



Urban Regeneration  
through  
Transit-oriented Development:  
An Initial Perspective from the Global South

Samuel Vandewater  
University of Cape Town  
October 2015

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# Urban Regeneration through Transit-oriented Development: An Initial Perspective from the Global South

Samuel Vandewater

*Dissertation submitted in partial fulfilment of the degree of  
Masters of City and Regional Planning*

*In the School of Architecture, Planning and Geomatics*

University of Cape Town

October 2015

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my grandfather who passed away during this program, and always supported my decisions wherever in the world I was...

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---

## **Abstract**

As cities age and change, certain areas begin to physically decay and suffer from the flight of both its residents, as well as socioeconomic activities. The means by which these areas are regenerated remains an issue for many cities, who are unable to reconnect these places with opportunities needed to thrive. In response to this challenge, transit-oriented developments have become a more recent, sustainable form of urban growth that allow people to navigate a city's socioeconomic activities and opportunities through well-established modes of transportation. This has the potential to create cities in which people are able to have a 'live, work, play' lifestyle, supported by various modes of public transportation that also connects them to the broader urban context.

The case study method is used to determine the viability of utilising transit-oriented developments as a path for enabling urban regeneration and to examine a space in need of regeneration that is also well-connected to various modes of urban transportation. Bellville Central provides an example of attempts to address urban decay through vari-

ous efforts of regeneration, with the insights of the users of the space became invaluable resources for the study. The users found that safety, walkability, and transportation were of the utmost importance and should be improved to help regenerate the area, while other data suggested a need for more diverse socioeconomic activities. The results of the study reveal many overlapping principles such as notions of liveability, that, while aimed at different goals, use methods that are often complementary or even identical to each other, thus regenerative interventions should include additional theories (like transit-oriented development) and broader, inclusive impacts.

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## ABBREVIATIONS

AB	Autler and Belzer
BCID	Bellville City Improvement District
BRT	bus rapid transit
BTI	Bellville Transportation Interchange
CBD	central business district
CH	Choice
CID	city improvement district
CoCT	City of Cape Town
CoF	Corridors of Freedom
CPUT	Cape Peninsula University of Technology
EP	Efficient Regional Land-use Patterns
FR	Financial Return
FTA	Federal Transit Administration
GIS	Geographic Information Systems
GTP	Greater Tygerberg Partnership
LE	Location Efficiency
LEM	location efficient mortgage
LV	liveability
PEECE	participation, equity, environment, community and economic
PRASA	Passenger Rail Agency of South Africa
RBC	Rosslyn-Ballston Corridor
TKO	Tseung Kwan O, Hong Kong
TOD	transit-oriented development
UTI	Urban Land Institute
UWC	University of the Western Cape
VR	value recapture
VRCID	Voortrekker Road Corridor Improvement District
WCG	Western Cape Government

## GLOSSARY

development-oriented development	- <i>transportation that is built to serve existing developments</i>
erf (pl. erven)	- <i>a plot or plots of land</i>
gentrification	- <i>the displacement of low-income residents from and area undergoing regenerative change.</i>
informal settlement	- <i>group of housing that does not utilise typical building materials or prescribed zoning</i>
informal trading	- <i>economic activities that occur outside of taxed system, usually performed by low-income</i>
land-use	- <i>how the land is being used, which does not always coincide with prescribed zoning</i>
mixed-use	- <i>a land-use type that promotes commercial, retail, hospitality, and residential offerings</i>
private sector	- <i>companies and organisations that are not subsidised by the government</i>
public sector	- <i>organisations of the government</i>
residents	- <i>people who live in a given area as their main home</i>
semi-public	- <i>non-governmental organisations that get state funds</i>
socioeconomic activities	- <i>shops, retail, commercial, social services</i>
socioeconomic opportunities	- <i>employment environment</i>
transit-adjacent development	- <i>development located next to transit</i>

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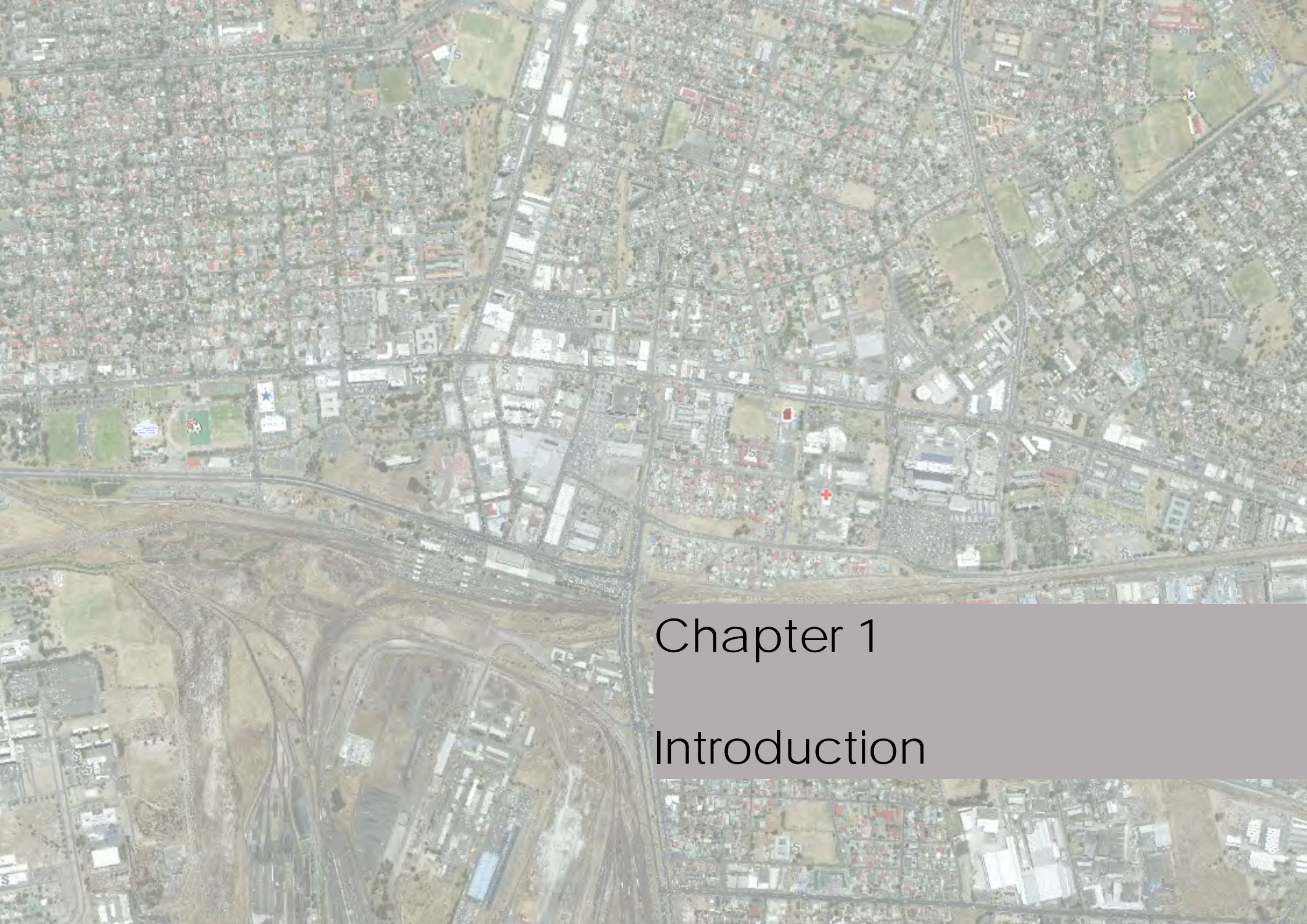
transit-oriented development - *developments that utilise transportation to create a walkable, safe environment that offers diverse socioeconomic activities and opportunities*

urban decay - *an area that suffers from the flight of its existing population, economic activities, and aging buildings*

urban regeneration - *re-establishing social, economic, and environmental aspects of the city*

walkability - *a space that is pedestrian-oriented*

zoning - *the prescribed use of an erf or erven*



# Chapter 1

## Introduction

---

## 1.1 Introduction

[I]f we're really serious about [TODs], we should maybe give some thought... to how it could serve as a catalyst for urban regeneration. Rather than annexing neighbouring [communities] for growth, why don't we make better use of the land we've already got?

(Winnipeg Free Press: 26 Feb 2012)

Transit-oriented developments (TODs) are an increasingly utilised method of spatial planning and land-use management that encourages growth to occur around transportation corridors and nodes. TODs help to improve the accessibility of social services and economic opportunities, and also lead to investment from public and private stakeholders (Milan, 2015). Robert Cervero (2013a) notes that TODs are important in rapidly growing cities, particularly those in the global South, as they can allow for “tremendous gains” with regards to poverty reduction and socioeconomic inclusivity. Additionally, urban regeneration necessitates the regrowth and reorganisation of areas that suffer from urban decay. Roberts and Sykes (2000: 17) define urban regeneration as a “comprehensive and integrated vision and action which leads to the resolution of urban

problems and which seeks to bring about a lasting improvement in the economic, physical, social, and environmental condition of an area that has been subject to change”. Many cities around the world require this form of intervention as they have suffered from sprawling development, leaving historical urban centres in socioeconomic decline. The shift towards more accessible, inclusive, and environmentally sensitive cities has allowed ideas of TOD, as well as urban regeneration, to flourish since the turn-of-the-century and address adverse issues that plague contemporary cities.

This study examines the relationship between TODs and urban regeneration, and how the former enables the latter for more accessible and inclusive planning outcomes. The purpose of this chapter is to introduce the problem under investigation and the aim of the study, as well as the main research question of the study. Before doing so, the problem under investigation needs to be contextualised. It is to this contextualisation that the study now turns.

## 1.2 The Background to the Study: Towards TODs and Urban Regeneration

While ideas of ‘TODs’ have been circulating for more than a century, these ideas were only formalised in the late 1980s. Many cities in the global North, and some notable cities in the global South, have used transportation as a means of development and a way to connect people to socioeconomic opportunities. Cape Town is no exception, as the city utilised streetcars in the late-nineteenth century along the Main Road corridors of the Southern Suburbs and Sea Point to increase development and accessibility. Although there has always been a link between development and transportation, urban designer Peter Calthorpe highlighted the socioeconomic and environmental components of this relationship by defining this phenomenon as transit-oriented development (Carlton, 2009). Calthorpe (1993) defines TODs as a community of mixed-use spaces (residential, retail, office, open, and public) within a walkable environment and convenient access to public transportation.

Since the mid-nineteenth century, cities have grown and evolved, as have the

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ways in which we locate and navigate that growth. There have been two forms of urban growth that have dramatically changed the spatial pattern of cities away from central urban cores. The development of streetcar corridors to complement city growth was seen as the initial shift towards urban decentralisation (Lai and Li, 2009). As with the Cape Town streetcars, developers invested in transit to increase development between the home and job. This form of growth, termed “development-oriented transit”, sets the foundation for TODs through small commercial nodes paralleled with transit stops (Autler and Belzer, 2002: 4). However, during the second half of the twentieth century, there was a shift away from this trend as the automobile became more prominent in everyday life.

The automobile ushered a major change to the spatial patterns and growth of cities throughout the world, leading to sprawl and inner-city decline. After the Second World War, automobiles became the primary mode of transportation in most cities, leading to the abandonment of public forms of transport (Autler and Belzer, 2002). The spatial patterns of cities became more decentral-

ised as public transit was less important for development and automobiles increased the mobility of the labour force. These “auto-oriented developments” have also led to congestion, air and water pollution, and a depletion of energy resources (Lai and Li, 2009: 72). The public transit that did remain was largely connected to private automobiles in the form of suburban train stops or buses plagued by the automobile congestion (Autler and Belzer, 2002). Additionally, the transit stops were ignorant of their surroundings as they provided little sense of place and interaction with the neighbourhood. Remnants of this shift are visible in Cape Town along the Southern Suburbs Main Road corridor, where the streetcar system has been removed for shop-side parking.

This second shift towards automobiles has had adverse effects on urban centres and nodes, leading to the depopulation and decay of the inner-city (Autler and Belzer, 2002). This form of private transportation helped to sustain existing suburbs and develop new places such as Bellville. The automobile allowed urban populations to relocate further from the inner-city as people had a convenient and enhanced mode of

mobility. The increased mobility of the labour force changed the accessibility requirements of urban area populations, pulling social services and economic opportunities into peri-urban and suburban areas to which the populations had relocated (Roberts and Sykes, 2000). While this was less common in the global South, Bellville reflects the growth and pulling of social services and economic activities, which also services the surrounding neighbourhoods of Parrow and Durbanville. This led to further decline of urban areas as social and economic activities abandoned their centralised locations to follow population trends, leaving inner-city neighbourhoods in disarray. However, the resulting hollow neighbourhoods have become the epitome for redevelopment in recent decades, and thus the more contemporary notion of urban regeneration.

Within the South African context, the Apartheid form of spatial planning situated transit-dependent communities in automobile-based neighbourhoods (non-whites have difficult accessibility) and automobile-based communities near transit neighbourhoods or corridors (whites have easy accessibility; Beg et al., 2014). This exacerbated the

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poverty of non-white populations who lost time and money on transportation to distant socioeconomic opportunities. Furthermore, the segregation of people resulted in inferior transportation developments that prevented equitable socioeconomic opportunities for non-white populations. Transit thus became yet another instrument of enforcing inequality and injustice (Beg et al, 2014). Poor neighbourhoods were not only provided with minimal bus and train services, but the railway became a physical barrier to growth and development for the racially segregated areas of the Apartheid city (Christopher, 1987).

The Apartheid planning style also increased the levels of urban decay within cities as relocated non-white urban communities resulted in a large number of vacant lots of underutilised land, buildings, and infrastructure. Non-white neighbourhoods throughout the city, such as District Six in Cape Town or Oakdale in Bellville, were subjected to forced removals and comprehensive demolitions in order to establish a separation between races, while peri-urban centres like Mitchell's Plain and Khayelitsha expanded (Chopra et al., 2005). Even after the col-

lapse of Apartheid, the freedom of mobility and development witnessed the growth of "mega-projects such as Century City", which have created exclusionary live-work-play environments with little public transit accessibility (Turok and Watson, 2001: 120). These types of developments, along with the growing Apartheid-era settlements, have exacerbated the urban decay experienced by South African cities.

However, the collapse of the Apartheid system has allowed new (including international) ideas to emerge in an attempt to address the spatial implications that were created under Apartheid. The controls on non-white mobility have been amended, allowing poorer communities to access a wider range of social services and economic opportunities. While the whole population has benefited from new equal rights and freedoms, the spatial Apartheid legacy has made it difficult to integrate the disconnected former non-white communities into the wider urban context. Additionally, important nodes throughout the city have lost white populations to increasing non-white groups who are utilising their new freedom of mobility, leading to changes in the urban fabric.

City centres have lost economic activities and the infrastructure neglected in favour of more valuable land and suburbs, while informality and dilapidation of the inner-city increases.

Bellville reflects this situation in a variety of ways. While the surrounding neighbourhoods of Bellville are relatively well maintained, Bellville Central has suffered from white- and capital-flight, which have hampered socioeconomic activities. The dominant white population of the Apartheid era have migrated to other parts of the city or country, allowing new social groups to fill the void, particularly disadvantaged populations. This has led to an increase of the informal economy and less maintenance of the area in terms of aesthetics and safety. There are also other constraints that prevent Bellville Central from supporting new or additional socioeconomic activities and opportunities, the largest being the lack of vacant land for new developments. While there are a number of parking lots that could be reclaimed for other purposes, Bellville Central is, for the most part, already developed. Existing buildings reflect the urban decay of the area as several are dilapidated or poorly

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maintained. These changes occurred after the end of Apartheid and have become the leading reasons for the decay of Bellville Central. While the idea of TODs is still in its infancy in Cape Town and South Africa, attempts such as Claremont provide hope for possible TOD interventions. Discussions presented in this section set-up the problem under investigation.

### **1.3 Identifying the Problem under Investigation**

The main issues for this research are accessibility and inclusivity. The initial concern for accessible and inclusive urban settlements originates from personal experiences in the United States' poorest state of Mississippi. However, this concern has been widened to global South experiences in countries such as South Africa and Nicaragua.

The adverse effects of the automobile on urban centres and resulting decentralisation have made accessibility to social and economic necessities difficult to obtain. The number of exclusive 'live-work-play' communities in South Africa continues to rise since the end of Apartheid, hindering the development of TODs and the process of urban regeneration (Landman, 2004: 158). Poor people, whether in Cape Town, Mississippi, or Nicaragua, are unable to consider these exclusive areas as possible housing opportunities, and they are disconnected from these areas as a result of limited and under-maintained public transit infrastructures. Inaccessibility and exclusivity reduce socioeconomic opportunities (Turok and Watson, 2001). Policies and planning recommendations

often preach poverty alleviation, but private sector investors and local governments can often become barriers to, instead of instruments for, socioeconomic and spatial justice, and empowerment. Furthermore, planning decisions that do not consider poor communities can exacerbate poverty rather than reduce it.

Poor people and communities are also often disregarded in large spatial changes and plans, particularly when land is of high developable value. This can restrict poor communities from being included in the planning processes and outcomes of these developments or their benefits. This is a pressing concern especially when new developments are implemented in close proximity to economically stressed neighbourhoods. Century City is the epitome of this idea as the entire site is surrounded by low-income communities, yet it remains exclusive with regards to the socioeconomic opportunities that are available. Inclusion is not only absent for poorer communities with regards to decision making processes, but also the opportunities themselves that are created from these decisions. In the case of Century City, people who have not obtained tertiary education

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qualifications will find it difficult to obtain employment in this area. Urban centres are important as they are centralised public locations that can provide a variety of opportunities for different-skilled workers, thus leading to increased accessibility and inclusivity. Thus, inaccessibility and exclusivity are problems this study aims to address.

#### **1.4 Establishing the Aim of the Study**

Based on the identified problem, the overarching aim of the study is to establish ways in which TODs can be used as instruments to enable urban regeneration for more accessible and inclusive planning outcomes. This is done through case study analysis, as well as recommendations and a spatial plan, which will be further detailed in Chapters 3 and 6, respectively. Using case study research methods helps to understand the dynamics, as well as strengths and limitations, of TOD and urban regeneration in an applied context, thus revealing potential components that are sensitive to situated contexts.

An additional aim of the study is to provide a spatial intervention for a site within the municipal boundaries of the City of Cape Town. The specific site under investigation is Bellville Central, which is introduced in Chapter 4. This is also the case study area. A site plan will help to demonstrate the spatial organisation of TODs in a way that promotes urban regeneration without creating socio-economic exclusion.

The results and findings of this study will hopefully be considered in future TODs that have the potential to enable urban regeneration and provide inclusive socioeconomic activities. The study will identify important links between TODs and urban regeneration that can be contextualised to cities of both the global North and South. Finally, the overarching aim of this study serves to establish the main research question.

---

## 1.5 Establishing the Main Research Question and the Research Methods

The main research question of this study asks:

How can transit-oriented developments enable urban regeneration for more accessible and inclusive planning outcomes?

By establishing the links between TODs and urban regeneration, answers to this question can reveal possibilities of improving accessibility and inclusivity. Thus, in order to answer the main research question, a number of techniques are used. The case study method that is used is informed by the assessment criteria established in Chapter 2. With regards to the research techniques used for this study, open-ended interviews are conducted with different users of the Bellville transportation interchange and surrounding space. Research findings are also informed by non-participant observations of Bellville's public spaces and spatial mapping exercises. The research method and techniques are discussed in greater detail in Chapter 3, along with their strengths and limitations. Before turning to the next chapter, a brief outline of the remainder of this study is provided.

## 1.6 Structure of the Study

Chapter 2 provides a literature review of TOD and urban regeneration, including examples from a variety of locations, to provide an understanding of the theoretical ideas. These ideas enable the formulation of assessment criteria. The assessment criteria are used to establish subsidiary research questions. Both the assessment criteria and subsidiary questions are required for the purpose of analysing the case study area.

Chapter 3 outlines the research methods and techniques used to undertake this study. This chapter also encompasses discussions on conducting ethical research, in addition to discussions concerning the limitations of the methods and techniques used to collect data for this study. The chapter will conclude with an overview on how the data will be analysed.

Chapter 4 provides a historical and contextual analysis of the case study area. The chapter begins by examining important factors that led to the development of the case study area. Key topics, such as the local economic, environmental and social conditions of Bellville Central, are discussed.

Chapter 5 analyses the case study using the assessment criteria established in Chapter 2. Through this analysis, answers to the subsidiary questions are revealed. This helps to answer the main research question established in this chapter and provide recommendations. The analysis will also help to determine important spatial interventions that can be applied to a site plan, along with the recommendations.

Chapter 6 begins by providing answers to the main research question allowing for synthesis of the findings. The chapter will then present a number of planning recommendations for the problems identified in the study. Some recommendations are derived from the literature reviewed in Chapter 2, while other recommendations are derived from the research findings. The chapter then proceeds to provide a spatial plan that applies the recommendations to Bellville.

Chapter 7 provides the conclusion for this study by stating some limitations to the study. A small reflection section is also provided, offering a personal account of the research topics and work conducted for this study. The study now turns to the Chapter 2.





## Chapter 2

## Literature Review

---

## 2.1 Introduction

While responses to urban decay have existed for the past few centuries, albeit in different forms (Andersen, 2003), the aim of this study is to determine how urban regeneration is enabled through a TOD approach. TODs have become a more recent approach to addressing some of these issues by providing a sustainable transit-based solution. TOD is an emerging concept and strategy to urban development that centres on efficient and accessible transportation that not only promotes sustainable growth, but requires local stakeholder involvement for successful results. An additional aim of this study will be to explore these ideas through the case study and subsequent research. The research findings from this study help to debunk or confirm these claims, and others made by scholars focused on TOD or urban regeneration.

As stated in Chapter 1, the purpose of this chapter is to provide an in-depth analysis of transit-oriented development (TOD) and urban regeneration that will inform the assessment criteria that the case study will be evaluated against. The first section of this chapter will focus on transit-oriented

development, including its principles and limitations. The following section will discuss the literature and ideas around urban regeneration, since these will have important impacts on a TOD implemented in a location like Bellville

The sections on TOD and urban regeneration will help to answer the main research question: How can transit-oriented developments enable urban regeneration for more accessible and inclusive planning outcomes? Additionally, the sections will be used for informing and guiding the TOD site and precinct plan for the Bellville case study. The literature that is reviewed will provide insight into the potentials connections between TOD and urban regeneration. Each section will establish an assessment criteria and derived subsidiary question(s) to help evaluate the Bellville case study, as well as create a site plan. The section concludes with a table of assessment criteria and subsidiary questions.

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## 2.2 Transit-Oriented Developments

As stated in the previous chapter, TODs have existed well before their codification in Calthorpe's *The Next American Metropolis* (1993), highlighting the importance of integrated transportation and land-use planning. The principles established by Autler and Belzer (2002) will be justified before analysing each key principle with contextual examples. While TOD is the approach employed for urban regeneration for this study, its limitations must be taken into consideration to ensure full comprehension. Each of the principles will be supported by a TOD example that illustrates its application and importance. The principles will help to establish assessment criteria for the Bellville case study.

### 2.2.1 Justification for Established Principles

The literature theorising key principles of TOD is limited compared to contextualised discussions of TODs, but has helped to distinguish between transit-oriented and other forms of development. Cervero and Kockelman (1997) were the first to formulate principles of TOD with the "3 D" concept: density, design, and diversity. TODs experience

high population and employment densities within a node that offers a diverse range of activities and services, and is designed to be pedestrian oriented. According to Cervero and Kockelman (1997), the 'density' of a TOD refers to the number of people using the space, with high densities between 60 and 120 dwelling units per hectare creating a sustainable population around the TOD (Churchman, 1999). The 'diversity' of a TOD includes having a range of housing types, architectural styles, land-uses, and circulation within neighbourhoods (Cervero and Kockelman, 1997). The 'design' of a TOD emphasised the physical form of the space, particularly the aesthetics, NMT infrastructure, and site layout (Cervero and Kockelman, 1997). Each component was seen as crucial for a successful TOD, but help to reinforce each other as well. While the '3 D Principles' have been used in a variety of literature (FTA, 2004; Renne, 2009; Chow, 2014; Ndebele and Ogra, 2014a), changes have been made by seceding theorist. Cervero (and Murakami, 2008) amended the original principles by including 'destination' (the TOD as a destination and the others accessible through the TOD) and 'distance' (length of time it takes to arrive at a desti-

nation) to compensate for the changes. This created the "5 D" principles of transit-oriented development and solidified criteria for TOD.

While the '3/5 D Principles' as criteria have been used for countless case studies to determine the benefits and impacts of TODs, Autler and Belzer (2002) offer an alternative set of principles that extends beyond the physical aspects of density and design. Autler and Belzer's principles are location efficiency, financial return, liveability, value recapture, choice, and efficient land-use patterns. These principles (AB Principles) are used for the purpose of this study in establishing an assessment criteria for Bellville case study. The motive for these alternative criteria, as opposed to the '3/5 D Principles', is the need to address more than the physical form, which "alone is not sufficient for achieving all the benefits of TOD" (Autler and Belzer, 2002: 8). Autler and Belzer (2002) criticise the '3/5 D' Principles, stating they do not take the function of TODs into consideration, thus allowing the label of 'TOD' to be applied to a variety of other land-use and transit integrated developments. In order to address this issue, the six

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identified key principles of TOD that incorporate the physical form of TODs as well as their functionality and performance are used to help determine successful cases. Furthermore, Aulter and Belzer (2002: 8) state their principles allow a better “assessment of projects [by judging them] as more or less successful in different areas rather than simply built or not built”. As will be seen in the following section, the ‘3/5 D Principles’ are represented throughout a number of the ‘AB Principles’, indicating the fluidity of these theories.

### **2.2.2 AB Principles of Transit-Oriented Development**

This section examines the various AB principles independently to understand their meaning and application in ‘testing’ a TOD. Each of the following criterion is accompanied by a global TOD example. The section concludes with three major limitations to the implementation or improvement of a TOD.

#### *2.2.2.1 Location Efficiency*

Location Efficiency (LE) can be seen as the “effective blending of convenient and efficient transportation links (node functions) with enhancement of the ability to carry out

most everyday tasks close to home (place functions)” (Autler and Belzer, 2002: 9). In other words, LE is the ability of a TOD node to provide quality transportation connected to a broader context and a sense of place that offers a variety of socioeconomic activities. This requires an important connection between high-quality transit, diverse mix of uses, and non-motorised movement (Autler and Belzer, 2002). An important factor of LE, as Aulter and Belzer (2002) note, is that LE not only increase sustainable choices, but it can encourage them as well. Thus, LE is achieved from ensuring that a TOD is well equipped by design and function, but also having a sustainable population and density to support it.

The city of Perth on the western coast of Australia has been a notable example with regards to creating LE, especially given its severely low population density. This is important because, with the exception of a few centres, Cape Town is a low density city, making Perth a relevant case to examine. Due to the low density, Curtis (2008) argues two main problems had to be addressed: competition with private transportation on travel time to the CBD; and low levels

of walk-on patronage. The solution to the former issue involved a detailed assessment of potential routes and stations, whereby fewer stations enabled faster access to the CBD (Curtis, 2008). Furthermore, Curtis (2008: 300) notices a “transfer-transit” TOD approach that attracts car users with sufficient parking infrastructure, suggesting an attempt to shift the population from private to public forms of transportation. This can be seen as a large-scale consideration for LE since the placement of each station needs to be prudent for maximum utility and success. The Bellville case study provides a challenge with regards to LE as it is a relatively low density per hectare compared to other places around Cape Town (GIS, 2015).

While the ‘transfer-transit’ approach helps to balance the low walk-on levels, Perth employs additional methods to promote and maximise pedestrian movement within low density areas to create LE. The Rockingham station has been planned to develop a link between transit and ocean through the existing districts of the city, including the town centre and Murdoch University, emphasising non-motorised movement (see Figure 2.2; Falconer and Richardson, 2010). The pro-

jected growth of Rockingham coupled with land-use strategies to develop the corridor between train and ocean help to legitimise and strengthen the TOD, while addressing the issues of low walk-on levels (Falconer and Richardson, 2010). This indicates forward planning for ensuring LE, even when demand is insufficient at present.

Olaru et al (2011) were able to examine a more mature and well established TOD in Perth several stations away from Rockingham and has seen success with LE in a low density area. The Bull Creek station is a 24 km distance from Perth centre, characterised by suburban sprawl and a massive transportation interchange of two major car

routes. However, Olaru et al (2011: 226) argue that the city uses these challenges to their advantage to improve the success of the TOD by means of design. The city aimed to integrate suburban walking and cycling routes with the high volume bus and train routes which, as Olaru et al (2011: 226) state, “offers better accessibility to the metropolitan area”. This helps to improve the LE of the station, as it feeds into a variety of destinations.



Figure 2.2 Design of Rockingham City; public and green spaces linking station to various nodes throughout the development

The importance of LE is seen through the example of Perth, which was able to implement a TOD in a low-density area. The assessment criteria for LE, that is derived from the literature of this section, can be identified as node function and place function. These criteria help to determine the following subsidiary question that is explored through the research:

Is Bellville Central functionally balanced?

#### 2.2.2.2 Financial Return

Financial Return (FR) can be seen as the occurrence of economic (and sometimes social albeit the principle’s insinuation) gains by public and/or private investors in a specific

neighbourhood (Autler and Belzer, 2002). A complementary relationship between the public and private sectors exists whereby the former invests in transportation, infrastructure, and public spaces while the latter constructs buildings and some open spaces (see Figure 2.3). This requires an understanding of what each stakeholder expects (Autler and Belzer, 2002). Autler and Belzer (2002) argue that TODs should not always attempt to achieve the 'highest and best use for the site' as this can lead to exclusive and commercial-oriented development. This reflects the importance of FR for successful TODs as higher levels encourage and promote stable investment environments for the public and private sectors.

The Rosslyn-Ballston Corridor (RBC) in the Washington DC metro area (Arlington, Virginia specifically) has seen remarkable FR for both private and public investors. This has relevance to South Africa as it reflects the importance of public-private partnerships, and their potential to provide sustainable changes to the urban fabric. In terms of the public sector, the local government generates more than a third of its revenues from the RBC, which consists of only 8% of

county land, showing very successful FR (Reconnecting America, 2007). Leach (2004) states the coupling of subway stations with proper land-use management has allowed for the successful development of the RBC, activating value capture mechanisms that benefit the public sector. The property value of land along the RBC increased by 81% from 1992 to 2002, and the local government received more than \$90 million in tax revenues in 2002 (Leach, 2004). This further demonstrates the significance of FR given successful TODs. The Rosslyn station is serviced by two subway lines that connect to DC centre, increasing its relevance to the FR principle and making it a sizeable TOD in its own right (Leach, 2004). The diverse and dense land-use planning along the remaining RBC has also led to an increase in commercial, retail, and residential sectors, all of which help to support the subway's operating entity through increased multi-directional ridership (Leach, 2004). Thus, the success of TOD along the RBC has created FR for the local government and the subway operator, both entities of the public sector. Furthermore, this allows these entities to invest in and reinforce the TODs and other related projects from which these funds originate.



Figure 2.3 Rosslyn-Ballston Corridor; financial returns made for developers building along corridor

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The implementation of TOD along the RBC has also benefited private investors. As mentioned above, the RBC has experienced a large increase in land values, and though the public sector has had successful FR, private landowners also benefited from increases to their property value. The sale of the Clarendon Market Common, a mix-use development established for one of the RBC stations, at a market value of \$166 million signifies the enormous FR available to private investors through TOD (Ohland, 2006). Additional potential for FR can be seen through transit ridership, which is extremely responsive to office and retail space, as well as residential developments, reflecting the RBC as a destination (Cervero, 2006). Cervero (2013b) argues that planning strategies, such as incentive zoning and development bonuses, enabled private investors to create these developments with extensive FR. The subway operator undertakes real estate ventures at or near stations, allowing them to control the enterprise that they operate, but providing a stable environment for private investors (Cervero, 2013b). It is important that FR be available to attract private investors as they are vital for the growth and success of TODs. Figure 2.3 shows the result

of successful FR through the development of the high density corridor centred on subway stations. While the public sector benefits more than the private sector from FR, in the case of the RBC, it identifies the importance of such a principle when implementing a TOD strategy.

The importance of FR is seen through the example of the RBC, which witnessed the redistribution of finances through the TOD to both public and private entities. The assessment criteria for FR, that is derived from the literature of this section, can thus be identified as public returns and private returns. These criteria help to determine the following subsidiary question that is explored through the research:

Does Bellville Central have capacity to provide financial return?

### 2.2.2.3 *Liveability*

Liveability (LV) can be seen as the quality of life within a specific neighbourhood, including the design of space (Autler and Belzer, 2002). It is difficult to measure quality of life, particularly given locational circumstances, but Autler and Belzer (2002) argue

that collective subjectivity can help to establish a contextual definition of 'liveability'. Autler and Belzer (2002) further note that while a liveable environment is partially needed for TOD to be successful, TODs are able to influence the perceived liveability of said location.

While still an early example, Johannesburg's 'Corridors of Freedom' (CoFs) identify key routes that have or will implement BRT (and some Gautrain) developments (Bickford, 2014). This provides an AB principle in a South African context, liveability being particularly subjective to the location of the intervention. A set of 'fundamental rights' guides the CoFs, including "the right to a liveable city - where all people have access to good quality of life, clean air, food, safety and cultural expression" (Bickford, 2014: 18). This implies the importance of LV with regards to TOD, particularly in a city like Johannesburg that has to overcome an apartheid spatial inheritance. Bickford (2014: 22) further argues that an ideal liveable city can only be created through the "hearts and minds" of a diverse population. In this regard, Johannesburg attempts to achieve an integrated population through TOD and

spatial transformation across the metropolitan area, thus establishing the 'liveable' city (Bickford, 2014). Bickford (2014) is quick to note that while LV is adequately addressed by the City of Johannesburg, the integration of land-use policies and transportation has been limited.

A more in-depth analysis of the impacts of BRT and TOD in Johannesburg is undertaken by Bickford and Weakley (2014), focusing on the Diepkloof station and surroundings. Interviewed respondents indicated a variety of improvements to the area after the introduction of the BRT, including safety, transit services, and access to goods and services (Bickford and Weakley, 2014). Business owners near the station also benefited from the increased foot activity in the area, noting that people were more inclined to interact with their stores (Bickford and Weakley, 2014). Although extensive land development has yet to materialise, Bickford and Weakley (2014) conclude that the users of the node generally considered the TOD to have a positive impact on their quality of life. This reveals not only the subjective nature of LV, but also its necessity for the perceived success of a TOD. Furthermore,

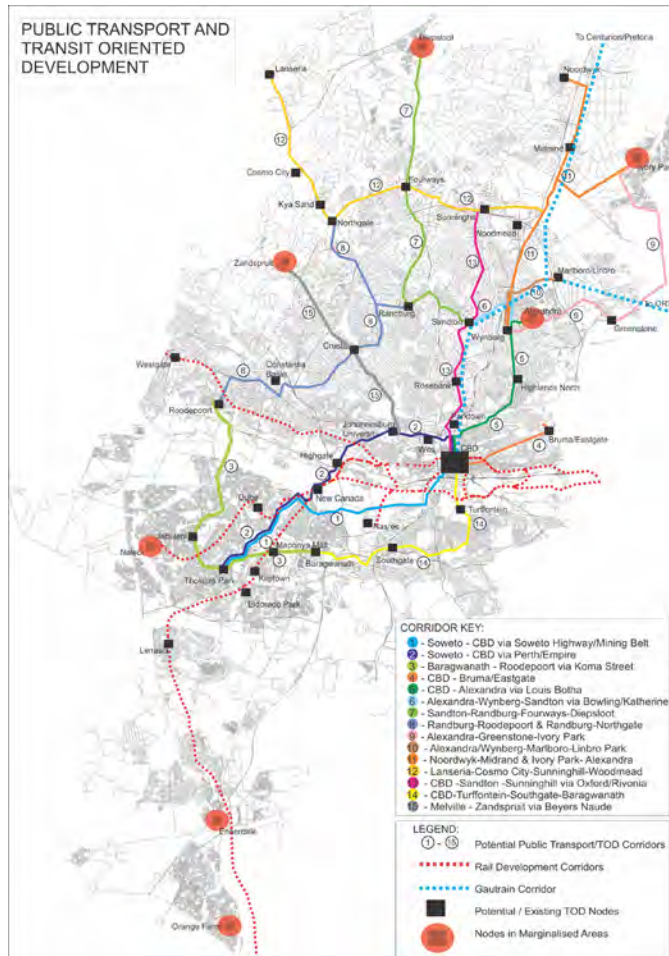


Figure 2.4 Johannesburg Corridors of Freedom; stations provide 'liveable' conditions and links to broader city

the 'design' aspect of Cervero's '5 D' principles is highly influential with regards to LV, Trancik (1960: 114) noting that planners must incorporate "the physical and cultural context and the needs and aspirations of contemporary users" into designed space. Ndebele and Ogra (2014b) also argue that

LV is imperative for the success of TODs and particularly beneficial if areas with high TOD demand are properly managed. They note that LV can influence the decisions of transit users just as transportation can affect the perception of LV (Ndebele and Ogra, 2014a). This implies a symbiotic relationship whereby an improvement in one can benefit the other. However, Ndebele and Ogra (2014b) argue that with regards to TOD, LV is usually predetermined by the community at large. Analysing a CoF with future BRT plans, Ndebele and Ogra (2014a) discovered a pre-existing sense of LV within key transit nodes, indicating a potential precursor to LV established by TODs (see Figure 2.4). Many respondents already had a perception of successful LV, experienced through well designed spaces with safe and accessible movement (Ndebele and Ogra, 2014a).

The importance of LV is seen through the example of the CoF, which highlight the subjective nature of LV and the need for TODs to change local and foreign perceptions of urban space. The assessment criteria for LV, that is derived from the literature of this section, can thus be identified as design of space and quality of life. These criteria help

to determine the following subsidiary question that is explored through the research:

Is Bellville Central liveable?

#### 2.2.2.4 Value Recapture

Value Recapture (VR) can be seen as the occurrence of the individual, household, city, or regional savings obtained through dense, transit-rich neighbourhoods (Autler and Belzer, 2002). This is not to be confused with financial returns, which can be seen as a gain rather than a savings. Due to the higher levels of density, Autler and Belzer (2002) argue that urban residents spend less on private transportation than those in car-dependent neighbourhoods, which can lead to VR. The public sector benefits from high levels of transportation ridership and the potential to develop more land around the TOD. These savings also can be manifested in either economic forms such as finances, or physical forms such as land. Additionally, the savings can be reinvested for both public and local stakeholders; the public sector developing more projects for the given TOD, and income and wealth accumulation for residents (Autler and Belzer, 2002). This makes VR an important TOD principle for

residential, private and public stakeholders to consider.

While Chicago is a rather sprawled city, it has adopted a TOD strategy for its outlying urban centres as a form of urban regeneration and diversification, but offers forms of VR as well. It is important to note this example because of the various urban centres growing throughout the Cape Town metropolitan area. A notable centre that has benefited from the Chicago TOD is Arlington Heights, which has developed a transit

node that experiences two-way labour flow and offers a high-quality, mixed-use environment, as seen in Figure 2.5 (Holle, 2008). Holle (2008) notes that users of TOD have easier access to goods, services, and socioeconomic activities that would otherwise require private transportation, thus increasing disposable income. In turn, this money can be saved or spent at TODs or more local enterprises (Holle, 2008). This is important not only for the users of the space and transit who save personal income, but the TOD itself can be the beneficiary of these

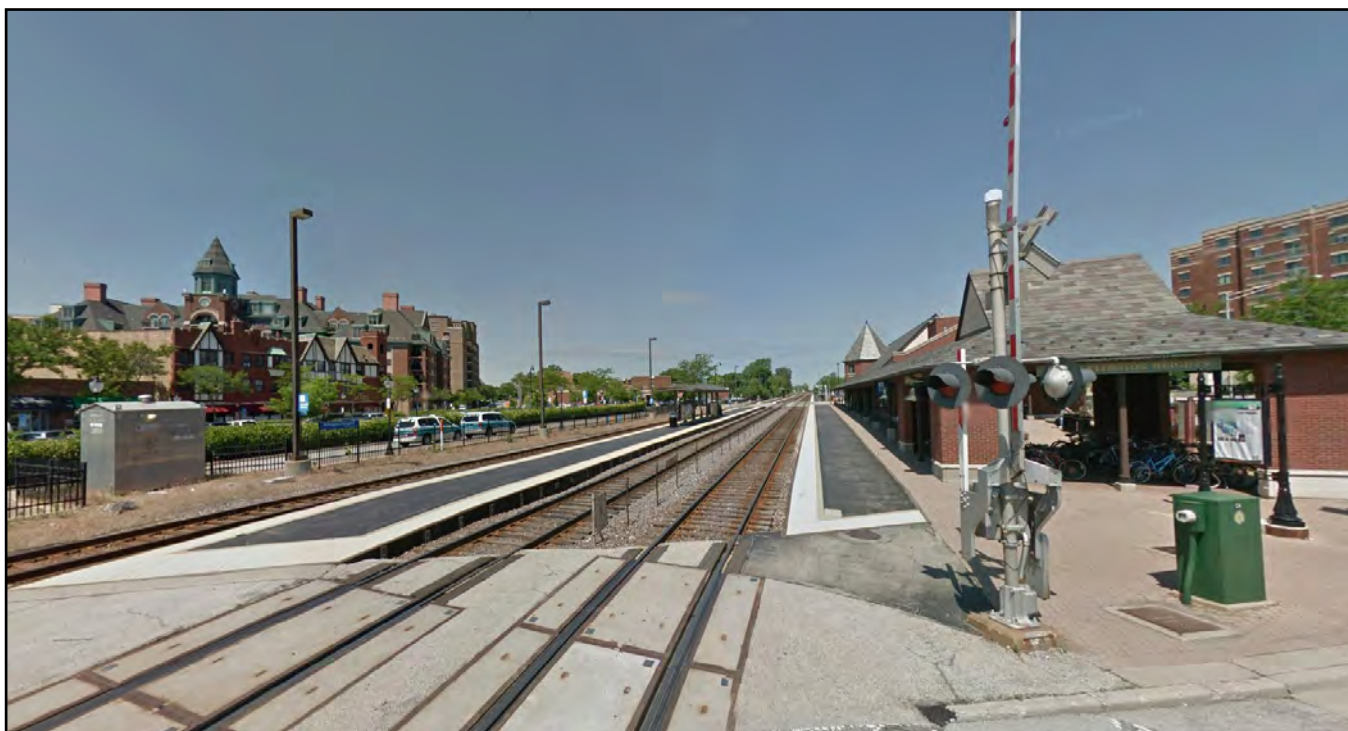


Figure 2.5 Arlington Heights Train Station; apartments surrounding station provide residents easy access to various modes of transportation

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savings from households. Within this situation, households are the main subject of VR.

