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UNIVERSITY OF JOHANNESBURG

FACULTY OF ART, DESIGN, AND ARCHITECTURE

DEPARTMENT OF ARCHITECTURE

Master of Technology – Architecture

RESEARCH DISSERTATION

TITLE: Sustainability in South African Secondary Cities - The Case of Mthatha

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SUBMITTED ON

__ September 2017
ABSTRACT

This study explores the concepts of sustainability within the context of South African secondary cities. Mthatha is a secondary city located in the Eastern Cape Province. Its location and relevance qualify Mthatha as a regional urban centre for the surrounding smaller towns and rural enclaves within a 50-km radius from Mthatha. Mthatha is seen as a regional urban centre by the National Government of South Africa. The National Government, in 2009, launched the Presidential Intervention Project and identified the King Dalindyebo Municipality (KSDM), whose seat of local government is Mthatha, as a key regional urban area that needed the developmental interventions. This intervention was extended for the KSDM from the original R5bn to R10 billion by President Jacob Zuma, as the National Government sought to bolster infrastructure in Mthatha, which it identified as a key regional urban centre (Ntshobane: 2017).

The objective of the study is to investigate concepts of sustainability as enabling factors of development in secondary cities, using Mthatha as the case study. This study argues that the concept of sustainability, which can be traced back to the World Commission on Environment and Development (WCED), held in 1987 (Drexhage & Murphy: 2010), has been applied to and focuses mainly on the development of megacities. This study further argues for the application of sustainability principles to smaller, but growing, secondary cities, using Mthatha as a case study. Secondary cities, like Mthatha, face problems arising from urban development. Sustainability, urban studies, rural-urban migration, and informality theories are evaluated to determine their effect on sustainable spatial and infrastructural development. A mixed-method approach is used as a methodology for this study. The approach is grounded in qualitative methodology, and also uses quantitative data generated from the participants and case study. Direct observations, interviews, and survey questionnaires inform the research. Guidelines are formulated by triangulating the data collected in response to the identified issues.

The main conclusion of the study are that secondary cities are important urban centres in which the majority of the world’s urban population will continue to reside. The study finds that there is a lack of research in sustainability research in secondary cities. Moreover, the study reveals that the current classification of
secondary cities, based on a population band of 150,000 to 500,000, is limiting with regard to our understanding of secondary cities. Therefore, the study finds that one of the key characteristics of secondary cities is the influence of rural-urban migration which is responsible for population growth. Secondary cities, such as Mthatha, have localised differences and no two are alike. Policy in South Africa is aligned to fostering sustainable spatial and infrastructural development in cities. However, the study finds that the current spatial and infrastructural development of the secondary city Mthatha, is not executed in a coordinated manner and little integration is achieved in this regard.

The study concludes by outlining a set of guidelines to be used in the city of Mthatha. These guidelines suggest the necessary actions for planning and executing spatial and infrastructural development in Mthatha that considers its urban growth, rural-urban migration, and integrating the colonial city to the informal Arrival City of Greater Mandela Park. It is fitting to explore the theme of sustainability and urban growth in secondary cities as they perhaps represent the two most important challenges that face humanity in the twenty-first century.
ACKNOWLEDGMENTS

I owe the successful completion of this research for the Master of Technology in Architecture to:

• My Lord and personal saviour Jesus Christ, for giving me the discipline and the will power to persevere.
• My parents Zolile and Thabile Cakata, for their love and support and their teachings on the importance of continuous learning.
• Dr. Finzi E. Saidi, who supervised this study and whose advice and academic guidance have challenged me to become mature, rigorous and thorough in my pursuit of knowledge.
• Jabu Absalom Makhubu, for his timely intervention in this study and providing me with guidance on urban form and morphology of cities. His input was invaluable.
• Suzette Grace, who continues to play a major role in my engagement with architecture and my thinking about cities.
• The King Sabata Dalindyebo Municipality leadership, for allowing me access to their thoughts, and data. Their participation has been invaluable.
• The participants from the various stakeholder groups in the City of Mthatha: I am grateful for their time and contribution.
• Aphiwe Bukani, for graciously providing lodging and support during my study visits to Johannesburg over the course of this project.
• Taswaid Pillay, for his mentorship, motivation, and vision.
• Onthatile Magkalemela, with whom I share aspirations of positively influencing the minds of current and future generations of students and practitioners in the field of architecture and urban design.
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List of abbreviations

ISUP – Informal Settlement Upgrade

KSDM – King Sabata Dalindyebo Municipality

LSDF- Local Spatial Development Framework

MRIUP- Mthatha Road Infrastructure Upgrade Projects

NDP – National Development Plan

ORTDM – O.R Tambo District Municipality

SDBIP- Service delivery, budget and implementation plan

SDP- Sustainable Development Plan

SDF- Spatial Development Framework

SOMA – State of the Municipality Address

UN – United Nations

WCED - World Commission on Environment and Development
Definition and terms

**Arrival City:** a term that describes the urban migratory movement of rural population into informal settlements on the edge of established cities. *Arrival cities* are informal settlements (Saunders, 2011: 18).

**Access to the city:** how accessible a city is for its poorest citizens regarding amenity, job opportunity and quality of life (Saunders, 2011).

**Compact city:** a compact city is a city characterised by high density and mixed use, that is live, work and recreation happening in the same location. (Jenks and Kozak, 2008: 71).

**Global South:** the developing southern hemisphere of the world. Asia, Sub-Saharan Africa and Latin America constitute the Global South.

**Informality:** activities that take place outside of the regulatory framework of cities. The core activities that constitute informality are economic trade (informal trading) and informal settlement (Saunders, 2011)

**Primary city:** (also known as Megacity) is a city that has a population of 500,000 and above. It is usually the key economic urban centre in a particular country. Primary cities are twice the size (in population) of the nearest large city. The economic output of primary cities is disproportionately high compared to that of other cities within the national gross domestic product of a country (Saunders, 2011).

**Progressive focusing:** the qualitative research tool used in the description and organisation of data from observation. The descriptive focus moves between broad contextual themes to specific particulars of a case study. This focus, or zooming (Wolcott, 1994:18), may move in both directions where the details of a case can lead to a focus on the broad themes under consideration, and vice-versa.

**Secondary city:** a city that is characterised by having a population of between 50,000 and 500,000. A secondary city is also marked by its reliance on commercial activity as opposed to industrial activities (Hohmann and Roberts, 2: 2014)

**Walkability:** refers to the availability and the state of pedestrian walking surfaces and networks within a city Speck (2008:74).
CHAPTER 1 - INTRODUCTION AND BACKGROUND

1.1 Introduction

Chapter 1 introduces the research statement of the study. The chapter also presents Mthatha as the selected case study. This provides the contextual background that is developed further in Chapter 4 of this study. In Chapter 1, the key themes of the study are identified, which are critically evaluated in Chapter 2. The research questions are identified in Chapter 1 in which the motivation and rationale of conducting this study, and the envisioned outcome thereof, are stated. The chapter concludes with the identification of limitations as well as the layout of the structure for this study.

1.2 Research Statement

In the twenty-first century, urban growth will occur in secondary cities. Secondary cities should contend with the resulting pressure exerted on their environments by this growth. Guidelines should be formulated and applied to secondary cities to ensure that people, the environment, and the economy of secondary cities can develop using sustainable principles.

1.3 Context of the Study

Secondary cities in South Africa are the places where urbanisation occurs. The development of secondary cities should be planned to respond to this urban growth. Sustainable cities can be created and achieved by providing guidelines and suggesting concepts that should be applied to enable sustainable spatial and infrastructural development, and to build sustainable livelihoods for people and the environment.

The term sustainability emerged from a report that was produced in 1987 by the WCED (Drexhage & Murphy: 2010). The Brundtland Commission (as it was called, following the appointment of Norwegian Prime Minister Gro Harlem Brundtland as chair) first set out to identify the problem that had led to the rapid deterioration of natural resources and the resulting emergence of social malaise. These problems necessitated a different approach to development (Kilbert, 2012: 3).
According to Kilbert (ibid.), the key factor driving global urban development has been the rapid urbanisation of the world population. The industrial revolution and the subsequent urbanisation seen in Europe and America were propelled by industrialisation and its twin consequence, economic development. Mbanga (2016: 1) observes, however, that the urbanisation seen in Africa follows a different path to that of Europe and America. He notes that African urbanisation is composed of a youthful population that is characterised by formal unemployment.

Mbanga (ibid.) asserts that urbanisation in Africa is taking place – not as a result of industrialisation and economic development, but in some places – because of the lack of these factors. A non-industrialised rural-urban migration thus gives rise to a population that will seek to make a living outside of the formal economy and hence the emergence of informality both as a means of settlement and economic activity.

