matric) ___
   d. Some university/technikon____
   e. University/technikon graduate____
   f. Post graduate_____
   g. None _____

7. What is your primary occupation? _____
   i. Unemployed, as:
      a. Looking for work
      b. Not looking now
   ii. Employed, as:
      a. formal employment
      c. informal employment
   iii. Self-employed
      a. Formal business

      b. Informal business
   iv. Student
   v. Retired
   vi. Other.....

8. How long have you been doing that/engaging in this work?
   a. 0-1 year_____
   b. 2-5 years_____
   c. 6-10 years_____
   d. More than 10 years_____
   e. More than 20 years_____

PROPERTY DESCRIPTION_ACTIVITIES

9. How long have you lived on the property?

10. When is the last time a new building was built on this property?
   a. 0-1 year_____
   b. 2-5 years_____
   c. 6-10 years_____
   d. More than 10 years_____
   e. More than 20 years_____
   f. I don't know

11. What was the purpose of the new building?.....

12. How was the construction financed?
   a. Savings
   b. Loan from bank
   c. Loan from other formal lending institution
   d. Loan from informal lending institution
   e. Loan from family
   f. I don't know
   g. Other (describe).....

13. What kinds of activities take place on this property? (*Circle all relevant answers)*
   a. Residential
   b. Educational (crèche, etc)
   c. Entertainment (shebeen, etc)
   d. Commercial (Spaza shop, shop, internet cafe,..)
   e. Religious (Church)
   f. Community Service (stokvel meeting, etc..)
   g. Business (Offices, company)
   h. Other .....

14. How many separate Households live on the property?.....

15. How many people in total live on the property?.....

16. What kind of unit do you live in?
   a. Free-standing house_____
   b. Flat_____
   c. Semi-detached House_____
   d. Townhouse____
   e. Backyard room_____

f. Other (please describe)_____

COMPETENCE

17. Do you:
    a. Own your place , you bought it____
    b. Own your place, you inherited it.....
    c. Rent your place _____
    d. Stay for free because you know the owner____
    e. Stay for free without any permission_____
    f. Stay with parents _____
    g. Other (please describe)_____

18. If you own or rent your place, how much do you spend on?
    i. Rental_____
        a. R0 – R1500 ____
        b. R1501-R3000 ____
        c. R3001-R4500 ____
        d. R4501-R6000 ____
        e. R6001 and above _____
    ii. Mortgage _____
        a. None_ paid up
        b. R0 – R1500 ____
        c. R1501-R3000 ____
        d. R3001-R4500 ____
        e. R4501-R6000 ____
        f. R6001 and above _____

19. If you own the property, please provide details on type of ownership
    a. individual ownership
    b. Shared ownership (Spouse)
    c. Shared ownership (relatives)
    d. Still disputed
    e. Other.....

20. Does the title deed reflect the current ownership of the property?
    a. Yes
    b. No
    If not, why?.....
21. Do you know what building rights are attached to this property? (Zoning, Height restrictions, etc...)

22. Do you know where to go to find out about these rights?

22. Have you ever applied to the municipality for any of the following?
    a. Building Permit
    b. Consent
    c. Rezoning
    d. Consolidation
    e. Subdivision
    f. Other (describe)

23. Was the application successful?
    a. Yes
    b. No

24. If not, specify why?

25. What kind of improvements/activities would you like to see on this property?

26. Is anything preventing you from doing so?

ACCESS TO FINANCE

27. What is your main source of income?
    a. Salary
    b. Small business
    c. Remittances from outside the household
    d. Private pension
    e. Government grant
    f. Other income
    g. No income at any time

28. Where would you seek finance (money)?

    i. In case of emergency?
        a. Bank
        b. Other formal lender
        c. Informal lender
        d. Family/friends
        e. None

    ii. For business (investment, construction) purposes?
        a. Bank
        b. Other formal lender
        c. Informal lender
        d. Family/friends
        e. None

29. Have you ever applied for finance for building additions or improvement to your property at..
    a. Bank
    b. Other formal lender
    c. Informal lender
    d. Family/friends
    e. None

30. Were you successful?
    a. Yes
    b. No. Please explain why?.....

AWARENESS OF REA VAYA'S IMPACT ON SURROUNDING AND IMAPCT ON PERSONAL LIFE

Thank you for your responses so far, now I would like to ask you some questions pertaining to the area in which you live before and after the Rea Vaya started operating.

31. Think of the different infrastructure development/changes in your area of residence over the last 10 years and tell me whether they are: (tick where applicable):
    a. Much better: Experience improvements on a daily basis
    b. Better: Experience improvements on a weekly/monthly basis

c. The same/no difference
d. Worse: Experience deterioration on a weekly/monthly basis
e. Much worse: Experience deterioration on a daily basis

	Rating	a. Much better	b. Better	c. The same / no difference	d. Worse	e. Much worse
i.	Roads					
ii.	Pavements					
iii.	Street lights					
iv.	Security					
v.	Transport					
vi	Water					
vii	Electricity					
viii.	Parks					
ix.	Refuse collection					
x.	Police Presence					
xi.	Sewerage					
xii.	Amenities e.g. libraries, community centres, sports fields					

32. Off all the services cited above, which one had the biggest impact on your living environment? Why?
.....

33. The following statements seek to assess your perception of the impact of the Rea Vaya Phase 1A on your environment. Please indicate your sentiment about these statements: Since the implementation of Phase 1A BRT.

i. More people use the BRT instead of their cars
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

ii. More people are looking for accommodation around the BRT station
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

iii. More people are renting out accommodation around the BRT station
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

iv. More people are building accommodation around the BRT station
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

v. More people want to buy property around the BRT station
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

v. The value of properties have increased around the BRT station
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

vi. More businesses have started around the station
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

vii. Existing businesses around the station have more customers
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

ix. Value of the rent has increased in the area around the station
a. Strongly agree b. Agree c .Neutral d. Disagree e. Strongly disagree e.I don't know

34. If you have noticed changes in accommodation, can you tell what types of properties have been affected:
a. Free-standing houses_____
b. Flats_____
c. Backyard rooms_____
d. Hostels ____
e. Other (please describe)_____

35. If you have noticed changes in businesses, can you tell what types of businesses have been affected:
a. Formal businesses
b. Informal Businesses_____
c. Spaza Shops_____
d. Creches____
e. Shebeens
f. Others (describe)

37. Has the BRT changed your travelling habits? Please give detailed response:

a .During the week?

b. Over the weekends?

36. Do you think the implementation of BRT has benefitted you directly? In what way?
.....

Many thanks for your time!

[redacted]

SCHOOL OF ARCHITECTURE AND PLANNING
HUMAN RESERCH ETHICS COMMITTEE

SCHOOL OF ARCHITECTURE & PLANNING

CLEARANCE CERTIFICATE
PROTOCOL NUMBER: SOAP03/29/03/2016

PROJECT TITLE: Spatial Planning and Transportation in Soweto/Johannesburg. Tracking Densification and Land-Use Changes Around ReaVaya BRT Phase 1A Bus Stations in Soweto.

INVESTIGATOR/S:	Tshanda Mbuyi (Student#0309767e)
SCHOOL:	Architecture and Planning
DEGREE PROGRAMME:	MSc Development Planning
DATE CONSIDERED:	29th March 2016
DECISION OF THE COMMITTEE:	APPROVED
EXPIRY DATE:	29th March 2017

CHAIRPERSON _____
(Professor Daniel Irurah)

DATE: 29th March 2016

cc: Supervisor/s: Nqobile Malaza

DECLARATION OF INVESTIGATORS
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to endure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature **Date**

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