The public sector can also create forms of VR through a TOD strategy with regards to land. The requirement for high densities and a mix of land-uses allows local authorities to determine what and how land is developed. The FTA Report (2004) highlights the local authority of Chicago's ability to promote 'neighbourhood revitalization' and preserve open green space, which also serves to improve the quality of the area (see Figure 2.5). Through the latter process, the city has been able to maintain a balance between the built and natural environment, thus improving land and property values around the TOD (FTA, 2004). The regeneration of underutilised parcels has also been particularly effective in expansion of TODs, averting expensive city involvement and expenditures (FTA, 2004). This provides VR to the city through maintenance and demolition savings with regards to neighbourhoods and land savings through preservation.

The implementation of TODs can provide VR through mechanisms supported directly by the public sector as well. Chicago has initi-

ated 'Location Efficient Mortgages' (LEMs) which provide mortgages with discounts or improved conditions for those seeking to live near TODs (FTA, 2004). The FTA Report (2004) notes that the LEMs have positive impacts on TODs as they raise the residential occupancy of the area, thus increasing density, diversity, and TOD interaction. While this does not necessarily translate into direct VR, residents are able to purchase housing they might not have been able to afford without savings made from public transportation usage. Nonetheless, VR is an important principle that helps to add an external dimension to TOD, as many other principles are largely focused on TODs or the agents involved.

The importance of VR is seen through the example of Chicago, which reveals the potential of economic and land savings for public and local stakeholders. The assessment criteria for VR, that is derived from the literature of this section, can thus be identified as high density near transit and lost land. These criteria help to determine the following subsidiary questions that are explored through the research:

Is Bellville dense enough to provide VR?

Are there plots of land with the potential for recapture?

#### 2.2.2.5 Choice

Choice (CH) can be seen as the broad range of options that provide internal diversity (Autler and Belzer, 2002). This principle is highly related to the '5 D' principle of diversity as it necessitates a variety of a given characteristics. CH can be manifested in terms of housing, socioeconomic activities available, and even different modes of transportation, reflecting a rather subjective principle. Autler and Belzer (2002) note that TODs do not replace CH of existing communities, but instead supplements what is existing. It can also be said that CH is highly connected to LE, which encourages a more diverse range of options if successfully established.

Copenhagen is often credited as one of the most sustainably planned cities in the world, with a wide variety of socioeconomic activities and green/recreational space, reflecting a high level of choices. It is important to include this example in the study because



Figure 2.6 Ørestad development; various socio-economic activities at different stations in addition to links with Copenhagen and Malmö

Cape Town also offers a range of choice with regards to economic, social, and environmental spaces, thus an appropriate understanding of CH must be provided. Book et al (2010) credits this diversity to the evolution of planning in Copenhagen, which has responded to adverse urban changes, focusing largely on TODs since the mid-90s with the 'Master Plan for Ørestad'. The city aimed TODs towards providing centres of "different activities and land-uses" while also providing "green and blue elements" that retain features of the natural environment (see Figure 2.6; Book et al, 2010: 388). While not explicit, this diversity in activities, land uses, and environmental features indicates the significance of CH with regards to developing TODs. It is important to note, as Book et al (2010) mention, that the diversity of CH should only apply to transportation that is sustainable and shifts towards cleaner economic activities, but an increase of car-usage reflects poorly planned TODs. An improvement to the diversity of CH helps to encourage TOD use as options are centrally located to transportation, increasing accessibility to goods and services.

Knowles (2012) further examines the success of TOD in Copenhagen, also noticing the diversity of CH having positive impacts on the experience. Focusing on the four main nodes within the Ørestad City development, Knowles (2012) analyses the variety of land-uses and goods and services to determine the variability in CH. The most established node (called Ørestad City) had over 500,000m<sup>2</sup> of retail, residential and commercial space with transit connecting to the historical centre, airport, and city of Malmö in Sweden (Knowles, 2012). This indicates a high level of CH not only at the transit station site, but also a connection to a variety of other locations that might offer other socioeconomic activities. Knowles (2012) argues this range of choices can be attributed to the development strategy for Copenhagen to prevent sprawl and redirect growth to and around the historic city centre. Mogharabi and Wei (2013) add that Copenhagen, due to its location, plays the role as both a national capital and an international and regional city for Denmark and Sweden, creating dynamic spaces used by this diverse population. This reflects a broad levels of CH with regards to distance and destination.

The importance of CH is seen through the example of Copenhagen, which allows for a broad range of activities and opportunities. The assessment criteria for CH, that is derived from the literature of this section, can thus be identified as destination and diversity. These criteria help to determine the following subsidiary questions that are explored through the research:

Does Bellville Central provide a link to the broader urban context?

Is Bellville Central a destination?

Does Bellville Central offer a variety of socio-economic activities and opportunities?

#### 2.2.2.6 Efficient Regional Land-use Patterns

Efficient Regional Land-use Patterns (EP) can be seen as the coordination of land-use policies and transportation investments to alleviate and/or prevent urban sprawl (Autler and Belzer, 2002). Autler and Belzer (2002: 16) argue the importance of EP when implemented properly as they can help to limit the land consumed for development through increasing densities and design. This is vital for establishing the basis for and/or promot-

ing a TOD. Furthermore, successful EP can reduce levels of traffic congestion and improve air quality (Autler and Belzer, 2002). Thus, EP help to ensure that land-uses are appropriately organised to support and enhance a neighbourhood, particularly those considered TODs.

The Hong Kong city-state utilises transit-oriented development as a growth strategy for its expanding demographics and socio-economic activities, with many successes

attributed to its EP. This is important for the Bellville case study, as well as the greater Cape Town area, because the basis of TOD is combining transportation and land-use planning, which Hong Kong does well. Chow (2014) argues this success is derived from the transportation system of the city, which serves as the spine for development (see Figure 2.7). Moreover, she states that EP “set the preconditions for maximizing accessibility to [transit] and maximizing the mixture of different land

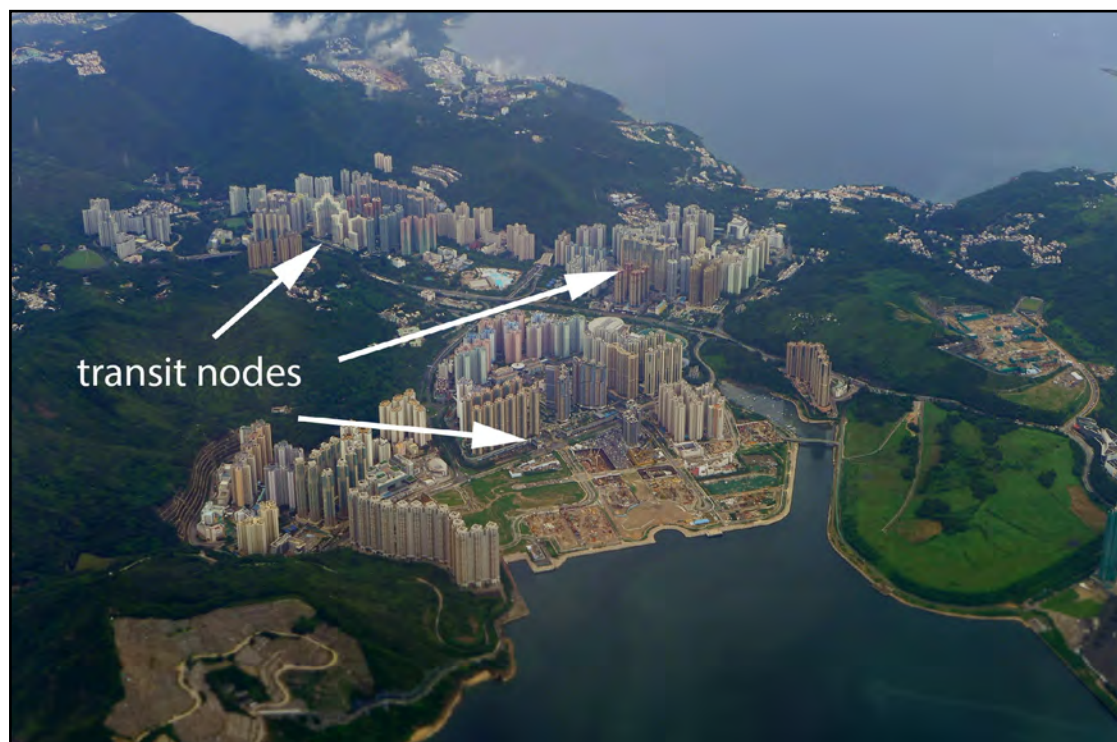


Figure 2.7 Tseung Kwan O station developments; efficient land-use and transportation planning provides a backbone for TODs to develop on

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uses near [transit], including green space” (Chow, 2014: 84). High density growth along these spines help to ensure a stable transit ridership and allow residents easy access to important socioeconomic nodes throughout the region (Chow, 2014). This helps prevent urban sprawl as transportation has become the dictator of the built and natural environment, as opposed to development-led transit. Chow (2014) further highlights the importance of EP with her analysis of the Tseung Kwan O (TKO) stations, which experienced concurrent urban and transport development. While the site serves as a destination to others, residents within the immediate context also enjoy the socioeconomic diversity established through successful EP. Chow (2014: 84) notes this diversity is highly connected to location efficiency, reflecting the soft boundary between TOD principles. Unfortunately, the liveability experienced by both local and foreigners at TKO has been frayed due to disorientating walking routes (Chow, 2014).

The city’s EP can only be achieved through an effective agent(s). Cervero and Murakami (2009), argue that a single entity with land and/or financial control is best equipped for

the management of integrated transport and land-use developments, thus successful EP. For Hong Kong, that entity is the MTC Corporation (MTRC), which controls the transportation systems, such as bus and rail, but also develops on-site properties, enabling both land and financial dimensions to the scheme. Through a strategy of rail and property development (r+p), the MTRC is able to control the form of development with regards to both land and transportation, thus influencing important factors such as demographics and socioeconomic activities (Cervero and Murakami, 2009). This allows the entity to control (at least part of) EP that are needed to support TODs. Cervero and Murakami (2009: 2024) further argue that the r+p model of development creates a diverse “portfolio of projects” that helps to protect the entity from imbalances in the economy. The safety net created by this diversity also attracts other investors willing to rent space for office, retail, and/or residential uses (Cervero and Murakami, 2009). Additionally, this reiterates the importance of value capture, as MTRC is able to retain funds made from increased property values and the direct profit made from rents, and use them for safeguard or reinvestment.

The importance of EP are seen through the example of Hong Kong, which emphasised the connection between transportation and land-use planning. The assessment criterion for EP, that is derived from the literature of this section, can thus be identified as land-use patterns. This criterion helps to determine the following subsidiary question that is explored through the research:

Does the zoning of Bellville Central support TOD?

### **2.2.3 Limitations to TOD**

The success of the preceding TOD examples depends heavily on the success of the principles. While most are considered TOD in their own regard, many have suffered limitations or setbacks that prevent the fulfilment of some TOD principles, as noted in Hong Kong. Limitations can include, but are certainly not restricted to, the design features of the space, the agents involved in the project, and the demand for TOD in general. It is important to understand and consider the limitations of TOD to determine if it can enable urban regeneration and provide a thoroughly assessed site and precinct plan for the Bellville case study.

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### 2.2.3.1 *Limitations due to Design*

The Hong Kong example reflects limitations due to the design, albeit at a micro- scale. The design of TOD projects is crucial for their success as it helps to create a sense of place, and thus a destination that people are willing to travel to and use (Flint, 2005). The design of TODs is also important for its functionality and deliverance of the key principles, which further legitimises its development. When the design of the TOD fails with regards to principles such as EP, LV, and CH, the benefits from the project do not materialise for public, private, or local stakeholders.

When a TOD is unable to integrate the principles properly into a functioning design, development can occur with disregard for the transit station, leading to what Dittmar and Ohland (2004) term as TAD, or transit-adjacent development. While TADs are somewhat sustainable in that transit is nearby, it does not fully integrate land-use, transportation planning or place-making concepts, the latter being vital for the transition to TOD. These developments are unable to create the benefits and conditions that differentiate and characterise TODs, such as a walkable

environment (Renne, 2009). Furthermore, TADs typically have single land-use patterns (Stojanovski, 2013), reflecting a lack of LV, CH, EP, and LE. Irvine (2009) states that developments without good walkability, are not mixed-use, and/or do not function with regards to transportation can be considered a TAD. Multiple examples of this exist in Cape Town, including Claremont, Mowbray, and the existing structure of Bellville.

An important aspect in the design of a TOD is the 'car park ratio' which symbolises the number of parking bays available at or near the site. While those living in the immediate vicinity of the TOD are typically less car dependent, there needs to be infrastructure that can accommodate people from auto-dependent communities. This creates a debate over parking availability and place-making intentions, as too much (or little) of the former can inhibit TOD (Irvine, 2009). Car parks can also limit the volume of car access, land value and desirability, and the quality of a walking environment (Currie, 2006), all of which are reflected in the TOD principles.

While the improper design can have inhibiting effects on TOD, there are a variety of

factors that influence the success of design, and thus the success of TODs. A failure of the design can be a result of financial restrictions by the public sector, limiting the benefits and success of said TOD (Staley, 2009). In this case, public sector entities not located in wealthy jurisdictions are unable to properly invest in the "infrastructure and public domain improvements" that are required for implementing TODs, thus creating a barrier for the developmental environment for the project (Darchen et al, 2014). Poor design can also result from miscoordination between different agents that are unable to derive a shared vision.

### 2.2.3.2 *Limitations due to Agency*

The planning, implementing, and developing of TODs requires complex interactions between and participation from a variety of agents: public sector, private sector, and local communities. Even within these spheres, agents have to coordinate to produce a common vision. A spectrum of agents can reflect competing and conflicting visions for a TOD, which requires a balance between powers and interests (Hale, 2006). This can limit the implementation and success of a project as more stakeholders means broader

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interests, increasing the difficulty of finding a common vision.

The public sector is often the most important agent for TODs as they control transportation and land-use planning, essentials for TOD (FTA, 2004). However, coordination between public sector entities can be challenging due to different regulations and priorities, leading to a deficient TOD. A miscoordination between public sector entities has occurred in Perth at some stations where land-use planning has been slow to respond to transportation planning (Darchen et al, 2014). Within a South African context, cooperation in the public realm will have to bridge local, provincial, and national levels of government in correspondence to a variety legislation (Wilkinson, 2009). This presents a challenge for the Bellville case study site as coordination will need to exist between PRASA, the Western Cape Provincial Government, and the CoCT.

A strong relation must exist between the private and public sector as well, in order for development to properly occur. The public sector needs to provide incentives and reduce the risks of investing in TOD projects

to encourage private developers who would otherwise not commit (Irvine, 2009). A common shortcoming in this regard is general zoning conditions, whereby rigid planning standards can prevent private investment (Darchen et al, 2014). The most important of these conditions is “permitted floor area ratio”, which is important for private developers in terms of FR, but can result in limitations to other principles if not designed properly (Darchen et al, 2014: 439). Alternatively, if private developers are granted too much control over a TOD, there is potential for them to direct the project towards their own interests, thus risking the overall plan (Hale, 2006). This can also lead to exclusive projects.

Communities that are situated around or in close proximity to TODs can also be considered agents that have significant influence on a project’s success. The inclusion of local residents and businesses in the TOD planning process is important given the immediate impact the projects will have on the community. The failure to include local inputs can limit the overall resources by reducing the potential for innovative outcomes derived from additional social and intellec-

tual capital (Milan, 2015). This prolongs the development and success of key principles like CH and LV, which are highly subjective to community interpretation. However, these same principles can also limit the TOD, as has been witnessed in several locations (Currie, 2005; Flint, 2005). Thus, the complex relationship between different agents can create limitations for successful TODs.

#### 2.2.3.3 *Limitations due to Demand*

While the design and agents involved in a project can create major limitations, a TOD cannot succeed without the demand for the concepts and transformations it can provide. The demand for a TOD can come from the public or private sector, or residents of a given area, all of whom must be involved to ensure a successful project. It should be noted that the demand (or lack thereof) for TODs can be manifested in a variety of reasons by the different agents, as each has unique interests. The complexity of demand as a limitation is seen through the inability to create or control it, unlike design and agent coordination.

The demand for TOD by private developers

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is influential with regards to its success, considering their role in the physical development of a project. Private investors must be given the appropriate conditions for a TOD development to encourage their involvement. Without appropriate design, infrastructure, and a stable public sector, the demand by private developers is insufficient to establish a TOD (Darchen, 2014: 440). Additionally, if the FR of a certain project is too low, the demand by private investors is dramatically reduced (Irvine, 2009). Hale (2006) notes the demand needed from private developers can be somewhat influenced by improving principles such as LE and EP, but are still restricted to overall market demand.

Local residents situated near potential TOD sites can also affect the demand for such projects, both as stakeholders in local decision-making processes and future potential users of the site. Communities can be difficult to create demand in, particularly given historical and local contexts, as they have personal investment in their neighbourhoods. A common response by communities to TODs is NIMBY (not in my backyard), which shows openness to the ideas but not

the implementation (Irvine, 2009). Additionally, Flint (2005) notes that the 'if you build it, they will come' approach to many TODs have resulted in their failure due to the lack of demand from the community or even outside developers.

One of the biggest concerns for local communities of a new or expanding TOD is externalities caused by it, including traffic congestion, displacement and gentrification, and aesthetics. The last concern is also common in communities focusing on urban regeneration, but these ideas are discussed in the next section. In terms of TOD however, the development of such sites has witnessed the increase of property values that can drive low-income households and businesses out of the area (Flint, 2005). The increase to property value, while generally good, is a constraint to low-income households who may not be able to afford higher rents or other beneficial socioeconomic activities within their community, such as health, retail, education, and employment opportunities.

These limitations to TODs and their implementation need to be taken into considera-

tion with regards to the Bellville case study to help determine their applicability and merit. While limitations from design can be handled through a variety of approaches, agency and demand are more difficult because of their nature of subjectivity. The assessment criteria for the limitations, that are derived from the literature of this section, can thus be identified as design, agency, and demand. These criteria help to determine the following subsidiary question that is explored through the research:

What are the barriers to implementing TOD in Bellville Central?

#### **2.2.4 Conclusion on TOD**

This section has set out and argued for principles of TOD, as established by Autler and Belzer (2002), in addition to limitations that can prolong, or even prevent, a successful project. The six guiding principles help to examine a TOD, not only with regards to its physical manifestation, but also the socioeconomic aspects that are significant in its successfulness. Assessment criteria, informed by the preceding section, are used to evaluate the Bellville case study, and to establish a site and precinct plan.

## 2.3 Urban Regeneration

Just as the concept and strategy of TOD is concerned with creating a sustainable community, urban regeneration is a way in which cities can expand, while attempting to limit the development of additional land. Moreover, urban regeneration seeks to retain attributes of the community, as well as improve other characteristics and functions of a decaying space. This section examines the ideas and characteristics of urban regeneration which will inform an assessment criteria for which the Bellville case study can be judged. Following these discussions, issues with urban regeneration as an urban strategy are briefly considered.

### 2.3.1 Urban Regeneration: A definition and characteristics

As mentioned in Chapter 1, Roberts and Sykes (2000: 17) have established an overarching definition for urban regeneration, which is:

a comprehensive and integrated vision and action which leads to the resolution of urban problems and which seeks to bring about a lasting improvement in the economic, physical, social, and environmental condition of an area that has been subject to change.

Cities are not static, but constantly changing in form and function as a response to internal and external pressures, some of which result in ‘urban problems’. Thus, urban regeneration can be seen as a community, city, or national response to problem-inducing physical, social, and economic changes within an urban context (Roberts and Sykes, 2000). Within the context of the global North, urban regeneration has been a form of urban policy, which inherits spatial implications (Robert and Sykes, 2000; Tallon, 2010). The pressures that change and affect cities then become the source of urban decay problems.

#### 2.3.1.1 Sustainability

The process and result of urban regeneration is often thought of as sustainable, as noted in the three pillars (economic, environmental, and social) employed in the definition. The call for sustainable urban regeneration has occurred in tangent with the overall sustainability paradigm shift in the 1990s and 2000s (Lang 2005; Tallon, 2010). Urban regeneration that is sustainable is focused on ‘people-centred’ interventions that address the economic and social needs of the community while safeguarding the

natural environment (see Figure 2.8; Chui et al, 2001). Furthermore, Huston and Rchen (2012: 97) argue that the process is directed towards a comprehensive understanding of the “physical fabric, social structures, economic base, and environmental condition of an urban area”, thus making it a sustainable response to urban decay.



Figure 2.8 Sustainable urban environment; link between social, economic, and environmental aspects of the city

### 2.3.1.2 Duration

Urban regeneration addresses issues of urban decay through a comprehensive, long-term process to ensure beneficial intervention and results. The duration of urban regeneration policies and interventions improve economic and social measures (Colantonio and Dixon, 2011). There is a variation in outcomes depending on the duration of implementation, Gkotsis et al (2015) noting the positive impacts of long-term over short-term interventions (see Figure 2.9). The duration of an urban regeneration intervention also helps to determine the speed and scale of deliverance (Chui et al, 2001).



Figure 2.10 New development of neighbourhood park in south Bronx, New York City

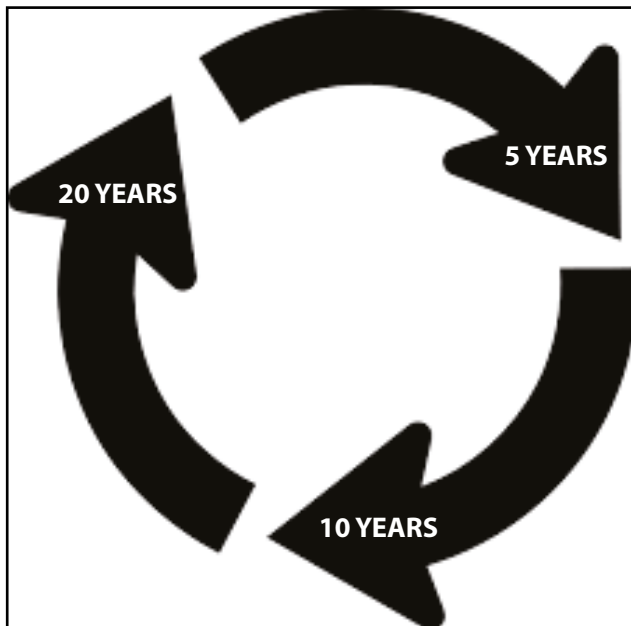


Figure 2.9 Urban regeneration more successful as long term intervention

### 2.3.1.3 Growth

As a response to urban decay, there is an implied notion that urban regeneration interventions and policies will help the sustainable growth of the area. The economic and social fabric of decaying communities has broader impacts on the city than its immediate surroundings, thus the regeneration of the area improves the overall performance of the city (Roberts and Sykes, 2000). While historic and cultural preservation is important, the construction and deliverance of

new structures and services reflects growth from the urban regeneration process, particularly when a market or property-led approach is taken (see Figure 2.10; Siemiatycki, 2005). Colantonio and Dixon (2011) note the social and environmental growth of the community is much more dependent on the local residents and state. The next section will provide principles of urban regeneration, which will be used for assessment criteria in the Bellville case study.

### 2.3.2 Principles of Urban Regeneration

A difficulty of working with 'urban regeneration' terminology is the lack of consensus on the principles of such a subjective idea. A variety of authors have contributed sets of principles for understanding and implementing urban regeneration (Roberts and Sykes, 2000; Chui et al, 2001; Turok, 2005). However, Tallon (2010) suggests that many of these sets of principles are interconnected and overlapping, making any set a viable option for measuring or implementing urban regeneration. The PEECE principles, set out by Chui et al (2001: 178) will be used for the purpose of this study as they share many themes and ideas with that of TOD: participation, equity, environment, community, and economic. Additionally, these principles are able to condense those established by Roberts and Sykes (2000), but offer a broader concept than that of Turok's (2005) 'people, business, and place' principles.

#### 2.3.2.1 Participation

An urban regeneration process should be participatory, utilising local knowledge and skills, and take into account the interests and visions of various stakeholders (Chui et al, 2001). The responses to change are man-

ifested in various ways and by a variety of agents, but inclusive participation is essential for intervention, incorporating all stakeholders involved and people affected (Chui et al, 2001). The way in which participation is enabled differs depending on location and context of the intervention. Establishing participatory mechanisms, through mediums such as technology or meetings, help to sustain projects over a longer period (see Fig-

ure 2.11; Deakin, 2009). The integration of these different groups helps to build consensus as legitimate interests are represented (Roberts and Sykes, 2000).

Particular attention must be given to the local community, which is most affected by the intervention. The involvement of the local community is important as their exclusion can lead to social disruption and



Figure 2.11 Community participation meeting held for plans regarding Agulhas and Somali Current Large Marine Ecosystems project focused on local development and natural resource protection

harm the local economy (Turok, 1992). By including the local community, necessary local knowledge can be obtained and the development of social capital can occur (Colantonio and Dixon, 2011). Additionally, the provision of participatory mechanisms offered to local communities can help to reduce corruption and the misappropriation of funds (ULI, 2014). The inclusion of participation in the urban regeneration process allows for a more contextually appropriate intervention (see Figure 2.11). The assessment criterion for participation, that is derived from the literature of this section, can thus be identified as stakeholders. This criterion helps to determine the following subsidiary question that will be explored through the research:

Who are the stakeholders involved in the urban regeneration process?

### 2.3.2.2. Equity

An urban regeneration process should ensure equitable distribution of benefits and costs, including the potential impacts on different social groups (Chui et al, 2001). The inability to create equity leads to social exclusion of certain groups from important socioeconomic activities and opportunities

(Chan and Yau, 2008). Additionally, the failure to provide equity in the urban regeneration process can exacerbate the conditions the intervention is attempting to address (Deakin, 2008). Equity implies everyone has fair access to “housing, education, health and welfare, recreation, and retail” (Chui et al, 2001: 178). The urban regeneration process requires the use of various resources, thus their equitable distribution is important to ensure all involved groups are provided equal access and opportunities. The inclusion of equity in the urban regeneration process ensures inclusive interventions that provide resources to the whole community (see figure 2.12). The assessment criterion for equity, that is derived from the literature



Figure 2.12 Fair access for all users

of this section, can thus be identified as distribution. This criterion helps to determine the following subsidiary question that will be explored through the research:

How does Bellville Central redistribute its resources?

### 2.3.2.3 Environment

The urban regeneration process should protect natural resources and prevent degradation of the environment (Chui et al, 2001). Additionally, the overall living and working conditions of a space can be considered as part of the environment, thus the promotion of health, safety, and enjoyment are required (Chui et al, 2001). The protection of natural resources can provide a healthier environment for users of the space, in addition to its residents (ULI, 2014). The process of urban regeneration witnesses alterations to the community, both of the built and natural environment. As stated above, the protection of cultural heritage is important for the community and addressing it appropriately is vital for urban regeneration. Chan and Yau (2008) note that the salvaging of physical materials and reduction of pollutants helps to improve the quality of life in that space.

The improvement of the environment in a given area also helps to improve its attractiveness, leading to economic and social regeneration in turn (Colantonio and Dixon, 2011). Providing a quality environment, natural and built, improves the liveability experienced in the area. The inclusion of environment in the urban regeneration process helps to establish a sustainable intervention that links people and nature. The assessment criterion for environment, that is derived from the literature of this section, can thus be identified as resources. This criterion helps to determine the following subsidiary question that will be explored through the research:

What are the important resources of Bellville Central?

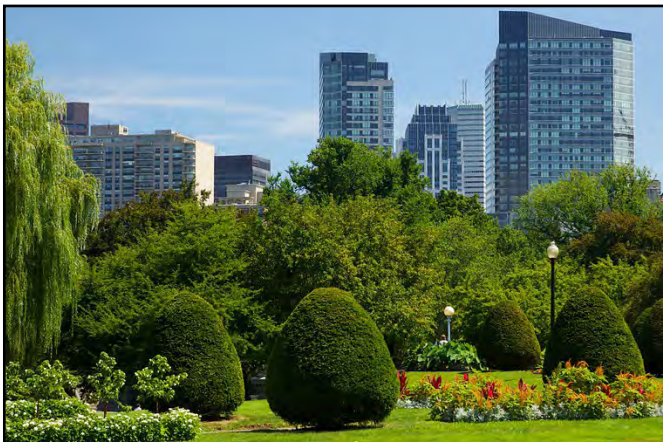


Figure 2.13 Boston commons; preservation of natural environment within urban context

#### 2.3.2.4 Community

The urban regeneration process should respect community values and history, and strengthen the local identity (Chui et al, 2001). Additionally, the process also needs to be cognisant of the needs and expectations of the local residents through facilitated community building (Chui et al, 2001). A difficulty with this aspect of urban regeneration is centred on utilising and strengthening the local social capital. As with the urban regeneration process, communities can have exclusive tendencies, particularly with the 'insider vs outsider' dynamic (Tallon, 2010). This restraint on social capital can prevent the improvement of health, economic growth, and safety (Tallon, 2010). Ensuring that local community building is established helps to create a sense of ownership over the public realm, as the local identity becomes a part of the process (ULI, 2014). Understanding the locality of the intended site of urban regeneration ensures the intervention is appropriately contextualised. This includes the cultural and historical heritage, which is a form of local identity, of the intervention area being regenerated (Chan and Yau, 2008). Protecting and enhancing the existing built environment contributes to



Figure 2.14 Users of the space as stakeholders

local identity and culture, providing a sustainable and inclusion intervention (ULI, 2014). The inclusion of community in the urban regeneration process can strengthen the existing cultures and values important to the local population. The assessment criterion for community, that is derived from the literature of this section, can thus be identified as local perceptions. This criterion helps to determine the following subsidiary question that will be explored through the research:

What does the local population find important for regenerating in their community?

### 2.3.2.5 Economic

The urban regeneration process should improve the overall economic conditions of the community in question, as well as the broader context (Chui et al, 2001). Regeneration also should improve the economic competitiveness with regards to business performance, thus providing more local jobs and prosperity (Tallon, 2010). Urban regeneration, in terms of economic regeneration, reduces the area as a drag upon the city and regional economies (Robert and Sykes, 2000). Through a variety of approaches, including economic diversification, a community can reintegrate its economy into the wider urban context, supporting social and physical integration as well (Deakin, 2008). However, taking local economic activities into consideration provides a more sustainable regeneration that reduces the resources needed for the intervention, particularly those required by retail-led approaches (Chui et al, 2001). Tallon (2010) provides a general outline for the various approaches, but notes that many urban regeneration processes are a combination of the following:

-The main approach employed by a variety of cities and countries is directed towards urban competitiveness and eco-

economic diversification. Improving the area's comparative advantage within the urban, as well as globalised context, is vital for this approach, requiring interventions that focus on skills training, place making and urban entrepreneurialism.

-A housing-led approach can also be taken as a form of regeneration, focusing on the reuse of buildings. Urban brownfield sites also present a viable place for housing development to occur. However, gentrification is a major concern with regards to this approach due to the increase of rent prices.

-There has been a tendency for urban cores to regenerate through a retail-led approach; improving urban condition for retail and hospitality services. This has come in small forms, like City Improvement Districts, to much larger mega-centre projects. The larger the intervention is, the more the social dimension disappears, leading to the exclusion of the local community.

-In light of many approaches that have socially exclusive tendencies, a community-led approach to urban regeneration has become extremely relevant in 21st century efforts. By having local populations contribute and participate in urban regeneration processes, the leaders of the project are able to establish efforts that are considered 'legitimate' by the community. It should be noted that while community

participation has been present in planning efforts for decades, this approach emphasises the importance of having a community determine what interventions should occur and where they are most appropriate.

-Some urban spaces are endowed with culture and leisure assets that can become the focus of urban regeneration. The idea of creating a '24-hour city' has become a focal point with regards to leisure-led interventions, attempting to improve the experience had in the space. Culture-led regeneration has taken many more forms, as culture is represented through various mediums. This includes festivals, urban tourism and heritage, and 'cultural quarters' that provide unique experiences.

Part of the aim of this study is to determine if transit-oriented development can enable urban regeneration, thus TOD becomes the

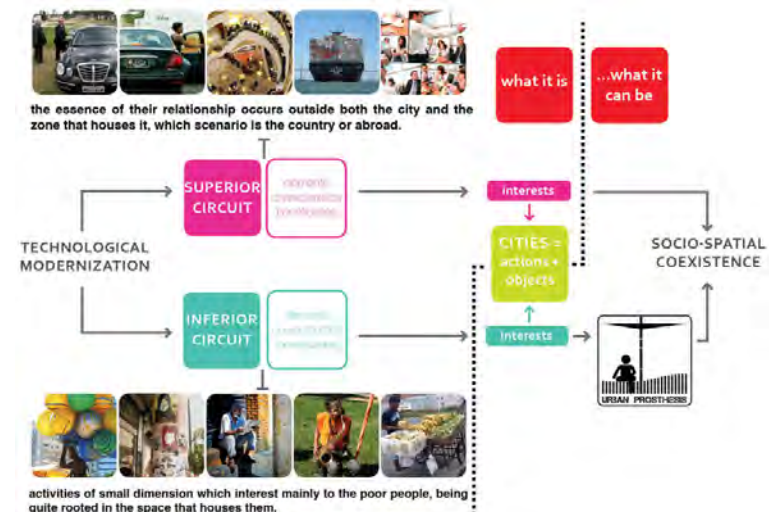


Figure 2.15 Urban economic dynamics

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approach taken for urban regeneration. The inclusion of economics in the urban regeneration process helps to financially support communal changes, especially when projects are community-led. The assessment criterion for economics, that is derived from the literature of this section, can thus be identified as condition improvement. This criterion helps to determine the following subsidiary question that will be explored through the research:

What economic activities are in need of regeneration?

### **2.3.3 Urban Regeneration in a South African Context**

The majority of the literature originates from the global North, but South Africa has also recognised the need to regenerate neglected or decaying areas of its cities. Ward (2006) suggests the potential for problems of implementing global North urban policies in a global South environment. However, Didier et al (2012) state that urban regeneration is a process that must be contextualised, therefore hybridisation occurs through changes made by the given community. This again infers the need for the local communi-

ty to be involved to ensure a positive outcome.

The City of Cape Town (2012), as well as other South African cities, employs the term 'urban regeneration', usually linking such processes with community development and historic preservation. Furthermore, a nationwide call from Thabo Mbeki in 2001 has encouraged an urban regeneration process that simultaneously address poverty-reduction, which has been supplemented by the Cape Town Mayoral Urban Regeneration Programme (CoCT, 2015). Implementation of 'city improvement districts' (CIDs) has been a shining example of efforts towards urban regeneration in South Africa, notably Cape Town and Johannesburg. Through CIDs, South African cities have been able to address safety issues within key urban areas, allowing socioeconomic activities and opportunities to develop and the quality of life to improve (Didier et al, 2012).

### **2.3.4 Concerns with Urban Regeneration**

While these ideas and interventions seem idealistic for any urban area suffering from decay, there are issues with urban regen-

eration that limit its effectiveness. One of those issues that constantly prevents or deters urban regeneration processes is the limits on the ability of stakeholders and local residents to intervene (Beauregard, 2004). There is often a large discrepancy between the initial phases of an urban regeneration process and the execution of the actual intervention, whereby the latter is not effective or successful (Lang, 2005). If the language of the regenerative process is loose and unrestricted, different stakeholders can direct the use of resources and even the approach towards their interests (Chui et al, 2001). This reflects the loss of a common vision. Even when the rhetoric in urban policy identifies an inclusive and equitable process, urban regeneration interventions can ignore these ideologies and become an exclusive process (Winkler, 2009). Urban regeneration does not necessarily provide the solution it attempts to address.

Another major issue accompanying the process of urban regeneration is gentrification of the urban area. Gentrification can be seen as the process whereby a lower-income group in a given urban area is slowly replaced by middle and upper-income house-

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holds, usually occurring in the inner-city (Tallon, 2010). Though several understandings of gentrification exist, Perez (2002) terms it as an:

Economic and social process whereby private capital (real estate firms, developers) and individual homeowners and renters reinvest in fiscally neglected neighbourhoods through housing rehabilitation, loft conversions, and the construction of new housing stock. [Gentrification reconfigures] the neighbourhood landscape of consumption and residence by displacing poor and working-class residents unable to live in 'revitalised' neighbourhoods with rising rents, property taxes, and new businesses catering to an upscale clientele.

Smith (2002) argues that urban regeneration is nothing but the process of gentrification by another name. As a response to decay, urban regeneration is an approach that inherently requires change that reverse the causes of decline in a given area. However, Smith (2002) implies that displacement is part of this change, and is rarely discussed by state or private stakeholders. This has been the result of many retail and mar-

ket-led approaches to urban regeneration, as interventions are directed towards competitiveness and economic diversification rather than an integrated solution on decay involving the local community (Turok, 1996).

While Smith (2002) insists that urban regeneration is in fact gentrification, others suggest gentrification is merely the result of social exclusion from the urban regeneration process (Colantonio and Dixon, 2011; Deakin, 2009; Lang, 2005; Tallon, 2010). The urban fabric consists of several dimensions, including a social one that emphasises social capital and networks. Interventions that are heavily focused on economic regeneration and urban redevelopment lead to the loss of this social dimension (Chan and Yau, 2008). Many cases where the process has not involved local communities have resulted in "gentrified ghettos of exclusion" that witness the displacement of disadvantaged groups (Mace et al, 2007 cited in Winston, 2009: 1791). However, Deakin (2009) notes that the inclusion of all local community stakeholders helps to dramatically reduce this effect, as they are able 'to raise the concerns of' and 'negotiate during' the urban regeneration process.

### **2.3.5 Conclusion on Urban Regeneration**

If the appropriate approach is taken, the results of urban regeneration can have positive and long-lasting effects on a community. The urban regeneration process is extremely complex, requiring a multitude of agents and stakeholders to develop and implement an intervention that addresses numerous interconnected principles. However, limitations and potential issues needed to be considered to help prevent them, as urban regeneration can lead to social exclusion and gentrification. Thus, the urban regeneration process demands participation from various stakeholders and the local community to ensure the intervention is equitable, addressing social, economic, and environmental needs.

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## 2.4 Conclusion

This chapter has provided an in-depth analysis of the literature on transit-oriented development and urban regeneration, with the establishment of an assessment criteria for implementation. Transit-oriented development seeks to provide growth through the utilisation of transportation coupled with land-use coordination that results in mixed-used, pedestrian-friendly environments. The process requires the input of public, private, and local stakeholders creating a common vision to ensure the principles are successfully achieved. This attempt at positive urban change should be linked with areas in need of urban regeneration. As a response to urban decay, the process of urban regeneration aims to reverse the socioeconomic decline of urban areas, including its physical and cultural assets. The principles of TOD set out in the first section will not only be used in data analysis, but they will be crucial for the site and precinct plan.

	<b>Assessment Criterion Derived from the Literature Review</b>	<b>Subsidiary Research Question Derived from the Assessment Criterion</b>
<b>Overarching Criteria for Transit-oriented Development</b>		
Location Efficiency	node function	Is Bellville Central functionally balanced?
	place function	
Financial Return	public	Does Bellville Central have the capacity to provide financial return?
	private	
Liveability	design of space	Is Bellville Central liveable?
	quality of life	
Value Recapture	high density near transit	Is Bellville Central dense enough to provide value recapture?
	lost land	Are there plots of land with the potential for recapture?
Choice	destination	Does Bellville Central provide a link to the broader urban context?
		Is Bellville Central a destination?
	diversity	Does Bellville Central offer a variety of socioeconomic activities and opportunities?
Efficient Land-use	land-use patterns	Does the zoning of Bellville Central support TOD?
Limitations	design	What are the barriers to implementing TOD in Bellville Central
	agency	
	demand	
<b>Overarching Criteria for Urban Regeneration</b>		
Participation	stakeholders	Who are the stakeholders involved in urban regeneration processes in Bellville Central?
Equity	distribution	How does Bellville Central redistribute its resources?
Environment	resources	What are the important natural resources and environments of Bellville Central?
Community	local perceptions	What does the local population find important for regenerating in their community?
Economic	condition improvement	What economic activities are in need of regeneration?



Chapter 3  
Research Method and  
Techniques

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### 3.1 Introduction

This chapter outlines the research method and techniques that are used to answer the main and subsidiary questions established for this study in Chapter 2. The first section of this chapter entails a description of the applied research method. This is followed by a discussion on the research techniques that are utilised, such as interviews and non-participant observations. The techniques are the ways in which research is conducted and used to fulfil the research method. The limitations of these method and techniques are provided for consideration and to address potential gaps in the research. The next section of this chapter discusses the various participants from public, private, and local sectors who are used for the study. Ethical concerns for the study are addressed before concluding.

### 3.2 Research Method

This section outlines the main research method employed in this study. The choice of this method is informed by the main and subsidiary research questions, as well as the overall aim of the study. A case study approach is used to answer the main question: “How can transit-oriented development enable urban regeneration for more accessible and inclusive planning outcomes?”. A reasoning for and limitations to the case study method are provided to ensure the credibility of the research.

#### 3.2.1 The Case Study Method

For the investigation of the main and subsidiary research questions, a case study method is used as it creates a form of context-based information (Flyvbjerg, 2011). A case study is “a way of investigating an empirical topic by following a set of [guiding] principles” within its real-life context (Yin, 2003: 15). In other words, case studies examine multiple variables through different perspectives in an attempt to reveal underlying influences, dynamics and connections within a given context (Babbie and Mouton, 2001). This allows for a number of fields, including planning, to investigate key issues

and problems that plague nature and society. Babbie and Mouton (2001) identify several (non-exclusive) types of case studies: individual, community, social group, organisation, event or relationship, and international. The case study site for this research is Bellville Central, which is further detailed in Chapter 4. This emulates a community case study as it focuses on “the patterns of, and relationship between, the main aspects of community life” (Babbie and Mouton, 2001: 281).