It is this investigation that leads to the introduction and exploration of African urban development with the sustainable development theme as a prism from which to view it. The exposition of this phenomenon of urbanisation within a sustainable development purview is timely. The United Nations Population Division (2007b) reports that the urban population of Africa is increasing at a rate of 3.5% and 3.75% per year. These growth rates point to Africa as the centre of global urban growth.

Urban studies and sustainability research has focused on the primary cities of Africa such as Abuja, Cairo, Lagos, Nairobi, Cape Town (Pieterse, 2010) and Johannesburg. However, this study argues that urban growth takes place in the smaller urban centres such as secondary cities, or the so-called feeder cities. There is an added complexity that is brought about by rural-urban migration that is a key factor that influences urban growth in these urban regions.

The selection of the case study city is a response to the knowledge gap that exists in understanding the urban growth and development that takes place in secondary cities and the development implications and considerations with regard to facilitating sustainability.

This study is an evaluation of urban studies, spatial planning, infrastructure, policy, rural-urban migration and informal settlement evolution, and how understanding these aspects of urban growth can inform the planning of sustainable secondary
cities in South Africa. The premise of the study is based on the phenomena of urban growth and urbanisation. This study presents findings and guidelines of sustainable city principles. In conclusion, the study focuses on the case study of the City of Mthatha in the Eastern Cape Province of South Africa.

1.4 Research Questions

The research questions emerge from the purpose of the study, which is to explore the concepts of sustainability in South African secondary cities. The research questions are based on the case study of the City of Mthatha. The questions are:

- Is Mthatha a secondary city, and what are the implications for its sustainability as an urban centre?
- What is the current infrastructural development taking place in Mthatha?
- What is the current spatial and infrastructural definition of Mthatha?
- How inclusive and sensitive is the spatial and infrastructural development in Mthatha?
- What understanding can we derive from the rural-urban migration taking place in Mthatha and its periphery?
- What responses, in the form of guidelines, can be formulated to respond to the sustainable development needs in Mthatha?

The approach to answering the research questions is outlined in Chapter 2 of this study. Dodd (2011: 7) posits that cities are a manifestation of systems of behaviours, and overlapping and intercepting sociologies, as much as they are built configurations and spatial juxtapositions.

The study explores and assimilates the contemporary discourse of sustainability and urban theory. The exploration into the sustainability and urban theory/studies forms the base from which connections, opportunities, intersections, and lessons on how to facilitate sustainability in secondary cities. These possible connections are suggested as guidelines to possible futures for sustainable secondary city facilitation and/or creation, with the focus on the spatial integration of the rural-urban dynamic and infrastructure development in Mthatha.
1.5 Introduction to the case study: Mthatha

The case study selected for this study is Mthatha. Mthatha is a city located in the eastern part of the Eastern Cape Province of South Africa (Figure 1) along the banks of the Mthatha River. The City was founded as a military outpost in 1882 and was formally established as a colonial town in 1883 (Lombaard, 2010: 12). In the period between 1974 and 1994, Mthatha was the capital city of the Bantustan State of Transkei.

Mthatha is currently the seat of power of the King Sabata Dalindyebo Municipality (KSDM), which covers an area of 3,019km². It is the only major urban area in KSDM with its satellite towns being Mqanduli and Coffee Bay (Figure 2). These satellite towns depend on Mthatha for their employment, commercial and educational needs.

Mthatha is the capital of the O.R Tambo District Municipality (ORTDM), which covers an area of 12,096 km² (Figure 2). The ORTDM is a majotiry rural district. The small towns of the local municipalities that surround KSDM in the ORTDM, such as Tsolo and Qumbu, in the Mhlontlo Municipality and Libode and Ngqeleni, in the Nyandeni Municipality, use Mthatha as the urban centre (King Sabata Dalindyebo Local Municipality, 2014: 4).
Mthatha is located in the eastern part of the Eastern Cape. (Figure1). The population of the City of Mthatha was estimated at 137,589 in 2011 (City Population, 2015). Mthatha covers an area of 73.6km², with a population density of 1,863.4 people per km²; Mthatha has a population growth rate of 3.43% to 3.9% per year. (Ibid).

The urban form of Mthatha is characterised by two key factors, namely the natural and human-made. The city edge is defined by the Mthatha River on the north and the Sidwadwa River on the south of the city (Figure 3). The inner city, or the central business district (CBD), is defined by these two natural buffers.

The city is ordered along two major roads. The N2 is the national road that traverses Mthatha along a northeast to south-west axis. The N2 is a national route that links Durban to East London and Port Elizabeth. The R61 is the major regional route that connects Port Saint Johns and Mthatha on the south-west to Queenstown to the north-west, connecting it to the N2 national road that connects East London to Johannesburg. The R61 and N2 intersect in the middle of the CBD of Mthatha.
The urban morphology of Mthatha has evidence of colonial and apartheid city planning principles. Colonial city planning principles were set out as a spatial mechanism to separate people regarding class and race (AlSayyad & Rajagopalan, 2010: 167; Simon, 1989a: 68). The resultant urban form in Mthatha is that of a city that spreads outward from the CBD.

The suburbs of Norwood, Central and Southernwood, and Fort Gale are located in the immediate periphery of the CBD of Mthatha. These suburbs were the historic residences of the white population of Mthatha. The suburbs of Hillcrest, Northcrest, Sidwadwa, Southridge Park, and the townships of Ngangelizwe, Ncambedlana, Ikhwezi and Mbuqe are located further outside of the CBD of Mthatha that are residence to the black population of Mthatha.

Further away from the CBD, are the informal settlements of Maydene farm, Greater Mandela Park, and Kuyasa. Figure 4 shows the diagrammatic spatial ordering of Mthatha that has been the result of colonial city planning instruments used in its development.
A significant component of the urban population in Mthatha lives in the informal settlement agglomeration that will be referred to as Greater Mandela Park (See Figure 3 and 4). It is estimated that approximately 40,000 (Firth 2016) people reside in Greater Mandela Park. This informal settlement consists of Mandela Park, Phola Park, Joe Slovo Park and Chris Hani. This informal settlement area is located 5km west of the Mthatha inner city (Figure 4 and 5). It is referred to as Mthatha West by KSDM. The population of Mthatha comprises 95.61% black Africans, 2.66% Coloured, 1.23% Indians and Asians, and 1.04% Whites. Females comprise 54.52% of the population and males 45.48% (Firth 2016).
The case study of Mthatha offers an opportunity to develop secondary-city-specific guidelines to deal with the trend in growth in this urban region. The study will explore both the formal of Mthatha, with a particular interest in the inner city or the CBD. The study will examine the informal settlement of Greater Mandela Park as it represents a significant spatial and population aspect of Mthatha. The integration of these two leading areas in Mthatha is the basis of the exploration into the implications of sustainability in the city.

The growing number of people migrating to secondary cities from rural settlements will be a challenge for planners and built environment professionals. The pressure that will be exerted on the secondary cities’ environment is an opportunity to prepare and guide this growth to occur in a sustainable manner.

An understanding of the factors that influence growth and development is thus needed. From the knowledge of these factors and what their implications are for sustainable development, implementable guidelines will be formulated and presented for use by policymakers, government officials, businesses/investors, and the community.
Mthatha is the administrative city of KSDM which is the local authority. It is the primary urban centre in the OR Tambo District Municipality (ORTDM) (Figure 6). The other town in KSDM is Mqanduli.

Coffee Bay is a coastal enclave that is a tourist destination on the coast of KSDM. KSDM, and thus Mthatha, is an important regional urban centre in the ORTDM region.

The socio-economic status of KSDM is characterised by a 38.8% overall unemployment and 48.3% youth-unemployment. The city acts as the urban centre of the surrounding small towns(within a 50-km radius) of the ORTDM (shown in Fig. 3). They are Libode (5,000 inhabitants), Tsolo (7,794 inhabitants), Qumbu (4,926 inhabitants), Mqanduli (2,647 inhabitants), Coffee Bay (258 inhabitants), Qumbu, Lusikisiki, and Port St. Johns (census2011.adrianfirth.com, 2016).

Mthatha is an important urban centre for the surrounding towns of Mqanduli, Coffee Bay, Tsolo, Libode and Qumbu (Figure 6). Mthatha is surrounded by many rural settlements of significant population size (Figure 9). Payne village (10,283 inhabitants), Ngaphezulu (2,003 inhabitants) Tyumbu (1,902 inhabitants), and
Sheshegu (1,824 inhabitants) are examples of rural settlements located within a 15-km radius of Mthatha. These rural areas depend on Mthatha as their urban centre (Firth, 2016).

Figure 7: Map showing rural settlements surrounding Mthatha (Adapted from King Sabata Dalindyebo Municipality, 2013c)

John (2012: 6) observes that apartheid planning in South Africa created planned segregated spatial activities within cities and their rural periphery. He further argues that this had an effect of necessitating that rural dwellers travel to urban centres for economic functions. This practice is inherent in Mthatha as the rural areas are located even further away from the informal settlements shown in Figure 8 below.

Mthatha serves as the only urban centre for surrounding rural and urban areas in its immediate radius of 50 km. A high unemployment rate characterises it. The distinct and localised conditions of Mthatha suggest that very specific models of African urbanisation require understanding and that a unique set of guidelines need to be formulated to address the sustainability goals of secondary cities in South Africa.

Secondary cities are the receptacles of urban growth. The spatial and infrastructural pressure exerted on urban regions, because of this phenomenon, requires study. The development of cities thus needs to be driven by a response to current trends in growth and the future effects of any development undertaken to address such
growth. Cities will have to set the agenda for the kind of development which takes into consideration the social, economic and environmental effects of such urban growth.

Mthatha is a city in transition from its colonial town and apartheid policy spatial and infrastructural history. It is a city that is dealing with the shift of the population that is moving from rural to urban. It faces the pressures of urban growth and migration and must deal with the urban development needs of its people, the environment, and its economy. This study argues that secondary cities in South Africa will have to be better understood and guideline to facilitate their sustainable development will have to be developed.

The study will focus on the link between the formal city and the emergence of informal settlement in Mthatha. This emphasis is to identify trends in urban growth, migration, spatial and infrastructure development. This is done to determine the implications to the sustainability of Mthatha and how guidelines may be developed to respond to shortcomings. The urban and built form of both the formal city, the CBD and the immediate surrounds, and the informal settlement, Greater Mandela Park, is discussed in Chapter 4 of this study.

1.6 Motivation and rationale

There is a knowledge gap in the research into sustainable cities in the Global South in general and South African secondary cities in particular. The author acknowledges that scholarly research has been conducted on African city theory and urban society. There has been research carried out on the increase in urbanisation on the African continent. Pieterse and Parnell (2014: 9) have highlighted the knowledge gap that exists in contemporary studies into problems associated with urban growth in Africa.

They identify proper urban planning, environmental protection and civil society based actions as some of the important subjects that require a better scholastic understanding. Research into African cities such as Kinshasa in Congo Brazzaville Simone (2013: 237) is a reference point in the current discourse into the urban growth of Africa. Simone (ibid.) explores the urban economy of Kinshasa and how the movement of people in and out of the city creates new spatial configurations as the city expands.
Research has been done on South African cities over the past 35 years. The research by Dewar and Uytenbogaardt 1977: 12) provides an insight into housing in Cape Town and its effect on the urban form of the city. Pieterse (2010: 20) has explored the concept of sustainability for the City of Cape Town. However, research on cities and sustainability in South Africa has focused on primary or the big cities (regarding both size and population). Simone (2004: 63) has explored the spatial order of the small town of Winterveld. However, Simone’s exploration does not pertain to a secondary city. Neither does it focus on sustainability as its key theme.

The motivation of this study arises from the need to better plan, design and build sustainable secondary cities where people and the environment may be allowed to co-exist and thrive symbiotically. This is a pressing need globally. It is pressing in the South African context where multiple factors have contributed to creating cities that are socially disjointed, spatially unjust, economically unbalanced and environmentally insensitive.

The author’s intention is, through the research findings and recommendations, to encourage the public and private sectors to consider sustainability as a mode of operation in creating more sustainable livelihoods and to better prepare and facilitate sustainable spatial and infrastructural planning and development.

The local government, KSDM, the community, special interest groups, and businesses located in the area of study may use the findings in this research to explore sustainability as a core factor to drive development and promote sustainability; for the growing needs of the city, both presently and for future generations.

The growth of Mthatha has largely been concentrated in the outskirts of the inner city. The settlement of Mandela Park, Joe Slovo Park, Chris Hani and Phola Park is located about 5km on the western edge of the city. For the purpose of this research, this area will be referred to as the Greater Mandela Park (See Fig 2).

The study reveals that this area has the highest concentration of urban dwellers in Mthatha. The research into this informal settlement or “Arrival City” within the secondary City of Mthatha is necessary. The study explores sustainability factors of equity, social justice and political and economic factors and the conservation of
natural resources; that both cause and may be put in place to address the development needs of informal urban settlements.

Research on Mthatha must take cognisance of the rural surroundings. The rural periphery of Mthatha is a driving factor to the growth of the urban population. The research motivation is thus to uncover patterns and information that will cause a better understanding of this rural-urban migration. Policy and spatial planning of the future in Mthatha should be based on understanding this emerging trend, to which the research seeks to respond.

The research into this area of South Africa also holds a personal motivation for the author. Little scholarly urban research exists about the Eastern Cape; even less research exists about the underdeveloped eastern half of the Eastern Cape.

The author is drawn to the history and evolution of the City of Mthatha. The urban and rural surround of Mthatha has a cultural heritage. There is little scholarly work on spatial patterns and architecture of Mthatha. The study of Mthatha will offer an introduction to what the author hopes will become a growing body of knowledge that will lead to the understanding of its economic, spatial and infrastructural developmental needs.

The area occupied by Mthatha holds significant cultural and historical value in the context of the South African political economy. The first democratically elected president of South Africa, Nelson Mandela was raised 15km from the City of Mthatha in the village of Qunu.

The Nelson Mandela Museums located in Mthatha and in nearby Qunu marks the role that Mandela played in the liberation of an oppressed people. It also seeks to highlight the role other leading figures born in the Eastern Cape did for the democratic struggle; figures such as Oliver Tambo and Govern Mbeki. Democracy paved the way for a more inclusive and just policies, which are the basis from which the possibility of a sustainable livelihood to all that live in South Africa may emerge.

Not enough scholarly research into the potential of this area of the Eastern Cape exists, particularly regarding urban form, infrastructure, informality, rural-urban migration, architecture, planning and sustainability. It is hoped that this research then
becomes a starting point for more research that may unlock previously unrealised potential in the area.

1.7 Delimitation of study

The study is limited to exploring the concepts of sustainability in secondary cities in South Africa. The case study is the City of Mthatha.

The study will be limited to the exploration of rural-urban migration, informality, spatial integration and infrastructure and their implication on sustainability in the City of Mthatha.

The participants in the survey questionnaires and interviews are limited to the main representatives of the identified stakeholder groups. The surveys represent the qualitative assessment of the case study. The author acknowledges that the direct observations are restricted to specific areas that are within the scope of the research questions.

1.8 Aims and objectives

The aim of this study is to explore concepts of sustainability in secondary cities. This exploration will be used to inform guidelines and principles that can be applied to the case study city, Mthatha, and potentially other secondary towns and cities in the South African context.

- This study will define the implications of sustainability for the secondary City of Mthatha.
- The study will define the current spatial and infrastructural development of the City of Mthatha.
- The study will explore concepts of urban fragmentation and integration in the context of the City of Mthatha.
- The study will explore the effects of rural-urban migration and the emergence of the Arrival City and informality in the City of Mthatha.
- The study will develop set of sustainability principles to guide spatial and infrastructure development for the City of Mthatha, which may be used as a pilot for application in South African secondary cities.
1.9 Envisioned outcome

The envisaged outcome is for this study is to present a contemporary view, analysis as an understanding of the issues and implication of sustainability and urban growth the City of Mthatha.

The output of this research shall be:

- a dissertation in hard and digital format;
- reliable urban database for the City of Mthatha to be used by stakeholders for planning and investment decision making; and
- an academic paper published in an accredited academic journal by December 2017.

1.10 Structure of the study

The study into sustainability in secondary cities, with the City of Mthatha as a case study, is organised into five chapters.

Chapter 1 provides the context of the study. The research questions seek to define and understand the implication of sustainability in secondary cities in South Africa? The chapter introduces sustainability and secondary cities in the global context. The chapter introduces the City of Mthatha to provide a context from which the study is based. The motivation, rationale and the intended outcomes of the study into the sustainability of secondary cities in South Africa are identified in this chapter.

Chapter 2 is the review of the theoretical positions into sustainability and secondary cities. The review is conducted to understand the current knowledge that exists in sustainability in relation to secondary cities. The chapter also identifies the characteristics of and key determinants that influence sustainability in secondary cities. These determinants are urbanisation, spatial order, rural-urban migration the role of infrastructure, and the effect of policy and their implications to achieving sustainable development in secondary cities.