The Bellville case study also reflects an ‘event or relationship’ type as it examines the links between TOD and urban regeneration. More specifically, the research aims to determine if a TOD can be utilised to enable urban regeneration within the Bellville context, allowing for appropriate recommendation. This also entails a site-based application of TOD and urban regeneration, which helps to determine important contextual linkages between them, particularly in terms of accessibility and inclusion. Flyvbjerg (2006) states that case studies often have a substantial amount of narrative that examines the complexities and contradictions of real-life. Other forms of research are

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less informed by contemporary examples, while the case study method can reveal critical information about the research topic, regardless of success or failure of the given case. That is, generalisations can be made from case studies, particularly generalisations about planning processes and normative planning actions. Applying a case study method allows this study to provide recommendations and suggestions, linking TOD with urban regeneration approaches through the research.

Strengths of using the case study approach include a wealth of information that is only obtained through context-dependent experiences (Flyvbjerg, 2011). Thus, the research conducted in this study contributes to the literature on TODs and urban regeneration, particularly in a global South context. Although theories can be used in different situations, this only offers an initial understanding and the basis of that theory's principles without an applied context. Case studies provide real life examples to which theories can be applied and are adapted to their individual context, helping to reveal the hidden dynamics of that theory (Flyvbjerg, 2011). Case studies also assist in pro-

viding 'borders' to research, allowing attention to be focused on certain notions of the study area. This is helpful when selecting specific locations for examples, as various places might offer the same opportunities to gain knowledge due to the features of those particular spaces. The Bellville site has been determined as the case study area for multiple reasons, including, its own socioeconomic activities, its pre-existing (yet decaying) central business district, and its various modes of transportation.

The case study method is also "revelatory" in that the researcher can investigate, observe, analyse, and reveal a situation that was previously inaccessible or merely unconsidered (Yin, 2003: 42). The gap between research and the situation that results in the researcher's 'revelation' can exist within the literature with regards to a formal discussion on the issue, and contextually in terms of real-life occurrences. Both of these disconnects can be found when determining the ability of TOD to enable urban regeneration. Within the Bellville site, efforts to encourage urban regeneration have ignored the use of transportation, with the exception of those servicing the Voortrekker Road corridor. The

gap in the literature indicates either a failure in connection between these phenomena or a reason their relationship is not appropriate, a dichotomy this study is partially aimed at addressing. Regardless of the answer, the research of this case study can be seen as 'revelatory' through its discussion and examination of TOD and urban regeneration.

A limitation to using this method is that case studies are criticised for not being 'scientific' compared to other forms of research, although this has changed in the past few decades (Babbie and Mouton, 2001). The doubt lies in the inability for case studies to use or provide 'hard' theories, reducing their reliability and validity. Flyvbjerg (2006) states that while this may be accurate for certain cases, many studies provide opportunities of learning, particularly in terms of social sciences that lack hard theories. Furthermore, 'predictive and universal theories' are unachievable with regards to the complexities of human affairs, allowing contextually-based nature of a case study to produce valuable knowledge (Flyvbjerg, 2006). While it is difficult to provide hard facts and data about the relationship between TOD

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and urban regeneration, lessons and recommendations discussed in this study still contribute to the overall literature of the research topics.

Another consideration that must be taken into account is to be aware of any personal bias to subjectively direct the research towards a result that is desired. Flyvbjerg (2011) mentions “black swans” cases, which is when a case study is introduced in a certain way while the results and conclusion state a completely different idea than what was originally presented. This is due to the researcher’s preconceived notions and bias towards verification of their study, leading to reduced reliability (Flyvbjerg, 2006). Yin (2003) adds that the bias can translate through a variety of techniques used in a case study method, including surveys and interviews. Nevertheless, this study aims to be aware of personal biases that may emerge during the research process, and Flyvbjerg (2006) states that case studies are designed to force the researcher to present the true results of their endeavour, as falsification of findings is difficult when contextualised. In order to conduct a research method, various research techniques are needed.

### **3.3 Research Techniques**

The chapter now focuses on the research techniques that are used for the purpose of this study. The techniques include drawing on secondary source research, observations, surveys, and semi-structured interviews. These techniques are important for answering the main and subsidiary research questions of the study, each contributing a different aspect of information. Most of the research that is undertaken is qualitative information, but quantitative data are crucial as well. While quantitative data provide depth to the research and strengthens the overall argument, quantitative data are also used to support and verify qualitative research findings.

#### **3.3.1 Secondary Data**

The basis of the research for this study is done through secondary sources, which has largely been completed through the literature review (see Chapter 2). Secondary data can be considered as information produced by other scholars or writers, some which are not necessarily written for the topics in this study (McCaston, 1998). This does not mean information is manipulated, rather it is utilised for research the original authors did

not foresee. The previous chapter examines literature with a focus on TOD and urban regeneration, the former providing contextual examples of the TOD principles and theory, while the latter offers necessities for enabling regeneration. The assessment criteria derived from the literature and theoretical principles are used to assess the case under study (see Chapter 5), and to establish recommendations and a site plan for the case study area (see Chapter 6).

Important secondary data collected are census data, including data on housing and economic statistics, employment levels, infrastructure qualities, and poverty statistics. Additional data includes public/private ridership statistics and locational demand for public transportation. This information is helpful in revealing, if any, the relationship between TOD and urban regeneration. A limitation of this approach is the availability of census and economic data, as many only conduct research in periods of decades, while other information might not exist at all (McCaston, 1998). Most cities in the global North have an abundance of quantitative data, particularly from census and economic reports. The challenging datum to collect

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is information on cities in the global South, where quantitative datum is not only difficult to accumulate, but some necessary material has not been conducted between appropriate periods of time. In other words, there is a lack of data that were gathered recently. Due to the nature of the case study method, secondary data need to be contextually linked to the research topics. As such, official and technical reports which are produced by and for relevant organisations are drawn upon and assessed for this study. Additionally, some secondary data are represented numerically, leading to the use of quantitative data.

A strength of using both quantitative and qualitative datum is the information that is put forward in this study will have multiple sources of confirmation (or denial) with regards to the research findings. Although using a case study method provides the reader with context, having quantitative pieces of information can statistically support the research findings. Furthermore, numerical data have the benefit of being seen as 'scientific', a term and idea that many academics argue is lacking with the case study approach (Flyvbjerg, 2011). Using secondary

data, in addition to the techniques below, help to form more reliable and valid case studies, as various sources of information are utilised for the research. This is known as "triangulation" (Bryman et al, 2004). Furthermore, triangulation contributes to the "fuller picture" by extending the understanding and depth of data analysis (Lewis and Ritchie, 2003: 44). The other research techniques that establish this triangulation are discussed below.

### **3.3.2 Non- participant Observations**

The Bellville case study is a local site, providing a first-hand opportunity to experience and observe the space and its immediate vicinity. Observations are the main technique for collecting data in qualitative research, with the researcher being the key tool to achieve this collection (Auriacombe and Mouton, 2007). This is important for determining how the area currently functions for locals and outsiders, in addition to understanding the visual perceptions of the site (Jacobs, 1985). A benefit of using non-participant observations is their informality. That is, observations occur without a formal organisational structure (which is not the case when utilising surveys), or during

other research activities, such as interviews (Yin, 2003).

Non-participant observations are recorded in a fieldwork notebook and through the use of film and photographs, both of which are analysed in the following chapter. Lofland and Lofland (1995) state that note-taking helps to record an important event through the researcher's understanding. However, this can be seen as conspicuous in some places (Singleton and Straits, 2004). Recording videos and taking photographs allows the researcher to focus on detailed data collection and enable them to refer back to the key events or information, although people are more reserved when being observed (Auriacombe and Mouton, 2007). As this form of observation is more obtrusive, ethical considerations are taken into account when conducting research. Additionally, experiences and observations of the site provide insight into how the space is utilised for socioeconomic opportunities.

While non-participant observation is a simple and non-obtrusive form of research, there are limits to its reliability. One issue with observations is the need for theoretical

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grounding in what is being observed. If an observation is not informed by or ignores academic theory, the validity of the research is reduced (Bhattacharjee, 2012). The observations that are recorded help to inform the questions asked on surveys and interviews, such as the quality of the space, both of which are discussed below and followed by sections on sampling, data analysis, and ethical considerations.

### 3.3.3 Surveys

A survey is an important research tool for this study, as it helps to provide generalised insight into how the users of the Bellville case study site interact with and think of the space (see Appendix A for this survey). Schutt (2011) identifies two forms of surveys: interview schedule surveys and questionnaire surveys; the latter of which is used for this study. A questionnaire is a self-administered survey that helps to simplify the thoughts of the respondents through broad and consistent questioning (Schutt, 2011). Furthermore, questionnaires capture responses in a standardised manner, thus simplifying a wide variety of unobservable data (Bhattacharjee, 2012). Yin (2003) states that surveys produce quantitative evidence

for case studies, particularly city planning case studies, as they measure and assess perceptive information. The questionnaire adds quantitative data to the study, thus strengthening (or weakening) the research findings.

There are two major concerns that must be considered with regards to surveys (Schutt, 2011). The first is the 'errors of observation' which indicates poor quality research questions or information on the survey, leading to false or inaccurately stated responses. The other concern is that of 'errors of non-observation', which indicates missing questions or information on the survey, preventing the collection of necessary data. This requires a carefully designed survey, well informed by observations and secondary data.

### 3.3.4. Semi-structured Interviews

Interviews provide subjective information on TOD and urban regeneration processes in the case study area. Interviews with private and public sector individuals allows each of them to voice their respective opinions and knowledge on the topics of this study. More specifically, semi-structured interviews are

“an interaction between an interviewer and a respondent in which the interviewer has a general plan of inquiry but not a specific set of questions that must be asked in particular words and in a particular order” (Babbie and Mouton, 2001: 289). The use of semi-structured interviews reduces the formal tensions and transforms the interaction into a conversation. The main steps for interviewing are important for conducting and utilising the information provided in interviews. They are established by Kvale (1996: 88), and are presented as follows:

- Thematizing: clarifying the purpose of the interviews and concepts to be explored.
- Designing: laying out the process through which you'll accomplish your purpose, including a consideration of the ethical concerns.
- Interviewing: doing the actual interviews.
- Transcribing: writing a text of the interviews.
- Analysing: determining the meaning of gathered materials in relation to the purpose of the study.
- Verifying: checking the reliability and validity of the material.
- Reporting: telling others what you've learned.

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A problem that arises from interviews, and is often unavoidable to some degree, is that of reactivity. The issue of reactivity occurs when the interviewer unintentionally influences participants' responses by reacting to their answers (Lavrakas, 2008). However, this problem is easily avoidable through a variety of strategies. John and Lyn Lofland (1995) suggest that the interviewer play a more naive character thus allowing the respondent to confidently answer questions or explain the subject matter. Steps 5 and 6 in the interviewing procedures are also important in negating reactivity.

A total of two semi-structured interviews are conducted, one of which was with an employee for the CoCT (Antony Marks) and the other with two employees of the Greater Tygerberg Partnership organisation (Kirsten Nielsen and Lauren Uppink). These interviews are conducted in-person and recorded to allow for transcription and analysis. Other people that are informally interviewed for understanding the site are business owners informal traders through the survey.

### **3.3.5 Policy Discourse Review**

A policy discourse review is employed to understand the political and regulatory frameworks that are pertinent to TODs and urban regeneration in the Cape Town context. The review entails evaluating relevant national, provincial, and local policies focused on specific legislation directed towards a social problem (Lewis and Ritchie, 2003). Policy discourse reviews are used for a variety of reasons in order to establish formative, summative, and generative knowledge (Lewis and Ritchie, 2003). For the purpose of this study, generative knowledge is established from a review of relevant policies. While less analytical than others, Lewis and Ritchie (2003: 30) state that "generative policy" evaluations help to generate new ideas that are contextualised to the place in which they arise.

### **3.3.6 Spatial Data Analysis**

The final technique that is used for the case study method is an analysis of the Bellville case study site. Bailey and Gatrell (1995) are quick to identify the difference between spatial analysis and spatial data analysis. The former entails observing, experiencing, and evaluating a given space, while the

latter examines data that focus on spatial information (Bailey and Gatrell, 1995). In other words, this study employs the use of both spatial (observations) and spatial data analyses. In terms of spatial data, this requires analysing spatial aspects of the case study focused on the TOD principles and informed by the assessment criteria and subsidiary questions. While there are a number of spatial data types that are analysed through various methods, each with different intentions, this study is most concerned with analysing 'area data' (Pfeiffer, 1996). Area data are information on a given space and are analysed to detect and explain the spatial pattern and its given attributes. Pfeiffer (1996) notes that analysing this form of spatial data are difficult to quantify, thus more preferable for qualitative research. With regards to the Bellville case study, the current land-uses are of particular importance for determining TOD and urban regeneration interventions.

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### 3.4 Sampling Procedures

The use of sampling procedures is necessary for determining the appropriate individuals and organisations to interview or survey for the purpose of this study. Non-probability sampling is most appropriate with regards to a case study method, as many samples in social research are unrepresentative (Babbie and Mouton, 2001). More specifically, a mixed approach is taken, using purposive and random sampling. The former entails the sample being chosen for a prescribed reason, while the latter relies on the availability of subjects passing through a specific area (Babbie and Mouton, 2001); the Bellville case study site in this instance. However, and it is noted for this study as well, both of these approaches are limited in their ability to represent a greater population, although generalisations can be made (Marshall, 1996). This issue is mitigated by the nature of the TOD principles.

In selecting the individuals and organisations as a sample, those who have knowledge of the research topics are the most appropriate, as they understand and provide information on the issues focused upon in this study (Babbie and Mouton, 2003). With

regards to the Bellville case study, however, the subjectivity of the TOD principles (i.e. liveability and choice) allows for input from a wide variety of participants, as the Bellville Central is utilised by countless people. Furthermore, the subjectivity helps to validate the collected data because inputs are a representation of individuals who use the space.

### 3.5 Data Analysis

Throughout the data collection process, the information is analysed using established procedures to ensure its reliability and validity. This analysis consists of “examining, categorising, tabulating, testing, and recombining quantitative and qualitative evidence” in order to address the research questions of the study (Yin, 2003: 109). While the interview procedures are already established, other analyses are required for the different types techniques used in this study. Lewis and Ritchie (2003) note that the data analysis phase of a case study method is a very arduous and time consuming phase that can lead to confusion if not approached properly in a rigorous and methodological manner. The following steps are generically used, allowing them to be re-purposed for various professions (Yin, 2003: 111):

- Step 1. organising the data into different arrays.
- Step 2. categorising the data using a matrix.
- Step 3. create graphics for data where/ whenever possible.
- Step 4. tabulate patterns and frequencies found in data.
- Step 5. examine relationships that exist in the data.

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-Step 6. re-organise the data by theme or topic.

By analysing the patterns, frequencies, and relationships, recommendations are put forward towards TOD and urban regeneration strategies, in conjunction with land policies to complement and strengthen the proposed interventions. Babbie and Mouton (2001) suggest that information be codified to simplify Step 2, though this is more difficult for qualitative data. With regards to this study, the aim of the data analysis is to reveal the full descriptive detail and explanatory evidence found in the data, which is further discussed in the following chapter.

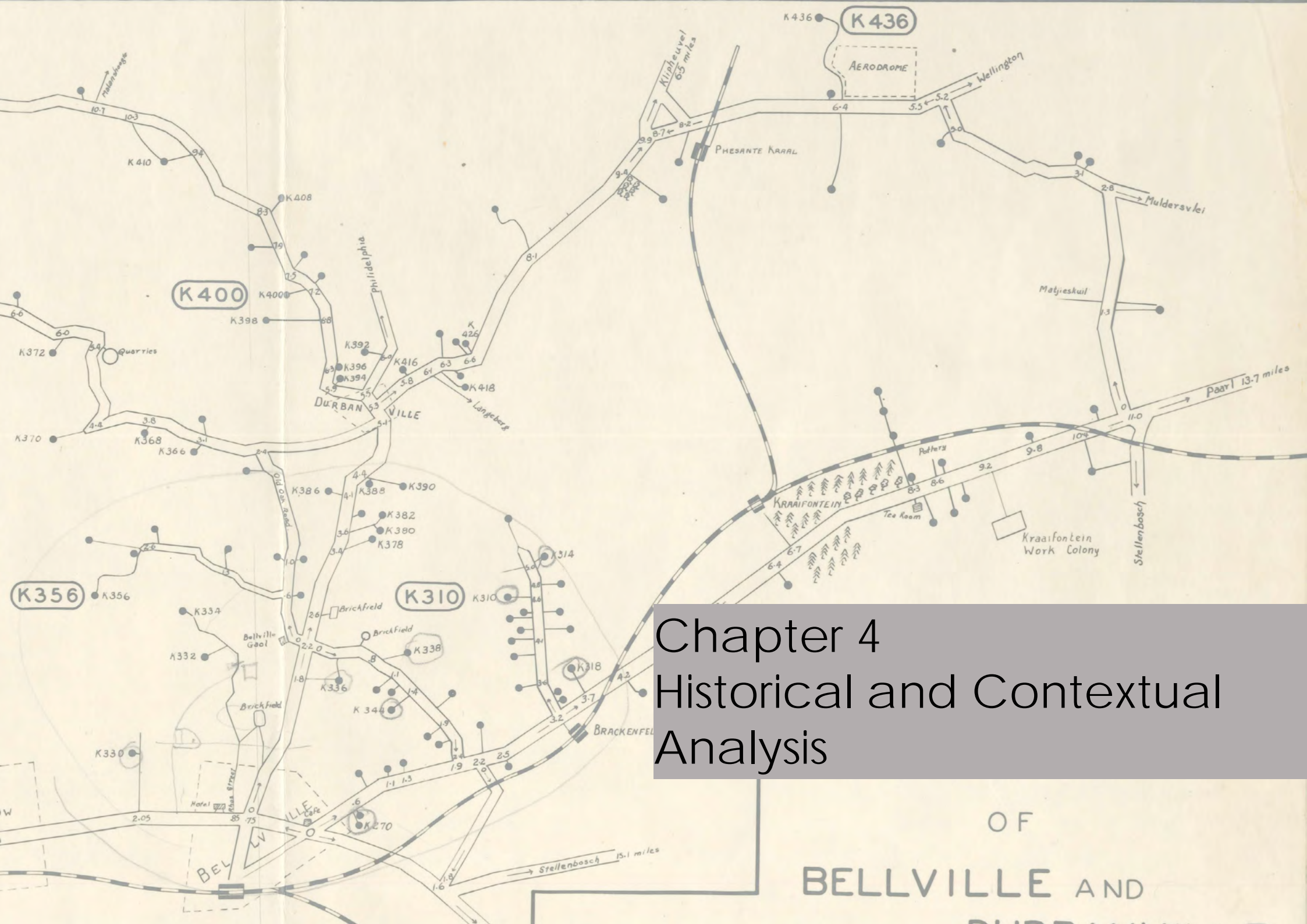
### **3.6 Ethical Considerations**

With the various research techniques that are utilised for this study, ethical issues needed to be taken into consideration (Paquet, 2014). First and foremost, I aim not to harm anyone or infringe on their rights, regardless of whether they are a participant or an outside observer. Research participants who are involved in the research process have provided their verbal and written consent. A consent form is presented for those being interviewed, so that I may be able to use the information they provide. Research participants are also informed of the format and topic of the interview. Respect is given to their requests such as anonymity or no audio record. Additionally, they are informed that they are able to stop the interview at any point for any reason. For the purpose of this study, the names of individuals representative of the local, provincial, or national government are used, if permitted, while those from the private sector (informal traders and/or business owners) remain anonymous. This allows the public figures to address future concerns and questions from myself or others interest. I apply and respect the University of Cape Town's codes of ethical conduct at all times during my research.

### **3.7 Conclusion**

This chapter outlined the research method and techniques that are used for the purpose of this study. The case study method is selected for research and various techniques are used to accomplish this task. The strengths and limitations of each of these were discussed in this chapter. This chapter also addressed the sampling and data analysis procedures that pertain to the study. The chapter concluded with a discussion of the ethical considerations that are considered throughout the research process. It is to a contextualisation of the Bellville Central case study site that this study now turns.





# Chapter 4 Historical and Contextual Analysis

OF  
BELLVILLE AND  
DURBANVILLE

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## 4.1 Introduction

The purpose of this chapter is to provide a historical background to Bellville, as well as an analysis of the contemporary context. Unveiling the history of the area is important for this research, particularly in terms of its transportation and physical development, for two major reasons. First, it gives insight into the spatial expansion of the area and why it has developed into its contemporary form in terms of socioeconomics. Second, it reveals important issues that have affected the people and the area, resulting in contemporary problems. A contextual analysis is important as well. Chapter 6 will require the understanding of present-day Bellville in order to analyse, design, and make recommendations for the space. This chapter will first examine the pre-apartheid and apartheid eras of Bellville respectively, before providing the contemporary contextual analysis.

## 4.2 The Case Study

The case study for this research is Bellville Central, which is located approximately 20 kilometres from the Cape Town CBD. The administrative boundary for the settlement is outlined in Figure 4.1, which reveals the extensive size of Bellville's jurisdiction. However, the research boundary used for the purpose of this study is provided in Figure 4.2 and focuses largely on what is considered 'Bellville Central' by census authorities. As noted in Chapter 1, Bellville experienced urban decay after the end of the Apartheid era. Decay is characterised by the flight of the white population to more suburban surroundings, as well as deterioration of social, economic, and physical stock. This chapter focuses on three major periods within Cape Town's history, which are highly influential to the development of Bellville: the pre-Apartheid period, the Apartheid period, and the post-Apartheid period. Each period will be discussed and analysed in relevance to the transportation and development of Bellville.

### 4.2.1 Pre-Apartheid Bellville (1600s to 1940s): Rural Origins

The early history of Bellville is important because of its influence on the dynamics of present-day Bellville. Prior to the formal establishment of area in the mid-1900s, the site was largely unutilised except for minimal farming and travelling between important early settlements such as Malmesbury, Kaapstad, and Stellenbosch (du Plessis, 1998). A process of inland migration developed a network of paths and routes for settlers to easily navigate around their new home and lands, thus giving Bellville a long, transportation-related history reaching back to the late 1600s (du Plessis, 1998). The Tygerberg Hills were essential in this regard, as they became the guiding features that serve as landmarks of the area for those not living on the coast. Through the remainder of the seventeenth century until the mid-nineteenth century, the area was known as "Twaalf Myl", because its small farms were located near the milestone that indicated a distance of twelve miles from Kaapstad (see Figure 4.3; Strydom, 1981: 11). The site additionally developed a trading post during this period due to the confluence of several movement routes from the

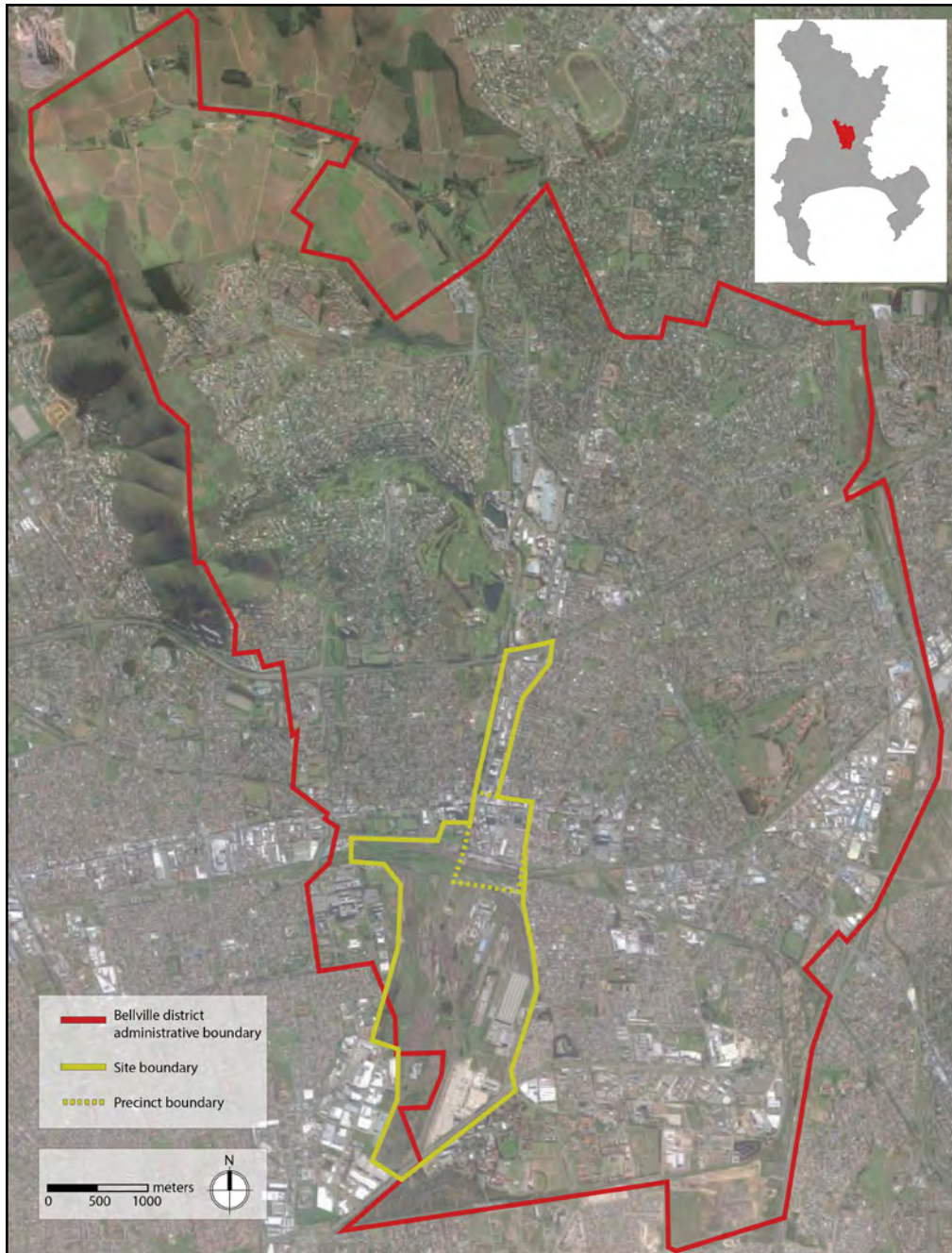


Figure 4.1 Administrative boundary of Bellville



Figure 4.2 Site and precinct boundary

interior towards Kaapstad (see Figure 4.4). This again highlights the pre-existing uses of transportation, but also the economics of the site that have perpetuated into modern Bellville.

In addition to the transportation and trading activities that occurred in the area, Twaalf



Figure 4.3 Roman numeral XII (12) milestone indicating distance from Kaapstad, future site of Bellville

Myl also became an economic centre for settlers with regards to agriculture (Strydom, 1981). Simon van der Stel, the namesake of Stellenbosch, organised the farming system to benefit both the Dutch East India Company (the Company) and the (mainly Dutch) immigrants seeking new socioeconomic opportunities in the freshly established colony (du Plessis, 1998). Settlers were given land for agricultural production that allowed them to produce food, clothing, and other essentials, but were required to assist the Company in supplying those necessities as well. The Company was thus able to operate from Kaapstad with more stability because of a 10% contribution of agricultural output from the settlers (du Plessis, 1998). Through a gradual process between 1698 and 1717, van der Stel helped establish more than

twenty farms located around the Tygerberg Hills, with contemporary Bellville being located on one called Elsie's Kraal (see Figure 4.5) which would later be divided for more intensified development.

Accompanying the agricultural development was initial collaboration with the native Khoekhoe population, who were slowly incorporated into the labour force, trading networks, and social systems of the settlers (du Plessis, 1998). This originally benefited both groups as settlers had new labour and access to Khoekhoe products (cattle and sheep), while the native populations were able to secure a steady supply of food, tobacco, and alcohol. However, the native population and its culture quickly disappeared within a few decades. By 1710,



Figure 4.4 Bridge over the Elsie's River just before trading post

many Khoekhoe had married slaves or white settlers, while others died from exposure to new diseases due to increased interactions with immigrants (du Plessis, 1998). This resulted in fragile interactions between settlers and the remaining native Khoekhoe population, who become increasingly disenfranchised over time. Aside from the social uncertainty and other factors, the relationship between the settlers and the native Khoekhoe would be repeated and systematically refined in the subsequent centuries against black, coloured and Indian populations. This issue will be returned to as it arises in the modern development of Bellville as a white-only city under the Apartheid government.

Farming dominated the area well through the eighteenth century and into the nineteenth, benefiting those in such practices due to global events. During this time in Europe, major conflicts between France against Britain and the Netherlands allowed the important agricultural markets in the Cape to develop, particularly the wine industry that began replacing French productions (du Plessis, 1998). The growing conflicts caused by France compelled the Dutch Royalty into

war against them, but the Dutch were soon overthrown by its own citizens who established the Batavian Republic (du Plessis, 1998). During the same period, the British had initiated an assault on Kaapstad at the Battle of Muizenberg, seeking to control the strategic location (Clowes, 1997). This forced the Dutch Royalty, who had fled to England for safety from the Batavian Revolution, to transfer ownership of the Cape Colony to the British (du Plessis, 1998). The transfer of Kaapstad to British authorities resulting in numerous changes for the area. First, the names of many places in the Cape were refitted with English names, such as Kaapstad being altered to Cape Town. Twaalf Myl was also renamed in 1861 by English surveyor Charles Bell as Bellville, the name being fully adopted by 1906 (du Plessis, 1998). Secondly, new economic policies and practices altered the way in which farmers and other good producers in the Cape functioned. The number of agriculture and material resource producers grew, resulting in smaller plots in the Bellville area. Lastly, the British provided new services and infrastructure for the area, such as formalised roads and railways. A rail line connecting Stellenbosch to Cape Town was established

in 1862, with a station located at Bellville (Strydom, 1981). Additional lines servicing other settlements around the Cape followed.

However, the extensive growth abruptly ended in the 1920s with the conclusion of

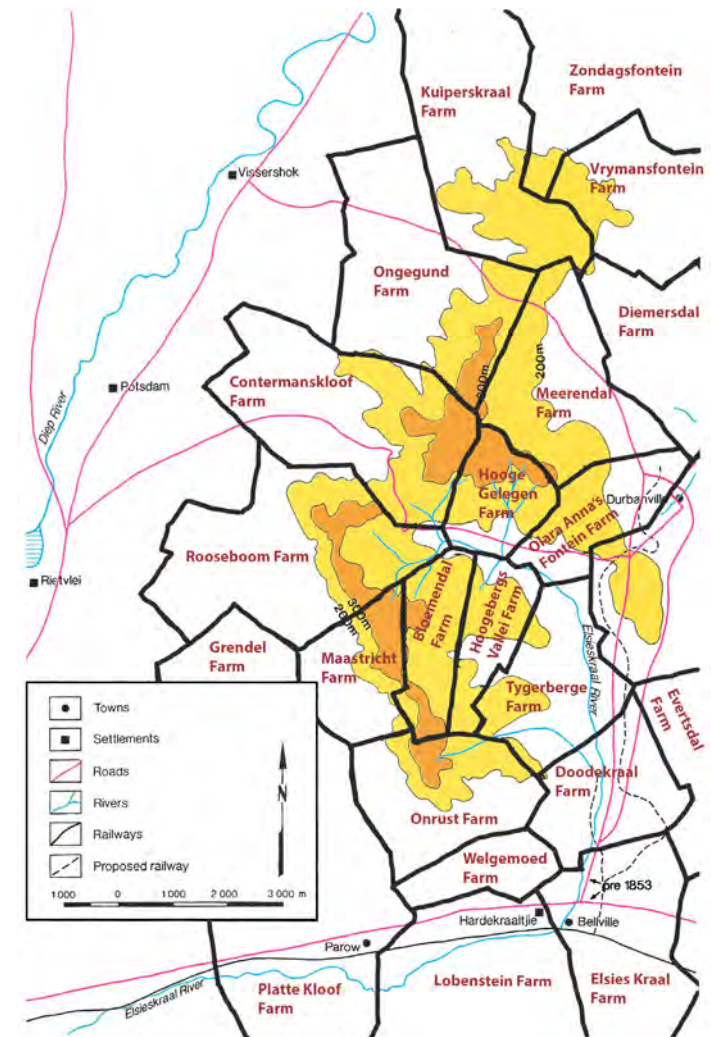


Figure 4.5 Farms occupying Tygerberg Hills with Bellville Central in southeast corner

the major European conflicts (du Plessis, 1998). Bellville had yet to develop into a large community, but the effects on the area were still immense because of the renewed competition with a bigger global market, such as France's re-entrance into the wine industry. This marked the first major decline for Bellville, its residents, and its agricultural activities. Between this period and the 1940s, Bellville experienced multiple processes of growth and decay (du Plessis, 1998). Many of these cycles were highly related to technological advances in agricultural practices and infrastructure developments, allowing the Cape to industrialise alongside other global powers (see Figure 4.6). Additionally, physical growth of Bellville accompanied each cycle, with expansion mostly built around the rail station and agricultural economy. While Bellville was never explicitly planned to become a town or city, the expanding number of economic activities and physical growth of the area encouraged intensive planning and development. These initial details about the area of and surrounding Bellville are important because they provide a foundation and reason for subsequent development in the 1940s and by the Apartheid government after 1948.

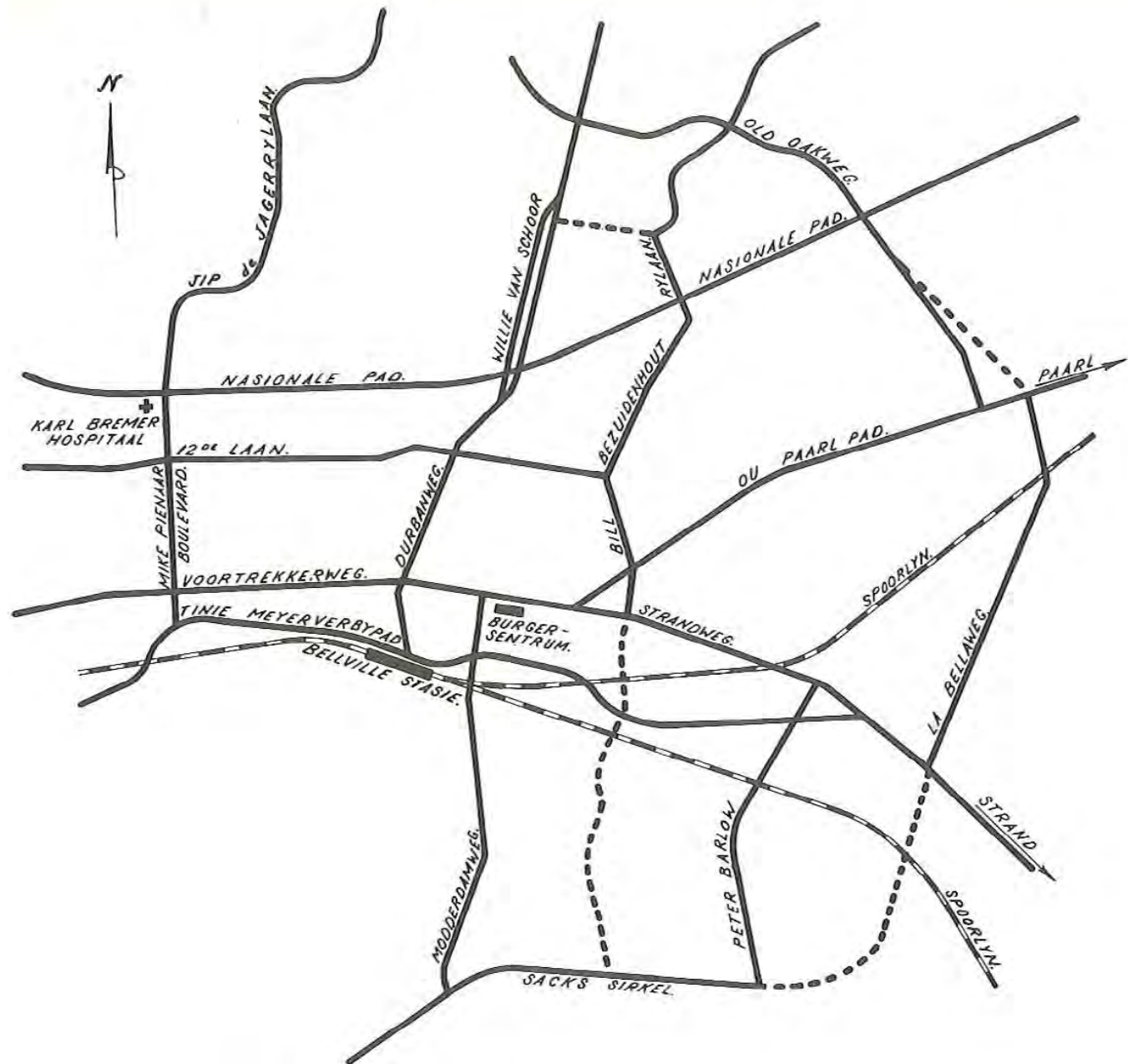


Figure 4.6 Map of Bellville shortly after transition to British Empire

#### 4.2.2 Apartheid Bellville

##### (1940s to 1990s): Urban Development

The physical growth of Bellville and the surrounding area remained minimal and largely focused on agriculture until the 1940s when the concept of developing the site with a formalised plan was presented to the town council of Cape Town (du Plessis, 1998). The initial expansion was centred around the rail station and the Voortrekker-Durban Road intersection, which provided mobility for people and freight. Although industrialisation, which had begun in the 1930s, occurred throughout other parts of Cape Town, Bellville grew as a residential area with the commercial 'Bellville Central' and limited industry in surrounding areas (see Figure 4.7). Demographically, the area was comprised of white and coloured populations, 60% and 40% respectively, though racial segregation was not strictly enforced (du Plessis, 1998). The population established smaller neighbourhoods, with coloureds dominating Oakdale and Bellville South.

Industrialisation of South African cities witnessed an increase in foreign and rural workers seeking wage-based jobs in place of subsistence farming. Following trends from

the past, transportation routes from the interior of the country converged in Bellville, often making it the first destination for emigrants. This helped to support the initial growth of the area and strengthen Bellville Central as a commercial hub. However, the Group Areas Act enacted by the Apartheid government in 1950 designated Bellville's key area as white-only, in addition to separate areas for blacks, coloureds, and Indians. By the 1960s, greater Bellville had pockets of non-white race groups, but most of the area, including Central, was designated for the white populations (du Plessis, 1998). This led to the existing coloured population being forced to move from north of the rail to Bellville South and to the re-purposing of demolished areas such as Oakdale to white-only suburban communities.

Throughout the apartheid era from the 1960s to the late 1980s, the population of Bellville grew at rate much higher than the national average, allowing it to quickly develop into a city separate from Cape Town (du Plessis, 1998). This included large industrial parks in Bellville South and Sacks Circle, which predominantly employed low skilled, non-white labour juxtaposed to the

white-only Bellville Central, which became established as a commercial hub that employed skilled labour. The growth changed the urban fabric from a relatively small village core to a built-up urban environment that offered a variety of socioeconomic opportunities and attracted a larger number of people to the space. There was little tolerance by residents in white-only areas for informal trading or settlements, both of which resulted in rapid removal. These social patterns continued to influence the urban fabric of Bellville, and much of South Africa, until the end of the Apartheid government in 1990.



Figure 4.7 Bellville in 1945; growth of 'Central' area between rail station and Voortrekker Road

### 4.2.3 Post-Apartheid Bellville (1990 to Now): Present Context

This section discusses the contemporary context of Bellville within a national, provincial and local context, the last of which focuses on the case study site of Bellville Central. It is important to present this information because it contextualises the research findings and the site plan in Chapters 5 and 6, respectively. The analysis also provides an insight into the demographic, economic, environmental, and social aspects of Bellville Central.

#### 4.2.3.1 National, Provincial, and Municipal Context

The historical context shows that Bellville only developed in the latter half of the 20th century, including the development of a CBD that is Bellville Central. After the end of the Apartheid government, Bellville was the first location newly, mobile non-white race groups encountered on their emigration to Cape Town. This exposure to emigrants, as well as foreigners, helped to sustain, replace, and create the socioeconomic activities of Bellville. In the present context, transportation remains an important aspect for Bellville as all passenger and freight rail

must travel through Bellville when departing or entering the Cape Town municipality (see Figure 4.8). This provides a national connection to the various destinations for railway travel. Also inherited from the past, Bellville is the confluence of several roads important for the municipality including the east-west Voortrekker Road (R102) that connects Bellville to Cape Town or Somerset West and the north-south Durban Road that connects Bellville to Durbanville and the north. Additionally, the N1 highway that connects Cape Town and Johannesburg passes just north of Bellville Central.

While Bellville Central does not contribute immense economic, environmental, or social outputs at the national, or even provincial levels, it is highly influenced by legislation emanating from those areas of government. From a planning perspective, the major documents that guide the development of Bellville include the Provincial Spatial Development Framework for the Western Cape and the Cape Town Spatial Development Framework for the City of Cape Town municipality. Additionally, legislation including the National Environmental Management Act (1998), Development Facilitation Act (1996),



Figure 4.8 Bellville Central in foreground, Transnet marshalling yards in background; 1980s

National Environmental Biodiversity Management Act (2004), National Heritage Resources Act (1999), National Land Transportation Act (2009) and the Land Use Planning Act (2014), help to provide guidelines for responsible planning and development.

Although less influential in the national or provincial context, Bellville is economically important for the Cape Town municipality as it is the third largest contributor to the municipal GDP at 6.5% of the total, trailing only Cape Town (34.6%) and Mitchell's Plain (9.2%) (WCG, 2012). While not the largest economic hub, Bellville can be seen as the centre for economic activities in the north-eastern part of the municipality, particularly utilising its transportation heritage with regards to the railways and the Voortrekker Road corridor. The sectors of the economy that contribute the most to Bellville include construction (7.0%), financial and business service (5.9%), and transportation (5.6%), all of which are at or above the municipal averages of 7.0%, 5.5% and 5.2% respectively (WCG, 2012). Although it only accounts for 6.5% of the municipal GDP, Bellville has the second largest employee payroll and company turnover rates in the

municipality at 9.9% and 10.1% respectively (CoCT, 2010a).