Chapter 3 sets out the research methodology used in the study. The study uses of mixed method approach, with a qualitative and quantitative assessment of the City of Mthatha. Chapter 3 outlines the qualitative and quantitative tools used, such as the survey questionnaire, direct observations and the interview. It sets out the design
and rationale of the tools used and the process of selecting the areas of focus within the larger context of the City of Mthatha.

Chapter 3 also outlines the research design and states the five key questions that are formulated to answer the key research question on Mthatha as a secondary city and what the implications of its sustainability are. These research questions are intended to provide a basis for discussion about the City in Chapter 4; this aims to lead to the formulation of guidelines for the City of Mthatha to respond to the sustainable development needs identified in the study.

Chapter 4 discusses the data collected from the observation, interviews and questionnaires collected about the City of Mthatha. This chapter presents and discusses the data as a means of understanding the state of sustainability in the City of Mthatha. The discussion informs the guidelines that are presented in Chapter 5.

Chapter 5 provides the guidelines regarding principles to be applied to facilitate sustainability in the City of Mthatha. Recommendations and lessons learnt in the study are also presented. The chapter also addresses shortcomings found in the study and proposes suggestions for further study.
CHAPTER 2 - LITERATURE REVIEW

2.1 Introduction

This chapter is a review of the literature used to address the research questions of what a secondary city is, and what guidelines should be formulated to ensure that sustainable development is achieved in secondary cities in South Africa, with the City of Mthatha as a case study. The review forms the theoretical basis from which the identified knowledge gap in South African sustainable secondary city research is to be filled.

Chapter 2 comprises the key theoretical themes of the study of sustainability in secondary cities. These themes are sustainability, Sustainable City Theories, Urbanisation, Rural-urban migration, The Effect of Policy on cities, and The Role of Urban Infrastructure in sustainability. Where necessary, themes and subthemes in this chapter are reviewed in the order of the Global, African/Global South, and South African contexts.

2.2 Sustainability

Sustainability is the concept of achieving a balance between economic growth, ecological, and social justice. These three aspects of consideration were historically treated and addressed as separate or non-related entities. The first contemporary acknowledgement of the deterioration of the environment led to the 1972 UN-Conference on the Human Environment which was held in Stockholm, Sweden (Dalal-Clayton and Bass, 2002:11).

Over the 16-year period of 1972 to 1986, the debate grew more intense regarding the imperative to identify a wider and more interlinked view of the deteriorating state of the environment. The Brundtland Commission report by the WCED in 1987, titled, Our Common Future, became the critical contemporary piece of sustainability literature that made the connections to the interdependence of the environment, the economy, and society (Drexhage & Murphy, 2010: 4).

Drexhage and Murphy (2010: 5) observe that research on sustainability over the 23-year period between 1987 and 2010, has largely been reduced to ecological preservation. At the same time, development has been focused predominantly on
economic growth, with growth in the gross domestic product being regarded as the chief measure of economic progress. The fact that this has happened despite the apparent agreement of the multi-faceted approach that should aim towards stability poses a threat to the continued viability of the world’s biodiverse populations.

This study explores the concepts of sustainability that deal with the interdependency of people, the environment, and the economy. These ‘three legs’ of sustainability are viewed as inseparable when dealing with sustainability issues in cities. The focus on one of the legs is a negative approach that prioritises one issue over the other. It is precisely this gap in sustainability City research that this study will fill.

2.3 Sustainable city theoretical perspectives

Cities are characterised by three determinants: people, infrastructure, and the natural environment. These specific determinants are there primarily to fulfill the needs of the cities’ inhabitants. Cities need labour, technology, capital, natural resources and space as daily inputs.

Polinna (2011: 200) posits that to achieve sustainability, the infrastructure of a city must be designed to connect communities to economic opportunity while balancing the need to ensure that the natural environment is not compromised.

According to Speck (2008:74), sustainability in cities can be achieved by creating pedestrian networks as the focus of mobility. Speck sees the focus on vehicular infrastructure as a negative influence on the sustainability of cities. He suggests that cities need to be informed by the “theory of walkability”, which is a principle that favours pedestrian mobility over the disproportionate allocation of resources and planning for vehicular mobility.

The research on the sustainability of cities has also identified some problems within sustainable urban development. There is a consensus in the global political world that the complex spatio-social and environmental issues around urban development require a sustainable solution. However, Whitehead (2003: 1187) notes that sustainable urban development plans have been reductionist in their planning and implementation.
Whitehead, furthermore, observes that sustainable urban development has been reduced to technical matters involving traffic management, architectural design, and the development of "green" technologies. These aspects are not of themselves counterproductive to achieving sustainability. However, this reduction has tended to limit the conceptual development and further exploration into the more intricate and nuanced connections that are necessary to consider sustainability as a model for urban development.

There have also been explorations into sustainability in cities of the Global South. Simone (2006) has conducted case studies in four African/Global South cities, namely in Cameroon, South Africa, Senegal, and Saudi Arabia. He argues that the perspective that African cities do not work is not correct, and there are fluid and informal connections that exist in community organisations, local government, and informal enterprises.

Simone (ibid.) argues that the success of African urban cities rests on the ability of planners, government officials, and designers, to draw lessons from the particular history of the urban area in question. This understanding of local knowledge should be integrated into the formal and informal urban economic, and socio-political systems that exist to create sustainable livelihoods.

On the South African context, sustainability research focuses on primary cities located in metropolitan areas. For Borraine (2010: 116), central-city development strategies are critical to achieving sustainability in cities. His analysis of the City of Cape Town shows that the key elements to achieving sustainability are reconnections to the city’s historical origins. He argues that increasing the use of space, by densification, is necessary for achieving long-term sustainability in the City of Cape Town.

The research into sustainability in South Africa seems to focus on the Cities of Cape Town (Dewar & Uytenbogaardt 1991; Simone 2006; Pieterse 2010; Pieterse & Parnell, 2014) and Johannesburg (Pieterse, 2010, 2013; Oldfield, 2014).

The ideas of transport infrastructural connectivity, pedestrian-focused mobility planning in the global context are key themes that emerge from the global context in sustainability research.
The notion of participatory inclusion and the integration between formal and informal economy and the role of local authority in this process offers a firm stance in which cities can steer development. The lessons of participatory inclusion and formal-informal economy integration are key practices that are immersing in the research into cities of the Global South. The research on sustainability in cities of the Global South (Dewar & Uytenbogaardt, 1977, 1991; Simone, 2006; Pieterse, 2010; Pieterse & Parnell, 2014; Pieterse, 2013; Oldfield, 2014), while useful, has offered very little insight into sustainability in the cities that most Africans occupy, which are the secondary cities with populations of 500,000 and less.

2.4 Secondary cities

Rondinelli (1983) popularised the term “secondary city” in urban studies. His research was focused on defining what a secondary city is and on how these secondary cities are drivers of urban developing in developing countries. His definition of a secondary city is based on urban settlement population bands of 100,000 and above.

Research from the 1980s (Rondinelli, ibid.) suggests that urban growth occurred in secondary cities in developing countries. This was validated by the quantified findings that a significant portion of the world’s urban population was living in small and secondary urban centres. Data estimates (United Nations Population Division, 2007a; Milton, Hardoy and Satterthwaite, 2001) from the 1980s show that 75% of the developing world’s urban population resided in urban centres with population sizes smaller than 100,000 people at the time.

Secondary cities have been a major driver in urbanisation in Africa. Rondinelli (1983:51) writes that the number of secondary cities in the developing world more than doubled between the years 1950 and 1980. In Africa, the number of these urban centres of less than 500,000 people tripled between the years 1950 and 1980.

According to Pieterse and Parnell (2014: 8), 54% of global urban populations reside in cities of 500,000 or fewer inhabitants. This suggests that the research focus into primary cities is disproportional to the knowledge needed to understanding urbanisation and cities in the twenty-first century. These megacities of the world (New York, Lagos, Cairo, and Johannesburg) with over 10 million inhabitants, have a
combined population of 453 million people and make up just 12% of the global urban population (United Nations, 2014: [Sp]). This study will add to the knowledge gap that exists in sustainability research in secondary cities, where the majority of the world urban population reside.

This study attempts to add to the existing knowledge of how secondary cities play a major role in urbanisation. If the majority of the world’s urban population will continue to reside in secondary cities, knowledge on how to mitigate the pressure on the people, environment, and economy needs to expand. A greater understanding of what defines and characterises secondary cities is critical in the process of formulating guidelines to facilitating sustainable development.