The social and environmental aspects of Bellville are less prominent than its economy, but also make important contributions to the area. A majority of the farmland that once characterised the landscape have been developed into suburban neighbourhoods, with residents utilising Bellville and/or Durbanville as a centre for their socioeconomic activities. This is a partial reason for the durability of Bellville as an economic hub. The Tygerberg Hills are limited to the remaining agriculture of the area. Small pockets of green space (mainly rivers and their protection buffer zones) and agriculture are spread through the area, but are largely limited to Durbanville.

#### 4.2.3.2 Local Context: Demographics

The population of Bellville Central has changed dramatically since the end of the Apartheid government. As seen in Table 4.1, the population grew only slightly between 1996 and 2001, but more than doubled by 2011. This can be characterised by the removal of mobility restrictions for non-white groups, in addition to the rapid globalisa-

tion that has been heavily influential in the development of South Africa and its cities. Although consisting 53% of the Bellville Central residents in 1996, the white population has quickly departed the former white-only CBD into the surrounding suburbs, reducing their representation to 16% of the area by 2011. This reflects similar characteristics to that of Cape Town and Johannesburg city centres in which the white populations migrated to more segregated parts of the cities (Tomlinson, 1999; Lemanski, 2004). The flight of the white population has been countered by a substantial increase of domestic and foreign migrants, the black population more than tripling from 1996 to 2011. Initially representing 12% of Bellville Central's population in 1996, black South Africans quickly became the majority racial group by 2011, at 36% of the population. An additional 31% of the population consists of 'Other population groups', most of whom are from Somalia.

	1996		2001		2011	
	Pop	%	Pop	%	Pop	%
Black	112	12	249	26	789	36
White	485	53	375	39	362	16
Coloured	285	31	347	36	358	16
Asian	10	1	0	0	13	1
Other	20	2	0	0	693	31
Total	912		971		2215	

Table 4.1 Population of Bellville Central between 1996 and 2011

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#### 4.2.3.3 Local Context: Economic (Figure 4.9)

The economy of Bellville Central is highly diversified compared to the surrounding suburbs because of its location with regards to roads and the railway. Its historic past as a railway stop and subsequent development in the 20th century has allowed Bellville Central to become a CBD for the area. Although having suffered from capital flight immediately before and after the end of apartheid, the area retained a number of businesses that have been complemented by new economic activity, as well as an increasing labour force of both skilled and unskilled labourers (Nel and de Wet, 2013). A majority of economic activity in the area focuses on commercial businesses and trading, but the development of financial and business services has also become more prominent in the area, and all providing a plethora of employment opportunities (WCG, 2012). Manufacturing activities are almost non-existent in Bellville Central, with the exception of small-scale operations undertaken by individuals or small groups.

Trading activities in Bellville Central occur through different mediums and offer a variety of selection and prices. Additionally,

different streets are host to these different mediums, reflecting the social complexities of the area. Upscale shopping and higher income shopping is available through the Middestad Mall contained in a city block that is highly accessible via different modes of travel. Several upscale businesses are also located outside the mall, but are still within the immediate vicinity. Less expensive, but recognisable businesses, operate within Bellville Central and compliment the Middestad Mall, including chain stores such as 'Pep' and 'Price N Pride'. These businesses provide a variety of employment opportunities in retail, hospitality, and security sectors, many of which require minimal skills with regards to their labourers. Most of this economic activity occurs along Kruskal Avenue and Blanckenberg Road, both of which run past Middestad. Informal trading activities have also developed and these activities occupy several spaces in Bellville Central that utilise frequently travelled routes and benefit many of the low-income workers. The rail station and its immediate surroundings are the centre for informal activities in Bellville Central, ranging from food, to services, to trading. Blanckenberg Street, across from the rail station, has also developed to incor-

porate informal trading in addition to the businesses that operate in formal structures. While many informal traders operate at or near the rail station, shopping along Durban Road has become the domain for Somalians. Both formal and informal businesses operate within this area and are highly dependent on Somali social networks as many South Africans refuse to buy from or be employed under foreign business owners.

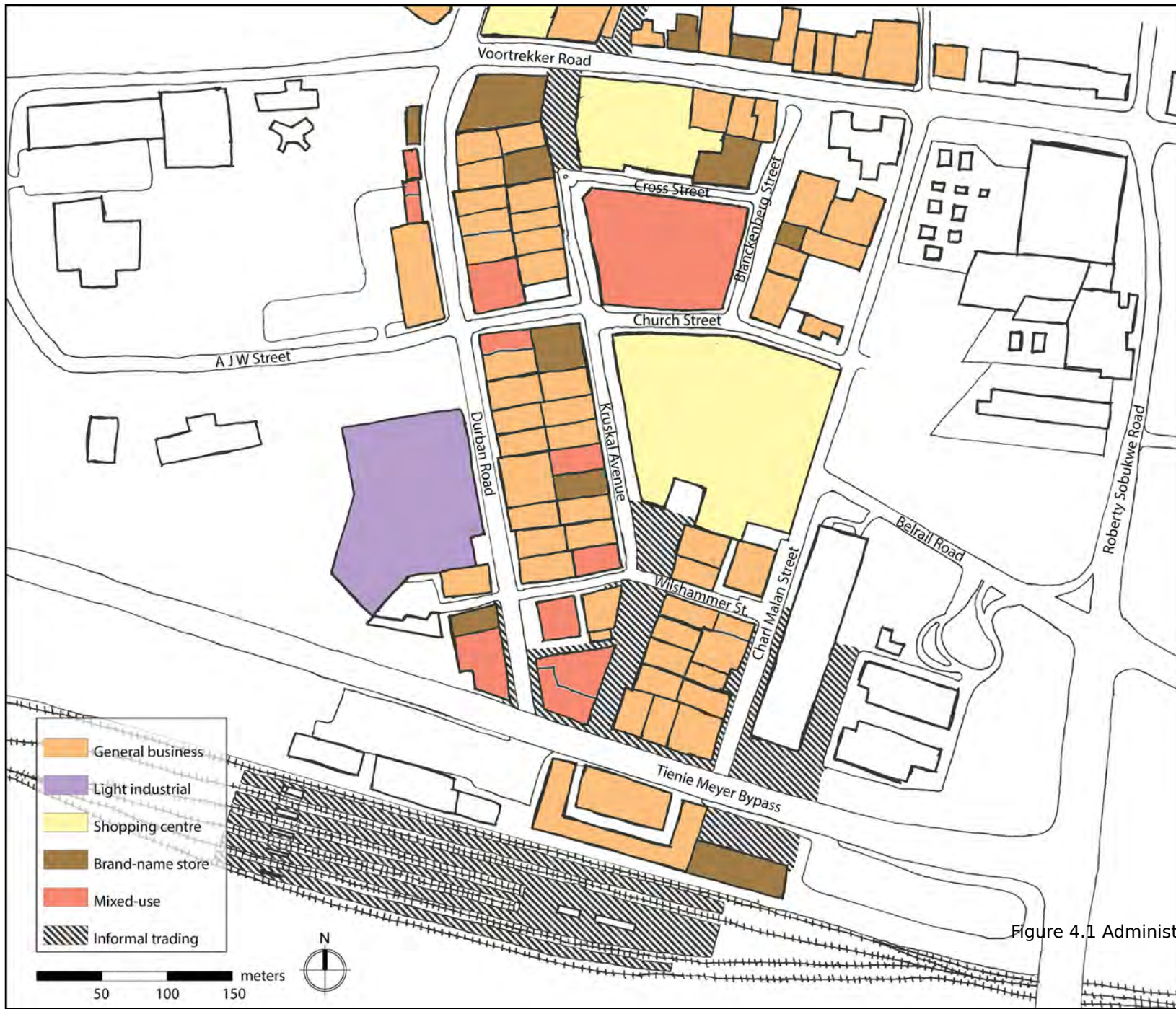


Figure 4.9 Distribution of economic activities in Bellville Central

Figure 4.1 Administrative boundary of Bellville

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#### *4.2.3.4 Local Context: Environmental and Heritage (Figure 4.10)*

The environmental context of Bellville Central is extremely minimal with regards to green space and ecological diversity. The Transnet-owned land south of the rail station hosts the most green space in the area, but is limited to grassy fields with defined informal walking paths. Additionally, the Elsieskraal River passes through the north-western section of the Transnet site after running south from the Tygerberg Hills. The most integrated green space in the area, aside from the land south of the rail station, is Elizabeth Park immediately west of Durban Road. Elizabeth Park, and additional green spaces to the north, protect the Elsieskraal River from urban development and provide a green link through the area. However, access to this park is restricted to Voortrekker Road, reducing its relevancy to the users of Bellville Central.

Taking the historical development of Bellville into consideration, the centre has a variety of nationally historic buildings and provincial heritage sites. Contained within Durban Road, Voortrekker Road and Charl Malan Street are a variety of historical buildings

that are protected by national regulations on their removal or alteration. While this can limit new developments, it provides Bellville Central with a unique character that reflects its tumultuous history and can be promoted in its tourism. In addition to national heritage, Bellville Central also hosts a provincial heritage site. The stone post that indicated twelve miles from Cape Town, and was used for the naming of the settlement before Bellville, is maintained on the corner of Durban and Voortrekker Road.



Figure 4.10 Natural environment and cultural assets of Bellville Central

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#### 4.2.3.4 Local Context: Social (Figure 4.11)

The social context of Bellville Central is dynamic and fluid, with changes having occurred rapidly since the end of apartheid. As noted in the demographics section, Bellville Central has become a racially diverse area since the end of apartheid. This largely has been the result of a fleeting white population and influx of non-white South Africans, as well as people from other countries like Somalia. This has had dramatic effects on the social issues of Bellville Central because of racial competition for business ownership and employment. The white and coloured populations are relatively more skilled than their black or foreign counterparts and thus are employed in other areas of the city such as the Cape Town CBD or Century City (CoCT, 2010a). A large portion of the population consists of Somali immigrants, many of whom have established themselves socially and economically in Bellville Central.

The larger extent of Bellville contains multiple health services available for its residents and those outside the area. The Tygerberg Hospital is less than a kilometre away, but it is difficult to access from Bellville Central because the Transnet-owned land is imper-

meable by cars, forcing people to navigate around the rail-yard. Additionally, fencing surrounding the Transnet perimeter limits the permeability for pedestrians. A medical centre does operate in Bellville Central, but does not offer services to the same extent of the Tygerberg Hospital. The education of Bellville Central is limited to a branch of the MSC College of Business, which operates in a single building on Church Street. Bellville Central does not contain any public schools for the area and nearby institutions such as University of the Western Cape and Cape Peninsula University of Technology have poor accessibility outside the use of private transportation.

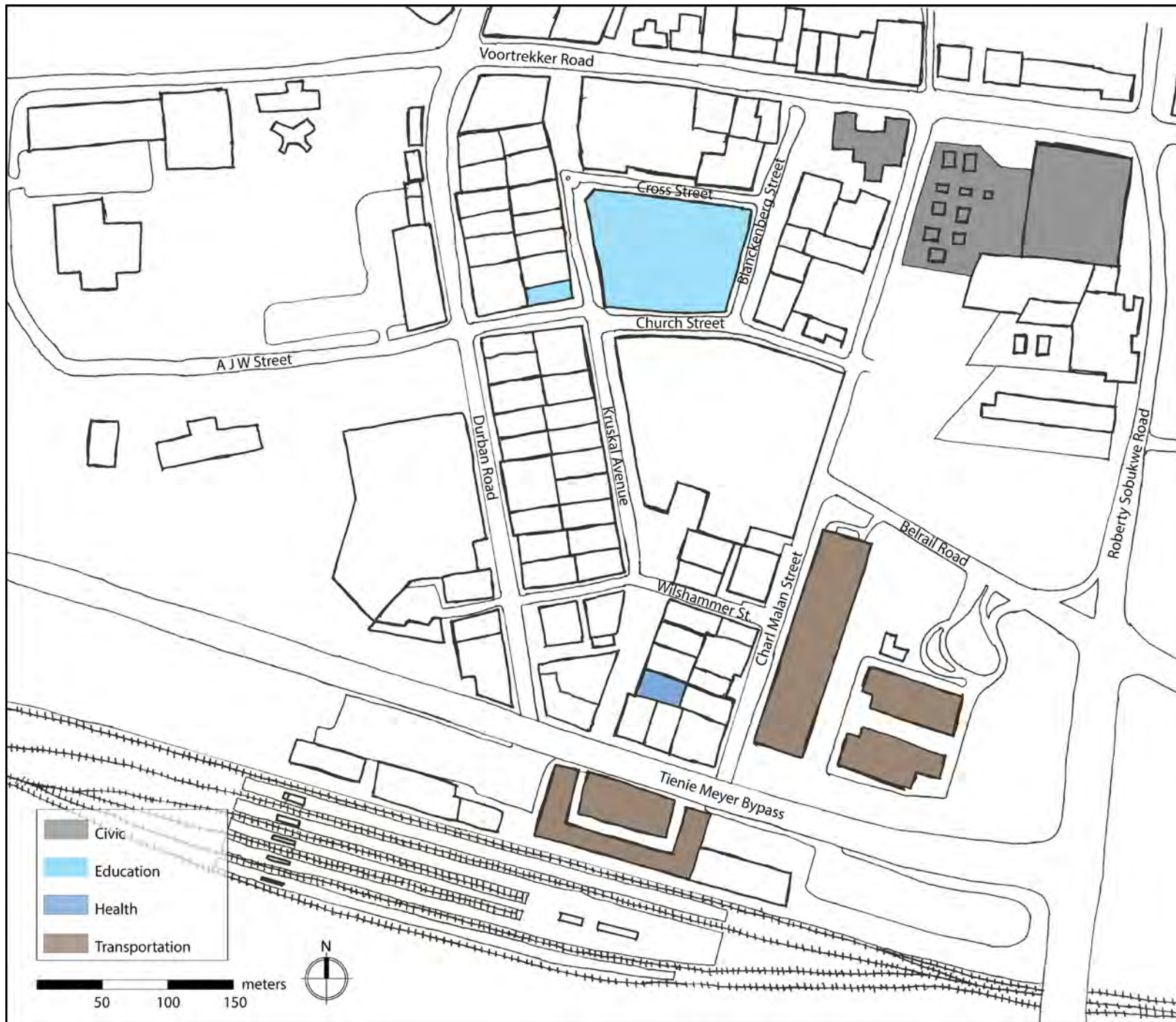


Figure 4.11 Distribution of social services throughout Bellville Central

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### **4.3 Conclusion**

The historical development of Bellville was highly influential in the contemporary growth of the city and help to designate the area as a confluence for various transportation routes and infrastructures. The restructuring of racial populations during Apartheid formed a highly disconnected space, which separated Bellville Central from several neighbourhoods using the rail as a barrier. This had major implications for contemporary Bellville Central in terms of social, economic and spatial aspects. This same period witnessed an increase in industrial and commercial businesses, making Bellville a more important location within Cape Town. However, the end of Apartheid resulted in a variety of problems for Bellville Central such as economic decay, flight of the white population, and capital loss.



Chapter 5  
Research Findings and  
Analysis

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## 5.1 Introduction

The purpose of this chapter is to present the research findings that have been guided by the assessment criteria and subsidiary research questions established in Chapter 2. Using the techniques outlined in Chapter 3, this chapter assesses the case study site on the basis of TOD and urban regeneration principles. Additionally, this chapter seeks to establish a link between the theories and planning principles discussed in Chapter 2 and the research findings. Chapter 5 begins by providing an assessment of Bellville Central on the criteria for transit-oriented development, before shifting towards the assessment in criteria for urban regeneration. These analyses and findings are utilised for the recommendations, as well as site plan, in Chapter 6.

## 5.2 Assessing Bellville based on Criteria for TODs

The assessment criteria for transit-oriented developments established in Chapter 2 identify six key criterion, including location efficiency, financial return, liveability, value recapture, choice, and efficient land-use patterns. Each assessment criterion is accompanied by a subsidiary question that addresses an important issue within the criterion.

### 5.2.1 Location Efficiency

An important component of transit-oriented development is the location efficiency of the given site. A locationally efficient site is one in which the node function is balanced with place function, both operating effectively. The function of 'node' includes the various transportation links, while the function of 'place' is centred on the ability for the site to provide everyday necessities, such as trading, employment, and recreational opportunities. The subsidiary research question for this component asks: Is the Bellville site functionally balanced? In other words: are the place and node functions of Bellville Central well integrated and supportive of each other? This balance is important for the

interaction between transportation, people and space.

With regards to the site's node function, field observations revealed a large variety of transportation options congregating in Bellville Central including rail, cabs, taxis, buses, and private transit modes (car and bicycle). However, there is poor integration of these transportation options. Research findings from a survey that was facilitated for this report (see Appendix A) reveal that 100% of the respondents found the nodal function of Bellville to be very important, but those who thought of the 'node function' as efficient dropped to 63%. Though not the focus of the research, there is an abundance of private car parking near the public transportation options, revealing a fair number of people who utilise a variety of transportation modes throughout the day. This can be supported by noting that the lots are filled more during weekdays than weekends. Curtis (2008) suggests that well-located parking lots can be a way that transit-oriented developments are supported in lower density cities as the site might not be walkable for the greater community, but is still a short driving distance for the commuter. The rail

service is crucial for the success of the area, as noted in Chapter 4, currently providing links to Cape Town, Strand, Paarl and Stellenbosch. The station is one of Cape Town's larger stations, operating two outbound rail lines and two inbound lines, as well as an additional eight rail lines that utilise Bellville as a terminus (see Figure 5.1).



Figure 5.1 Bellville rail station platforms

This further suggests the importance of the rail for Bellville and its socioeconomic development, as most other stations handle up to four rail lines total. Yet, survey respondents often noted that the rail was seen as the most unreliable form of transit in Bellville, 20% saying they would not use rail. Bus and taxi services also provide important links, as well as additional connections to less established locations or to residential areas where the transit users reside. The bus terminal is well organised into a compact space north-

east of the rail station (see Figure 5.2), while the taxis are located throughout the site and the terminal reflects a chaotic, yet semi-organised space (see Figure 5.3). These services and the rail are not fully integrated in terms of arrival and departure schedules, but they are within close proximity to each other, making transitions easier. The Tygerberg District Plan (see Appendix B; 2010b) identifies the transportation in the area to be critical for Bellville's development, but does not explain or detail any interventions to make improvements. While the node functions well, this disconnect highlights the potential for making the location more efficient, thus more suitable for TOD.

Similarly, field observations revealed a socially vibrant and economically active Bellville Central that offers trading, education and health services, and employment opportunities. There are also additional connections to more recreational activities, though the bulk of these are linked to the transportation interchange. Bellville Central hosts several grocery markets, clothing stores, and more specialised businesses that focus on other necessities. Additionally, there are a variety of other businesses and services



Figure 5.2 Golden Arrow bus terminal in Bellville



Figure 5.3 Minibus taxi rank in Bellville

that provide offerings beyond 'basic necessities', such as furniture, hardware, and electronics (see Figure 5.4). This variety of



Figure 5.4 Example of non-basic shop

commercial economic activities reflects the importance of Bellville Central as a socioeconomic hub for those living within the area and those who travel to or through the area with public transportation. Furthermore, a majority of respondents to the survey (87%) thought this variety is essential for the urban area, with 10% suggesting it is the

most important aspect of Bellville Central. This reflects important perceptions about how the area should be used and developed with regards to socioeconomic activity. The Cape Town Spatial Development Framework (see Appendix C; 2012a) supports this by identifying Bellville Central as a space that should promote "the further intensification of business services ... and retail functions in Bellville [Central]" (CoCT, 2012a: 41). The function of 'place' is linked with the location's liveability, as having access to basic necessities contributes to whether a space can be considered 'liveable'. The Tygerberg District Plan (2010b) also designates the socioeconomic activities that are existing to be improved and enhanced. This reflects the understanding by the public sector of what

is important for Bellville Central and its regeneration.

While the function of 'node' and 'place' are efficient when examined independently, a site with locational efficiency must have a balance between functions. This is determined through the observations of people and surveys conducted in the space. While observing people arriving or departing from the rail station, the two major routes people utilised were 1) the link between the rail station and the other forms of public transportation within close proximity and 2) the link between the rail station and Blanckenberg Street, and thus the socioeconomic activities in Bellville Central (see Figure 5.5). While other routes away or towards the rail station

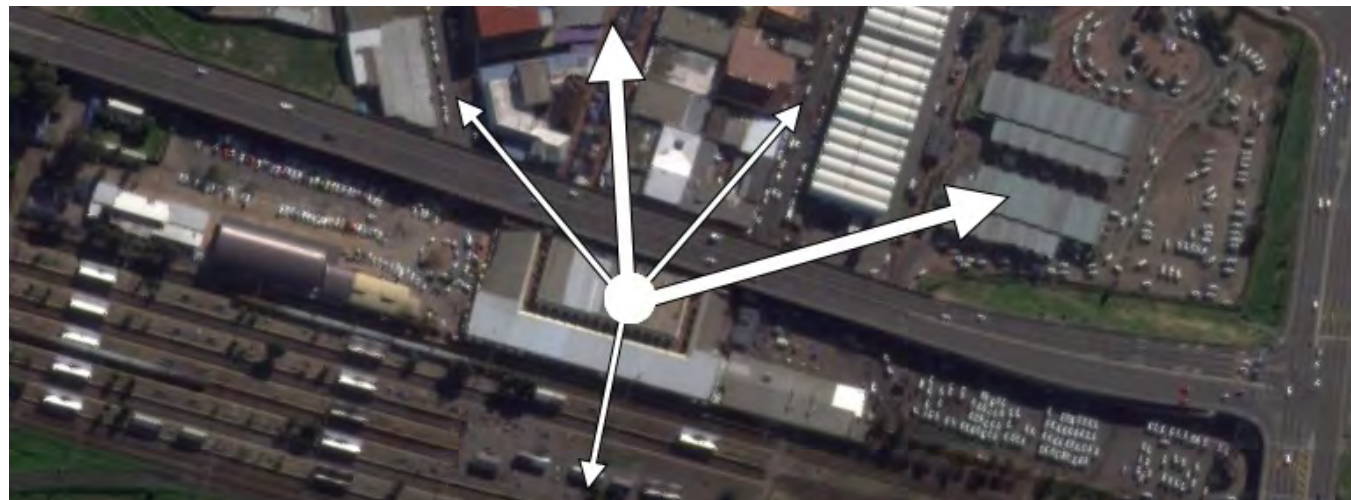


Figure 5.5 Direction that individuals leaving the rail station take upon arrival to Bellville Central

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were recorded, these were less frequented and limited to areas that have socioeconomic relevance. This reflects a relatively established 'location efficiency' as the area is utilised as both a transportation 'node' and a 'place' to come for a variety of reasons, including trading and employment. Furthermore, one survey respondent positively commented on the accessibility between transportation, groceries, and laundromat. The responses and additional comments taken during the survey support the connection between node and place as many respondents indicated the 'location efficiency' as the reason for being in Bellville.

### **5.2.2 Financial Return**

The potential for financial return is also an important component for the success of transit-oriented developments, mostly for the purpose of attracting public and private investment. The public sector is able to make these returns through transportation in the form of ridership fees, while private entities achieve returns through the rents or sale of their developments. The subsidiary question for this component asks: Does Bellville have the physical and economic capacity to supply financial returns? In other

words, is there potential for financial returns in the surrounding landscape and/or in the economic environment of Bellville Central and the greater area? A review of the Cape Town Spatial Development Framework (2012a) and Tygerberg District Plan (2010b) reveals the City's views with regards to this question. The former plan constantly identifies Bellville Central as a location that can support viable private development with reasonable returns. The latter furthers this idea by promoting strong partnerships between the local government and the private developers to create a mixed-use space that financially benefits both sectors. Antony Marks, a planner for the Spatial Planning and Urban Design Department of the CoCT, reiterated these plans by stating "there's quite a lot of demand coming in for business premises [in Bellville Central]" (interview, 19 August 2015). While this indeed answers the question asked above, further examination is taken to understand this stance that the City has taken.

Examining property value trends in Bellville provides an indication of how the property market is operating, and signals weakening or strengthening in the sector. This relates

to financial returns as the private and public sector will only invest in areas that will improve in terms of property value increases, particularly through the development under consideration. This potential return provides an incentive for the private and public sectors to collaborate and develop the space. Although not focused specifically on the research site, the property values of Bellville as a whole have remained stable since 2009, albeit small increases have occurred in 2013 (Citymark, 2015; Property24, 2015). It should be noted that this reflects not just Bellville Central, but the property values of the area. This form of financial return, made through the rents or sale of a development, is largely employed by the private sector, which has the capital to invest in such projects. The Rawson Property Group opened an office in Bellville in late 2014, with the manager stating interest in the area's growing real estate market. The manager noted that Rawson was seeking "to [expand operations] into an area that we see as having great potential, and Bellville in our opinion, is definitely one of these" (Clarke, 2014). This reveals the potential for property development in the Bellville area as real estate and property businesses have expanded into

the area to take advantage of the low prices with potentially high returns. “The [property] development sector is starting to see the value of developing around rail stations” Antony Marks explains about the shift of interests in the area, “they’re starting to see viability in the lower income and affordable housing market ... where there are returns” (interview, 19 August 2015).

It is more challenging to determine the financial return potential for the public sector than the private because of the various ways in which the state can make a return on their investment, particularly when involving transportation. The rail station provides an opportunity for the public sector to increase their income by improving the existing services and attracting more users. Alternatively, the public sector can enter into a partnership with a private developer to create a new space that offers returns to both investors. Since the public sector owns several erven in Bellville Central, they are able to control what and how growth is achieved in those spaces, capitalising from the land and developments that occur (see Figure 5.6). Additionally, enforcing parking fees on publicly owned land can improve

revenues for the City while encouraging more sustainable forms of mobility, such as carpooling or increased public transportation ridership. The Middestad Mall is an example

of this, as the structure is partially located on publicly owned land, but is managed and operated by private entities who determine shop size and characteristics (i.e. Pick N’ Pay



Figure 5.6 Property ownership

for groceries needs a large space; see Figure 5.7). This reflects an extensive economic capacity in Bellville Central in terms of financial return.

While observations are difficult to employ with regards to determining the potential for financial return, it is beneficial when attempting to understand the physical capacity of Bellville Central to provide financial return. For financial returns to the public sector, the rail station provides a major opportunity for the City to make revenue or reinvest in the transportation expenses while partnering with a private developer to redesign the structure and space. The station handles around 200,000 travellers during weekdays, many of whom are still en route to a further destination (Nielsen and Uppink, interview, 19 August 2015). Lauren

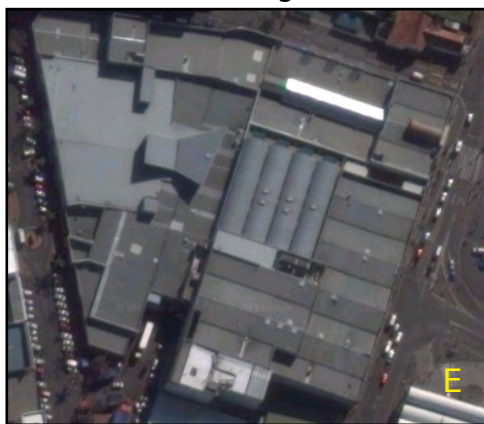


Figure 5.7 Middestad Mall near rail and bus stations

Uppink noted that this number would increase with the addition of the Blue Downs rail link. This reflects a capacity for Bellville and the rail station to manage large numbers of commuters through the space, which helps ensure financial returns for both the public and private sectors.

### 5.2.3 Liveability

One of the most important aspects of transit-oriented development is the liveability of the site, which is determined by the people who use and live in the space. Additionally, the liveability of a site can be considered the quality of life that space provides, usually through measurements of safety, health, and variability of transportation. The design of the space also has a large influence on the perceptions people have about that area, as aesthetics can help create a sense of place. The subsidiary research question for this component asks: Is Bellville Central liveable? The research process revealed this to be a difficult variable to measure due to the subjective nature of user perceptions. To restate the idea of a 'liveable' community,

liveability and quality of life refers to safety, walkability, and health conditions, in addition to the physical design of the space.

A major contributor to the quality of life in a given area is how safe people perceive that space to be when navigating through it. The Voortrekker Road Corridor Improvement District (VRCID) is an important agent that works towards the improvement of the quality of life in Bellville Central (as well as Voortrekker Road) in terms of crime and grime, which should ultimately increase the liveability of the space (see Figure 5.8). Antony Marks supports this sentiment and links it to urban regeneration by stating "urban regeneration starts off with effective urban



Figure 5.8 Voortrekker Road Corridor Improvement District

management: addressing the crime and grime” (interview, 19 August 2015). The services provided by the VRCID include cleaning the streets, placing security officers and units in areas that are prone to criminal activity, and upgrading public assets for the benefit of the community (see Figure 5.9 and Figure 5.10). While these efforts are



Figure 5.9 VRCID clean up efforts



Figure 5.10 VRCID security patrolling in Bellville Central

important for the betterment of the area and its people, the perceptions of Bellville Central remain unfavourable. Survey respondents often commented on the lack of security in the area and the growth of drug use that produces additional crime. This partially could be due to the focus of the VRCID not being exclusive to Bellville Central, but all of the Voortrekker Road Corridor seen in Figure 5.8. In other words, the VRCID has to manage such a large area that it is unable to effectively monitor Bellville Central with regards to safety. A survey was conducted by the CoCT that examined the perceptions of Kruskal Avenue in Bellville Central by residents and users of the space, hereto referred as the Kruskal Report. According to the CoCT survey (n=30), 53% of all respondents to the survey said they did not feel safe in Bellville Central, with 49% of all respondents feeling that crime rates and drug trafficking have increased in recent years. These opinions were echoed by those that completed the survey created for this research, reflecting questionable liveability standards in the present context.

As noted in Chapter 2, liveability is somewhat predetermined (though not always)

by the community and users of the space because they have extensive exposure to the area and its quality dynamics. The survey employed offers insight into two respondents’ perceptions of the space in terms of liveability, one of whom lives in Bellville Central. The individual that does not live in the area was less critical about the perceived liveability than the resident, reflecting the difference in experiences had by non-residents and residents. Still, the non-resident stated that the working conditions are recklessly unhealthy, drug-related crimes are very common during the day, and drug use is increasing thus making the space dangerous, particularly for women and youth. The individual who does reside in the area noted that, in addition to the non-resident’s issues, the quality of living is “not nice” and that the space is not friendly for pedestrians nor does it offer adequate services (survey, 2015). Additionally, the resident was also concerned with what the space did not provide in terms of liveability, while the non-resident only addressed issues within the space that affect the liveability.

The design of the space also has influences on how the site can be perceived. Bellville

Central as a whole is walkable, with the street layout closely resembling a traditional grid pattern and sidewalk infrastructure along a majority of routes. With few exceptions, the roads are wide and give cars dominance over most of the space, restricting the large pedestrian traffic to tight sidewalks. All of Bellville Central is hard space with the only greenery being the trees that line certain streets (see Figure 4.10). The hardness of the space increases the sense of 'dirtiness' and is not aesthetically pleasing to experience. The current layout of the rail station at Bellville Central is unusual because it was designed with an 'open-air market concept' in mind, but does not interact with the street. This makes the area just outside the rail station more dangerous as there are no 'eyes on the street' to improve safety. The street servicing the rail station is covered by the Tienie Meyer Bypass, making the space under it dark during most times of the day, although it can provide protection from unfavourable weather conditions for some informal traders. These issues in the design of the transportation interchange, and its subsequent safety, are addressed in the following chapters (see Figure 5.11, Figure 5.12, and Figure 5.13). The bypass itself



Figure 5.11 Inside Bellville Central rail station

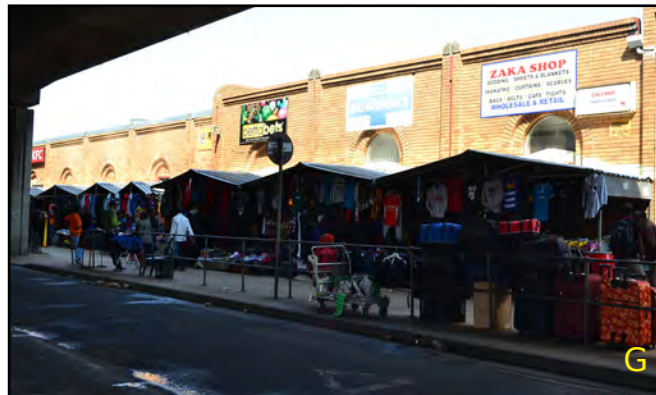


Figure 5.12 Outside front of Bellville Central rail station reflecting its ignorance of the street



Figure 5.13 Under the Tienie Meyer Bypass with the rail station on the left

reflects a shift of importance away from Bellville Central, while the environment it creates underneath reduces the quality of the space's design. While discussing the design of space in Bellville Central, Antony Marks noted "it's not the most welcoming of spaces" for those who use it (interview, 19 August 2015). Furthermore, 70% of survey respondents think a pedestrian-friendly environment is important for an urban core, but only 47% thought the design of space in Bellville Central was effective in terms of positive liveability. This shows that the design of the space is considered inadequate for pedestrian use, reducing the liveability of the area. Additionally, respondents often commented on the car-dominated characteristics of the area, noting it was better to have a car than walk. The site plan in Chapter 6 works to remedy the situation by providing more pedestrian-oriented spaces.

#### 5.2.4 Value Recapture

The value recapture component of transit-oriented development is largely focused residential and public actors that are seeking financial or land savings. The residential sector, the main agents concerned with value recapture, works towards financial sav-

ings by utilising the transportation, services and commercial offerings of the site. The public sector can also benefit from financial savings in dense areas because the cost of delivering and maintaining infrastructure is less due to the large number of people serviced in a small area. This section has two subsidiary questions, the first of which asks: Is Bellville able to create value recapture for the residential and public sectors? This question was difficult to answer without access to more quantitative data that can reveal potential savings.

Those residing in or around Bellville Central are able to easily access various forms of public transportation which enables them to save money that might have been spent on additional travel (see Figure 5.14). Bellville Central also has a variety of businesses that offer most basic necessities, including food and clothing, thus transportation for these items is not required. However, there is too little space in the area to allow for more residents should the urban structure remain unchanged; an issue that is addressed in the Chapter 6. Although the population more

than doubled between 2001 and 2011, growth has stagnated with regards to the number of people living in Bellville Central. This reflects full capacity of residential stock. With a population of 2,215 in roughly 18 hectares of liveable space, and the average household size in Cape Town being 3.5, the dwelling unit density of Bellville Central averages 35 units per hectare (StatsSA). This density is well below the densities identified as being sustainable (between 60-120 du/h) by Autler and Belzer or Cervero. A substantial amount of additional housing would need to be developed to allow for a more sustainable population. However, Kirsten Nielsen of the Greater Tygerberg Partnership noted a silver lining to the situation,

People who live in Khayelitsha spend 'X' amount on transport, so they are able to afford 'Y' amount for housing, but they would be willing to spend more on rent if they lived in Bellville because they would be closer to work. They spend almost the same amount on transport as they do on rent. So they could double their rent, live right next to work, spend less money and time traveling. Then developers come in and say 'people only have R2000 a month for rent', well no they actually have R4000 if they don't spend the R2000 on transport.

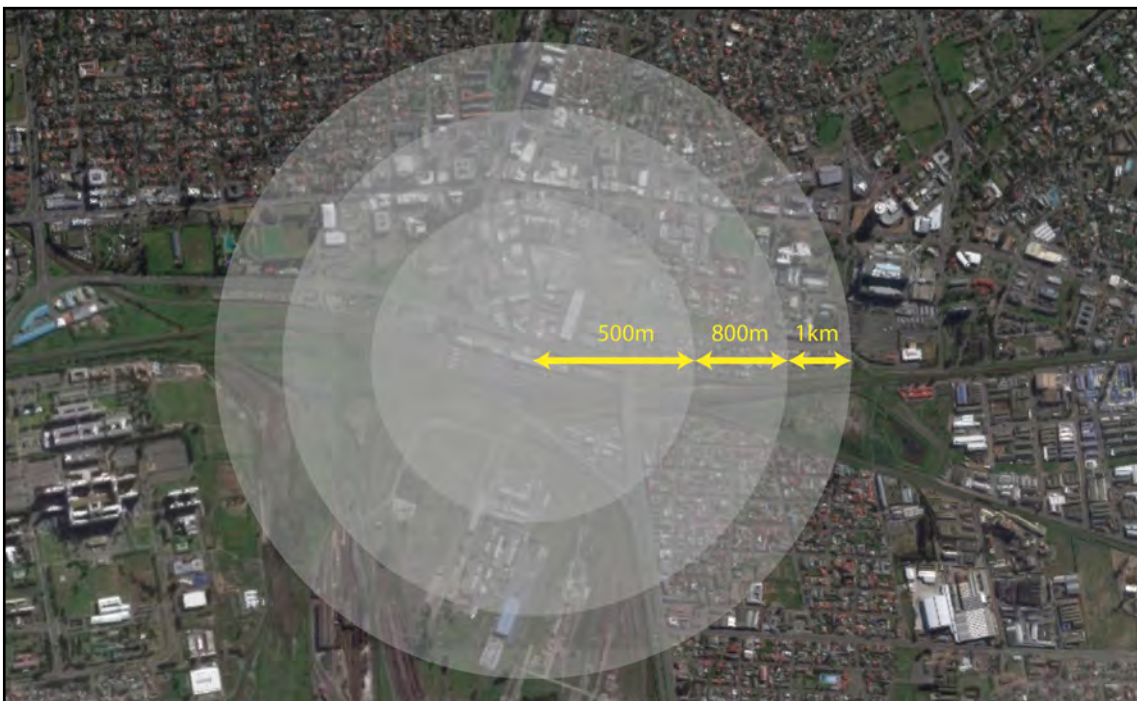


Figure 5.14 500, 800, and 1000 meter radii from the Bellville Central rail station

(interview, 19 August 2015)

With Khayelitsha being one of the most densely populated areas in Cape Town, there is a huge market of people who potentially exemplify this sentiment. Although the current urban structure cannot accommodate additional residents, this supply of people, along with other possibilities like residents from Mitchell's Plain, would easily be able to provide a sustainable dwelling unit density. Thus, while Bellville Central does not currently have the capacity to provide value recapture to a large number of people, there is potential demand that could support TOD and help residents with financial savings.

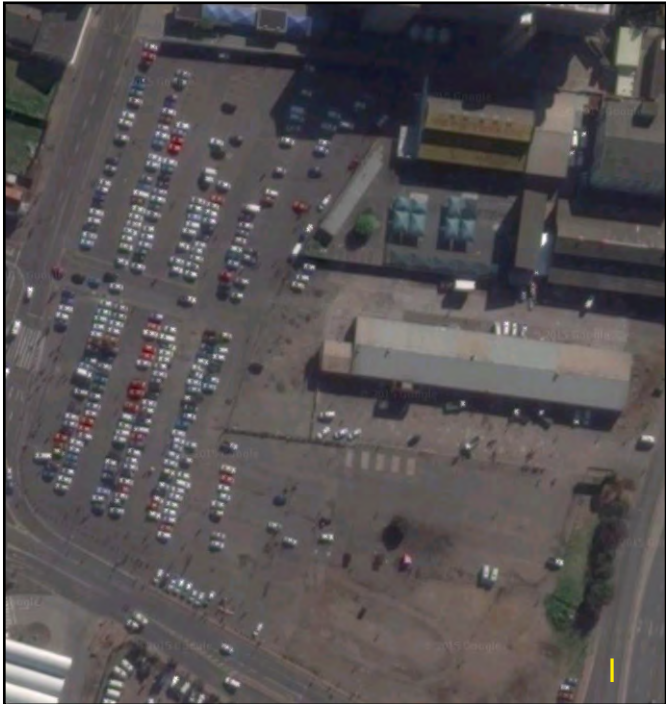


Figure 5.15 Lots utilised for parking by commuters

The public sector does make some small financial savings in the area, as many of the buildings and people utilise the same infrastructure. The larger businesses and Middestad Mall are particularly beneficial to Bellville as they maintain the infrastructure they respectively use, while smaller landlords have more difficulty in this regard, as well as with the property maintenance. This can be observed throughout Bellville Central as a number of individual buildings have become dilapidated and poorly serviced. Alternatively, the northeast portion of Bellville Central is used for parking by those working in the area, but is not levied, thus losing a source of revenue (see Figure 5.15). However, a rail link through Blue Downs will connect Bellville to the metro southeast, attracting a large number of riders and providing new income for the area. This line will also benefit residents who will no longer need to transfer in Salt River during commutes, saving them time and money. Finally, the link will improve the viability of Bellville as a destination, which will be further discussed in the next section.

Although financial savings are a possibility, the public sector is more likely to seek value

recapture through land savings (lost land) that can be re-purposed for environmental, residential, or socioeconomic development. Thus, the second subsidiary question for this section asks: Are there plots of land with the potential for recapture? Through basic field observations, an immediate answer would be 'no', but closer attention to detail reveals a broader situation. With the major exception of the Transnet marshalling yard to the south of the rail station, a majority of the land in Bellville has been developed into roads and buildings with very little soft space (see Figure 5.16). There are a handful



Figure 5.16 Empty lot across from lots in Figure 5.15

of buildings that should be demolished (opinion based on observations due to deterioration) and re-purposed into mixed-use and mixed-income developments (see Figure 5.17). Additionally, several buildings are on the market for new landlords, providing the public sector with several opportunities for value recapture.



Figure 5.17 Dilapidated building along Durban Road

The Transnet marshalling yard south of the rail station provides a major opportunity in terms of value recapture, as much of the land is unutilised, but divided by rail (see Figure 5.18). Examining the layout of the rail through GIS, a number of lines are either obsolete or redundant, warranting their removal. Additionally, land surrounding the property is relatively undeveloped and not

interrupted by the rail lines. This provides an opportunity for various stakeholders to reorganise and redesign the marshalling yards to increase the efficiency of how the space is used.



Figure 5.18 Transnet marshalling yards

### 5.2.5 Choice

Another important component to transit-oriented development is the range of choices the site can provide to its users; choices

that are both internal and external. A strong transportation connection with the greater urban spaces provides a number of destinations for people to choose, thus broadening their socioeconomic opportunities. Alternatively, a TOD should provide a variety of socioeconomic services and opportunities within its own space, increasing the choices residents have in the area. The more choices that are available at a given site, the more diverse the area becomes, allowing residents and users to benefit from proximity. There are three subsidiary questions for this section, the first of which asks: Does Bellville provide a link to the broader urban context? Successful TODs are well integrated into their urban context, thus offering a variety of connections to other destinations throughout the city, making these links critical.