2.4.1 What is a secondary city?

The characteristics explored are set out as guidelines that differentiate a secondary city from a primary city, and a rural settlement. The exploration of the features of what constitutes a secondary city is done as a means of arguing that there are differences that exist between the primary city and the secondary city. These differences are threefold: population, economic activity and rural-urban migration.

2.4.1.1 Global Perspectives

Research on what secondary cities are is focused mainly on the demographic characteristics. The defining characteristic has been centred on a population band. The early leading scholar on secondary cities, Rondinelli (1983), posits that cities with populations between 100,000 and 500,000 are secondary cities. UNHABITAT (1996) defines a secondary as an urban area with a population of 100,000 to 500,000 people.

Hohmann and Roberts (2014), however, note that secondary cities can loosely be described as those cities with populations of between 150,000 and 5 million. They note that globally 2,400 cities fall within the population band of 150,000 and 5 million. Hohmann and Roberts (2014: 2) suggest that cities with fewer than one million inhabitants will have a greater influence on the future of economic development of nations.
Secondary cities are not all the same. There are disparities in economic, spatio-physical and social development that can be observed. These differences are identifiable by the growing gaps in income, poverty levels and employment when secondary cities are compared with primary cities (ibid.).

2.4.1.2 Global South Perspective
The research by Rondinelli (1983) into secondary cities in Latin America, Asia and Africa suggests basic characteristics that are shared by secondary cities. He posits that secondary cities have a pronounced combination of both rural and urban characteristics. Secondary cities are dominated by commercial and service industries, and manufacturing occupies a small share of the economic activity relative to the population. Secondary cities offer a better quality of amenity and access to markets than rural settlements, though this level is lower than those enjoyed by primary cities.

The knowledge gap exists specifically in the Asian and African urban research on secondary cities. According to the UN, 80% of the global urban population will reside in Africa and Asia by 2030 (United Nations Population Division, 2007a: 7-8). The majority of the urban dwellers will reside in cities with populations of 500,000 and less; essentially secondary cities. Pieterse and Parnell (2014: 9) identify that these secondary cities pose the biggest challenge to achieving sustainable development goals. They determine the problem of low local governmental official skills, the excessively low tax base, and the spatial challenge of mitigating the relationship between the urban areas and their linked rural areas.

2.4.1.3 South African Perspective
A research report by Dauskardt (1994:5), in South Africa, concurs with the suggestion of Rondinelli. He asserts that the general classification of secondary cities in South Africa is cities which have a population of between 50,000 and 500,000. Dauskardt (1994:11) names the 23 secondary cities in South Africa that include Mthatha, Grahamstown, Welkom, Richard’s Bay and George. However, he argues that using just population thresholds as a different measure to define what a secondary city is, has limitations. The key limitation is that settlements of comparative sizes would be mistaken to have similar characteristics, which ignores localised differences (Ibid. 6).
Thus a wider survey of socio-economic, functional, physical and political factors is seen as prudent in understanding secondary cities. Data such as demography can then be compiled alongside income, education, and infrastructure and government functions data. This provides a more dynamic and specific profile of the specific secondary city in question (Ibid.).

There seems to be no strict defining characteristic for what a secondary city is. However, the population band of 50 000-500 000 shall be applied as a starting point. Some factors also determine if a city is a secondary city. A background report by the South African Cities Network (John, 2012: 12-13) hypothesises that other factors can be used to determine if a certain urban area is a secondary city. The report indicates that the regional importance of the city is such a key factor. This suggests that a secondary city will service the surrounding smaller towns and rural settlements. Other factors cited include the availability of educational infrastructure and urban governance.

In summary, secondary cities in South Africa can be identified by a population band of 50,000 to 500,000; the cities’ importance as a regional urban service area; and the presence of urban governance and economic activities in those particular cities. However, the reduction of a secondary city to a population band is problematic. This is because the population band fails to account for localised differences that are inherent in cities, as no two cities will be alike. Secondary cities are gateways for the transition from a rural to an urban settlement, which has been the global migratory trend in the twentieth and twenty-first centuries. These constituents of population band; regional significance; and the rural-urban migration, are key characteristics that serve as a starting point for defining and understanding secondary cities.

2.5 Urbanisation

Urbanisation is a result of a movement of people from the rural to the urban areas. It is the process of society transitioning from subsistence to market orientated production and consumption. Urbanisation is an important part of global development. It forms a central part of socio-political and economic debate in the twenty-first century. Burgess, Carmona and Kolstee (1997: 4) point out that only 13% of the global population lived in cities in 1950. Research (United Nations, 2014:) states that in 2010, 54% of the world’s people resided in cities.
Henri Lefebvre (2003: 167) writes that the urban revolution is an evolutionary process that has seen humans progress from villages, where subsistence agriculture was the key activity, to an urban society, which is a result of industrial and capital (merchant) production. He contends that urbanism is in its entirety a multi-faceted social science with spatial, political and socio-economic intersections, pressures, conflicts and implications.

The traditional Western model urbanisation is that urban growth has an inverse correlation to economic growth. Portney (2003:103) posits that urban growth is the result of increased economic activity. Pieterse (2013: 21), however, observes that the African urban growth story displays a perverse urbanism, which is urbanisation without the proportional economic growth. This is in addition to the earlier work of Lefebvre (2003: 168) that he synthesised as the “law of unequal development”. The theory proposes that growth without development and development without growth are themes that would define urbanism in the twentieth and twenty-first centuries.

Research (UNFPA 2007a) suggests that by 2025 over 60% of the world will live in cities; that rate will accelerate and it is estimated that 70% of the world’s population will reside in cities by the year 2050. By the end of the twenty-first century, cities in the developing Sub-Saharan Africa will be 75% urbanised. These new city-dwellers will not be able to afford to integrate themselves with the existing urban economy automatically. This is mainly due to the income disparities that exist between people living in rural areas and the new, high standard of living they will encounter in the city.

Simler and Dudwick (2010:8) claim that the mean consumption in global urban areas is greater than that of rural areas. The study reveals that in some cases this consumption differential is almost too favouring towards urban inhabitants. The data suggests that incomes in urban areas are greater than, and even double that, of rural areas.

Rakodi (2005: 47) observes that 34% of Sub-Saharan Africa’s population were estimated to be urban dwellers by 2000. This equates to over 200 million people. The percentage of urban dwellers in Sub-Saharan Africa was 13% in 1950. According to Simone (2004: 1), urban growth in Africa has some negative consequences and
that they are in crisis, with the urban population growth being unaccompanied by a proportionate growth in socio-economic indicators.

The shift towards urbanity over the past 65 years is significant. In two generations the world has moved from rural to urban. This is a global trend. The level of urbanisation differs from region to region. Africa is less urbanised than the Western Hemisphere. This presents a challenge for future planning as to how to plan and build cities in Africa in the response to this urban growth.

Gaines and Jäger (2009:12) believe that the next wave of urbanisation will take place in the “third world”. The “third world” is a reference to Africa, Asia and Latin America. This view necessitates that more research is conducted on sustainable city theory in the Global South. If urban areas on these continents are to grow, planning for the urban growth and the impact on the people, infrastructure and environment will be necessary to ensure that sustainable livelihoods are achieved.

2.6 Spatial order in secondary cities

Research into the urban forms and the spatial order of cities has been focused on primary or metropolitan cities. Hohmann and Roberts (2014: 71) has noted that this focus has left a gap in the understanding of the urban forms that emerge in secondary cities. Hohmann and Roberts argue, however, that common factors shape all cities. He cites geography, history, economics, culture, planning ideology, defence and wealth as factors that determine the spatial order of cities (ibid.).

Howard (1902) hypothesised that the positive elements of urban life, such as high wages and parks and easy access and those of rural life, such as pure air and water, put together constitute the ideal “town-country”. Howard suggests (ibid.) that this is the model for “good” cities.

The urban form of this ideal city utilises the rural aspects of open fields and gardens to facilitate public open spaces and interaction. This design principle is an early example in consideration of urban form as a means of fostering social cohesion and environmental sustainability. The model also espouses industrial parks for
manufacturing and commerce—a consideration for the economic sustainability of cities.

Lynch (1981) has identified key principles that constitute good city form. He identifies fundamental principles such as sense (relating to architectural identity, and legibility of street layouts), fit (relating to use), access (relating to the economy and amenities), control (relating to security and spatial justice). Bentley, Alcock, Murrain, McGlynn, and Smith (1985) concur with Lynch as they identify legibility as a key element to responsive urban environments. They believe that environments should be designed to be robust, to be visually appropriate; having variety in the building typology and it must be permeable. These aspects refer to access and integration between places in a city (ibid.).