As a pivotal point within the metropolitan area, Bellville is highly connected to various other points in the city that serve different social groups. The rail, taxi, and bus services enable these links and offer different routes and destinations, connecting Bellville to the broader urban context. The rail station is well located in this regard because it pro-



the area could provide, limited by the characteristics they thought to influence a 'destination'. In other words, the 33% do not find Bellville diverse enough to be considered a destination. The recommendations and site plan in Chapter 6 attempt to improve the conditions in Bellville Central to establish it as a destination.

While having easy access to various locations, in addition to being a destination within itself, a TOD needs to have diversity with regards to the choices it offers, prompting the third and last question for this section: Does Bellville Central offer a variety of socioeconomic activities and opportunities? As noted in section 5.2.3, Bellville Central offers a range of socioeconomic activities. This includes banking and financial institutions, retail and wholesale, health-care service, civic services, restaurants, and a number of other activities that only occur in well-established locations. Additionally, many of these stores and businesses cater to a variety of income groups to maximise their potential market and profit. These stores are located mainly along Blanckenberg and Kruskal Avenues, taking advantage of the pedestrian movement from the rail station to the

Voortrekker Road Corridor. This shows that Bellville can provide a diverse range of options in connection with the transportation of the area. While a majority of these activities are contained in formal structures, the informal economy has become a dominant force in Bellville Central as well, particularly in relation to the rail station and existing formal businesses. The informal trading that has developed complements the formal shops by offering goods for those with lower incomes, reflecting a diversity of socioeconomic activities for a range of social backgrounds (see Figure 5.20).



Figure 5.20 Combination of formal and informal trading on Blanckenberg Street across from rail station

Unfortunately, Bellville Central is highly limited in the socioeconomic opportunities it provides to its residents and the greater

population that uses the space. It should be noted that socioeconomic activities are the choices people have for sale/trade/purchasing of goods and services while opportunities refers to the employment environment. Discussions with survey respondents revealed a frequent sentiment of frustration as people were not able to achieve certain responsibilities and errands without spending a fair amount on transportation. More than 90% of survey respondents thought that having a large variety of choices (in terms of shops and services) is important for urban centres, with 73% feeling that Bellville provides these options. Additionally, 85% of survey respondents thought having employment opportunities in an urban centre is important, but less than half felt that Bellville Central was able to provide these opportunities. This reflects restrictions on the socioeconomic opportunities that the space can offer. One respondent stated that it is difficult to find employment and attempting to shift from one opportunity in Bellville Central to another job that is nearby is "not easy", thus making the area unsuitable for employment (survey, respondent comment, 2015). This reveals the node to be at full capacity in terms of socioeconom-

ic opportunities. To further exacerbate the stagnation of employment opportunities, the Somali population that dominates lower Durban Road is highly exclusive to the South African community, with non-Somali workers being rare or non-existent in the workforce. This reflects a saturated market as people are able to make transactions with a diverse number of businesses.

### 5.2.6 Efficient Land-Use

The site must have efficient land-use patterns, an important component of transit-oriented development, in order to support the transportation and socioeconomic opportunities of the site. This entails the zoning of the site to be supportive of a mixed-use and mixed-income environment and promotes higher density developments around transportation infrastructure. The subsidiary question for this component of the research asks: Does the current zoning of Bellville Central support transit-oriented development?

The foremost information needed for understanding the land-use patterns of Bellville Central comes from GIS land-use data. Using GIS and its data helps to identify the

prescribed zoning of the area and provides insight how certain activities might currently exist and operate. As seen in Figure 5.21, a majority of Bellville Central is designated for commercial business use, in addition to small pockets of industrial zoning, which are limited to light manufacturing. This reflects an economically productive area as these activities are concentrated in Bellville Central and around the rail station, which provides mobility for both goods and people. The land south of the rail station is designated for transportation use and is largely



owned by Transnet as a rail marshalling yard for goods being shipped from the port to the interior of the country. Additionally, several commercial and industrial businesses currently operate on this land, most of which existed before the site came under the ownership of Transnet. This information is important for the following chapters as it shows the large amount of land owned by Transnet is abundantly oversized to accommodate the marshalling requirements and allow for peripheral development. In other words, there is space on the Transnet-owned land for future development to occur, particularly along the edges of the property (see Figure 5.18). Aside from the Transnet site and the commercial hub of Bellville Central, the surrounding area is mostly zoned for educational or residential purposes.

Figure 5.21 Designated land-use of Bellville Central

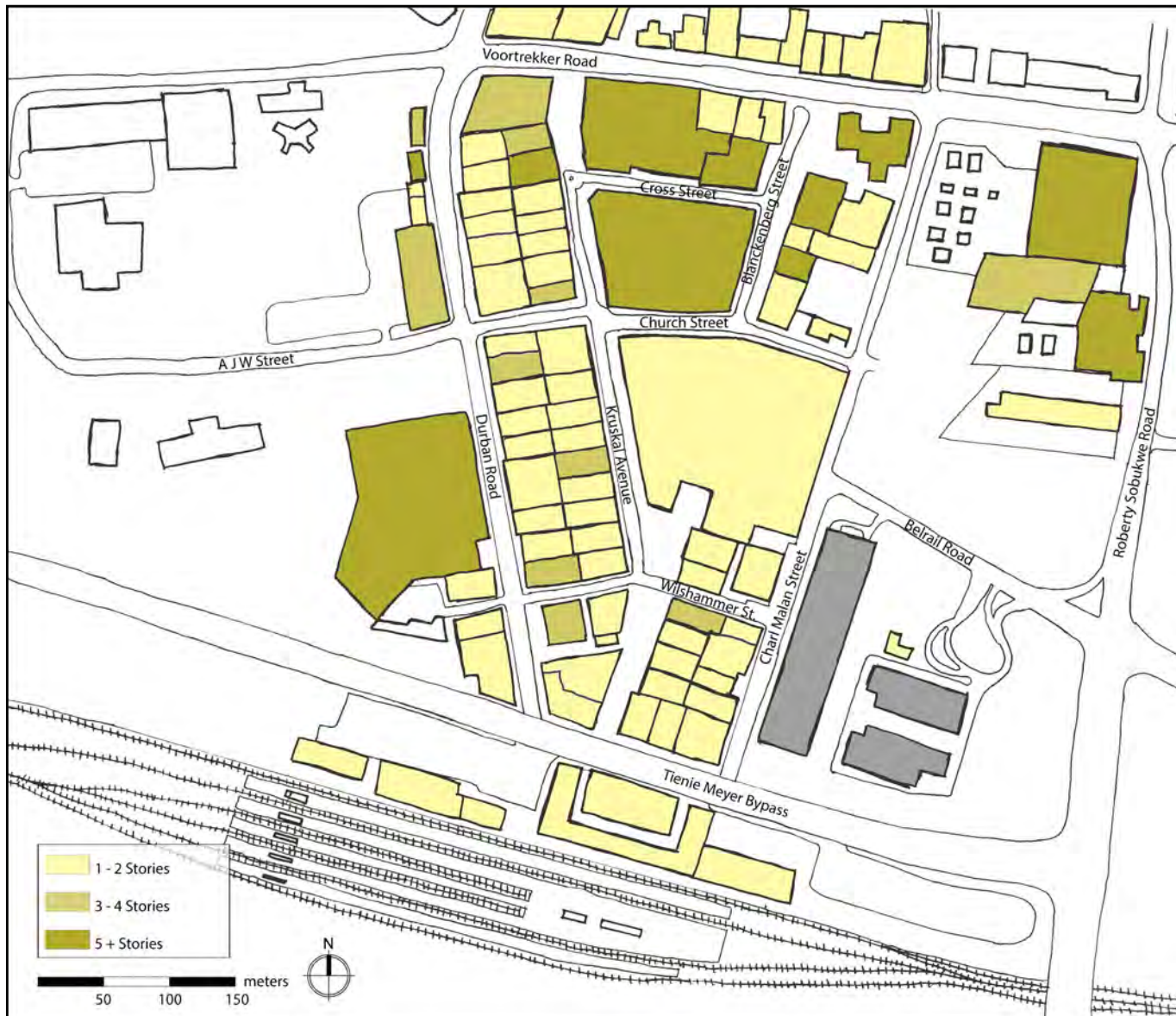


Figure 5.22 Building heights

While the prescribed zoning of Bellville Central dictates how the land should be used, field observations reveal an entirely different reality. As previously noted, a majority of Bellville Central is designated for commercial business, in addition to some smaller industrial uses. However, a large local population has also come to inhabit the area, many of whom operate their own businesses from the building in which they reside. A number of the buildings that host smaller economic activities were built for this purpose. Many of these structures are limited to two-three story walk-ups, allowing those who live there to have simple access to their employment (see Figure 5.22). This reflects economically active local residents that rely on the area’s transportation disposition for entrepreneurial success. The other low-levelled buildings in the area are host to more formal businesses that are able to afford higher rents through their income, but rely on business from more low-to-middle income groups relative to greater Cape Town (Marks, interview, 19 August 2015). These businesses are mainly retail and hospitality-based operations (i.e. fashion and food stores), although other product-niches exist

as well. The taller buildings within Bellville Central contain a larger array of activities and are generally more in-line with the zoning prescription. This shows that the zoning in Bellville Central is able to attract and sustain economic activity that is catered more towards lower income groups than Cape Town or Century City.

Several interesting forms of deviation from the prescribed zoning in the area should be noted. First, deviations from land-use can be caused by the residents of the area. These residents re-purpose the surrounding land to suit their wants and needs, that might otherwise not exist in the area. An example of this land-use deviation is witnessed at the bottom of Durban Road where a plot (and building on it) is designated for 'general



Figure 5.23 Commercial space converted into mosque

business', but the local Somali population has transformed the building into their mosque for prayer (see Figure 5.23). This not only reflects how land-use is determined by the users of the space, but it reveals an exchange of culture and ideas that a certain zoning type might not intend. The second form of deviation is created by the public sector. A decent amount of the area in Bellville Central has been dedicated to transportation-related activities, regardless of the prescribed land-use for those areas. The bus and taxi ranks both occupy land that has been transformed to strengthen transportation uses, with recent changes to zoning to supporting these activities, as seen in Figure 5.21. Additionally, the taxi rank has "ended up with a huge amount of stacking space, which is sterilising really valuable land" (Marks, interview, 19 August 2015). These deviations show how the public sector influences the land-use patterns of the area they occupy, increasing their importance and relevance in terms of community change.

While many of the residents in the area live in the buildings of their business, a larger number of people in Bellville Central work outside the immediate vicinity, typically us-

ing the transportation links to access different opportunities and necessities. This has transformed the land between Charl Malan Avenue and Robert Sobukwe Avenue into an informal parking lot (see Figure 5.15). The space exhibits both forms of deviations as the public sector has allowed for a 'park-ride', while locals in the community have taken economic advantage by becoming car-guards.

There are several planning documents that prescribe new zoning in an effort to increase densities and diversify its uses. The Cape Town Spatial Development Framework (2012a) briefly recommends increased engagement with Transnet for the purpose of developing the marshalling yards over a long-term period. The Tygerberg District Plan (2010b) further identifies the land for future mixed-use development, along with peripheral land on the Transnet site. The Transnet land south of Bellville Central provides an example of inefficient land-use patterns, because the site contains a large amount of lost land, as noted in the **Section 5.2.4 Value Recapture**. The plan suggests development occur next to the rail station and follow Robert Sobukwe Avenue towards the

airport industrial area. This could be considered an 'efficient land-use pattern' as it utilises transportation and zoning as the tools to accommodate development.

### 5.2.7 Limitations

Although the main aim of the research is to understand the connection, if any, between transit-oriented development and urban regeneration, the limitations to TOD need to be considered to determine if the research is applicable. The subsidiary questions for this section asks: What are the barriers to implementing TOD at the Bellville Central site? The limitations to TOD include the design, agency, and demand. The research findings above make it clear that demand is not a limitation that needs to be considered as residents, the state, and property developers are all interested in somehow investing in Bellville Central. The design can be a limitation because of funding or, more importantly, a general consensus by stakeholders on how the space should be developed. Alternatively, agency is an issue as certain stakeholders might not be willing to cooperate to ensure the development progresses.

The design aspect of transit-oriented development is difficult to achieve because of the various influences that affect it. Aside from the agents that determine how a space is designed, which will be discussed below, the aspect is also a limitation due to the availability of land or even to develop. With regards to Bellville Central, there are very few open spaces in the area for the private or public sector to develop. Additionally, certain businesses are beneficial for the residents of the area, as well as supporting TOD principles like choice and liveability. This makes designing the space difficult because various erven that can be utilised for one aspect, are important for other aspects. The Shoprite, for example, situated immediately east of the rail station, is on well-located land that could be redesigned for other TOD purposes, but the store provides important socioeconomic choices and opportunities for the users of the space (see Figure 5.24). This reveals how lost land can be a limitation to TOD, as opposed to an opportunity.

Another limit caused by the design aspect is the financial resources needed to enable a transformation of the space. The City of Cape Town has jurisdiction of the entire

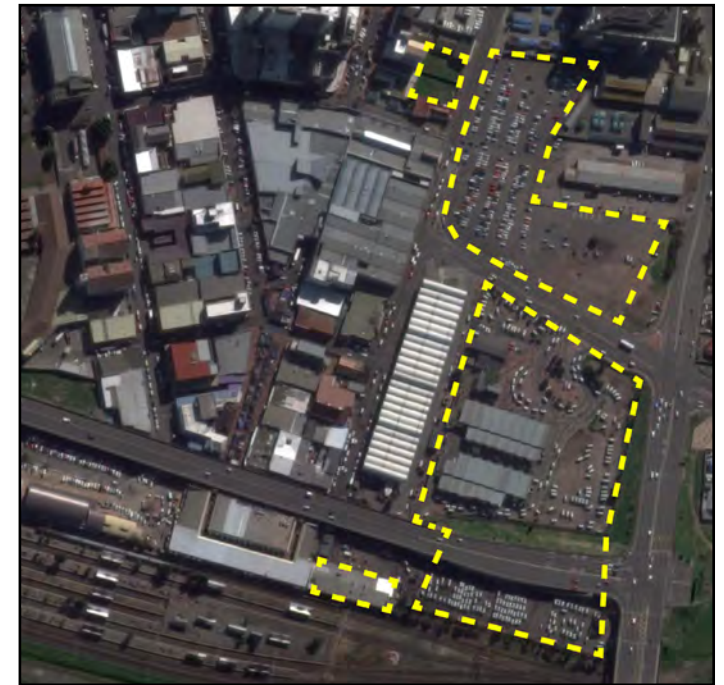


Figure 5.24 Lost space throughout Bellville Central

Cape Town municipality, thus controlling the budget for all its projects. While the budget seems quite extensive (approximately, R32 billion), it is distributed to countless projects and necessities throughout the city. Unfortunately, this makes it difficult for heavily design-based projects as the estimated expenditures are too expensive for the City to afford. This highlights the importance of establishing private-public partnerships as the public can access finances while the developer can access land and bureaucratic advantages. The current budget identifies the 'Bellville Public Transport Hub' (in addi-

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tion to 'transport hubs' for the Cape Town CBD and Wynberg) as a major project for the medium term to change the structure and design of space in and around the rail station in Bellville Central. The CoCT has dedicated R1 million from the budget to the project, which reveals that major changes will not occur this fiscal year.

Agency is potentially the most difficult limitation to overcome, both on its own and in terms of the design aspect. The Transnet-owned land south of the rail station presents an example of this double-edged problem. This is because the land is owned by an agent that is unwilling to discuss alternative uses or additional development on the site, thus making the design process more difficult to conceptualise. When questioned about the Transnet-owned land, Kirsten Nielsen of the Greater Tygerberg Partnership quickly replied,

For the last 20 years nothing's happened and I know that people want the land to be available for development, but it's not. There have been discussions going on for years. Transnet is still trying to decide where to put their base, if it's going to be [Bellville] or the West Coast, but they don't want to give up that land. You

need CoCT and PRASA and Transnet and National Government to all sit in a room and agree, which they won't. And there have been proposals for residential and industrial use, but nothing has happened.

(interview, 19 August 2015)

This reflects limitations in the design because of agency. Although Transnet is the owner of the land, a number of stakeholders are needed to develop the area, but the various interests make finding a single design difficult to achieve. Lauren Uppink added that the Greater Tygerberg Partnership has also submitted a proposal to Transnet that accommodates the ideas and demands of various stakeholders, but have been denied (interview, 19 August 2015). This highlights the challenges the City is confronted with in terms of being a property owner and manager, as well as agents involved in these activities.

The inclusion of various stakeholders is important in terms of implementing successful TODs, as the perception of the space by its users is a key component of TOD principles. The main agents of TODs should thus ensure the development process includes those people that use the space and will be most

affected by its transformation. However, the involvement of certain stakeholders, such as the general public, can often be minimal or untimely, leading to projects that are not supported by the community. A project can be minimally inclusive in that the agents do not provide sufficient opportunities for stakeholder participation, limiting the voices and opinions that contribute to the development. Alternatively, a participation process can be untimely in that stakeholders are only allowed to provide input and opinions at a point where changes to the development cannot occur. In other words, a project has progressed to a point where additional information is irrelevant to the outcome of the development. This reveals how agency can limit the potential and establishment of successful TODs. Some of these issues are discussed in the next section as they are key principles in terms of urban regeneration.

These issues and limitations to establishing TOD as an instrument for urban regeneration require interventions to improve the viability and success of such projects. Thus, the recommendations in Chapter 6 aim to provide solutions for conflicts within the agency that prevents the growth and development

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of the area, as well of the financial complications that can stall or prevent change. Chapter 6 also addresses the spatial limitations through the site plan, allowing for a multi-faceted approach to these various issues.

### **5.3 Assessing Bellville based on Criteria for Urban Regeneration**

The assessment criteria for urban regeneration established in Chapter 2 identify five key criterion, including participation, equity, environment, community, and economic.

#### **5.3.1 Participation**

The urban regeneration process must take the opinions, wants, and needs of all those involved and affected by a project into consideration. This requires participation from a variety of stakeholders, as well as mechanisms to allow for the participation itself, thus providing a diverse range of inputs. The subsidiary question for this section asks: Who are the stakeholders involved in and affected by the urban regeneration process? Although the site is diminutive relative to the whole city of Cape Town, Bellville Central has numerous stakeholders that should be included in an urban regeneration process.

From a public sector aspect, there are various stakeholders that would be involved in the urban regeneration process, including all three levels of government. The national and provincial governments are needed for interventions involving civic entities whose

involvement in the urban regeneration processes is inevitable. These bodies include PRASA, Telkom and Transnet, all of whom manage facilities or land in Bellville Central. Additionally, these entities have control over certain regenerative processes (i.e. PRASA's control of the rail), thus making national and provincial government relevant to participation.

However, the government for the Cape Town municipality (the CoCT) is the major public sector stakeholder that is needed for urban regeneration in Bellville Central. Having an understanding and desire for urban transformation, the CoCT is an important player because of the resources and knowledge it retains within a Cape Town context. Since 2012, the Mayoral Urban Regeneration Programme (MURP) established by the mayor of the city (Patricia de Lille) has focused on several locations within the city that are designated as 'decaying', and thus in need of intervention. Bellville Central is one of these locations. The mayor has stressed,

...that all improvements made in these areas are the result of extensive community input. This limits the prospects for vandalism and helps to ensure that communities

feel that they have ownership over the public facilities that are provided

(CoCT, 2012b)

This highlights the CoCT's position with regards to the participation of residents, claiming that community involvement in city decisions is important for successful regeneration. While this is a statement made by the mayor on behalf of the CoCT, the practice of community involvement is questionable. While not a TOD or area designated for regeneration, the CoCT and PRASA have been developing the land surrounding the Nonkqubela rail station in Khayelitsha to improve quality of life in the community, but have been antagonistic towards informal traders. Although the activities may be seen by the City as undesirable, informal trading provides employment to many unable to find more formal work and offers goods at prices more flexible for lower income labourers. The municipal government is also an important stakeholder because it is the governing body that controls the land-use and spatial planning, dictating the zoning and development of erven throughout the city. This provides the CoCT the opportunity to align the goals of the MURP with principles

of TOD at the rail station in Bellville Central.

The public sector benefits from controlling a reasonable sum of land in Bellville Central, as well as controlling other factors, but cannot be solely responsible for the urban regeneration process. There are several stakeholders in Bellville Central that operate as quasi-governmental entities, namely PRASA, GTP, and VRCID. As previously noted in this chapter, the VRCID is an organisation that helps to revitalise<sup>1</sup> parts of Voortrekker Road through strategic interventions. Antony Marks (interview, 19 August 2015) notes that "urban regeneration is about restoring confidence in an area; particularly safety". This establishes the VRCID as an important stakeholder because of their focus on addressing crime and grime in Bellville Central, among other locations. This effort aligns with the MURP's aim of improving safety and the quality of life in neglected areas.

The Greater Tygerberg Partnership (GTP) is also a quasi-governmental organisation that operates in Bellville Central, aiming to facilitate collaboration between various stakeholders to produce a well-rounded commu



Figure 5.25 Logos of several stakeholders

<sup>1</sup> While 'regeneration' is focused on socio-physical, economic, and environmental recovery, revitalisation will exclusively refer to socio-physical, thus aesthetics, crime, and cleanliness.

nity. The organisation is important for the community as they consolidate a variety of stakeholders in an attempt to improve different neighbourhoods along the Voortrekker Road Corridor. This simplifies participation processes as stakeholders that might not have the resources of private developers and the public sector, are able to contribute their visions and ideas for the area. Additionally, the GTP initiates projects and interventions which focus on improving the local stakeholders' interaction with their space and community, helping to create a sense of place.

The Passenger Rail Agency of South Africa (PRASA) is potentially one of the most important stakeholders with regards to both TOD and urban regeneration. In terms of TOD, the organisation has complete control over any rail-related activities and development, thus influence over any TOD. However, being a stakeholder in terms of urban regeneration is a much broader concept for PRASA, who will have to relinquish some authority and demands for the inclusion of countless other stakeholder agendas. With the rail station comprising an important component to Bellville Central, the partici-

pation of PRASA as a stakeholder is important, as they provide the initial resources and changes the urban regeneration process needs.

There are stakeholders that exist in the private sector as well, managing businesses that operate in Bellville Central and are subject to the urban regeneration process. While there are countless businesses in Bellville Central that can be included, those who suffer from insufficient resources and poor service delivery epitomise the need for urban regeneration. It is likely that smaller businesses that operate independently from large corporations suffer from urban decay, thus require supportive interventions from the state. The urban regeneration process does not necessarily help each individual business, but improves the environment and conditions in which these businesses operate. Thus, the participation of private business as stakeholders is important for a successful urban regeneration process, and helps ensure their issues and needs are addressed.

Finally, residents of the area and users of the space are of critical importance with

regards to the participation processes. They represent the stakeholders that are most affected by the urban regeneration process as they live in and use the space. Residents are of particular concern and should always be included in important discussions to prevent the exacerbation of current or new issues. One such issue is that of displacement. As noted in Chapter 2, gentrification is a concern for many in areas subjected to urban regeneration due to people of lower income/ social status being removed from the area



Figure 5.26 Stakeholder involvement during Open-Streets Bellville

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by developers or natural economic changes resulting from intervention. Although usually not an intention, private developments and upgrades to existing structures can result in higher property values, thus rents increase and displace those who are unable to afford the new rates. Antony Marks (interview, 19 August 2015) reiterates the importance of the local government in this regard by stating, “[the CoCT] interacts with social rental partners to secure opportunities for social house. For [the CoCT] that is the best protection against displacement”. This highlights the need for residents and users of the space to participate in urban regeneration processes, as they have concerns that might otherwise be overlooked, even with support from other stakeholders. Additionally, this issue and a potential solution is incorporated into the recommendations and site plan in Chapter 6.

Additionally, the residents and users of the space have important resources that can strengthen the regenerative efforts and improve the effects of the intervention. Lauren Uppink (interview, 19 August 2015) notes that the urban regeneration process “needs to build on the social capital that’s already

there”, as it provides important insight for decision-making. Social capital refers to the network of people who live and work in an area, Bellville Central being the case for this research. Thus, participation from the residents and users of the space is of critical importance as they possess the most experience within and knowledge about the area.

While participation of relevant stakeholders is important for the transformation of cities, there are limitations to this process that make it difficult to achieve complete inclusivity of those involved or affected by urban regeneration. The identification of key stakeholders is important and should not overlook those that do not possess exorbitant resources and land. Additionally, the facilitators of the urban regeneration process should allow for participation in the early stages and provide stakeholders the mechanisms to contribute or dispute aspects of the intervention. A failure to provide an inclusive urban regeneration process can lead to poor results as the interventions for and effects on the community become more detrimental than beneficial due to the unequal representation.

### **5.3.2 Equity**

While participation is important for understanding different viewpoints, the agents that manage the urban regeneration process must ensure that the resources being used to address urban decay are equally applied to the community undergoing transformation. The subsidiary questions that addresses the concept of equity asks: How are important resources distributed in Bellville? For the purpose of this research, both natural and material resources are considered in the assessment of Bellville Central, although the former is limited in the area. Material resources refer to those that are not provided exclusively by the natural environment, such as heritage, buildings, or infrastructure investment.

The Cape Town Spatial Development Framework (2012a) and Tygerberg District Plan (2010b) both identify historical buildings as a resource that is particularly useful for urban regeneration. Efforts should be directed towards creating “an enabling environment for urban regeneration that allows buildings and sites of historical and architectural significance to make a positive contribution to the economy and quality of urban

life” (CoCT, 2012a: 69). Furthermore, policy guidelines “encourage investment in the adaptive reuse of historical sites, facilitate integration between the conservation and adaptive reuse of heritage buildings, and promote urban regeneration” (CoCT, 2012a: 78). This reflects the importance of heritage as a material resource that can be improved and utilised by those willing to responsibly develop the project. Additionally, the Tygerberg District Plan (2010b) views

the employment of the urban edge as a tool to manage and protect the natural resources of Bellville, although these are mostly located outside the area of Bellville Central. The government understands the need for protecting and managing the resources that can benefit urban regeneration, but equal access to heritage resources is more difficult to provide as structures are not easily distributable (see Figure 5.27 and Figure 5.28).

As mentioned, there are very few, if any, natural resources in Bellville Central, thus the extraction and distribution of them (or compensation for them) to the community is also minimal. However, the material resources (aside from heritage) that the area produces, that are provided by greater Cape Town, or by national government, have been more common. Material resources are utilised for projects and interventions that penetrate the entire community, thus providing



Figure 5.27 Milestone and lampost as heritage



Figure 5.28 Light manufacturing building that has existed in Bellville Central since the early 1940s; an example of heritage and resource that is not distributable

equitable distribution of those resources or services. Antony Marks noted one of these types of projects is planned for Bellville Central and will be focused on a mixed-use, transportation hub. The Bellville Integrated Transport Land-Use Plan will attempt to consolidate the various forms of transportation in Bellville Central and develop an integrated structure that offers a diverse range of socioeconomic activities and opportunities for those transiting through the space. Resources will be utilised from the local municipality and national government, in addition to PRASA, to establish this inclusive project. This highlights how resources from various external agents can be distributed to provide an intervention that ensures equal accessibility and benefit.

Although an intangible resource, the formation of the VRCID has been an important result of community collaboration that ensures an equitably distributed service. Antony Marks explained how the 'city improvement districts' (CIDs) in Cape Town operate; being funded by local businesses in exchange for services that specifically target crime and grime in the area (interview, 19 August 2015). This reveals how some of the re-

sources in Bellville Central (in this instance, investment) are utilised and distributed throughout the community. While the funding of the VRCID is limited to businesses, the services benefit other people in the community, which also improves the attractiveness in the area that the businesses are located.

The GTP is another entity that collects, manages, and distributes resources throughout the community. Lauren Uppink (interview, 19 August 2015) stated that "whatever we do takes all voices into account and we work to find solutions that are useful to all of them", reflecting the organisation's commitment to equally distributing resources. Within the Tygerberg region, the GTP has provided communication and networking services to businesses and residents with the intention of improving, as well as creating socioeconomic activities and opportunities in the area. An event that will showcase the resources of the area, OpenStreets Bellville, allows residents and visitors to interact with the space and businesses of Bellville Central. This has required an input of resources into the GTP, and other entities, which then redistributes those resources through the services the organisation provides. Additionally, the GTP

has worked with land and building owners to provide student and affordable housing, thus ensuring that local resources are distributed more evenly and equally to the community.

While there are a number of organisations and efforts to allow for equal distribution of resources, the opposite ideology can be applied by other entities. The Middestad Mall provides an example of this because, while beneficial in some regards, it does not equally distribute the income it receives from rentals, and other sources, throughout the community. The resources retained by Middestad are reinvested into improving the mall's building and infrastructure assets, thus limiting the effects it can have on the community (see Figure 5.29). This can



Figure 5.29 Poor management outside Middestad Mall

be similar for other businesses that may contribute to the VRCID, but retain resources that can benefit Bellville Central. There has also been an unequal distribution of externally provided resources. The rail station and surrounding transit infrastructure, which is utilised by more than 200,000 daily commuters, has not received any form of investment for the improvement of its function or aesthetics, highlighting the detrimental effects of unequal resource distribution. Although plans to address this have been initiated, as previously mentioned, any form of intervention has yet to commence.

### 5.3.3 Environment

The urban regeneration process does not only focus on the people and space, but it attempts to address environmental issues, particularly in the recent global movement for sustainability. Even if not providing ecological services or natural resources, integrating the environment with the urban fabric improves the quality of life in a space, as well as the design of the space. The research question in this section asks: What are the important natural resources and environments in Bellville? This question proved difficult due to the minimal prevalence of

the natural environment or any natural resources.

As stated in section **5.2.3 Liveability**, a few of the streets in Bellville Central are lined with trees to improve the aesthetics of the area (see Figure 5.30). While these do not provide resources to any business or resident, the trees allow for some integration of the natural environment with the urban fabric. Birds are attracted to the area due to the trees, in addition to the pickings they find from human-caused pollution, thus reflecting a form of protection for animals. This provides some sense of natural environment to the concrete-dominant area.



Figure 5.30 Kruskal Avenue with trees lining pavement

Although located just outside the boundaries of Bellville Central, Elizabeth Park adjacent to Durban Road provides the closest form of natural environment in the area and is more substantial than the tree-lined Kruskal and Blanckenberg Avenues (see Figure 5.31).



Figure 5.31 Elizabeth Park

This space is currently disconnected from the activities of Bellville Central, but offers a dramatic change of scenery from the hard spaces that dominate the area. Again, a sanctuary for birds and other small animals make the park desirable from an aesthetics and functional aspect. Additionally, a segment of the Elsieskraal River, which originates in the Tygerberg Hills, flows through the park, providing an aquatic element to the area.

The Transnet-owned land south of the rail station provides a major opportunity with regards to urban regeneration because of its highly undeveloped character. In terms of environmental importance, the Transnet land has remained largely untouched because of the layout for the marshalling yards, allowing for large pockets of fynbos vegetation to flourish. Furthermore, the Elsiekraal River enters the area from Elizabeth Park where the flow is tunnelled under the rail lines and station (see Figure 5.32). These assets reflect the historical character of the area before settlement and provide a soft space in contrast to Bellville Central.



Figure 5.32 Highlight of Elsie River located west of Bellville Central and Transnet marshalling yards

There are two major concerns that arose during this research with regards to the natural environment. First, Bellville Central's lack of vegetation with the exception of the tree-lined avenues. Reverting land to accommodate and cultivate new vegetation is difficult due to the quality of the soil, let alone finding an availability of places within the site that could provide soft space. Second, the Transnet site being developed could result in the same situation as Bellville Central in terms of the dominance of hard space. Although more recent developments throughout the city have provided adequate soft space, such as Century City or the V&A Waterfront, hard spaces and structures remain the dominant form of creating a 'place'. Both these issues create difficulties for urban regeneration in terms of improving the natural environment.

### 5.3.4 Community

The community is a necessary component of urban regeneration, being the location of a regenerative intervention. Thus, the local perceptions of change in that community are critical to the success in restoring socio-economic activities and opportunities to the area, as well as improving the spatial

conditions for pedestrians. The subsidiary question for this section asks: What does the local community find important for improving their community? Although focused on TOD, the survey was of crucial importance for this section because of the issues the questions addressed. In order of most important to least important, as determined by survey respondents, the community finds transportation to be the most important part of Bellville Central, followed by availability of goods and services, employment opportunities, and lastly the walkability of the area. Additionally conversations from survey respondents were noted and helped to provide insight on community visions.

According to the survey, 100% of respondents think transportation is one of the most important aspects of Bellville. This again reflects the significance of Bellville's historical development as a transit hub. The users of the space mainly stated that transportation was the reason for which they came to Bellville, in addition to its proximity to respondents' place of residence. However, the rail is often considered the worst transportation option to Bellville as the train is constantly late and the service is below-av-

erage. This highlights an important feature in Bellville Central that the community feels should be improved because of its importance. The Kruskal Report notes that 14% of its respondents enjoyed Bellville Central mainly because of its various modes of transportation located within a small vicinity. It should be noted that the research survey allowed respondents to agree or disagree with various statements (i.e. respondents can agree that all features are 'important'), while the Kruskal Report provides exclusive answers for each question (i.e. respondents had to choose from options or provide a single personal answer). This helps to account for the large percentage gaps between the two reports. With the disparity in mind, the low rating of transportation over different options reported by the Kruskal Report can reflect other features of Bellville Central that are considered more important or of better quality.

The various options that the Kruskal Report utilised does help to reflect what is important to the users of the space, with 52% of respondents stating the availability of shops and services is the best feature of Bellville Central. Additionally, 97% of respondents to

the survey considered the same aspect to be one of the most important features of the area. This reveals that users of the space consider the shops and services of the area to be of good quality, thus few improvements are needed in this regard. One survey respondent commented on the potential for more upscale stores, but was more than content with what was available.

Another important feature of Bellville Central that is examined through the survey is the significance of employment opportunities. While 87% of respondents considered

the availability of employment opportunities to be crucial importance, only 47% thought that Bellville Central actually provided these opportunities. The Kruskal Report did not discuss employment with the respondents as the focus was largely on the design of space and the services it provides, namely transportation, shops, walkability, and security. However, when asked what could be improved in the area, respondents were able to provide personal answers, several of which indicated more jobs and investment would improve Bellville Central.



Figure 5.33 Community members shaping space in Bellville Central during OpenStreets

The ability to walk through Bellville Central was considered to be least significant of all the features discussed in the survey, although 70% of respondents still thought of walkability as one of the most important aspects of Cape Town. However, as previously noted, only 47% of respondents considered Bellville Central to be walkable. This is addressed in the site plan of Chapter 6, as previously noted (see Figure 5.33).



Figure 5.34 Narrow pavement on Wilshammer Street leading to Durban Road reflects poor walkability

Furthermore, respondents to the Kruskal Report commented on the quality of roads, which many thought could be improved. Additionally, when asked 'What will make Kruskal Avenue a better place?', roughly 5%

of respondents chose 'better walkways' as their answer. Although a seemingly small number, the report provided more than 20 options for answers, placing the 5% in the upper tier of response percentages (see Figure 5.34). When asked for ideas of improving the area, the second most common response according to the report was to 'pedestrianise the road', representing roughly 4% of all answers. This again reveals the need to improve the walkability in the area.

While the community held significance to many of the features of Bellville Central discussed in the survey, the Kruskal Report reveals other concerns of the community that should be targeted in urban regeneration interventions. The Kruskal Report found that more than 50% of respondents did not feel safe in the area because of the crime and drug trafficking activities. This was also a concern for respondents of the survey, who commented on the dangerous conditions of the area, particularly near the transportation options and during non-daytime hours. Referring back to the question that addresses making Bellville Central a better place, 20% of respondents thought more police would improve the space. Additionally, the

following four most frequented answers with regards to a 'better Bellville Central' were also focused on safety in the area with 20% calling for more efficient security, 8% calling for more cameras, 6% calling for more lighting and 6% calling for a reduction of crime (see Figure 5.35). This reflects a large concern for safety in the area through various means of improvement. The local perception of the area favoured some form of improvement, as 63% of respondents thought the area would become 'a derelict, crime-driven shanty town that is run by drug lords' without appropriate intervention.



Figure 5.35 Poor lighting and safety under the Tienie Meyer Bypass

### 5.3.5 Economic

One of the most important aspects of urban regeneration is the improvement to the economy and economic conditions of an area. While social and economic elements of the urban fabric are often intertwined, urban regeneration focuses on each aspect semi-independently to ensure a comprehensive understanding and solution to the situation. With that in mind, the subsidiary question for this section asks: What are the economic activities in need for regeneration? This proved a slightly difficult question to answer because of the natural changes to the urban fabric over time.

Although the urban fabric of Bellville Central did not materialise until the 1940s, a large array of economic activities have existed in the area throughout its history and have been focused on financial, industrial and transportation sectors. The rise of industrialisation complemented the growth of urban areas in South Africa, Bellville being no exception, and helped to establish industrial parks such as Sacks Circle and Bellville South (du Plessis, 1998). However, with regards to Bellville Central, the economic activities have been largely restricted to ware-



Figure 5.36 Transformation of building from commercial use to student housing

housing and light manufacturing, health services, and financial enterprises. The light industrial activities that were once present in Bellville Central have all but disappeared and the remaining structures utilised for various other purposes, such as housing or financial businesses. The availability of land in Bellville Central has prevented the development of new intensive industrial enterprises, but allowed for a strengthening of

residential and commercial activities through the perpetuity of existing structures (see Figure 5.36).

While industrial businesses were important for the development of Bellville Central, the Tygerberg District Plan (2010b) has called for development that helps produce a sustainable economy aligned with more contemporary issues such a climate change

and resource depletion. This reflects a shift away from the industrial development of Bellville, although Cape Town has seen an increase in manufacturing in other areas of the metropolitan (CoCT, 2012a). The district plan details key areas that have potential to host certain economic activities, diversifying the area for residents, labourers, and visitors. For example, the district plan designates Durban Road as a connecting corridor between Bellville Central, Jack Muller Park, and the Tygerberg shopping district, thus economic activities should include hotels, restaurants, small shops, and recreational facilities. This reveals efforts to consolidate and uplift the area through increasing the already diverse range of economic activities. Additionally, a change of the economy in Bellville Central highlights the difficulty of the subsidiary question as many of the activities that helped to develop the area no longer exist, thus making regeneration in this regard near-impossible.

To account for this economic shift, the GTP has considered new, as opposed to regenerated, economic activities for the area that can improve the quality and diversity of the space. One such opportunity is the

increased demand for housing options by renters and students. This allows for existing, as well as new, economic activities to benefit from a potentially increasing population and interactions with educational institutions in the area. Antony Marks noted the increasing demand for rental stock over ownership stock, which can help support the new forms of economic activity (interview, 19 August 2015). The University of the Western Cape has been restoring the former J.S. Marais Hospital for its incoming medical school, signalling a growth in education and related activities (see Figure 5.37; Nielsen and Uppink, interview, 19 August 2015).



Figure 5.37 Home of new UWC medical school

The permanent student population will support student-friendly businesses such as coffee shops and specialised retailers. Additionally, this will help to support and develop more housing options in Bellville Central and its surrounding area.

Kruskal Avenue is also seen as a unique opportunity by the City and GTP because of the economic activities it currently hosts and the potential activities it could host after appropriate interventions. The chief operations officer of the VRCID has intended the avenue to become the next St. George's Mall, which would coincide with the development of the Voortrekker Road MyCiTi trunk route (Lewis, 2015). Kirsten Nielsen elaborated on this point, noting that the effort was working towards a "St. George's Mall-type feel, but not an actual replication", highlighting the socioeconomic characteristics of Bellville Central (interview, 19 August 2015). This reveals a re-purposing of the land uses in Bellville Central in an effort to broaden the range of economic activity, in addition to improving the conditions for the those activities that already exist.

## 5.4 Conclusion

The purpose of this chapter was to analyse the research findings against the criteria established in Chapter 2. The first section of this chapter assessed Bellville Central against the criteria and principles of transit-oriented development. This highlighted the features of Bellville Central that are able to provide adequate conditions for transit-oriented development, as well as those features that require improvements. The second section of this chapter assessed Bellville Central against the criteria and principles of urban regeneration. This revealed not only a need for regeneration, but a number of interventions and opportunities that can restore socioeconomic significance to the area. What was also revealed is many policies had overlying principles and goals that align with ideas of TOD and urban regeneration. The strategies of the CoCT and the Tygerberg District reflect components of both TOD and urban regeneration, but do not utilise the former as a way to enable the latter. Places such as Bellville Central have been identified as areas in need of regeneration through improved accessibility, in addition quality of space and life, yet lack connections to any form of TOD. The study

now turns to Chapter 6, which provides recommendations for the issues and conflicts revealed through the findings, as well as a site plan that spatialises those recommendations.

### Identification of 'On the ground' locations

<b>1 SARS, Wimpy, Clicks...</b>	<b>Fashion World</b>
<b>2 Russells</b>	<b>ABSA</b>
<b>3 Jumbo, Standard Bank, Edgars...</b>	<b>Pep Store</b>
<b>4 African Bank, Lewis</b>	<b>20+ additional stores</b>
<b>5 Shoprite</b>	<b>14 Brito's Rasco's</b>
<b>6 Nedbank</b>	<b>15 Price N Pride</b>
<b>7 Elizabeth Park</b>	<b>16 Lewis</b>
<b>8 African Bank</b>	<b>17 Masjid-ul Sunnah (mosque)</b>
<b>9 UWC Medical Campus; Pick n Pay</b>	<b>18 Bellville Station:</b>
<b>10 City of Cape Town</b>	<b>KFC</b>
<b>11 Eskom</b>	<b>McDonalds</b>
<b>12 Mr. Price</b>	<b>5+ additional stores</b>
<b>13 Middestad Mall:</b>	<b>19 Shoprite</b>
<b>Hungry Lion</b>	<b>20 Public Transportation</b>
<b>Markham</b>	

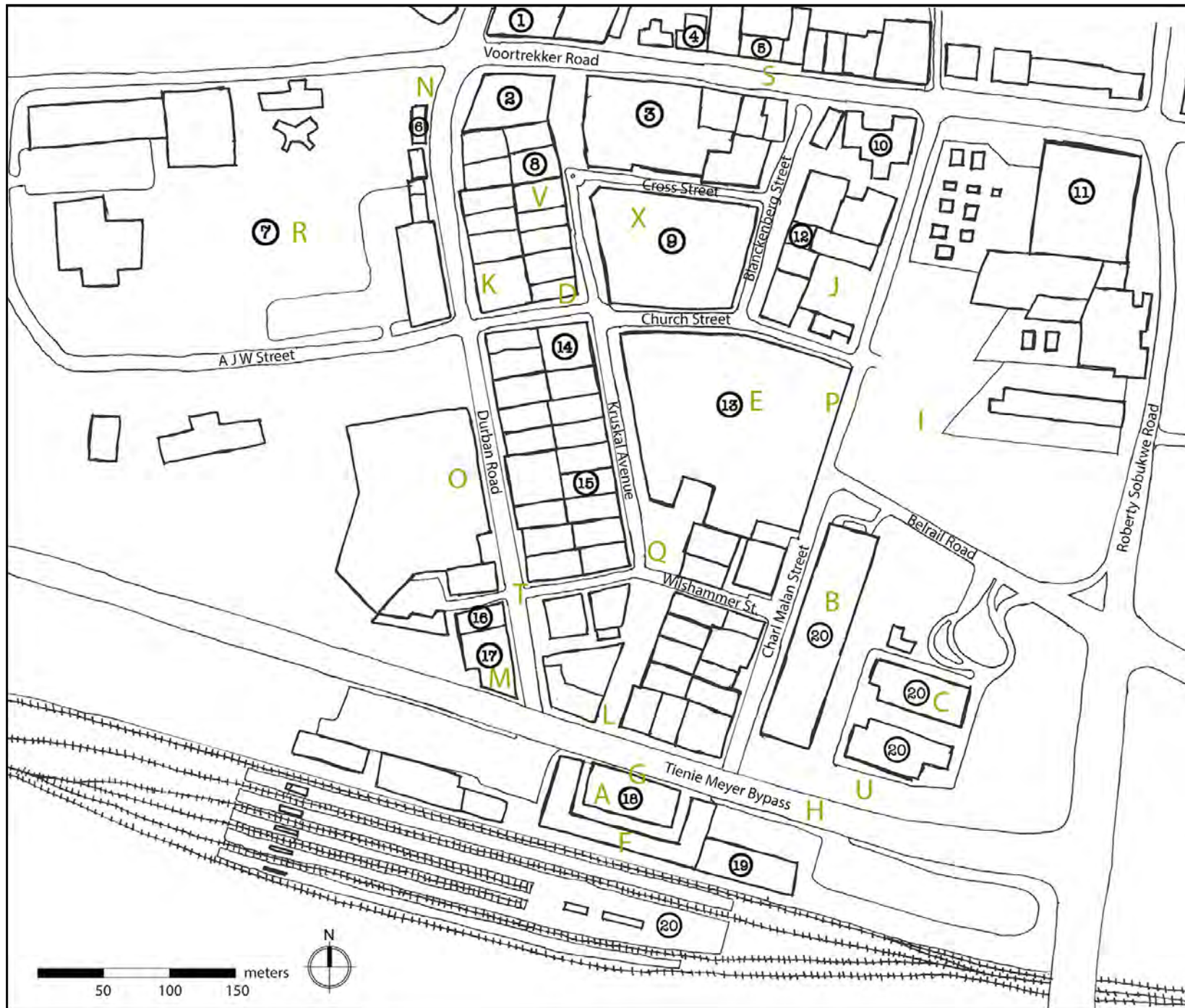


Figure 5.38 On the ground map

	<b>Assessment Criterion Derived from</b>	<b>Subsidiary Research Question Derived from the Assessment Criterion</b>	<b>Summary of Research Findings</b>
<b>Overarching Criteria for Transit-oriented Development</b>			
Location Efficiency	node function	Is Bellville Central functionally balanced?	- The location efficiency of Bellville Central is relatively well-established, but functions measure better on an individual basis
	place function		
Financial Return	public	Does Bellville Central have the capacity to provide financial return?	- There is a good potential for financial return supported by demand to develop by private sector
	private		
Liveability	design of space	Is Bellville Central liveable?	- Bellville Central is relatively liveable, but notions such as safety and walkability could be improved
	quality of life		
Value Recapture	high density near transit	Is Bellville Central dense enough to provide value recapture?	- Bellville Central is not currently dense enough to provide value recapture, but this can be addressed
	lost land	Are there plots of land with the potential for recapture?	- There are several plots of land with the potential for recapture, particularly near the rail station
Choice	destination	Does Bellville Central provide a link to the broader urban context?	- Bellville Central provides a variety of links throughout the city, potentially better than Cape Town CBD
		Is Bellville Central a destination?	- Bellville Central is a destination for a large number of people for transportation and economic reasons
	diversity	Does Bellville Central offer a variety of socioeconomic activities and opportunities?	- There is fair range of socioeconomic activities (goods and services), but less opportunities (jobs)
Efficient Land use	land-use patterns	Does the zoning of Bellville Central support TOD?	- The zoning is not currently supportive of TOD
Limitations	design	What are the barriers to implementing TOD in Bellville Central	- In terms of design, the layout of the space is not currently appropriate for TOD
	agency		- In terms of agency, the multiple stakeholders make it difficult to find a common vision
	demand		- In terms of demand, there are not issues
<b>Overarching Criteria for Urban Regeneration</b>			
Participation	stakeholders	Who are the stakeholders involved in urban regeneration processes in Bellville Central?	- Stakeholders include residents, CoCT, GTP, PRASA, Transnet, shop and property owners, VRCID, labourers of Bellville, and National and Provincial governments
Equity	distribution	How does Bellville Central redistribute its resources?	- Financial resources in Bellville Central are pooled with city funds, removing them from the area; there are too few natural resources to be redistributed
Environment	resources	What are the important natural resources and environments of Bellville Central?	- Elizabeth Park is the closest green space; some streets are lined with trees
Community	local perceptions	What does the local population find important for regenerating in their community?	- The community wants to see improvements to walkability, safety, and the overall quality of life
Economic	condition improvement	What economic activities are in need of regeneration?	- There are little-to-no agricultural or manufacturing operations in Bellville Central to be regenerated



Chapter 6  
Recommendations and  
Design Proposal

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## 6.1 Introduction

This dissertation is aimed at determining how TODs might be used as a planning instrument to enable urban regeneration for more accessible and inclusive planning outcomes. In relation to the main and subsidiary research questions asked, the research focuses on the principles of TOD and urban regeneration, as well as the dynamics that underpin them. This examination is undertaken by applying the assessment criteria established in Chapter 2 to a specific case study area. In turn, the assessment criteria are derived from an in-depth literature review. Criteria are also used in this chapter to establish spatial proposals for the area under study.

The previous chapter analyses the research findings in relation to the main and subsidiary research questions. The research findings reveal many overlapping components of TOD and urban regeneration. On one hand, the CoCT has efforts to develop the transportation of the metropolitan area, particularly within key nodes such as Bellville. This requires spatial interventions that promote a more sustainable lifestyle in an urban environment. On the other hand, the

CoCT is also working towards improving the quality of life in areas that have suffered from urban decay and require appropriate interventions to regenerate the area into a socially vibrant and economically active place. These parallel efforts work towards similar goals. Additionally, both these processes have many analogous ideas that are used to achieve these goals, such as stakeholder collaboration between different interests and public participation that allows local residents to provide input to the intervention. However, there is also a gap between these ideas that this study attempts to address.

The aim of this chapter is to synthesise the research findings and address the gap between TODs and urban regeneration. In so doing, brief answers to the subsidiary research questions will be provided in the following section of this chapter. The third section of Chapter 5 focuses on the answering the main research question, which helps to inform the site plan. The fourth section will provide recommendations for planners and policymakers within the city of Cape Town in particular. These recommendations, if implemented, might provide a framework

for developing Bellville Central in a sustainable and inclusive manner that will address concerns for regeneration.

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## **6.2 Brief Answers to the Subsidiary Research Questions**

This section provides a synthesis of the research findings in relation to the subsidiary questions. Answering these questions helps to answer the main research question.

### **6.2.1 Is Bellville Central functionally balanced?**

The location efficiency of a site is determined by the balance between ‘node’ and ‘place’ function. Independently, both functions are well established in Bellville Central. There is a fair diversity of socioeconomic activities in the area which allows users and residents to live or work close to a ‘place’, such as a grocery store or retailer. These activities and other opportunities in the area are easily accessible from the various modes of public transportation. When examined together, there is still a decent level of location efficiency as the links between node and place are also well connected. This allows residents and users of the space to effectively operate between the transportation of Bellville Central and the socioeconomic activities and opportunities within the area.

### **6.2.2 Does Bellville Central have the capacity for providing financial returns?**

The potential for financial returns in Bellville Central has been improving since the economic downturn in 2008, with the private sector being increasingly interested in the area for office space and rental properties. Additionally, a growth in property values allows current property owners to sell their land/buildings at prices potentially higher than the original purchase price. Aside from improvements to transportation infrastructure, the public sector has the physical capacity to obtain financial returns by utilising the land CoCT, Transnet, and PRASA own.

### **6.2.3 Is Bellville Central liveable?**

The quality of life in Bellville Central is better than other locations throughout South Africa and greater Cape Town. However, there are several areas that need attention to improve liveability. Both survey respondents and interviewees noted the lack of safety in the area despite the efforts of the VRCID to improve this factor. Problems with safety are mainly manifested in muggings and drug issues that lead to more abrasive behaviour from sellers and users. The walka-

bility of Bellville Central was also considered inadequate by users of the space, many of whom felt this made the area less liveable. Additionally, the space is poorly designed, contributing to the local crime and negative perceptions of Bellville Central with regards to liveability.

### **6.2.4 Is Bellville Central dense enough to provide value recapture?**

The simple answer to this question is ‘no’. The current density of Bellville Central is not dense enough to provide value recapture, at least for residential users of the space. The dwelling unit density (per hectare) is roughly half of what is needed for a sustainable urban form and for allowing for adequate value recapture. Additionally, many of those who live in Bellville Central are within walking distance of their place of employment, diminishing the amount of value being recaptured. This is an issue for the public sector because the current density is too low.

### **6.2.5 Are there plots of land with the potential for recapture?**

The availability of land and/or plots in Bellville Central is an issue for the public sector as much of the area is developed. However,

there some 'lost spaces' throughout Bellville Central that can be utilised, but these areas are disconnected from Bellville's urban fabric. The CoCT, PRASA, and Transnet all have ownership over some form of vacant land, the marshalling yards to the south of the rail station being the largest. All other variables aside, the marshalling yards provide the biggest potential for development and increasing the density of the area (via the potential for 'air' and other tenure rights in the future), thereby improving the environment for value recapture with regards to the residential sector.

### **6.2.6 Does Bellville Central provide a link to the broader urban context?**

The transportation interchange in Bellville Central allows users of the space to access a large variety of places throughout Cape Town and southern Africa. The interchange hosts one of the larger minibus taxi terminals, offering more than 15 destinations providing various stops along the route. The Golden Arrow bus service is less frequent, but also offers a choice of routes to and from Bellville Central. The rail station is the second biggest in the city in terms of rail capacity and number of users, and the service

provides links to several major places in the metropolitan area, such as Strand, Stellenbosch, and the Cape Town city centre. Thus, there is a link to the broader urban context.

### **6.2.7 Is Bellville Central a destination?**

Many of the survey respondents claimed Bellville Central to be a destination for them because of the transportation and the variety of choices they have with regards to socioeconomic activities. The respondents also noted their proximity to Bellville Central as the reason they travel to Bellville Central, as opposed to places like the Cape Town CBD or Century City. Additionally, the development of the Blue Downs rail link will expand this sentiment to a greater number of people who will be able to access a 'destination' closer than the city, thus strengthening Bellville Central as such a location within the metropolitan area.

### **6.2.8 Does Bellville Central offer a variety of socioeconomic activities and opportunities?**

In terms of socioeconomic activities (sale/trade/purchasing of goods and services), there is a large variety of shops and services located within, or just beyond, Bellville

Central. While there are certain stores that are common throughout the area, such as clothing shops, others are focused on vital goods or services, making Bellville Central a diverse destination with regards to socioeconomic activities. However, the socioeconomic opportunities (employment environment) of the area remain limited as smaller businesses restrict the number of employees they have to save costs and larger companies seek skilled-labour that is not abundant in Bellville Central. Furthermore, the growing foreign population caters largely to people from the same country as the vendor, creating a barrier for some with regards to socioeconomic activities.

### **6.2.9 Does the zoning of Bellville Central support TOD?**

The current zoning of Bellville Central is not entirely supportive of TOD as a majority of the area is restricted to 'general business' and 'transportation'. This prevents the diversification of socioeconomic activities and mixed-income, residential development that can help make the area more sustainable. However, while the prescribed zoning does not explicitly support TOD, the actual land-uses have created some of this needed

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diversity as the users and local residents determine how certain spaces are utilised. These 'informal' land-uses provide a basis for the future development and diversification of the area through planning mechanisms that can accommodate both informal and formal trading opportunities.

#### **6.2.10 What are the barriers to implementing TOD in Bellville Central?**

Of the three potential barriers to TOD implementation (design, agency, and demand), 'demand' is the only barrier that is not an issue of concern in Bellville Central. The largest barrier to implementing TOD in the area is 'agency'. There are a number of stakeholder that control important variables within the area, such as Transnet and the marshalling yards. The barrier arises when these different stakeholders attempt to coordinate an intervention, but their interests are too strong or conflicting to allow for design or the implementation of a TOD project. Thus, the current 'design' of the space also presents issues to implementing TOD, but these can be remediated much easier with agency that functions .

#### **6.2.11 Who are the stakeholders involved in urban regeneration processes in Bellville Central?**

There are a number of stakeholders who should be involved in urban regeneration processes in Bellville Central. The following are the main, but certainly not the only, stakeholders:

- local residents
- the CoCT
- shop owners
- property owners
- PRASA
- The Greater Tygerberg Partnership
- National Government
- Provincial Government
- VRCID
- labourers of Bellville Central
- Transnet

These stakeholders have different interests that can result in immensely different spatial outcomes that require new interventions in the future. Thus, the inclusion of all these stakeholders, though undoubtedly difficult to achieve, is vital for the success of TOD and urban regeneration projects.

#### **6.2.12 How does Bellville Central redistribute its resources?**

There are few natural resources for the community of Bellville Central to redistribute and enjoy. However, the heritage and infrastructure of Bellville Central is shared by the local community as the heritage is publically displayed while locals, and other people, are able to utilise basic infrastructure (water, roads, sidewalks) and service (VRCID). Additionally, financial investments into the area can benefit the public and local populations. As a note on municipal finances, since Bellville Central is located in the Cape Town Municipality, its monetary budget is subject to establishment and management by the CoCT, thus limiting the access of financial resources to a small number of City employees.

#### **6.2.13 What are the important natural resources and environments of Bellville Central?**

There are very little remnants of the natural environment in Bellville Central, mostly restricted to the trees that line Blanckenberg Street and Kruskal Avenue. The Elizabeth Park to the the left of the site offers a contrast to the hard spaces of the area,

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though is limited in accessibility and permeability. The land owned by Transnet is largely brownfield, but the southern tip of the property has remained undeveloped, with regional fynbos being the dominant vegetation. The Elsie's River also flows through parts of the site, providing a haven for water birds and aquatic lifeforms.

#### **6.2.14 What does the local population find important for regenerating their community?**

The local community and users of the space strongly called for improvements to Bellville Central's sense of security. The safety of the area, while better than previous years, is still considered inadequate by many people, with drug crimes and muggings being the most prominent. This deters people from certain spaces throughout the area and has also led to some prejudice against the Somali-population who are thought (by South Africans) to be the reason for crime. Additionally, improving the number of economic opportunities and the design of the space were other concerns held by the community. All survey respondents indicated that the example images on the survey were desirable (see Appendix A).

#### **6.2.15 What economic activities are in need of regeneration?**

Due to the changing nature of cities and their socioeconomic activities, Bellville Central has an entirely different economy than the one upon which it was founded. The area was initially developed as farming prior to industrialisation, and then as manufacturing during Apartheid, but has shifted towards more financial and commercial businesses in the present day. This reveals a unique situation as the businesses that would require 'regeneration' have already been replaced by more modern activities as the response to a rapidly globalised and urbanised regional economy. Thus, there are few economic activities in need of regeneration, and more activities in need of support.

#### **6.3 Answers to the Main Research Question**

The main research question that has guided this study is 'How can transit-oriented developments enable urban regeneration for more accessible and inclusive planning outcomes?'. If urban regeneration is to be understood through the PEECE principles, TOD could easily address many of the variables through the AB Principles. Many of the concerns that arise in the PEECE principles are also addressed in the TOD principles. This reflects an overlap of interests and the potential to 'hit two birds with one stone'. In other words, TOD and urban regeneration share very similar principles, but are employed to address different situations. As TOD focuses on the space surrounding and connecting transportation to the area, this allows for improvements to both the *community* and the *environment*. With regards to the community, *participation* of various stakeholders provides insight into what is considered important and in need of intervention. The community knows what it wants and how the direction the settlement should develop, thus participation is required for both TOD and urban regeneration. Should an intervention be TOD-oriented,

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there is still the opportunity to enable regeneration through this need of contextual guidance. This holds true for the environment as well. TODs need to consider the potential liveability situation with regards to an intervention, including hard and soft spaces within the design. Thus, 'greenifying' the space can improve environmental conditions ecologically and aesthetically, and provide a mixture of textures (hard and soft) to the area. TODs are also considered mixed-use developments that provide a variety of *economic* activities and opportunities. This helps to establish the TOD as a destination and supports the various other components of TOD and urban regeneration. The issue of *equity* arises for both urban regeneration and TOD as an absence of this principle can lead to unequal distribution of resources or interventions that cause displacement of the local community. Thus, understanding the appropriate context, engagement, and delivery of a given TOD intervention can help to enable urban regeneration at that site.

## **6.4 Recommendations**

The following sections provide recommendations that have been informed by the literature review (Chapter 2) and research findings (Chapter 5). The next two sections focus on each of the research topics independently. The last section provides recommendations for urban regeneration enabled through TODs.

### **6.4.1 Recommendations for Transit-Oriented Development**

The research findings have shown that Bellville Central exemplifies various AB Principles of TOD, namely location efficiency, high potential for financial return, and choice in socioeconomic activities (though limited opportunities), while being less adequate for liveability, value recapture, and efficient land-use. Thus, should interventions in Bellville Central only focus on TOD, the following recommendations should be considered. The first and major issue that needs to be addressed is liveability, namely the safety of the area. This must be improved first to attract more users to the space, thus increasing the number of 'eyes on the street'. This will also inevitably help other components of TOD as the space becomes more

inviting to users and investors. The design of the space must also be improved to ensure higher usage of the area. The transportation interchange should be more integrated to allow for more seamless transition between modes of transportation. Additionally, re-designing the space also makes the area more 'liveable'. Value recapture is somewhat more difficult to achieve, as it requires a higher dwelling unit density. The dwelling unit density of Bellville Central must be increased to a sustainable level (60-120 du/h) to establish these savings not only for residents, but the CoCT as well through bulk infrastructure and increased ridership fees from public transportation. This can be achieved through both private sector developments or public-private partnerships that provide residential and commercial uses of the space and increasing the number of users in the area. Lastly, the zoning of Bellville Central needs to be reorganised to ensure that appropriate land-uses are established, particularly mixed-use and mixed-income zoning near the rail station and its immediate vicinity. This will help to promote a denser area more supportive of public transportation, financial returns for landowners, and value recapture for the residents and CoCT.

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#### **6.4.2 Recommendations for Urban Regeneration**

Should urban regeneration be the only course City officials and community leaders take with regards to Bellville Central, improvements to the current policies would vastly improve the process. The main issues of urban regeneration in the area are safety and cleanliness, community and stakeholder participation, and better economic conditions, though there are certainly other minor issues that can be addressed as well. While the VRCID is an important tool for providing safety to the area, its services are limited. It is recommended that a new or sister 'CID' organisation be established for the Bellville Central area (Bellville Central Improvement District; BCID). By doing so, the VRCID can focus on the Voortrekker Road Corridor while a separate entity is able to monitor Bellville Central, particularly the rail station, Blanckenberg Street, and Kruskal Avenue, where crime is noted to be most prevalent. The same financial structures should be used whereby local businesses pay the CID for the services they need. Additionally, with Eskom and other civic buildings in the vicinity, the CoCT should also contribute and collaborate with the BCID to improve the liveability

of the area for local residents and employees. These services would also address the cleanliness of the area, similar to other CIDs in Cape Town. The GTP should also dedicate a person or unit to improve Bellville Central and working with the local community so that interventions can be inclusive of people's demands and have support from residents.

By addressing the crime and grime of the area, businesses are more likely to develop as the demand for and value of land in Bellville Central increases. Along with other conditions, Bellville Central has slowly been developing as a major node within the metropolitan area. And with certain projects strengthening Bellville Central as an important node in the Cape Town Municipality, such as the Blue Downs rail link or development of Saldanha Bay as a port, private developers will have more incentive to establish projects in the area to utilise its location and transportation. As the older manufacturing economy has long been absent in Bellville Central, support for the economic conditions should be focused on improving the environment for existing industries like financial services. This will attract more

skilled labour. The informal economy should also be supported and provided spaces that integrate traders into the local economy. An important note that should always be considered is the incorporation of the local residents and employees in area interventions. This should occur as early as possible in the planning process to ensure that interventions are supported by the community, from pre-design phases to implementation phases. This is important because issues that might arise without consultation from the local community can easily be avoided and thus save time and money in the future, when such interventions are revisited because of their contextual failures.

#### **6.4.3 Recommendations for Urban Regeneration enabled through TOD**

The above recommendations are provided independently from each other, but the purpose of this study is to determine if TOD can be used as an instrument to enable urban regeneration. Thus, this section proposes recommendations for urban regeneration enabled through TOD. There are three main recommendations that focus on the transportation interchange, Bellville Central, and the Transnet marshalling yards. While the

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first two components address urban regeneration enabled through TOD, the recommendations for the marshalling yards are more TOD-oriented as the land had only been used for farming prior to Transnet operations. However, before the three focus areas are discussed, there are several overarching themes that recur throughout the recommendations and site plan.

There are four key themes that are considered important for any intervention made in Bellville Central and surrounding vicinity with regards to TOD and urban regeneration: participation, safety, environment, and land-use (including increasing residential densities in the longer-term). Participation is crucial for the success of any intervention proposed in this study as it allows different stakeholders to voice their opinions, concerns and recommendations for potential projects. This allows interventions to be far-reaching and address the needs of multiple stakeholders and their interests. Furthermore, the need for additional interventions in the future can be reduced as the various issues are addressed from the onset of a given project (see section '**6.2.11 Who are the stakeholders involved in urban re-**

**generation processes in Bellville Central?**' for potential stakeholders).

Although the measurement of safety for any location is highly subjective, it is important to create an environment that people feel secure to navigate and utilise. There are a number of ways in which safety can be improved. The main and obvious route that improves this feature is through direct intervention by the state through a police force. However, this can be difficult given financial and criminal circumstances. The BCID mentioned in **Section 6.4.2** (and below) is another path that can be utilised to improve security in the area. Potentially the best solution to this issue is creating an environment that many people are able to utilise and interact in, transforming the users of the space into the observers that provide security. This can be accomplished in conjunction with the BCID or police force.

The natural environment is a feature of Bellville Central that is extremely limited as much of the area is built-up. However, there are opportunities to transform land into open/green spaces, which help to make the area more liveable. As will be noted below,

new plots of land can be opened by reorganising how certain functions of Bellville Central (i.e. transportation) are spatialised. Furthermore, plants native to the Cape Floral kingdom should be utilised to help re-establish them as the dominant vegetation of the municipality and protect what can be considered as heritage.

The final theme that should be considered in each of the three subsections below is land-use patterns and zoning prescribed to the area. As noted in Chapter 5, there is very little zoning that promotes mixed-use and mixed-income developments in Bellville Central, the entire Transnet site being designated as 'transportation'. Thus, the zoning of Bellville Central and surrounding vicinity should promote more diverse uses of the land. This includes the space that is considered Bellville Central, in addition to the Transnet land and areas surrounding the case study site as a whole. Altering the zoning in these areas will help to promote more diverse land-uses that can also establish more inclusive and accessible socioeconomic activities and opportunities.

#### 6.4.3.1 Bellville Transportation Interchange

The Bellville Transportation Interchange (BTI) is the catalyst that will help to support urban regeneration throughout Bellville Central. The basis of the BTI is integrating the primary modes of public transportation, rail and minibus taxis, and providing an inviting environment that opens into the rest of Bellville Central. The BTI must initiate and support the change that is needed to establish a TOD and enable urban regeneration in the area. While issues such as the environment and liveability are addressed more in section '6.4.3.2 Bellville Central Regeneration', they are still important features for the BTI.

The BTI should utilise as much of the existing transportation infrastructure that exists as possible, including the rail platforms (not the ticket office building) and Tienie Meyer Bypass. The building that hosts several businesses and the ticket office for the train should be demolished and re-modelled to support the integrated transit system. This

system is established by shifting the minibus taxi terminal from the land north-east of the rail station to the roof of the train ticket office and other stores. This releases an abundance of publically owned land that that can be developed for other purposes that will be discussed in the next recommendation subsection. The Golden Arrow buses will remain at street level as its service is less frequent and easily accessible from the rail station, though the entrance/exit roads should be redirected towards Robert Sobukwe Road. MyCiti routes should also be incorporated into the station as a destination, in addition to service moving through the site. The bus terminal, and surrounding land, should also be aesthetically improved and pedestrianised to allow for easy transition to and from the main BTI structure. The minibus taxi terminal will be accessible from the elevated Tienie Meyer Bypass above the ticket office and rail platforms, alternatively providing a protected space from unfavour

able weather conditions, such as strong sun or rain. This allows minibus taxi services to operate from Bellville Central, but remove the traffic that is currently at street level. Additionally, the new location provides a faster connection to the greater metropolitan area as the minibus taxis will operate from a high mobility road. The land the BTI would be developed on is owned by PRASA, thus providing potential for financial returns from the ticket office, station business rentals, and minibus taxi levies. The schedules of the transit options located at the BTI (rail, minibus taxi, and bus) must be coordinated to improve the services.

As a way to highlight the Islamic population of Cape Town, and Somali population of Bellville Central, the BTI should be developed to create a souk-like feeling that combines formal business structures with informal trading (see Figure 6.1 and Figure 6.2). This allows for the integration of the formal and

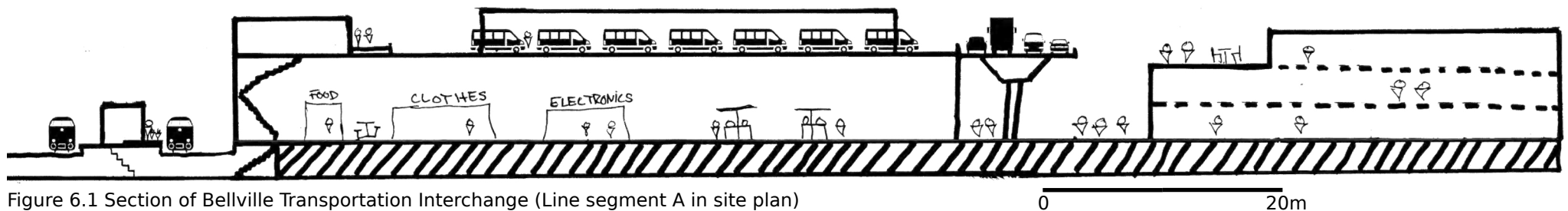


Figure 6.1 Section of Bellville Transportation Interchange (Line segment A in site plan)

informal economies. Thus, people who use the BTI solely for transportation are able to shop without having to leave the station. The BTI should be accessible to pedestrians at street level, allowing easy navigation from Bellville Central and providing a communal space before determining which mode of transportation is taken (as a tunnel is taken to reach the rail platforms, while the minibus taxis are located on the upper-most level of the BTI). Additionally, those entering/leaving the BTI should be connected to pedestrian-oriented spaces such as Blanckenberg Street and Kruskal Avenue, or new spaces created from the opened public land.

#### 6.4.3.2 Bellville Central Regeneration

During and after the establishment of the BTI, efforts will need to be directed towards addressing the urban decay of Bellville Central. As always, improvements to safety are of the utmost importance because of the influence it has on the various TOD and urban regeneration principles. This entails the establishment of a CID that is solely focused on addressing crime and grime in Bellville Central (BCID). Having a safe environment helps to attract people and investors as the space become more supportive of socio-economic activities and opportunities.

Improving existing infrastructure should also coincide with the development of the BTI to help complement the regenerative efforts of the area. Durban Road and Charl Malan Street are heavily filled with small businesses that occupy 2-3 story buildings. While some structures do not need intervention, though they might have potential for redevelopment to increase densities, other buildings along these routes are in desperate need of transformation. Some interventions can be restricted to simple aesthetic changes, while other buildings might require structural alterations to ensure their longevity. These roads should also be the main

corridors for automotive traffic in Bellville Central to reduce traffic in the centre of the site (land surrounded by Durban Road, Voortrekker Road, and Charl Malan Street), thus car-friendly businesses should not be ignored on these routes. Durban Road will also be important for the development of the Transnet site as discussed in section 6.4.3.3 *Transnet Marshalling Yards*.

There are a number of buildings that 'seem' decayed beyond the point of repair, thus reflecting potential for some plots to be redeveloped and their density increased to allow for more residents or businesses. This would



Figure 6.2

(top)  
souk in Kuwait with covered roof but still provides plenty of lighting

(bottom)  
pedestrian subway in Istanbul that provides market space

(right)  
souk in Damascus near rail station that provides covered pathway and a variety of shops

allow for the development of social and affordable housing which, as Antony Marks noted (interview, 19 August 2015), is becoming the most viable option for investors. Although new options for residents and businesses can help with urban regeneration, efforts also need to be made to retain the existing residential and commercial activities as well. Those that reside in dilapidated buildings should be 'grandfathered' into new structures, with financial rates and responsibilities remaining unchanged until their departure (rent control), thus preventing the current population from being displaced due to gentrification. This is also the case for informal trading, which should be highlighted and incorporated to the local economy with more formal businesses instead of being removed.

With the University of the Western Cape opening a Bellville Central campus in the Bellville Medical Suites (see Figure 5.37), there is also potential for the development of student housing options, which also will increase the density of the area while providing value recapture for the students. The student population should be utilised for the development of other properties as well,

including bookstores, internet cafes, and student-oriented services. This will improve the liveability of the area as the socio-economic activities and opportunities of Bellville Central become more diversified.

The public land that is made available from shifting the minibus taxis to the BTI allows for state controlled projects. As owners of the land, the CoCT can promote development of the spaces with conditions that allow for various uses. Developments should include social housing options in addition to other residential and commercial purposes. As both lots are currently used mainly for parking, the developments should provide this feature for those that commute to the BTI, thus allowing for financial returns from parking fees (or passes given the frequency of parking lot users). This allows the land to retain its current use while utilising it potential for other uses. There is also potential for the CoCT to sell the land to private developers with conditions that social and affordable housing be offered in new developments.

#### *6.4.3.3 Transnet Marshalling Yards*

The Transnet marshalling yards should be

partially opened for new developments, particularly land near the Bellville rail station that can help to develop Bellville Central, and the TOD specifically. This entails the shifting on some tracks and train storage to other locations within the Transnet site to allow for more, uninterrupted accessibility on the edges of the Transnet land. Most of the site would be accessible from Robert Sobukwe Road, but Durban Road should be extended from Bellville Central to the Transnet site via a tunnel under the rail station. This would create a spine for the development of the site, leading to the intersection of Robert Sobukwe and Symphony Way.

The land closest to Bellville Central and the BTI would be mixed-use developments that provide social, affordable, and student housing amongst commercial or other non-residential enterprises (education, health, civic, etc.). This would be of higher density than the remainder of the Transnet site, thus a higher potential for financial return and value recapture. Additionally, new developments would be more open to investors' desires as the area does not have any local residents to protest certain changes. This does not mean participation from stakeholders should be ignored, but there are fewer

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people involved with the Transnet land than other parts of Bellville Central. As developments move further from the BTI, land-uses can become less diverse and focus more on residential growth. However, there is still potential for student housing as the site is well-located in relation to the main campuses of Cape Peninsula University of Technology and the University of the Western Cape.

The development of the Transnet land also provides the opportunity for other important urban features such as natural environment or recreational spaces and facilities. The land on the western portion of the Transnet site remains largely untouched in terms of development and interaction, hosting some types of fynbos. This land should be protected for recreational purposes and enhanced in terms of plant diversity. Additionally, the green space on the Transnet site can easily be connected to the green space north of the rail lines (Elizabeth Park and adjoining spaces) to provide a green corridor for the north-east region of the Cape Town Municipality.

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## 6.5 Site Plan

This section provides the site plan for Bellville Central that incorporates the principles of TOD and urban regeneration, as well as spatialise some of the recommendations made in the previous sections. The plan is presented at the metropolitan scale first, to reveal important elements of the Cape Town context. The plan then shifts to site-level interventions and proposals before providing plans for the precinct level. Various maps are used at each of the three levels to help illustrate important recommendations, proposals and interventions. Additionally, precedents for projects at the precinct level are provided immediately after the site plan.

### 6.5.1 Metropolitan Context

The site of Bellville Central is well-located and centred between major points throughout the Cape Town metropolitan area. Several industrial centres are near the site, including Bellville South and Sacks Circle, with Epping roughly 10 km away. Additionally, the Tygerberg Hospital, a regional-level complex, is located 2 km from Bellville Central. These provide opportunities for Bellville Central to capitalise on nearby populations, both of residents and labourers. The area can also benefit from the movement between Cape Town and the interior of the country via the N1 highway or other secondary and tertiary roads. There are also various green spaces surrounding Bellville Central that provide opportunities for growth and inclusion into the greater urban context.

#### 6.5.1.1 'ON THE GROUND' PLACES

The 'on the ground' map helps to illustrate the metropolitan context, revealing various important points throughout the city. These points have significance for the future development of the site, with many of the places being destinations or anchors that can benefit from the transit based in Bellville Central.

- 1 Bellville Central**
- 2 Transnet Marshalling Yards**
- 3 Bellville South & Sacks Circle**
- 4 University of the Western Cape**
- 5 Cape Peninsula University of Technology**
- 6 Tygerberg Hospital**
- 7 Epping Industrial**
- 8 Stellenbosch Farms**
- 9 Tygerberg Hills Reserve**
- 10 Tygerberg Shopping District**
- 11 Voortrekker Road corridor**
- 12 Durban Road corridor**



Figure 6.3 "On The Grounds' Map

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#### *6.5.1.2 Movement Systems*

Several major movement routes of Cape Town flow through or near Bellville Central. The major roads that surround or flow through the site include Voortekker Road, Durban Road, and Robert Sobukwe Road. The N1 and R300 highways are also important mobility routes for Bellville Central as they provide links to the Cape Town CBD and metro southeast, respectively. The convergence of several rail lines also occurs in Bellville Central. While most of these links help to support Bellville Central, an important proposal that should be noted is the linkage of Robert Sobukwe Road with the R300. This allows Robert Sobukwe Road, a high-level mobility route, to extend beyond the intersection with Symphony Way, where it abruptly becomes redundant to the mobility network. Though not directly supportive of the existing road network, this link will be important for the site plan proposed below.



Figure 6.4 Movement systems

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### *6.5.1.3 Natural Systems*

The city of Cape Town benefits from its large network of natural systems, although linkages remain limited. Table Mountain and Cape Point National Parks are important for socioeconomic activities and opportunities, but there are also large plots of land near Bellville Central that can be utilised for similar purposes. These spaces provide the opportunity for a urban-scale network of green and pedestrian spaces. This is addressed more in the following plans. The corridors have close proximity to more 'natural' areas of the region including the Tygerberg Nature Reserve and Stellenbosch Farms. Incorporation of recreational spaces can also help to facilitate gaps in the green links. This inevitably connects a diverse range of neighbourhoods into the greater urban context.



Figure 6.5 Natural systems

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### **6.5.2 Site Context**

At the site level, Bellville Central occupies far less land than the Transnet marshalling yards, restricting growth to the south. Additionally, as an older part of the metropolitan area, Bellville Central has developed most of the available land near the rail station.

#### *6.5.2.1 Re-arrangement of Marshalling Yards*

An important proposal made in this study is re-arrangement of the Transnet marshalling yards that currently occupy a large amount of land south of Bellville Central. While the site is currently used more for train storage, plans have indicated future use of the site. However, the amount of valuable land provides opportunities for Transnet, as well as the city, to create and support the activities of Bellville Central. Figure 6.6 shows the existing train maintenance building and rail layout, which inhibits the land immediately south of the station. The proposed layout in Figure 6.7 shows how a re-arrangement of the maintenance buildings and rail network can release a fair amount of land. The western edge of the site can be integrated into the green network previously mentioned, while the eastern edge of the site is opened for potential development.

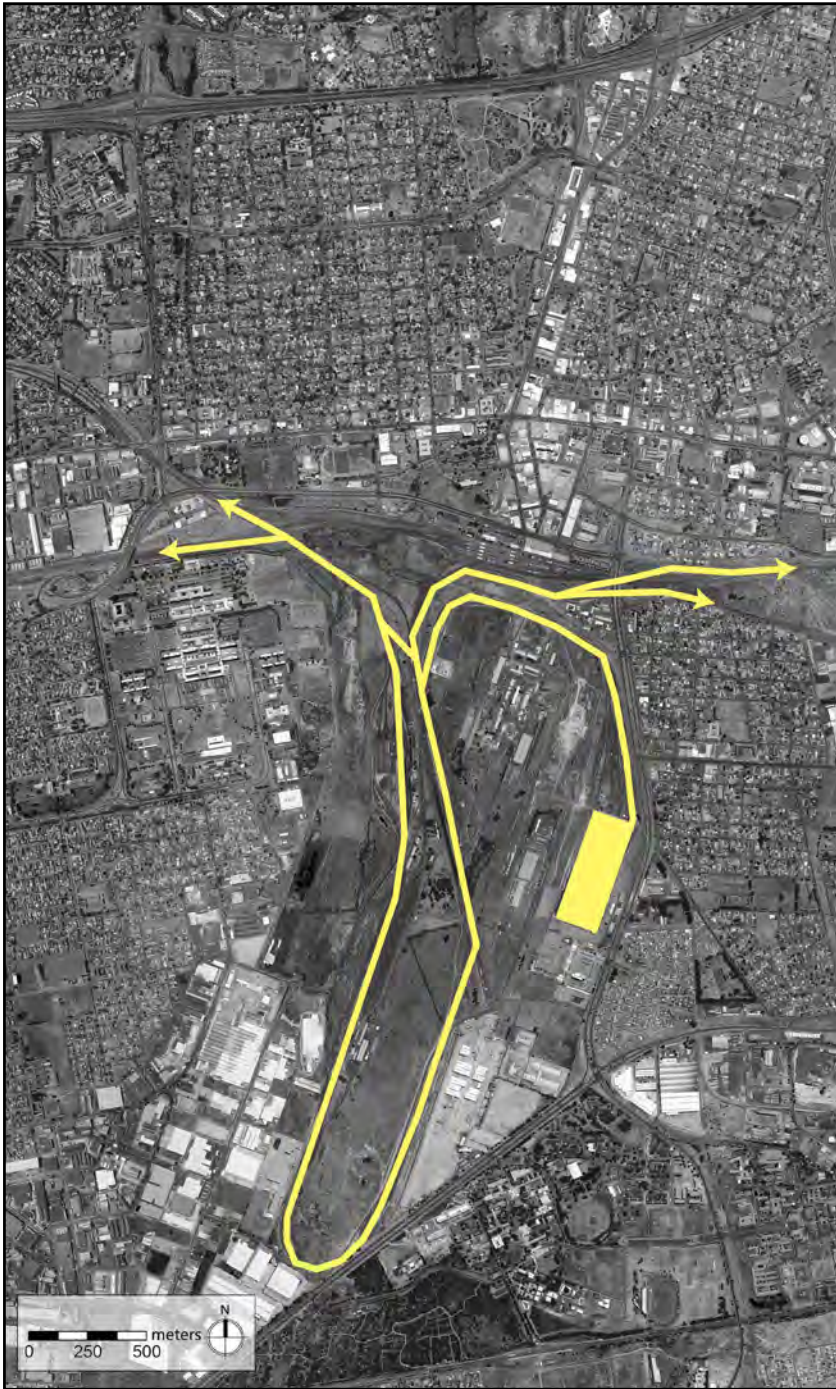


Figure 6.6 Existing marshalling yards



Figure 6.7 Proposed marshalling yards

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#### *6.5.2.2 Proposed Land-use*

The existing land-use of the site is relatively diverse compared to other locations within Cape Town. A majority of the area that is focused around Bellville Central is residential, with pockets of industry and social infrastructure complexes (Tygerberg Hospital, UWC and CPUT). The most mixed-use area is Bellville Central, in addition to the Durban Road corridor. The Transnet-owned land consumes a large portion of the area as well. The proposed land-use supports this corridor by pulling Durban Road down to the intersection of Robert Sobukwe Road and Symphony Way. As previously mentioned, the western edge of the Transnet-owned land is reserved as natural environment, while eastern edge is developed into an extended Durban Road corridor. The extension will exhibit mixed-use developments along Durban Road, but devolve into residential-only as one moves away from the corridor. Land in Bellville Central is also recaptured for development. An additional node is established at the traffic circle, capitalising on its proximity to UWC and CPUT.