The principles for good urban spatial form are useful as guides to measure how efficient, appropriate and integrated a city is. These identified principles will be used in the assessment of the current spatial and infrastructural development taking place in Mthatha. This evaluation is contained in Chapter 4 of this study. They will be used in suggesting guidelines for sustainability in secondary cities in South Africa, which are contained in Chapter 5 of this study.

The subsections below identify urban forms that are prevalent in cities and secondary cities in the world, with some spatial forms, such as informal settlement and the apartheid city being specific to the South African context. These urban spatial forms are explored for their implication to spatial and infrastructural sustainability in secondary cities with Mthatha as the case study.

2.6.1 Arrival City

Arrival cities are informal settlement enclaves within the city. They are primarily located on the periphery of the inner city. They are usually undesirable or abandoned pieces of land that become places where rural migrants find a foothold in urbanity. (Saunders, 2011: 18).

In Africa, as it was in Europe in the early 1900s, and Asia in the 1970s, the migration of former substance farming families to the city has created transitory arrival cities. The study on informal settlement implications on urban form for cities such as Jakarta and Kebon Kacang in Asia (Tunas, 2008), is an example of contemporary
research. These case studies show that these informal settlements are evolving past the points of being temporary or transitory settlements. They are becoming permanent urban settlements for newly urbanised migrants.

Lynch (2005: 64) has studied the effects of rural migration and urban agriculture in Dakar, Senegal. He posits that the rural migrants will seek to occupy land in the periphery of the city. This land was previously underdeveloped. He posits that also points towards a trend to focus on African urban studies and particularly the urban forms that emerge because of this informality.

Arrival cities emerge because of the need to secure housing for new entrants, usually rural migrants into the city (Saunders, ibid.). The implication to the urban form is that the Arrival City creates fragmentation, and sprawl outwards from the existing city centre. The location of the land may not always be suitable for housing, and this may be located outside of the existing urban limits. Natural buffers (Figure 8), such as rivers and forests may result in the further separation of the Arrival City from the existing city centre.

Figure 8: Conceptual diagram of the location of informal settlements in cities (adapted from Saunders, 2011).
In South Africa, Khumalo (2016: 9) states that these dormitory or arrival cities started emerging in the late 1800s to coincide with the industrialisation and commercialisation of South African cities. Urban inequality is rooted then in the spatial arrangement of the population, relative to amenity and opportunity.

In this current spatial reality the poor, who are in the periphery, will continue to spiral towards even further poverty. This spatial arrangement creates a problem with regard to access and integration. Because of the proximity to the inner city, townships have seen focus on development looking inward. That is, development that seeks to plan access within the confines of specific townships, rather than development dealing with integration with the inner city.

2.6.2 Compact city

Research on the compact city has increased regarding sustainability in Western world cities since the 1990s. The general classification of a compact city points to two most important principles. They are a) high density; and b) mixed use. This urban form promotes containment of sprawl and reduces travel distances and dependencies on private transportation. A successful compact city form is dependent on the availability of a multi-modal public transport system. (Jenks and Kozak, 2008: 71).

Secondary cities may be able to apply the compact city principles of reduced private vehicular usage. This may be possible because of the relatively small size of secondary cities. The size of these cities may be conducive to pedestrian-orientated mobility and public transportation.

Both walkability (Speck, 2008) and the provision of public transport are key factors that are identified to contribute to the sustainability of a city. This is because walking and public transport reduces the relative cost of commuting to places of employment, schools and commerce. This reduction in cost is particularly relevant for the urban poor, who can now redirect the savings to shelter, capital for informal trading and education needs.

Mthatha occupies an area that is contained or concentrated around the inner city (Figure 8). The inner city is centrally located, and surrounding suburbs have access
within a 5-km radius. This suggests that mobility and transportation networks can be investigated as distance to markets, medical facilities, educational institutions and financial services are always within a 5-km radius that is a key principle of compact cities.

2.6.3 Colonial and postcolonial city

Two characteristics define the colonial city. The first is that the city is a nucleus for human settlement, usually around an agriculturally fertile hinterland. The second characteristic is that of the domination and control (economically, militarily and politically) of the indigenous population by a minority population. This minority population is usually racially, religiously or ethnically different from the indigenous people being colonised. (AlSayyad & Rajagopalan, 2010: 167).

Simon (1989a: 68) has argued that colonial cities are heterogeneous and no two of these urban types are similar. However, he posits that it is a distinct urban type which neither conforms to the preindustrial or industrial model of cities. The role of the formation of colonial cities, he argues, was crucial to what is now postcolonial. These cities are spatially and economically fragmented and perpetuate inequality.

Colonial cities can be understood by their reason for formation, which is colonialism. Colonialism is:

“the control or governing influence of a nation over a dependent country, territory, or people.” (Business Dictionary: 2016).

This definition of “colonialism”, if applied to the spatial effect on the planning of a colonial city, suggests that colonial towns and cities be designed to achieve two key objectives. The first is to protect the interests of the coloniser. The second objective in the development of colonial cities is to protect the minority population in power while ensuring that the indigenous people are not too far away to provide labour for economic exploitation.

“Postcolonial cities” are cities that were previously part of colonial societies. King (2009: 1) argues that “postcolonial" refers to a critique of the distinctive impact which colonialism has had on the culture, economy, spatial form and architecture.
2.6.4 Informal settlement

An informal settlement is a collection of illegally constructed structures. These structures are typically residential in nature. Their structures vary in standard and quality. The informal settlement may be built from basic materials such as corrugated sheeting while some structures will be built from standard building materials such as brick, mortar, and concrete. Informal settlement sizes also vary. Some settlements may have a small collection of dwellings while other settlements house 50,000 or more residents (UNECE, 2008: 19).

Informal settlements in South Africa are the result of policies of the past. These policies, such as the Group Areas Act (Republic of South Africa, 1950), sought to control the influx of black migrants from the rural areas. These migrants sought employment in cities. The result of these policies was the formation of settlements on the fringe of cities (Barry & Ruther, 2005: 44).

Informal settlements that were formed after 1994 in South Africa are a result of the effects of these prior policy legacies not being addressed. It can be noted that informal settlements occur in the periphery of cities, which is undesirable because these areas provide access to land that is otherwise restrictively expensive within the formal cities (Saunders, 2011: 18).

Informal settlements in South Africa are a dominant human settlement typology. They vary from slum dwelling (shacks made of corrugated iron sheeting) to informal rental housing (built with brick and mortar) (UNHABITAT, 2015: 1). It is estimated that 10% of the population of South Africa live in informal settlements. This translates to approximately five million people (Van Wyk, 2012: 457). Informal settlements will continue to be a distinct human settlement typology in Africa due to urban growth and how the housing needs of the poor outpace the delivery of formal housing by the State.

Napier ([Sa]:11) has noted that there are five distinct types of informal urban settlements. They are:

- Informal settlements with traditional tenure (settlement on customary land);
- Free standing informal settlements (housing on urban land without legal tenure);
• Backyard shacks within formal areas;
• Informal housing on serviced land; and
• Indoor informal housing (illegal occupation of buildings).

Napier further argues (ibid.) that these distinct informal settlement typologies will have variations. These variations include the level of basic service provision, recognition by local authorities, and the location relative to the urban core or urban edge. He claims that these variations are significant as indicators of the likelihood of local governments to engage, and thus, upgrade, these settlements. The discussion on informal settlements in Mthatha is contained in Chapter 4 of this study. Greater Mandela Park is identified as a key informal settlement that requires attention in the pursuit of sustainable infrastructure and spatial development in Mthatha.

An example of the attention above is the research done on the informal settlement housing upgrade of Kosovo in Cape Town. Goven (2010:154) analyses the factors such as the housing typology, current spatial arrangements, income levels, and household numbers in Kosovo. She proposes a master plan for the upgrading of the settlement that makes use of the existing systems and connections of the informal settlement. The provision of urban squares around high-density housing and courtyards become a response to the problems of open space, surveillance and safety, which she identifies in her analysis.

2.7 Rural-urban migration in Mthatha

Urbanisation is the process of society moving from living that is characterised by rural living, farming/production for subsistence, to a society that resides in urban areas and mass produces for consumption and selling of the surplus to other urban and rural communities (2011: 7). Urbanisation is the single driver of migration and the growth of global cities. Saunders (2011: 9) posits that urbanisation is a significant phenomenon that should take place. He believes that the socio-economic success of nations is dependent on the successful urbanisation of a previously predominantly rural world. He writes that the integration of these migrants into urban life is fundamental to achieving this socio-economic success.
The rural settlements surrounding cities are an important factor to consider in planning for urban growth. Wirth (1969:166) says that urbanism is no longer a linear industrialist mode of living; neither is rurality identified with mechanised (especially agricultural) labour. This implies that the definition of “urbanism” has to be “a change from rural to urban living” (Simon 1989b: 150), because of industrial or economic activity that cannot be applied as an absolute. Inversely, “rurality” does not necessarily mean “the activities of rural life to be defined by small-scale or peasant agricultural activity”. This has been described as the law of unequal development by Lefebvre (2003: 168). In the African context, it has rightfully been put forth that urban growth is not necessarily a result of economic growth Pieterse (2013: 21).