Figure 6.8 Existing land-use

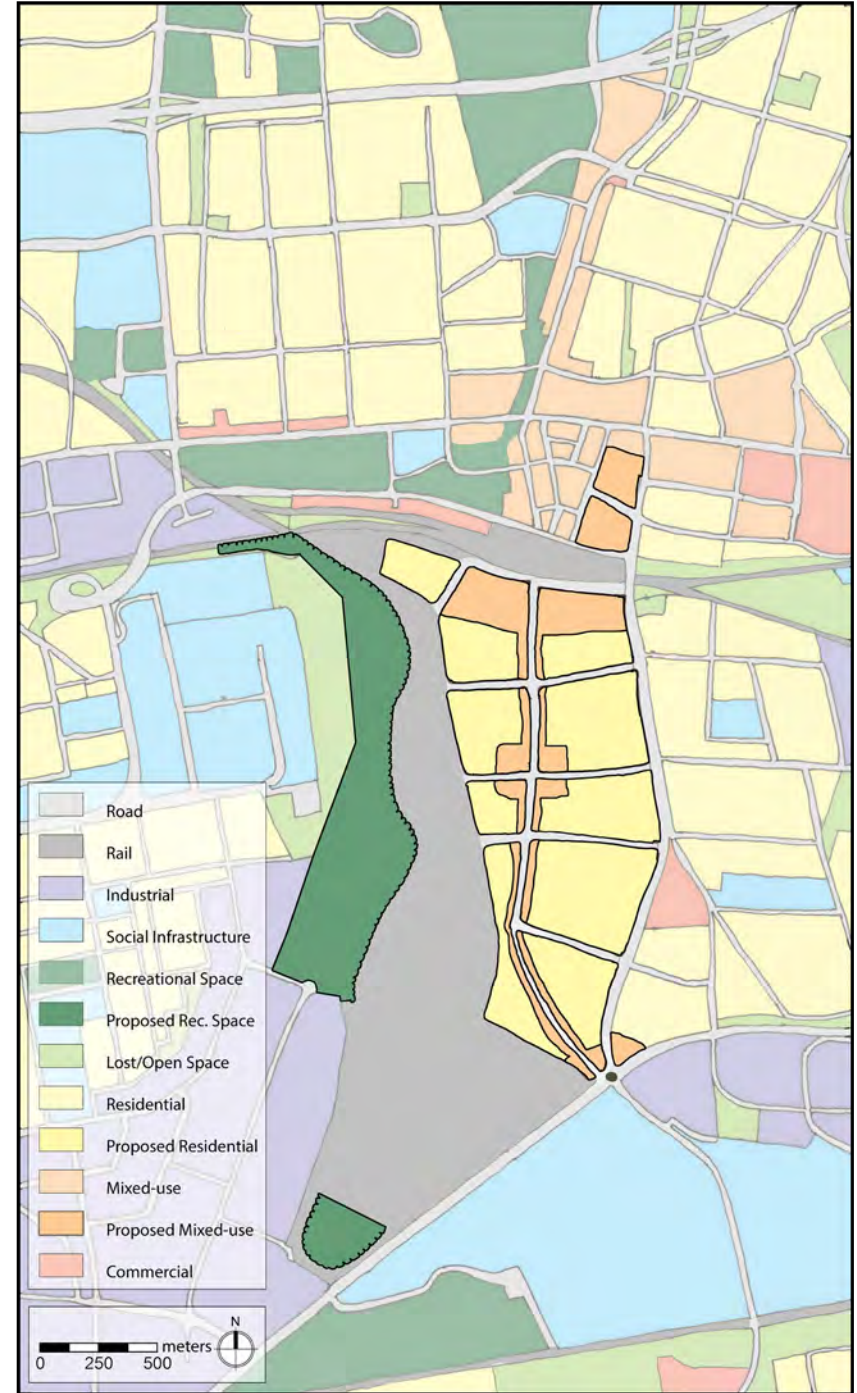


Figure 6.9 Proposed land-use

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### *6.5.2.3 Proposed Movement*

The existing road network around Bellville Central is oddly designed and disrupts multiple flows of traffic. Durban Road connects Voortrekker Road to the N1 highway, but terminates under the Tienie Meyer Bypass. Alternatively, Robert Sobukwe Road connects Bellville Central with the southern parts of the metropolitan area, but terminates at Voortrekker Road. Important changes to the movement networks are the upgrade of the Robert Sobukwe Road section that connects with the R300 from a tertiary to a secondary road and the upgrade of Symphony Way from a tertiary to secondary road. This helps to provide a link between the areas north and south of Bellville Central that have previously been disconnected due to poor road planning. The link to Symphony Way strengthens the City's plans to develop the road as a north-south corridor. The 5-way intersection is transformed into a traffic circle to provide smoother dispersion than robots that completely stop the flow of traffic.

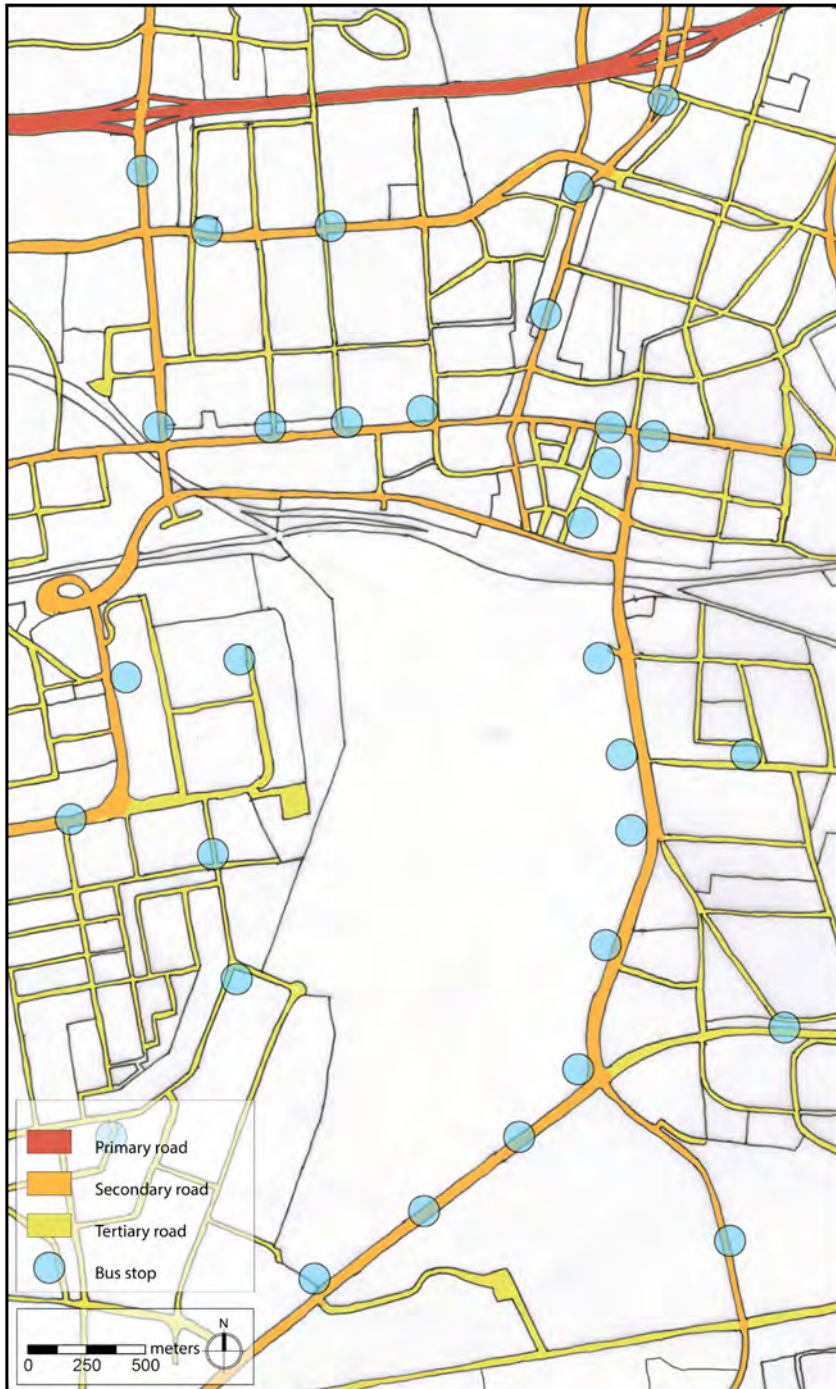


Figure 6.10 Existing movement

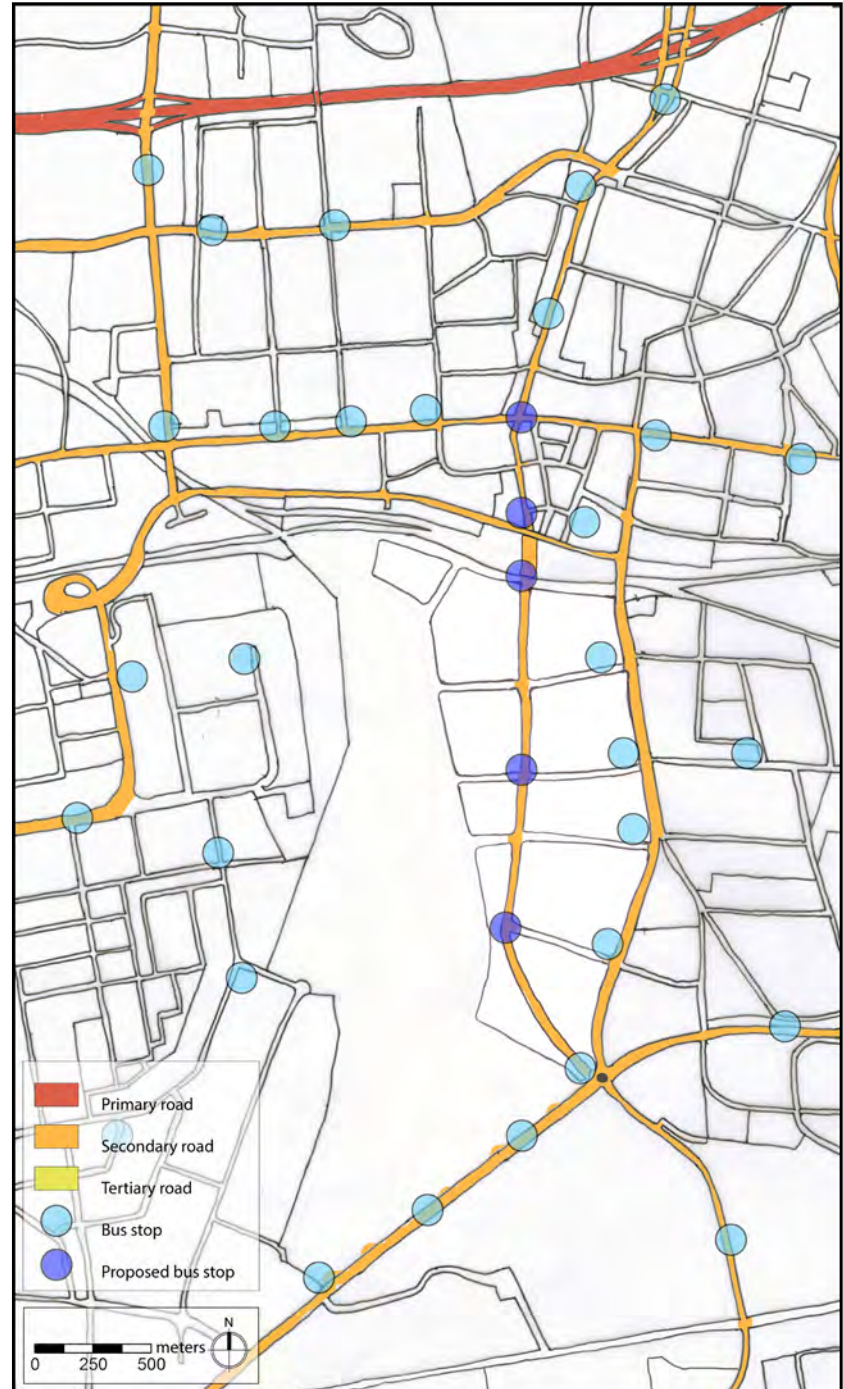


Figure 6.11 Proposed movement

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### 6.5.3 Precinct Context

Through this study, context has been given mostly at the precinct level, thus further explanation of the existing structure is redundant. There are some exceptions that will be repeated due to their importance to the site. Bellville Central is roughly contained by Durban, Voortrekker, and Robert Sobukwe Roads, as well as the Tienie Meyer Bypass to the south. These routes provide an edge to the site, but also connections to the greater urban context. The Transnet land immediately south of the rail station occupies more space than needed. Many of the rail links into the area are not utilised or redundant. There are poor links to green space, with walkability of the site being unfriendly for pedestrians. Finally, the integration of the various modes of transportation is reflected in the large tracts of land occupied by the bus and minibus taxi terminals. These features can be seen in Figure 6.13, which also incorporates the outline of the proposed site plan for comparison.

#### 6.5.3.1 *The Concept*

The main concept of the site plan is to regenerate Bellville Central through improvements to the transportation. This must include the integration of various modes of transportation. The first drawing (A) reflects the existing movement within Bellville Central. Moving forward, regeneration should occur for existing infrastructure and buildings (B), focused on improving walkability and safety of the site. The rehabilitation of public land and parts of the Transnet marshalling yards should happen congruently with regeneration. Once regeneration has uplifted the existing infrastructure and buildings, mixed-use development should begin to develop.

This will inevitably lead to development of the rehabilitated land south of the station (C), as well as on the eastern edge of Bellville Central. Commercial uses should also start developing along Voortrekker Road corridor.

At a later period, the mixed-use developments immediately north and south of the rail station should be considered a single node that is connected to various mobility routes and modes of transportation (D).

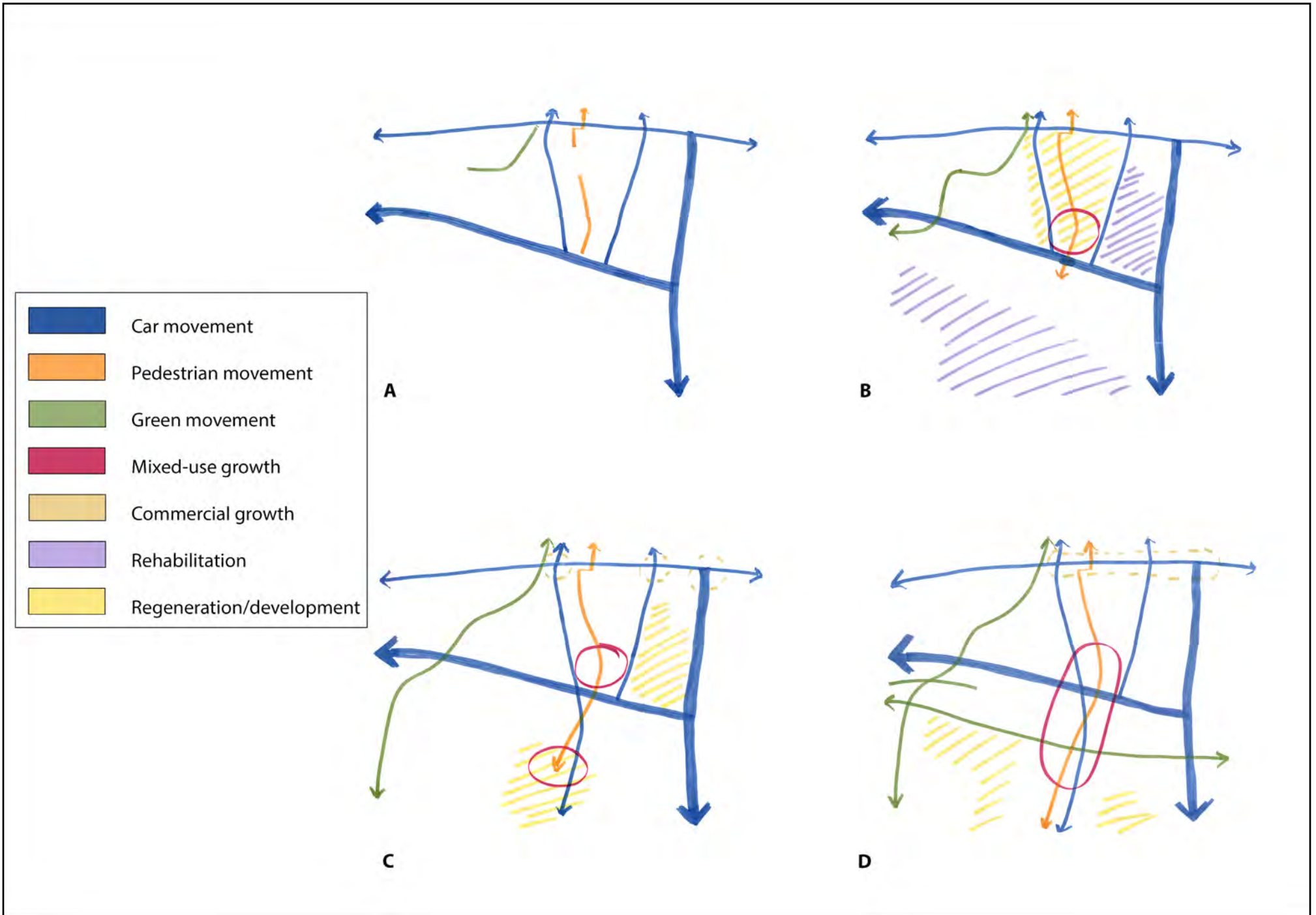


Figure 6.12 Concept of site plan



### 6.5.3.2 The Site Plan

The site plan (Figure 6.14) reflects an example of enabling urban regeneration through transit-oriented development. While building footprints has some importance, the key things to note are improvements to green space, walkability and land-use. The buildings help to show the densities of the site, with the highest density near the rail station, as well as reflect a layout that promotes walkability through courtyards, plazas, and pedestrian malls. These movement routes also allow for safer spaces as pedestrians and building tenants have 'eyes on the streets'. A rail station is established on the south side to ensure equal access to rail services. Furthermore, the existing rail station is upgraded to incorporate the minibus taxi terminal, which is accessed

Figure 6.13 Existing precinct

from the Tienie Meyer Bypass. Several projects or interventions are numbered throughout the site, with precedents provided on the following pages.









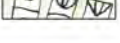
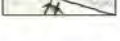

-  Pedestrian path
-  Road
-  Rail reserve
-  Private
-  Open sapce
-  Elsie's River
-  Trees
-  Building footprint
-  Recreation space
-  Tunnel
-  Elevated road



Figure 6.14 Site plan at precinct level

## 1. Urban Greenways

Urban greenways are links of 'soft' spaces that provide a natural environment and connect various neighbourhoods. In the case of Bellville, this link can include UWC, CPUT, the Tygerberg Nature Reserve and the Winelands.

A. Green link between train station and river in Cordoba, Spain.

B. Visual of Cordoba green link.

C. 'Emerald Neckalce' parks connecting neighbourhoods in Boston, USA.

D. Visual of a 'Emerald Necklace' park.

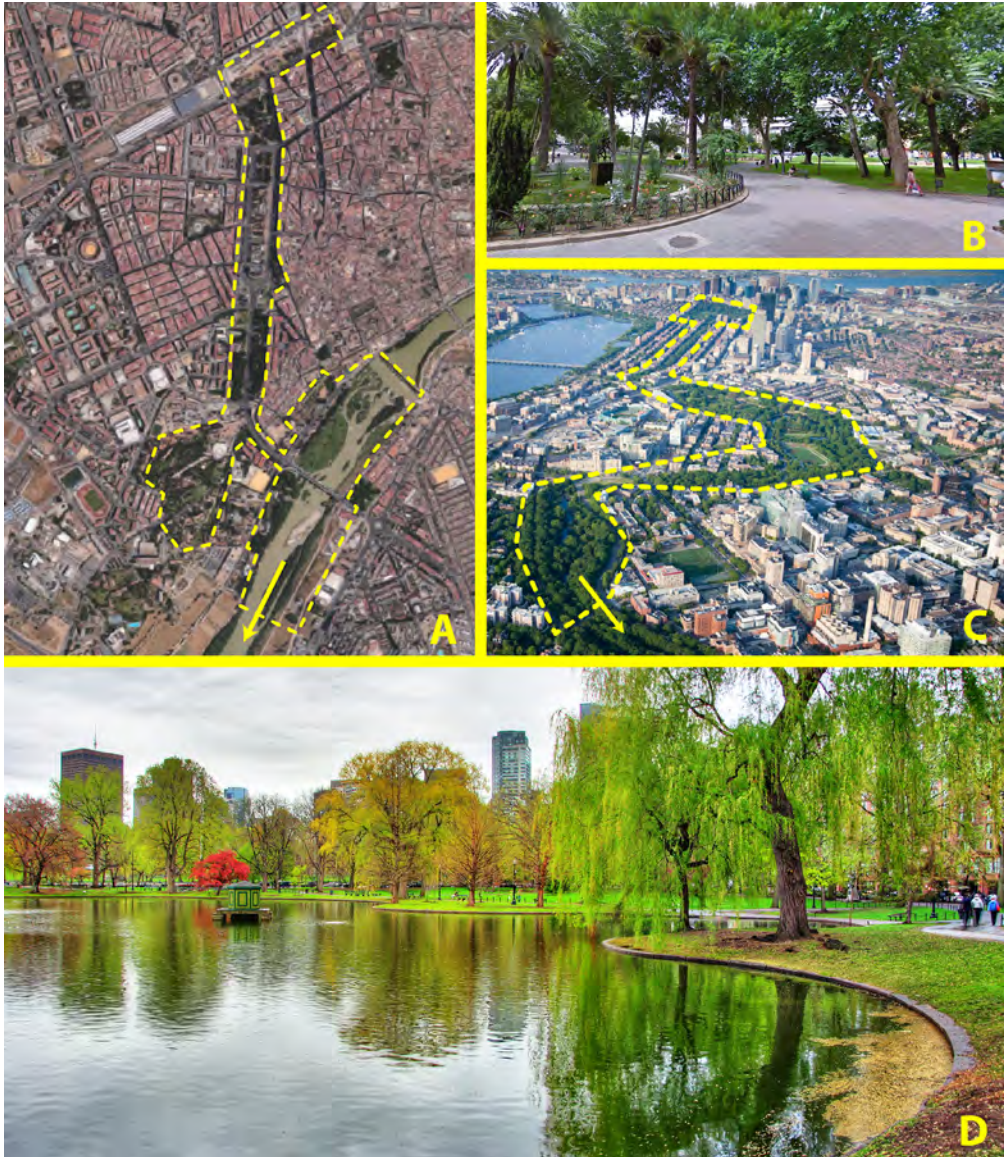


Figure 6.15 Urban greenway precedents

## 2. Graffiti Parks

Graffiti is an innovative way to transform dilapidated areas or landscapes not suitable for structural development into frequented space. The GTP's initial work on street art can be channeled towards rehabilitating this space.

A. Graffiti park in Austin, USA incorporated into steep landscape.

B. Basketball court doubled as graffiti park in Ljubljana, Slovenia.

C. Abandoned quarry near Boston, USA transformed into graffiti/sports park.

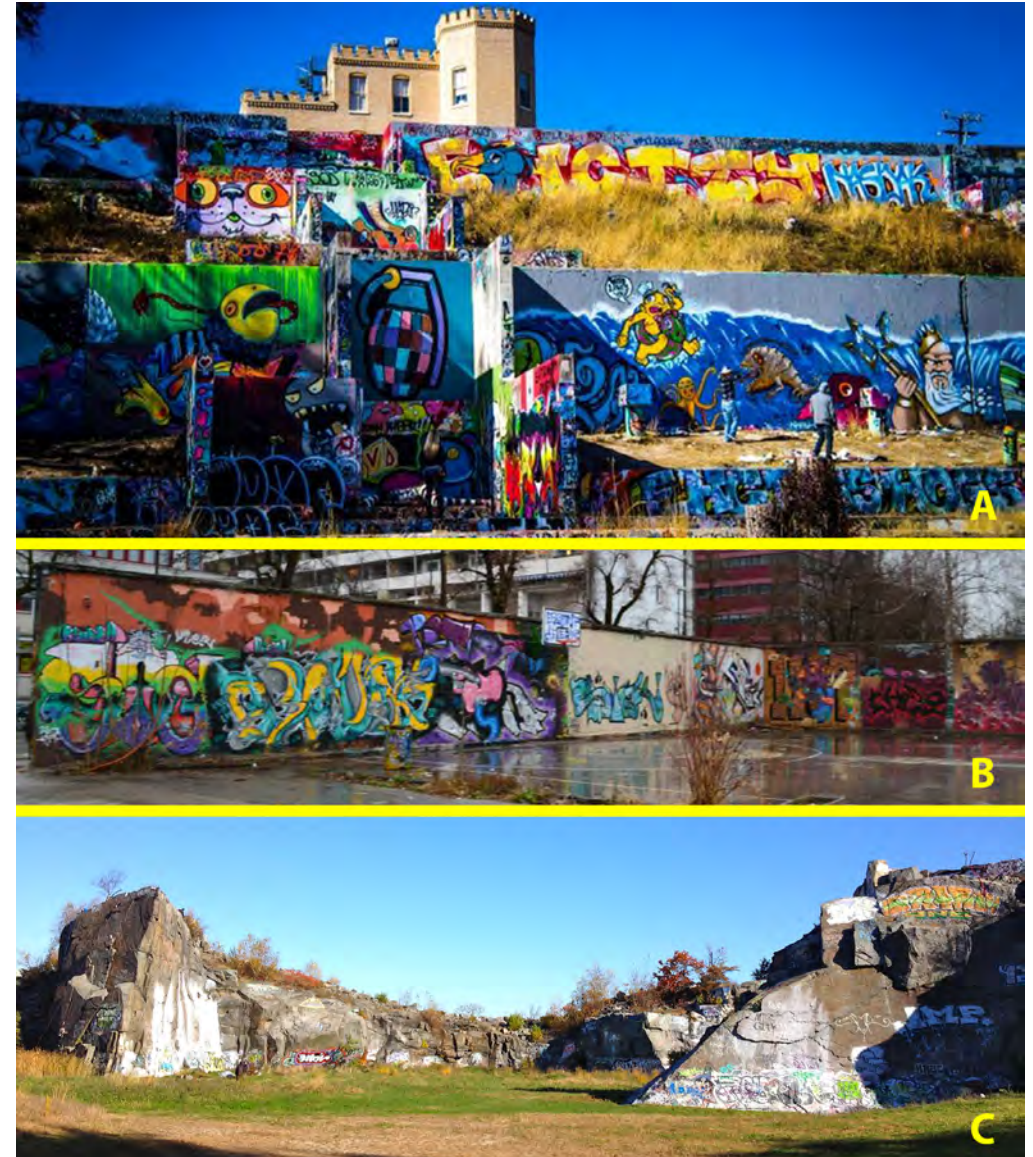


Figure 6.16 Graffiti park precedents

### 3. Transit Interchanges

Transit interchanges provide smooth transitions between different modes of transportation within a concentrated structure or area. In the South African context, the various modes can include minibus taxis, cabs, busses and trains.

- A. Integrated minibus taxi and rail station with MyCiTi and GA services nearby.
- B. Bellville rail station incorporating chain and small businesses.
- C. Warwick Junction Station in Durban allocating space for informal trading.



Figure 6.17 Transit interchange precedents

### 4. Pedestrian Malls

Pedestrian malls forbid automobile access to provide a walkable environment with diverse socioeconomic activities and are often located near major transit nodes. Kruskal Avenue already shows signs of becoming this type of space.

- A. St. George's Mall in Cape Town.
- B. Hviezdoslavovo Square in Bratislava, Slovakia hosts multiple embassies.
- C. Botero Plaza in Medellin, Brazil.
- D. Church Street in Burlington, USA with restaurants, business and retail.

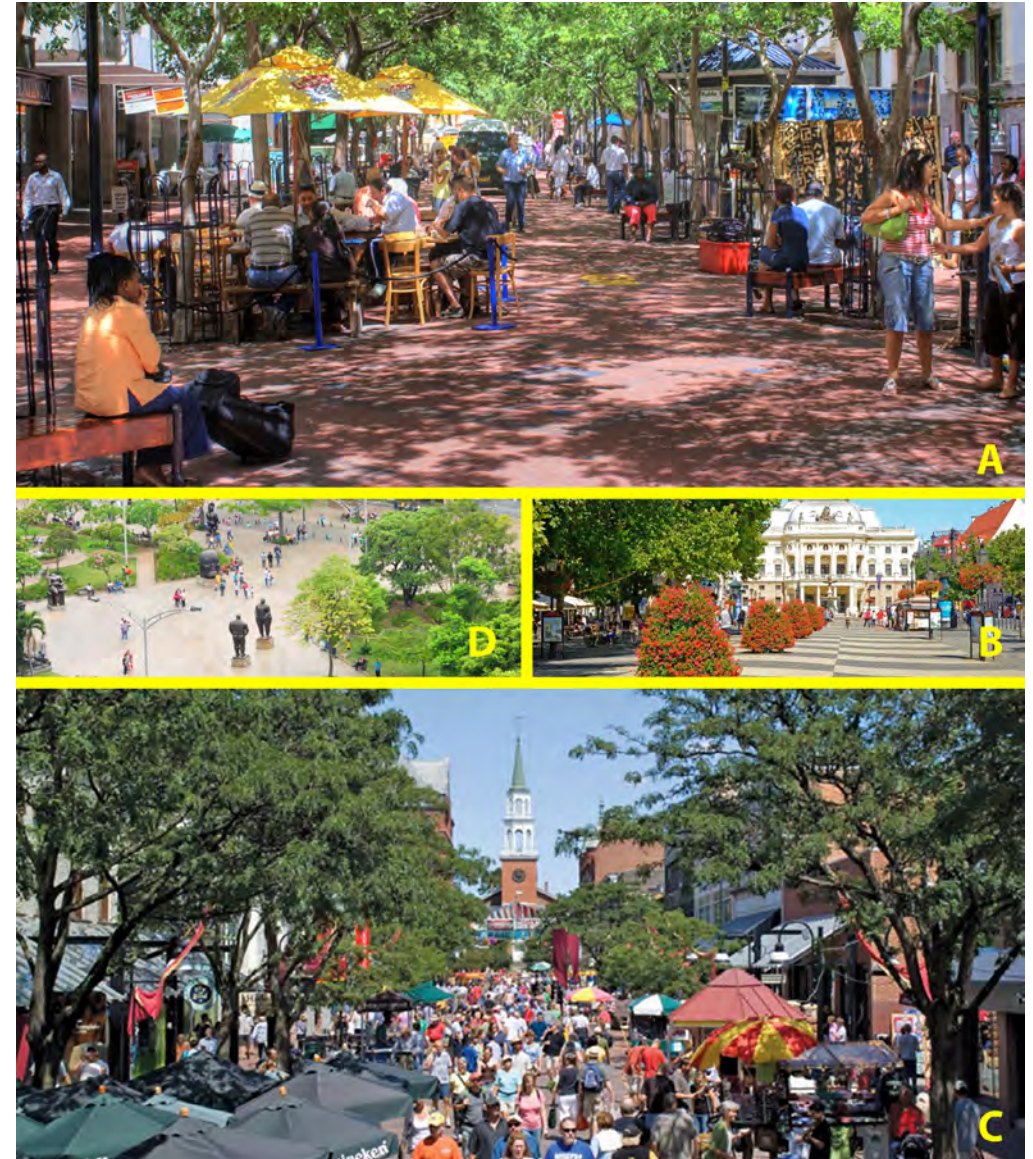


Figure 6.18 Pedestrian mall precedents

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#### *6.5.3.3 Proposed Land-use*

The proposed land-use follows the TOD principles of 'Efficient Land-use Patterns' to ensure development of the site and proposed corridors. The areas surrounding the rail station should be mixed-use, providing socioeconomic activities and opportunities, but devolve to less intensive land-uses further from the transit node. This can be clearly seen south of the rail station where the mixed-use corridor reduces to residential uses further from Durban Road. In addition to the mixed-use and residential developments on Transnet land, recreational uses should be incorporated into the site to provide a break from hard structures. Voortrekker Road should be transformed into a more commercial area that utilises the links along the corridor to the Cape Town CBD. Space for informal trading should be increased to the areas south of the rail station and west of the Golden Arrow bus terminal.

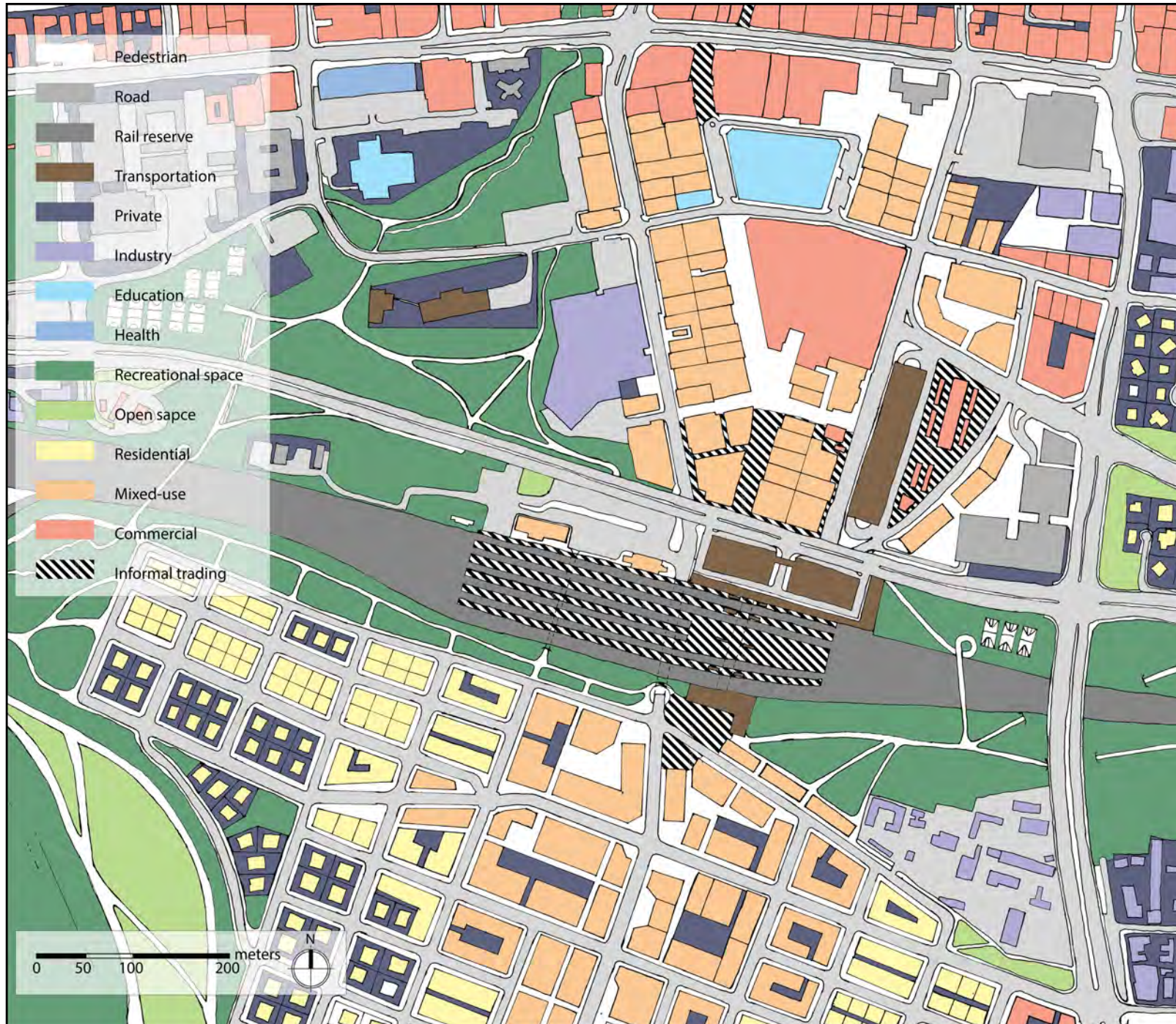


Figure 6.19 Proposed land-use

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#### *6.5.3.4 Proposed Building Heights*

With TODs needing a high density to function properly, the current and future structure of the buildings in Bellville Central must be increased. As noted Figure 5.22, there are currently only a few buildings that have high densities, such as the new UWC campus building, but these are not centred on the rail station. Future developments must be centred on the BTI, with those closest to the station being of the highest density in Bellville Central. As one moves away from the station, the densities decrease as the activities change, reflecting the prescribed zoning. While these outer buildings can be between 1 to 4 storeys depending on the activity, those centred around the rail station should be 3 or more storeys and provide some space for residential opportunities. The Middestad Mall and structured informal trading area should provide a balance between the higher density buildings and ground-level movement, helping to ensure users of the space are not overwhelmed.



Figure 6.20 Proposed building heights

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*6.5.3.5 Proposed Pedestrian and Green Links*

Both TODs and urban regeneration have principles related to the natural environment, thus development should also include the formalisation of green links and improvements to walkability throughout the site. As seen in Figure 6.21, dark blue areas represent the walkable places within the area, while green areas represent the green spaces. The walkable space helps to connect various places within the site relatively free from automobile traffic. Additionally, the walkable spaces improve the liveability conditions of the site and allow for the development of pedestrian-oriented businesses. These pedestrian routes are linked to the proposed green spaces, which is suggested to be massively expanded to juxtapose the hard walkable spaces. This allows the development and growth of the natural environment, which the study found to be extremely minimal. Existing green areas, such as Elizabeth Park, can become more accessible through fence removals (or gate additions), while land from the Transnet site can be rehabilitated and incorporated into Bellville Central. The green spaces should also be incorporated into the green corridors noted in Figure 6.5.



Figure 6.21 Proposed green and pedestrian space

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## 6.6 Implementation

This section provides brief suggestions for the implementation of the proposals. Considering the size of the site, the intervention should occur over a 25 year period through phasing and area-based management.

### 6.6.1 Phasing

The following steps are provided to guide the regeneration and development of Bellville Central as an accessible and inclusive destination within the city of Cape Town.

*Regeneration* of what is existing in Bellville Central must occur first. This includes improvements to infrastructure, safety and walkability. Additionally, the transportation interchange should be established as early as possible to help support regeneration. This phase should take about five years.

*Re-arrangement* of the railway on the Transnet land occurs next, in addition to the rehabilitation of the parking lots on the eastern edge of the site. This should occur in the 5 to 10 year period after the project initiation.

*Redevelopment* of these rehabilitated areas should be the final phase of the interven-

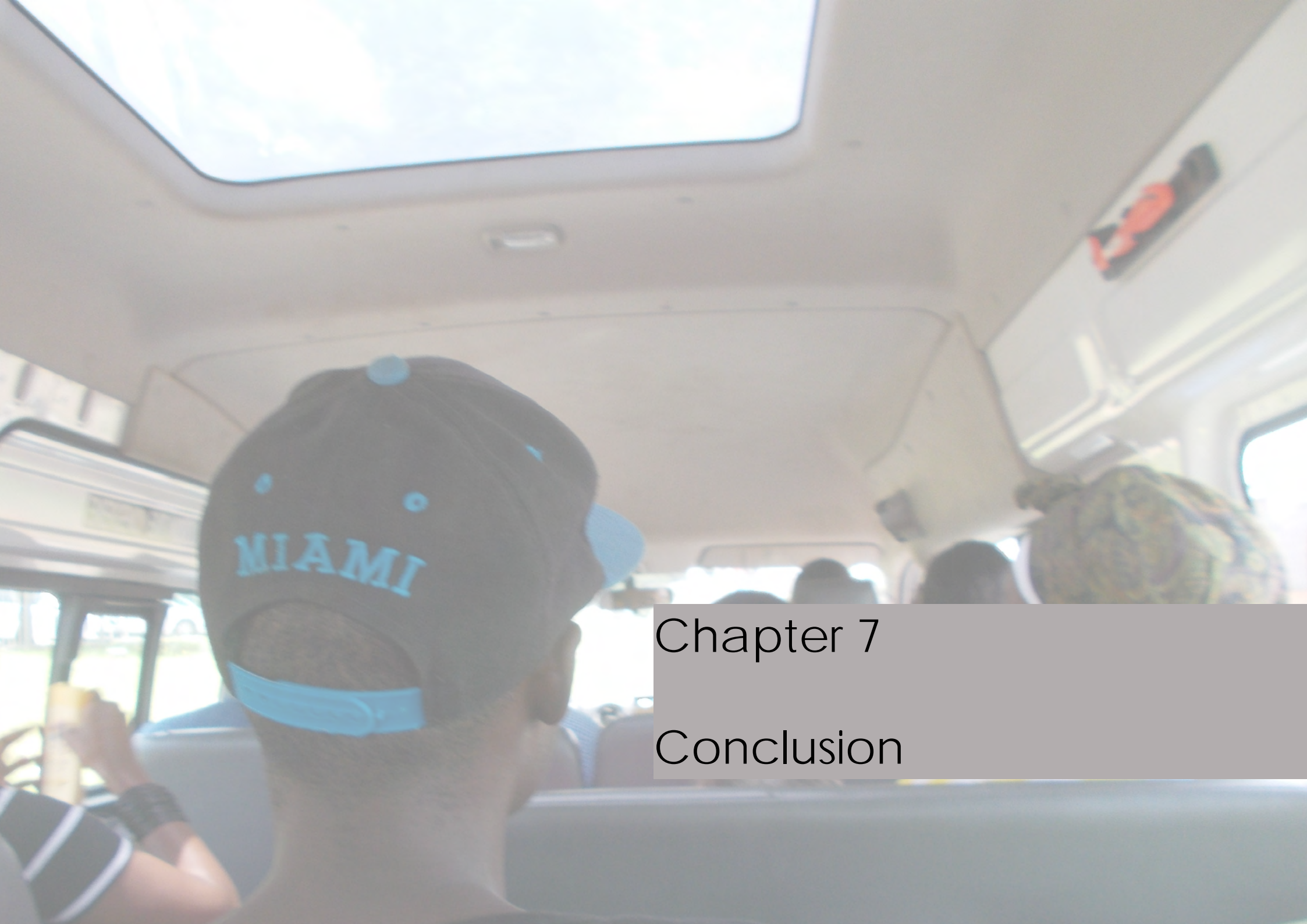
tion, providing connections into the greater urban context. This should occur in the last 10 to 25 year period, depending on demand.

### 6.6.2 Area-based Management

Using an area-based management approach helps to ensure that major interventions such as that proposed in this study have complete attention from the state and the stakeholders that is needed. Examples like Cato Manor in Durban represent successful projects that have utilised area-based management for of planning and implementation in South Africa. This approach allows the City to establish and monitor interventions of an area independent of other projects within the city through an identified authority.