Lefebvre’s urbanisation model (2003: 167) is based on European trends that apply to the African context in some instances. For example, Mthatha is located in the centre of an otherwise rural context. It serves as the only urban, full-service centre for the surrounding villages and even smaller towns. The surrounding villages are largely composed of households that are subsistence farmers on smallholdings. The migratory trend is that the influx into Mthatha is by the youth of these villages, who want to seek employment, upward economic mobility, and better access to education.

Ngqongwa (2016: 7) suggests that there is rapid urban growth from rural areas to the urban areas around Mthatha. She writes that this movement into the urban areas will be concentrated in the “town and … outskirts”, the pressure is exerted on local government to provide human settlement solutions.

KSDM’s population is mainly rural (70%, opposed to 30% being urban). Mthatha is in an area with the densest rural settlement in the country (KSDM, 2013b). Mthatha thus remains one of the most rural areas in South Africa. The trend towards urbanisation will be experienced in areas such as Mthatha, which still have a large rural population looking to access the urban environment. The urban growth in South Africa will be concentrated in the secondary cities and Mthatha will be a key urban region for the underdeveloped eastern part of the Eastern Cape Province.
2.8 The role of infrastructure in sustainability

The Habitat Agenda Section IV B (60) (UNHABITAT, 1996) points out the essentiality of providing basic infrastructure to facilitate sustainable communities. It states that:

'adequate basic infrastructure, such as watersupply, sanitation and waste water management facilities; suitable environmental quality and health-related factors; and sufficient and accessible location with regard to work and basic facilities… should be available at an affordable cost.’

The key points in Section IV of the Habitat Agenda (UNHABITAT: 1996) are the provision of water and sanitation and the provision of access to amenities at an affordable cost. It is important to note that this provision of public infrastructure comes at a cost. It is equally important to see that the poor though they can ill afford expensive services, have a role to play in the funding of such services.

The adequacy of service provision is key to ensuring that these essential services do not prejudice the poor because of the restrictive price point-of-installation. Serageldin (Ordway, 1998: 12), the Vice President for Environmental Sustainability at the World Bank argues that the planning and delivery of services based on policy and municipal plans creates an undesirable situation where the poor cannot afford such services.

In creating this reality, local authorities effectively make being poor illegal because the poor will seek to appropriate land and illegally access services by piggybacking and creating their own access to such services (ibid.).

Infrastructure is the basic public sector input for all urban development. Hall and Pfeiffer (2009: 252) posit that housing sits above all physical infrastructure on which cities are built. Housing is the end product of multiple infrastructural systems that also give people access to transport, sanitation, and amenities.

This is an interdependent system of inputs that aid in the achievement of mobility, access to amenities which are essential aspects of providing a sustainable livelihood. The transformation of space and the creation of inclusivity and access are key factors in creating fair cities. Access to the most basic means of living such as water is essential to this transformation (Joseph, 2016: 10).
The access to the essential services becomes a starting point for creating access to markets, job opportunity and amenities. This has broad implications for spatial arrangement, access paths and proper planning that does not disadvantage the urban poor particularly.

Transport infrastructure, such as roads, is often prioritised over other social and basic infrastructure such as sanitation services. There are high budgets allocated to road infrastructure. This usually is regarded as beneficial by many politicians and planners. This view is supported by the assumption that upgrading and expansion of transport infrastructure results in a strengthening economy and a creation of jobs as access to market become easier and efficient due to the investment (Polinna 2011:187).

Though some of these assertions hold true evidence exist that when these transport infrastructure projects are implemented, they have an equally, if not greater, effect. This issue due to large scale of infrastructure projects which create urban fragmentation and have a negative impact on the urban landscape (ibid.).

Leland and Zahas (in Coyle 2011: 321) posit that global urban development in the period of 1950 to the present was not planned and built to last. They argue that practices such as in the infrastructure, real estate industry, banking and financial sector have resulted in the exploitation of natural resources in building industry and the deterioration of disposable income, which has led to unsustainable livelihoods.

Infrastructure is an important input in the spatial development and sustainability of Mthatha. Government policy in South Africa and Mthatha is grounded on the provision of sustainable delivery of infrastructures, such as roads, water and sanitation. The frameworks of these policies are explored in 2.9 below. The policies are then compared against the actual development taking place in Mthatha, to identify the successes and the shortcomings of infrastructural provision and its implication on sustainability for the City of Mthatha.

2.9 Policy and its effects on sustainability

Redfield and Singer (1969:210) posit that cities are definable by their political and economic effects on the people and its environment. These are the influence of politics and policy, and the effects of economic activity on a city.
The creation of sustainable cities should, therefore, focus on transforming a fragmented urban form into a more spatially integrated one. The segregation or fragmentation in the South African urban form is a result of a series of socio-political decisions. As such, the policy cannot be ignored in the quest for strategies for sustainability in cities.

Politics play an important part in the transformation of cities (Oldfield, 2014: 255); policies and legislation give legal effect to the developmental goals of cities. Considerations such as identity and culture in the urban space (Gervais-Lambony, 2014: 356); and urban fragmentation and integration (Jenks & Kozak, 2008: 73) are themes that should be considered for their effect on the sustainability of cities.

Hall and Pfeiffer (2009: 164) observe that good governance acts as a key driving factor in achieving sustainable development. They view local government, civil society and the private sector as the key stakeholders that, collaboratively, need to work in concert to achieve sustainable urban development. They view sustainability as the principle that good governance drafts and implements policy as the practice to achieve good urban development.

An exploration into state rationalism as a tool for ordering space is explored to examine the authenticity of what Lefebvre (2003: 180) sees as the creation of voids, and ambiguities, the perpetuation of segregation and the promotion of unsustainable spatial order that is a result of reductionist state urbanism. The spatial articulation and development of South African towns and cities is a result of government policy.

The Group Areas Act (Republic of South Africa, 1950) sought to separate communities according to race. The historical spatial development of Mthatha is briefly examined in Chapter 4 of this study to ascertain the implication pre-1994 spatial policies and acts have on its sustainability. This is done by looking at the effects that the Group Areas and Umtata Town Planning have had on the spatial articulation and infrastructure provision in the City of Mthatha.

Simone (2006: 241) argues that South African urbanism has shown innovative policy and institutional manoeuvres that are among best practices in global urbanism. He cites the integrated development planning, the overhaul and capacitating of local authorities and the infrastructure projects that are executed with social integration as areas to refine to reach sustainable goals.
Though South African cities show capacities for productive growth, Simone (*ibid.*) observes that spatial development and infrastructural allocation is still skewed. This is mainly due to apartheid city planning which prioritised development on racial prerogatives. Thus, if cities are to chart sustainable futures, this skewed development needs to be understood to be addressed.

This research investigates the junctures and opportunities where the apartheid city planning (notwithstanding its deliberate strategy to create segregation) can be used as a means to redirect and reorder the urban form to facilitate a more integrated and thus, sustainable urban dispensation.

The current spatial arrangement and infrastructural provision of South African cities are mainly result of previous governmental policies. The cities were created with a purposeful separation of the whites (occupying the city centre and with easy access to amenities) and the blacks. Benit'-Gbaffou and Oldfield (2014: 281) have argued that access to the city by the most vulnerable citizen’s be fundamental to achieving social cohesion and sustainability of a city.

Policies that have been instrumental in the historical, and spatial and infrastructural development of Mthatha are explored in subsection 2.9.1 below. This exploration gives the context from which an understanding of how and why the City of Mthatha has developed as it has. It further seeks to provide a basis from which to assess how any sustainability implications of this historical development is being addressed by current policies which address spatial and infrastructure development in the City of Mthatha.

### 2.9.1 Conceptual framework of policy that affects infrastructure and spatial order in South Africa

Some policies have influenced spatial order and infrastructure development in South Africa. This subsection briefly examines the key policy of the pre-1994 government. The study then looks at two key policies, post-1994, which is the democratic era of South Africa.