## 6.7 Conclusion

This chapter has provided brief answers to the research questions derived from the literature review in Chapter 2. The responses to the subsidiary questions helped to address the main research question on whether or not TOD can be used as an instrument for enabling urban regeneration. Major overlaps were revealed, in terms of principles between TOD and urban regeneration, that can be combined and utilised to achieve both interventions simultaneously. The recommendations apply this combination of ideologies to the Bellville case study to show how the different principles can complement and support a single intervention. Chapter 7 will conclude this study, and offer a reflection and limits to the study.



Chapter 7

Conclusion

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## 7.1 Introduction

This study aimed to determine the ability of transit-oriented developments to enable urban regeneration for more accessible and inclusive planning outcomes. Specifically, and in relation to the main and subsidiary research questions asked, the study examined the applicability of TODs in Bellville Central as an instrument of urban regeneration. This examination was undertaken by utilising assessment criteria established in Chapter 2 which focused on principles of both TODs and urban regeneration. The research findings in Chapter 5 found that many of the principles and concerns of TODs and urban regeneration exist within the Bellville Central context. The main issue determined by research participants was liveability, particularly walkability and safety. This information allowed recommendations and a spatial plan to be suggested in Chapter 6.

This chapter will first address some limitations to the study. The following section provides a personal reflection on the research process and findings, including a discussion on the potential for future literature on the topic. The chapter concludes with short summaries of the previous chapters.

## 7.2 Limitations to the Study

There are several limitations to this study that must be considered before the reflection and conclusion. The key limitation to this research was time, which affected multiple aspects of the study. Due to the nature of this program, time constraints during the fieldwork phase of research prevented a fully inclusive research process as key stakeholders were not able to be interviewed or involved in the study; stakeholders who could have provided valuable insight and information to the research. This included members from organisations such as PRASA and Transnet that were unavailable, as well as more formal conversations with users of the space, as they were only surveyed.

Another limitation to this study is the number and diversity of local inputs that can provide local knowledge. Although more than 30 people participated in surveys and interviews, the range of interests reflected in this study is restricted to users of the space near the rail station and immediate vicinity. While businesses and their patrons provided the potential for additional inputs, disruption of their activities could have had negative impacts on the research.

A final limitation to note was a lack of quantitative data that would have helped to support qualitative findings. This is largely based on the fact that the research has not been conducted during recent periods of time. However, other instances were the result of access restrictions that prevented me from utilising data. Regardless of the reason, some quantitative data was unavailable, thus some qualitative data could not be supported.

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### 7.3 Reflection

My first solo trip to Bellville included a minibus taxi ride to the rail station, and a subsequent train ride to the site. What came as a surprise was the relative simplicity of the journey. While driving to Bellville certainly remains the easiest option, the route using public transportation provides a different experience that is only enhanced by arriving at the destination in the oddly designed rail station. The experiences along the journey and within Bellville, gave me a new understanding and appreciation for the difficulties that poorer people are burdened with in the city in terms of accessibility and inclusion.

While improvements to the space and transportation were often on the minds of the people, there was still hope, energy, and anticipation for the development of Bellville's CBD. Informal traders capitalising on the transportation infrastructure. University of the Western Cape establishing a school. Property developers contemplating affordable housing options. For myself, Bellville Central is another city within Cape Town, and along with many of the research participants, I feel the area has a character that cannot be found throughout the rest of the

city. Bellville may not be a major destination at the moment, but the growing connections to the area from other parts of the city will only help to develop its special character and provide the opportunity for the CoCT to truly use TODs as a way to enable the regeneration of this unique urban space.

During the final writing of this study, Bellville experienced an OpenStreets event. Having the chance to experience OpenStreets was exciting because of the ideas the event was attempting to promote in order to enhance the area's character. Spaces that created anxiety for people were transformed through pedestrianisation and additional socioeconomic activities. The day epitomised the environment that can be created through TOD and regenerative interventions. This also highlights the need for more research regarding the use of transit-oriented developments and urban regeneration. While transportation alone might not be enough to regenerate an area, the transformation of an entire space centred around public transit must be better understood. This also must entail how stakeholders affect the processes as they are the true determinants of how the space is ultimately utilised.

### 7.4 Conclusion

In conclusion, Chapter 1 presented the problem under investigation. This was followed by the aim and main research question of the study. The chapter also introduced the central ideas that have been the focus of this study.

Chapter 2 entailed an in-depth literature review on TODs and urban regeneration. This helped to establish assessment criteria that were used for analysing the case study site. The principles that were utilised included the AB Principles, in terms of TOD, and the PEECE principles, in terms of urban regeneration.

Chapter 3 outlined the method and techniques used to conduct research and collect data. Additionally, the chapter explained how they were used to undertake this study. The limitations of the research method and each of the techniques were also discussed.

Chapter 4 provided a historical and contextual analysis of case study site, highlighting important factors that have led to the development of Bellville. Agriculture, trade, and transportation were all crucial for this

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development. The analysis also provided evidence of urban decay in the contemporary context.

Chapter 5 analysed Bellville Central using the established assessment criteria by examining each principle with respect to the case study site. Through this analysis, the research findings were made.

Chapter 6 provided recommendations informed by the research findings. A site plan was used to spatialise TOD and urban regeneration principles and recommendations.

As a concluding remark, research from the University of North Carolina at Charlotte examining urban regeneration made the following statements about the phenomenon:

Successful city [regeneration] can't be achieved by megaprojects alone. Instead, 'it must be multifaceted and encompass improvements to the cities' physical environment, their economic bases, and the social and economic conditions of their residents'... The counterweight [to urban decay] is a fully developed, mixed-use [space] with plentiful options for people of all interests, ages and incomes.

(Journalist's Resource: 11 May 2015)



References  
and  
Appendices

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## Text References

Andersen, H. (2003). *Urban Sores: On the Interaction Between Segregation, Urban Decay, and Deprived Neighbourhoods*. Ashgate, Aldershot.

Autler, G. and Belzer D. (2002). *Transit Oriented Development: Moving from Rhetoric to Reality*. The Brookings Institution Center on Urban and Metropolitan Policy.

Auriacombe, C. and Mouton, J. (2007). Qualitative Field Research. *Journal of Public Administration*, 42(6): 441 - 457.

Babbie, E. and Mouton, J. (2001). *The practice of social research*. Oxford University Press Southern Africa, Cape Town.

Bailey, T. and Gatrell, A. (1995). *Interactive Spatial Data Analysis*. Routledge, London.

Beauregard, R. (2004). The Resilience of U.S. Cities: Decline and Resurgence in the 20th Century. Paper presented at *Leverhulme International Symposium*.

Beg, F., Bickford, G., Denoon-Stevens, S., Harber, J., Jitsing, A., Moosajee, R. and Schmidt, D. (2014). *How to Build Transit Oriented Cities: Exploring Possibilities*. South African Cities Network.

Bhattacharjee, A. (2012). *Social Science Research: Principles, Methods, and Practices*. University of South Florida Press, Tampa.

Bickford, G. (2014). Transit Oriented Development: An appropriate tool to drive improved mobility and accessibility in South Africa cities? Paper presented at *Spatial Transformation of Cities Conference Johannesburg*.

Bickford, G. and Weakley, D. (2014). *Transport and Urban Development: Two Studies from Johannesburg*. University of the Witwatersrand, Johannesburg.

Bryman, A., Lewis-Beck, M. and Liao, T. (2004). *Encyclopedia of Social Science Methods*. Sage Publications, Thousand Oaks.

Calthorpe, P. (1993). *The Next American Metropolis: Ecology, Community and the American Dream*. Princeton Architectural Press, Princeton.

Carlton, I. (2009). *Histories of Transit-Oriented Development: Perspectives on the Development of the TOD Concept*. Institute of Urban and Regional Development.

Cervero, R. (2006). *Public Transport and Sustainable Urbanism*. University of California Transportation Center.

Cervero, R. (2013a). Linking urban transport and land use in developing countries. *The Journal of Transport and Land Use*, 6(1). pp. 7 - 24.

Cervero, R. (2013b). *Transforming Cities with Transit: Transit and Land-Use Integration for Sustainable Urban Development*. The World Bank, Washington DC.

Cervero, R. and Kockelman, K. (1997). Travel Demand and the 3Ds: Density, Diversity and Design. *Transportation Research*, 2(3). pp. 199 - 219.

Cervero R. and Murakami, J. (2008). *Rail + Property Development: A model of sustainable transit finance and urbanism*. UC Berkeley Center for Future Urban Transport.

Cervero R. and Murakami, J. (2009). *Rail and Property Development in Hong Kong: Experiences and Extensions*. *Urban Studies*, 46(10). pp. 2019 - 2043.

Chan, H. and Yau, Y. (2008). To rehabilitate or redevelop? A study of the decision criteria for urban regeneration projects. *Journal of Place Management and Development*, 1(3). pp. 272 - 291.

Chow, A. (2014). Urban Design, Transport Sustainability and Residents' Case Study of Transit-oriented Development in Hong Kong. *Journal of Comparative Asian Development*, 13(1). pp. 73 - 104.

Chopra, M., Puoane, T., de Swardt, C. and de Toit, A. (2005). Urban poverty in Cape Town. *Environment & Urbanization*, 17(2). pp. 101 - 111.

Christopher, A. (1987). Apartheid Planning in South Africa: The Case of Port Elizabeth. *The Royal Geographical Society*, 153(2). pp. 195 - 204.

---

Chui, E., Cook, A. and Ng, M. (2001). The Road not Travelled: A Sustainable Urban Regeneration Strategy for Hong Kong. *Planning Practice & Research*, 16(2). pp. 171 - 183.

City of Cape Town (1996). *Census 96: Bellville Central. Cape Town*. Available from: <[https://web.capetown.gov.za/eDocuments/Uni%20eth\\_age\\_gen\\_17.htm](https://web.capetown.gov.za/eDocuments/Uni%20eth_age_gen_17.htm)> [18 August 2015]

City of Cape Town (2010a). *Draft Analysis of the Cape Town Spatial Economy*. Cape Town.

City of Cape Town (2010b). *Tygerberg District Plan*. Cape Town

City of Cape Town (2012a). *Cape Town Spatial Development Framework*. Cape Town

City of Cape Town (2012b). *Mayoral Urban Regeneration Programme expands to eight initial sites in Cape Town*. Cape Town. Available from: <<http://www.capetown.gov.za/en/Pages/MayoralURPexpto8initialsitesinCT.aspx>> [24 Aug 2015]

City of Cape Town (2013). *Urban Regeneration Programme stabilises areas, improves lives. Cape Town*. Available from: <<http://www.capetown.gov.za/en/Pages/UrbanRegenerationProgrammestabilisesareas.aspx>> [24 Aug 2015]

City of Cape Town (2014). *Cultural & Recreational Resources: Tygerberg District*. Cape Town.

City of Cape Town (2015). *Kruskal Avenue Precinct*. Cape Town.

Citymark (2015). *South African Housing Performance Dashboard*. Centre for Affordable Housing Finance in Africa. Available from: <[www.housingfinanceafrica.org/citymark/](http://www.housingfinanceafrica.org/citymark/)> [24 Aug 2015]

Clarke, T. (2014). *Stock shortages threaten in Bellville - but demand for property here is at an all-time high*. Rawson Property Group. Available from: <[www.rawson.co.za/news](http://www.rawson.co.za/news)> [24 Aug 2015]

Clowes, W. (1997). *The Royal Navy: A History from the Earliest Times to 1900, Volume IV*. Chatham Publishing, London.

Currie, G. (2005). *Strengths and Weakness of Bus in Relation to Transit Oriented Development*. Monash University, Melbourne.

Currie, G. (2006) Bus Transit Oriented Development - Strengths and Challenges Relative to Rail. *The Journal of Public Transportation*, 9(4).

Curtis, C. (2008). Evolution of the Transit-oriented Development Model for Low-density Cities: A Case Study of Perth's New Railway Corridor. *Planning Practice & Research*, 23(3). 285 - 302.

Darchen, S., Huston, S. and Searle, G. (2014). Positive and Negative Factors for Transit Oriented Development: Case Studies from Brisbane, Melbourne and Sydney. *Urban Policy and Research*, 32(4). pp. 437 - 457.

Deakin, M. (2009). A Community-Based Approach to Sustainable Urban Regeneration. *Journal of Urban Technology*, 16(1). 91 - 112.

Didier, S., Morange, M. and Peyroux, E. (2012). The spreading of the City Improvement District Model in Johannesburg and Cape Town: Urban Regeneration and the Neoliberal Agenda in South Africa. *International Journal of Urban and Regional Research*, 36(5). 915 - 935.

Dittmar, H. and Ohland, G. (2004). *The New Transit Town: Best Practices in Transit-Oriented Development*. Island Press, Washington DC.

Falconer, R. and Richardson, E. (2010). Rethinking urban land use and transport planning - opportunities for transit oriented development in Australian cities case study Perth. *Australian Planner*, 47(1). pp. 1 - 13.

Federal Transit Administration (2004). *Transit-Oriented Development in the United States: Experiences, Challenges and Projects*. TCRP Report 102, Transit Cooperative Research Program.

Flint, A. (2005). *The Density Dilemma: Appeal and Obstacles for Compact and Transit-Oriented Development*. Lincoln Institute of Land Policy.

Flyvbjerg, B. (2011). Case Study, in N. Denzin and Y. Lincoln (eds). *The Sage Handbook of Qualitative Research*, Ch. 17: 301 - 316. Sage Publications, Thousand Oaks.

Forsyth, A. and Jacobson, J. (2008). Seven American TODs: Good practices for urban design in Transit-Oriented Development projects. *Journal of Transport and Land Use*, 1(2). pp. 51 - 88.

Gkotsis, I., Karlaftis, M., Kepapatsglou, K., Stathopoulos, A. and Vlahogianni, E. (2015). Urban Regeneration in Historic Downtown Areas: An Ex-Ante Evaluation of Traffic Impacts in Athens, Greece. *International Journal Sustainable Transportation*, 9(7). pp. 478 - 489.

Greater Tygerberg Partnership (2015). *History of Tygerberg*. Available from: <<http://gtp.org.za/historical-tygerberg/>> [17 August 2015]

Hale, C. (2006). *Making the Most of Transit Oriented Development Opportunities*. Centre for Transport Strategy.

Hall, T. (2006), *Urban Geography*. Routledge, London.

Holle, Gena (2008) Transit-Oriented Development: The Chicago Perspective. *Community Transportation*, 26. 37 - 40.

Huston, S. and Rchen, S. (2012). Sustainable Urban Regeneration and the Tod Development Model: Lessons from Albion Mill in Brisbane. *Pacific Rim Property Research Journal*, 18(2). 95 - 105.

Irvine, S. (2009). *Transit Oriented Development: When is a TOD not a TOD?*. University of South Australia, Adelaide.

Jacobs, J. (1985). *Cities and the Wealth of Nations: Principles of Economic Life*. Vintage Publishing, New York City.

Kille, L and Stephens, R. (2015). *Urban Regeneration: What recent research says about best practices*. Journalist's Resource, Shorenstein Center on Media, Politics and Public Policy. Available from: <<http://journalistsresource.org/studies/government/municipal/legacy-cities-challenges-opportunities-urban-regeneration>>

Knowles, R. (2012). Transit Oriented Development in Copenhagen Denmark: from the Finger Plan to Orestad. *Journal of Transport Geography*, 22. pp. 251 - 261.

Kriel, P. E. (1946) *Road map of Constantia area; [and] Road map of Bellville and Durbanville area*. Cape Town

Landman, K. (2004). Gated Communities in South Africa: The Challenge for Spatial Planning and Land Use Management. *The Town Planning Review*, 75(2). pp. 151 - 172.

Lang, T. (2005). *Insights in the British Debate about Urban Decline and Urban Regeneration*. Institut fur Regionalentwicklung und Strukturplanung.

Lavrakas, P. (2008). *Encyclopedia of Survey Research Methods*. Sage Publications, Online.

Leach, D. (2004). The Arlingtin County Case Study: Rosslyn-Ballston Corridor, in *The New Transit Town*. eds. H. Dittmar and G. Ohland. Island Press, Washington DC.

Lemanski, C. (2004). The spatial implications of fear of crime in Cape Town, South Africa. *Environment & Urbanization*, 16(2). pp. 101 - 112.

Lewis, A. (2015). Bellville set to be new trading nexus. *Independent Online* 6 July. Available from: <<http://www.iol.co.za/business/news/bellville-set-to-be-new-trading-nexus-1.1880823#.VeVxH5CUegU>> [27 Aug 2015]

Lewis, J. and Ritchie, J. (2003). *Qualitative Research Practice: A guide for Social Science Students and Researchers*. Sage Publications, Thousand Oaks.

Lofland, J. and Lofland, L. (1995). *Analyzing social settings: A guide to qualitative observation and analysis*. Third Edition. Wadsworth Publishing, Belmont.

McCaston, M.K. (1998). *Tips for Collecting, Reviewing and Analyzing Secondary Data*. Partnership & Livelihood Security Unity.

---

Mace, A., Hall, P. and Gallent, N. (2007). New East Manchester: Urban Renaissance or urban opportunity? *European Planning Studies*, 15(1). pp. 51 - 65.

Marks, A. (2015). Interviewed by Samuel Vandewater at the *Cape Town Civic Centre*. 19 August.

Marshall, M. (1996). Sampling for qualitative research. *Family Practice*, 13(6). pp. 522 - 525.

Milan, B. (2015). How participatory planning processes for transit-oriented development contribute to social sustainability. *Journal of Environmental Studies and Sciences*.

Mogharabi, A. and Wei, H. (2013). Key issues in Integrating New Town Development into Urban Transportation Planning. *Social and Behavioral Sciences*, 96. pp. 2846 - 2857.

Ndebele, R. and Ogra, A. (2014a). A Place-Based Approach to Spatial Transformation: A Case Study of Transit Oriented Development (TOD), Johannesburg. Paper presented at *Planning Africa 2014*.

Ndebele, R. and Ogra, A. (2014b). *The Role of 6Ds: Density, Diversity, Design, Destination, Distance, and Demand Management in Transit Oriented Development (TOD)*. Neo-International Conference in Habitable Environments. pp. 539 - 546.

Nel, R. and de Wet, A. (2013). 10 reasons why Bellville could boom or bust. *Future Cape Town*, 9 April. Available from: <<http://futurecapetown.com>>. [18 August 2015].

Nielsen, K. and Uppink, L. (2015). Interviewed by Samuel Vandewater at the *Greater Tygerberg Partnership Office, Bellville*. 19 August.

Ohland, G. (2006). *Value Capture: How to get a return on the investment in transit and TOD*. Center for Transit-Oriented Development America.

Olaru, D., Smith, B. and Taplin, J. (2011). Residential location and transit-oriented development in a new rail corridor. *Transportation Research Part A*, 45. pp. 219 - 237.

Paquet, T (2014). *Qualitative Research Methods: Lectures 1-3*, Planning Techniques 2: Part B, University of Cape Town.

Patton, C. and Sawicki, D. (1993). *Basic Methods of Policy Analysis and Planning*. Pearson, London.

Perez, G. (2002). The Other "Real World": Gentrification And The Social Construction of Place in Chicago. *Urban Anthropology and Studies of Cultural Systems and World Economic Development*, 31(1). pp. 37 - 68.

Pfeiffer, D.U. (1996). Issues related to handling of spatial data. Paper presented at *Australian Veterinary Association Second Pan Pacific Veterinary Conference*.

du Plessis, N.M. (1998). *The Tygerberg: the story of the Tygerberg Hills and the towns of Parow, Bellville and Durbanville*. Tafelberg, Cape Town.

Property24 (2015). *Bellville Property Trends and Statistics*. Available from: <[www.property24.com/bellville/property-trends/441](http://www.property24.com/bellville/property-trends/441)> [24 Aug 2015]

Reconnecting America (2007). *TOD 101: Why Transit-Oriented Development and Why Now?*. Oakland, Reconnecting America.

Renne, J. (2009). From transit-adjacent to transit-oriented development. *The International Journal of Justice and Sustainability*, 14(1). 1 - 15.

Renne, J. and Wells, J. (2002). *State of the Literature: Transit-Oriented Development*. Voorhees Transportation Policy Institute.

Roberts, P. and Sykes, H. (2000). *Urban Regeneration: A Handbook*. Sage Publications, London.

Scheepers Strydom, C.J. (1981). *Bellville: growth of a city*. City of Bellville, Bellville.

---

Schutt, R. (2011). *Investigating the Social World*. Sage Publications. Online.

Sharpe, E. (2012). If rapid transit is to work, something has to be done about city's infamous 'corner'. *Winnipeg Free Press*, 26 February. Available from: <[www.winnipeg-freepress.com](http://www.winnipeg-freepress.com)> Accessed on [9 June 2015].

Siemiatycki, M. (2005). Beyond Moving People: Excavating the Motivations for Investing in Urban Public Transit Infrastructure in Bilbao Spain. *European Planning Studies*, 13(1). pp. 23 - 44.

Singleton, R. and Straits, B. (2004). *Approaches to Social Research. Fourth Edition*. Oxford University Press, Oxford.

Smith, N. (2002). New globalism, new urbanism: gentrification as global urban strategy. *Antipode*, 34(3). pp. 427 - 450.

StatsSA (2011). *2011 Census Results: Cape Town Profile*. Available from: <[https://www.capetown.gov.za/en/stats/Documents/2011%20Census/2011\\_Census\\_Cape\\_Town\\_Profile.pdf](https://www.capetown.gov.za/en/stats/Documents/2011%20Census/2011_Census_Cape_Town_Profile.pdf)> [27 Aug 2015]

Stojanovski, T. (2013). *Bus rapid transit (BRT) and transit-oriented development (TOD): How to transform and adjust the Swedish cities for attractive bus systems like BRT? What demands BRT?*. KTH Royal Institute of Technology, Stockholm.

Tallon, A. (2010). *Urban Regeneration in the UK*. Routledge, Abingdon.

Tomlinson, R. (1999). From exclusion to inclusion: rethinking Johannesburg's central city. *Environment and Planning*, 31. pp. 1655 - 1678.

Trancik, R. (1986). Three theories of urban spatial design (chapter 4), in *Finding lost space: theories of urban design*. eds R. Trancik. Van Nostrand Reinhold, New York City.

Turok, I. and Watson, V. (2001). Divergent Development in SA Cities: Strategic Challenges Facing Cape Town. *Urban Forum*, 12(2). pp. 119 - 138.

Urban Land Institute (2014). *Ten Principles for Urban Regeneration: Making Shanghai a Better City*. Urban Land Institute Asia Pacific.

Ward, K. (2006). Policies in motion, urban management and state restructuring: the trans-local expansion of business improvement districts. *International Journal of Urban and Regional Research*, 30(1). 54 - 75.

Western Cape Government (2012). *Municipal Economic Review and Outlook 2012*. Cape Town.

Wilkinson, P. (2009). *Transit-Oriented Development: A Strategic Instrument for Spatial Restructuring and Public Transportation System Enhancement in South African Cities?*. University of Cape Town, Cape Town.

Winkler, T. (2009). Prolonging the global age of gentrification: Johannesburg's Regeneration Policies. *Planning Theory*, 8(4). pp. 362 - 381.

Winston, N. (2009). Urban Regeneration for Sustainable Development: The Role of Sustainable Housing?. *European Planning Studies*, 17(12). 1781 - 1796.

Yin, R. (2003). *Case Study Research: Design and Methods*. Third Edition. Sage Publications, Thousand Oaks.

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## Image References

### Chapter 2

Figure 2.1 - Author created

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Figure 2.3 - maps.google.com

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Figure 2.11 - <http://www.dlist-asclme.org/node?page=14>

Figure 2.12 - <http://vacationideas.xyz/tag/new-york-equitable-distribution-divorce-property>

Figure 2.13 - <https://www.expedia.com/Boston-Common-Boston.d507377.Vacation-Attraction>

Figure 2.14 - <http://openstreets.co.za/events/talking-streets-series-2015-july-bellville>

Figure 2.15 - <http://www.nomads.usp.br/virus/virus04/?sec=7&item=2&lang=en>

### Chapter 4

Figure 4.1 - Author created; maps.google.com

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Figure 4.5 - Author edited; du Plessis, N.M. (1998). *The Tygerberg: the story of the Tygerberg Hills and the towns of Parow, Bellville and Durbanville*. Tafelberg, Cape Town.

Figure 4.6 - Scheepers Strydom, C.J. (1981). *Bellville: growth of a city*. City of Bellville, Bellville.

Figure 4.7 - University of Cape Town GIS

Figure 4.8 - du Plessis, N.M. (1998). *The Tygerberg: the story of the Tygerberg Hills and the towns of Parow, Bellville and Durbanville*. Tafelberg, Cape Town.

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### Chapter 5

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## Chapter 6

Figure 6.1 - Author created  
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(right) [https://en.wikipedia.org/wiki/Midhat\\_Pasha\\_Souq](https://en.wikipedia.org/wiki/Midhat_Pasha_Souq)

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(D) [commons.wikimedia.org](http://commons.wikimedia.org)

Figure 6.16 - (A) <http://abccoolimages.com/graffiti+park+at+castle+hills?image=910713678>  
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(C) <http://adventurefilled.com/vandalism-or-urban-beauty/>

Figure 6.17 - (A) [http://www.davidwallphoto.com/detail/46694-Cape-Town-Railway-Station,-Cape-Town,-South-Africa-\\_aerial.html](http://www.davidwallphoto.com/detail/46694-Cape-Town-Railway-Station,-Cape-Town,-South-Africa-_aerial.html)  
(B) <http://pnca.edu/graduate/ctcrblog/6162>  
(C) Author's own

Figure 6.18 - (A) [www.flickr.com](http://www.flickr.com)  
(B) <http://www.topaktivty.sk/tourist-regions/slovakia/bratislava-a-okolie/>  
(C) [www.peakprosperity.com](http://www.peakprosperity.com)  
(D) <https://uncovercolombia.wordpress.com/2013/07/24/the-basics-of-public-transport-in-medellin/>

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## Covers

Front Cover - Author's own  
Chapter 1 - <http://maps.capetown.gov.za/isisiv/>  
Chapter 2 - [westwoodbaptistchurch.org/ministries/library/](http://westwoodbaptistchurch.org/ministries/library/)  
Chapter 3 - [www.mymobileuni.com](http://www.mymobileuni.com)  
Chapter 4 - Kriel, P. E. (1946) *Road map of Constantia area; [and] Road map of Bellville and Durbanville area*. Cape Town  
Chapter 5 - maps.google.com  
Chapter 6 - Author created  
Chapter 7 - [thefavouredphoenix.wordpress.com](http://thefavouredphoenix.wordpress.com)  
References and Appendices - [https://www.facebook.com/BellvilleLibrary/photos\\_stream](https://www.facebook.com/BellvilleLibrary/photos_stream)

# Appendix A

This is an anonymous questionnaire to assist in my studies in study transportation and urban regeneration in Bellville. For the following questionnaire, please identify if you agree or disagree with the statement provided. Thank you for your help!

A. Transportation is the most important part of Bellville.

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

B. The availability of goods and services is the most important part of Bellville.

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

C. The availability of employment opportunities is the most important part of Bellville.

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

D. A pedestrian-friendly environment is the most important part of Bellville?

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

E. Is Bellville a destination?

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

F. The transportation in Bellville functions well.

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

G. There is a wide availability of goods and services in Bellville.

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

H. There are a variety of employment opportunities in Bellville.

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

I. The transportation interchange is pedestrian-friendly.

Strongly Disagree    Disagree    Neutral/No Opinion    Agree    Strongly Agree

J. What do you think when you see these images?



Circle all that apply.

Fear            Excitement            Gentrification            Sustainability            Diversity

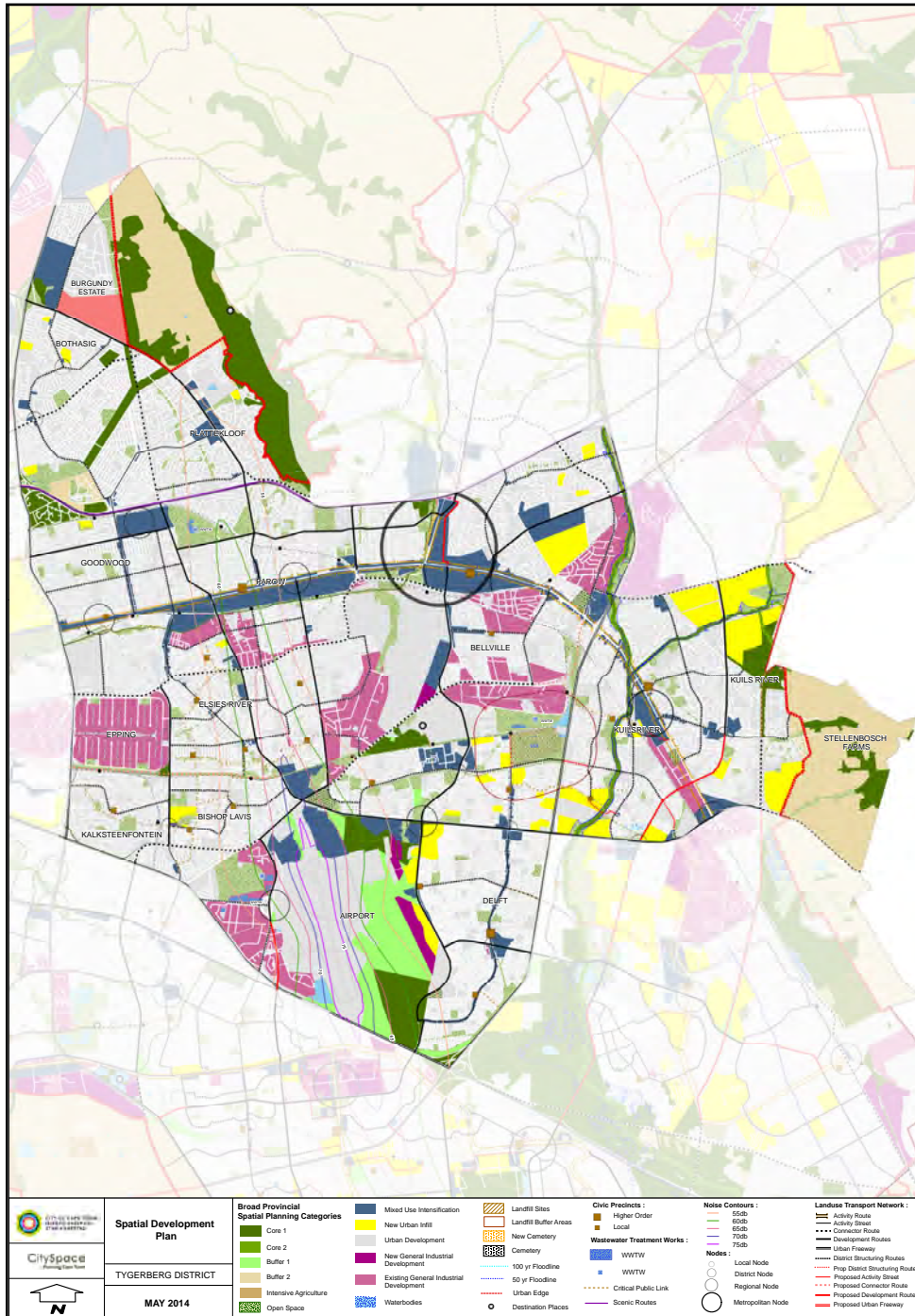
OTHER \_\_\_\_\_

K. I mainly use this space for:

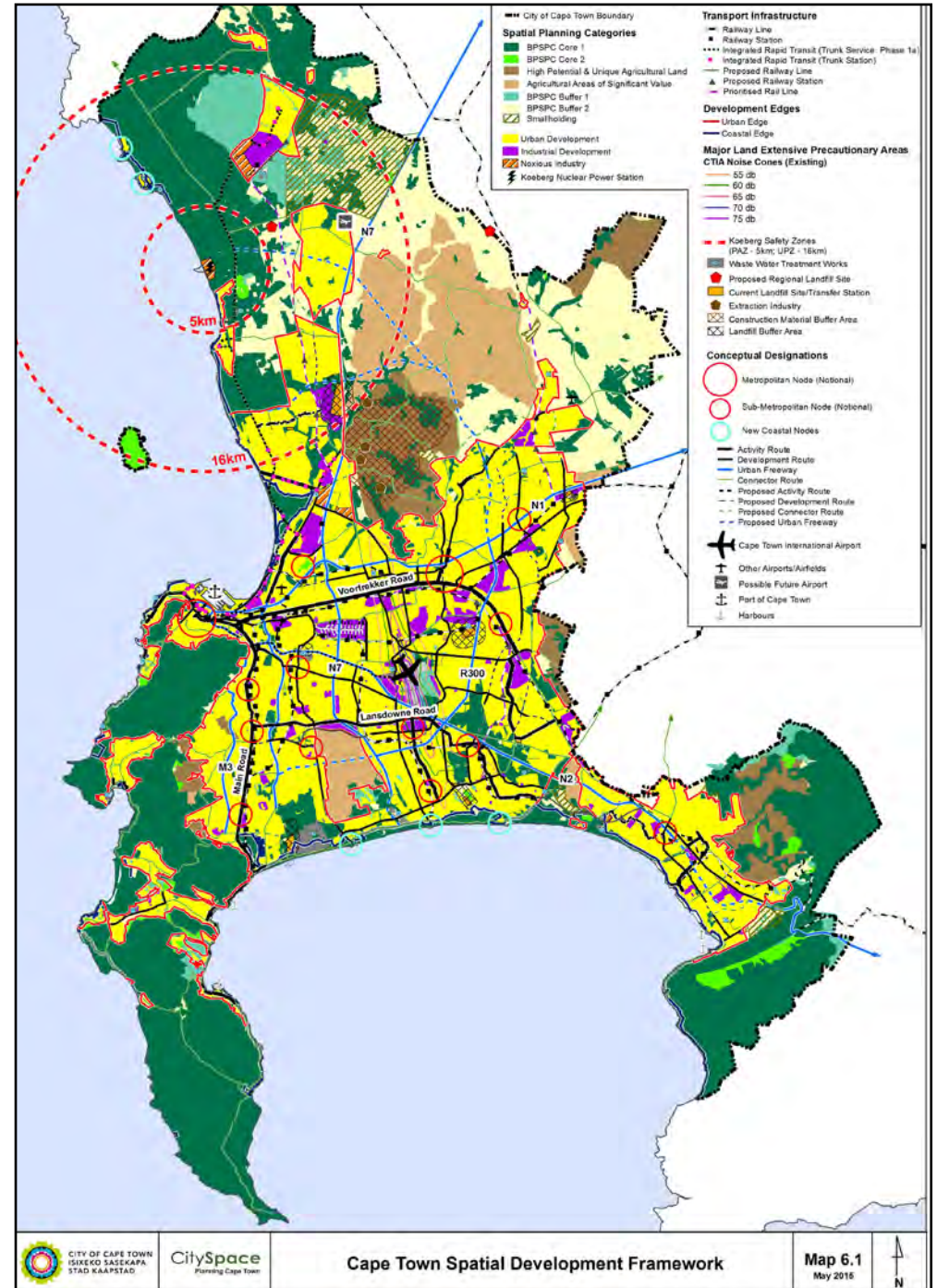
TRADING    EMPLOYMENT    TRANSPORTATION    RECREATION    OTHER

Any additional reason for using this space?

# Appendix B



# Appendix C



**EBE Faculty: Assessment of Ethics in Research Projects**

Any person planning to undertake research in the Faculty of Engineering and the Built Environment at the University of Cape Town is required to complete this form before collecting or analysing data. When completed it should be submitted to the supervisor (where applicable) and from there to the Head of Department. If any of the questions below have been answered YES, and the applicant is NOT a fourth year student, the Head should forward this form for approval by the Faculty EIR committee: submit to Ms Zakiya Chikite ([Zakiya.chikite@uct.ac.za](mailto:Zakiya.chikite@uct.ac.za)); New EBE Building, Ph 021 650 5730). Students must include a copy of the completed form with the dissertation/thesis when it is submitted for examination.

**Name of Principal Researcher/Student:** Samuel Vandewater **Department:** Architecture, Planning & Geomatics

**If a Student:** **Degree:** Master's of City & Regional Planning **Supervisor:** Tanja Winkler

**If a Research Contract indicate source of funding/sponsorship:**

**Research Project Title:** Utilising Transit-Oriented Development as an Instrument for Urban Regeneration and Inclusive Socio-economic Growth

**Overview of ethics issues in your research project:**

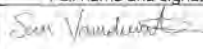
<b>Question 1: Is there a possibility that your research could cause harm to a third party (i.e. a person not involved in your project)?</b>		NO
<b>Question 2: Is your research making use of human subjects as sources of data?</b> If your answer is YES, please complete Addendum 2.	YES	
<b>Question 3: Does your research involve the participation of or provision of services to communities?</b> If your answer is YES, please complete Addendum 3.		NO
<b>Question 4: If your research is sponsored, is there any potential for conflicts of interest?</b> If your answer is YES, please complete Addendum 4.		NO

If you have answered YES to any of the above questions, please append a copy of your research proposal, as well as any interview schedules or questionnaires (Addendum 1) and please complete further addenda as appropriate.



**I hereby undertake to carry out my research in such a way that**

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

Signed by:

	Full name and signature	Date
Principal Researcher/Student: Samuel Vandewater		19/06/2015

This application is approved by

Supervisor (if applicable):		23 June 2015
HOD (or delegated nominee) Final authority for all assessments with NO to all questions and for all undergraduate research.		
Chair: Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.		4 AUG 2015

**ADDENDUM 1:**

Please append a copy of the research proposal here, as well as any interview schedules or questionnaires.

**ADDENDUM 2:** To be completed if you answered YES to Question 2:

It is assumed that you have read the UCT Code for Research Involving Human Subjects (available at <http://web.uct.ac.za/depts/educate/download/uctcodeforresearchinvolvinghumansubjects.pdf>) in order to be able to answer the questions in this addendum.

2.1 Does the research discriminate against participation by individuals, or differentiate between participants, on the grounds of gender, race or ethnic group, age range, religion, income, handicap, illness or any similar classification?		NO
2.2 Does the research require the participation of socially or physically vulnerable people (children, aged, disabled, etc) or legally restricted groups?		NO
2.3 Will you not be able to secure the informed consent of all participants in the research? (In the case of children, will you not be able to obtain the consent of their guardians or parents?)		NO
2.4 Will any confidential data be collected or will identifiable records of individuals be kept?		NO
2.5 In reporting on this research is there any possibility that you will not be able to keep the identities of the individuals involved anonymous?		NO
2.6 Are there any foreseeable risks of physical, psychological or social harm to participants that might occur in the course of the research?		NO
2.7 Does the research include making payments or giving gifts to any participants?		NO

If you have answered YES to any of these questions, please describe how you plan to address these issues (append to form).

**ADDENDUM 3:** To be completed if you answered YES to Question 3:

3.1 Is the community expected to make decisions for, during or based on the research?	YES	NO
3.2 At the end of the research will any economic or social process be terminated or left unsupported, or equipment or facilities used in the research be recovered from the participants or community?	YES	NO
3.3 Will any service be provided at a level below the generally accepted standards?	YES	NO

If you have answered YES to any of these questions, please describe how you plan to address these issues (append to form).

**ADDENDUM 4:** To be completed if you answered YES to Question 4:

4.1 Is there any existing or potential conflict of interest between a research sponsor, academic supervisor, other researchers or participants?	YES	NO
4.2 Will information that reveals the identity of participants be supplied to a research sponsor, other than with the permission of the individuals?	YES	NO
4.3 Does the proposed research potentially conflict with the research of any other individual or group within the University?	YES	NO

If you have answered YES to any of these questions, please describe how you plan to address these issues (append to form).



**SCHOOL OF ARCHITECTURE, PLANNING AND GEOMATICS**  
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STATEMENT TO BE READ OUT TO AN INTERVIEWEE BY A STUDENT ABOUT TO UNDERTAKE AN INTERVIEW FOR THE PURPOSES OF RESEARCH, AS A REQUEST FOR PERMISSION FOR THE NAME AND/OR IDENTITY OF THE INTERVIEWEE TO BE REVEALED IN AN ESSAY/ REPORT/ DISSERTATION

A copy of the form can be given to the respondent if they request it.

MY NAME IS Sam Vanderwater  
 AND I AM STUDYING CITY AND REGIONAL PLANNING AT THE UNIVERSITY OF CAPE TOWN.

I AM DOING RESEARCH ON Urban Regeneration through Transition-oriented Development

AS PART OF MY MASTERS PROGRAMME AND I WOULD LIKE TO ASK YOU SOME QUESTIONS TO HELP ME WITH MY RESEARCH.

I WOULD LIKE TO USE YOUR NAME, DESIGNATION AND POSSIBLY DIRECT QUOTES IN MY ESSAY/ REPORT/ DISSERTATION AS A SOURCE OF INFORMATION. PLEASE INDICATE YES OR NO BELOW TO GIVE OR WITHOLD YOUR PERMISSION FOR ME TO DO THIS.

YES I GIVE PERMISSION FOR YOU TO USE MY NAME / DESIGNATION / WORDS IN YOUR DISSERTATION

NO I DO NOT GIVE PERMISSION FOR YOU TO USE MY NAME / DESIGNATION / WORDS IN YOUR DISSERTATION

IF YOU WANT TO END THE INTERVIEW AT ANY POINT YOU ARE FREE TO DO SO.

MY SUPERVISOR IS Dr Tanja Winkler, AND HER CONTACT DETAILS ARE: (021) 650-2360 or [Tanja.Winkler@uct.ac.za](mailto:Tanja.Winkler@uct.ac.za)

[Signature]  
 Signature of interviewee

[Signature]  
 Signature of student

Date: 25/8/2015



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UNIVERSITY OF CAPE TOWN

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MY NAME IS Samuel Vandewater  
 AND I AM STUDYING CITY AND REGIONAL PLANNING AT THE UNIVERSITY OF CAPE TOWN.

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AS PART OF MY MASTERS PROGRAMME AND I WOULD LIKE TO ASK YOU SOME QUESTIONS TO HELP ME WITH MY RESEARCH.

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MY SUPERVISOR IS Dr Tanja Winkler, AND HER CONTACT DETAILS ARE: (021) 650-2360 or [Tanja.Winkler@uct.ac.za](mailto:Tanja.Winkler@uct.ac.za)

[Signature]  
[Signature]

Signature of interviewee

[Signature]  
 Signature of student

Date: 26/08/2015