The policies reviewed are government policies that have an effect on spatial and infrastructure development in South Africa. The overview of these policies will give context to the discussion and interpretation of data and the direct observation of
The key policies that affect infrastructure and spatial order in South Africa are:

- Group Areas Act 41 of 1950;
- National Development Plan 2030 – Our Future, Make It Work (NDP); and
- Spatial Land Use Management Act, Act 16 of 2013

2.9.1.1 Group Areas Act 41 of 1950
The Group Areas Act 41 of 1950 was enacted under the apartheid government in South Africa. The act was designed to control the access of ‘non-white’ racial groups to different residential and business sections; particularly in the urban areas. This act enabled whites to occupy the most developed parts of the urban area. It had the effect of relegating the ‘non-white’ population to underdeveloped areas. This resulted in longer commute distances between places of residence and employment. The act was the continued legalization of urban segregation according to race (Maylam, 1995: 22).

Maylam argues (1995: 23) that the Group Areas Act is the culmination of urban segregation practices that originated in the mid-1800s in South Africa. These practices were part of the colonisation of South Africa and influenced spatial policies that eventually gave rise to the Group Areas Act.

It is noted (Christopher, 1987: 197) that this colonial spatial segregation planning has a history that dates back to 1834. The London Mission Society in Port Elizabeth (Eastern Cape) established a black settlement on the edge of Port Elizabeth (ibid.).

Maylam (ibid.) further cites examples of how the Cities of East London, Durban and Cape Town advanced segregated spatial development and how this informed the policy that is known as the Group Areas Act. The policy was premised on separating white European colonialists from the black indigenous majority in South Africa.

2.9.1.2 National Development Plan 2030 – Our Future, Make It Work (NDP)
The NDP is the primary development policy that was commissioned by the president of South Africa through the National Planning Commission (NPC). The Commission’s Diagnostics Report (Republic of South Africa, 2013b: 11) found major policy implementation failures that have resulted in:
• a high unemployment rate;
• poor location of, inadequate and under-maintained infrastructure;
• an economy that is unsustainably resources intensive;
• poor public services; and
• spatial divides hindering inclusive development.

The National Development Plan 2030 – Our Future, Make It Work NDP (Republic of South Africa, 2013b) is a policy document that sets out development goals to be achieved by 2030 in South Africa. An example is an objective for increased public transport usage by 2030; the public transport envisioned would be “user-friendly, less environmentally damaging, cheaper and integrated or seamless”. (Republic of South Africa, 2013b: 55).

The NDP then sets out to propose a plan the actions for the identified objective. With regard to public transportation, the NDP suggests the re-building of the N2 road through the Eastern Cape, and investment in public transport infrastructure systems (Republic of South Africa, 2013b: 56).

The NDP proposes an upgrading of informal settlements and the reformation of spatial planning so that people live closer to employment and economic opportunities. (Ibid: 58). The NDP is the guiding policy that informs the various Provincial Development Plans, at the provincial level, and the local Spatial Development Frameworks (SDF) at local government level.

2.9.1.3 The Spatial Land Use Management Act, Act 16 of 2013 (SPLUMA)

SPLUMA is the Spatial Land Use Management Act, Act 16 of 2013 that was put into operation by proclamation for 1 July 2015 by president Jacob Zuma (Republic of South Africa, 2015) The Act is meant to enable local authorities to have greater control to decision making about spatial planning, land use management, and the integration of rural and urban planning.

Town planning schemes before 1994, are rooted in principles that were driven by government policies such as the Group Areas Act. Therefore, the SPLUMA framework seeks to reverse the effects (such as segregated communities and lack of
spatial integration) by empowering local authorities to make spatial planning decisions based on that particular urban area (Republic of South Africa, 2013a: 3).

In the Case of Mthatha, this suggests that a localised set of guidelines would be developed by KSDM to reverse the situation of Arrival Cities or informal settlements developing on the periphery of the city. Planning guidelines could be developed that purposely prioritise the creation of a spatial and infrastructure link between the formal City of Mthatha and the informal settlement of Greater Mandela Park.

2.9.2 Conceptual Framework of Policy that affects infrastructure and spatial order in Mthatha

2.9.2.1 KSDM Integrated Development Plan (IDP)

The IDP is a principal planning instrument that guides all decisions about planning, management and development in the municipality, per Section 35 of the Municipal Systems Act 32 of 2000. The IDP is the strategic document that sets out a five-year plan of action, regarding service delivery for local authorities in South Africa. The IDP is the main legislative policy document for identifying priorities towards the development needs of a municipality in alignment with its vision, mission and values. The IDP is the key policy at local government that reflects the objectives of the NDP.

The KSDM IDP-vision states that the municipality wants to be “a developmental municipality that strives for socio-economic transformation thereby improving the lives of people.” (King Sabata Dalindyebo Municipality, 2013a: 33). KSDM IDP identifies the provision of basic services and infrastructure as a top priority in achieving the municipality’s development goals. The policy identifies that a backlog exists in the provision of water, sanitation and solid waste disposal. The policy also identifies an urgent need for maintenance and re-construction of the road networks (ibid.).

The sustainable principle such as the provision of basic services and infrastructure are key elements of KSDM IDP. KSDM IDP correctly states that the provision of essential services such as water and sanitation, and roads are key to the development and the sustainability of the municipality. However, the plan does not
provide clear guidelines or steps that facilitate the provision of these services to foster sustainable development.

2.9.2.2 KSDM Operating and Capital Budget (KSDM Budget)
The budget is the financial tool that allocates resources to performance areas of local government. It is guided by the objectives of the NDP at national level and the IDP at local government level. The main purpose of the budget is to accelerate economic growth and development (King Sabata Dalindyebo Municipality, 2016a: 1).

In KSDM, 30% of the budget is allocated to providing road infrastructure (King Sabata Dalindyebo Municipality, 2016a: 15). This is the largest capital input in KSDM. Spatial integration, for example, is allocated a provision of less than 2% of the total budget of KSDM. This suggests that the budget allocation does not respond to the sustainable principles as set out in the IDP.

The lack of cohesion within the policy value-chain is problematic, and the lack of coordination may perpetuate the spatial and infrastructural underdevelopment, which is a result of pre-1994 policies in South Africa. These policies, such as the Group Areas Act, have created infrastructural allocation inequality, segregated communities, and lack of access to the city – particularly for the poor who occupy the periphery of the city.

2.9.2.3 KSDM Service Delivery, Budget and Implementation Plan (SDBIP)
The SDBIP is the implementation tool used to align the IDP objectives with the budget of a municipality. It is the key monitoring and evaluation tool for the performance of a municipality with regards to implementing the IDP objectives within the given budget. The SDBIP is prepared on a yearly basis. This is the requirement set out in the Municipal Finance Management Act 56 of 2003 (King Sabata Dalindyebo Municipality, 2016b: 3).

The SDBIP is supposed to be a detailed plan that is approved by a municipality’s mayor within 28 days of the IDP and the budget. It must be available for public viewing and scrutiny within 14 days of the approval by the mayor (ibid.). The SDBIP of KSDM is positioned to reflect the performance targets of local government in
South Africa. This is reflected in the Key Performance Areas (KPAs). The most relevant KPAs to this study are basic service delivery and infrastructure development; spatial planning; and social transformation.

2.9.2.4 KSDM SDF 2013-2018
The SDF is a document that is a guide for the spatial distribution of current and future land use within a municipality. The purpose of KSDM SDF is to guide the municipality in the decision making with regards to development and planning of land. The document gives physical effect to the objectives of the municipality that are stated in the IDP. It does this by detailing and publishing plans on how to order settlements regarding importance and purpose; it identifies movement routes and gives guidance on conservation of the natural and the built environment. (King Sabata Dalindyebo Municipality, 2013b: 6).

2.9.2.5 KSDM Sustainable Development Plan (SDP)
The SDP is a document that supports the broader developmental plans as laid out in KSDM IDP and KSDM SDF. The plan was commissioned by KSDM and funded by the Development Bank of Southern Africa (DBSA).

The plan was compiled by a team that consisted of consultants from various disciplines such as spatial planning, infrastructure, architecture, and environmental management. This group is collectively known as the Sustainable Mthatha Consortium (SMC). The plan adds detail to the mentioned policy documents. The SDP deals specifically with the Mthatha and Mqanduli urban areas. The SDP is a guideline regarding what sustainability principles need to be applied in Mthatha to achieve the sustainable development goals by 2030. (Sustainable Mthatha Consortium, 2009: [Sp]).

The SMC (ibid.) posits that sustainability is about keeping systems in balance so they can co-exist. The SMC identifies that five sustainability systems on which the SDP is based. The systems identified are the river (environment); street (movement and access); home (housing and public space); market (economic activity and
networks); and people (community engagement). The plan suggests that infrastructure underpins and affects all five identified systems.

2.9.2.6 KSDM Standard bylaws relating to roads and streets
The pivotal policy relating to the provision of road infrastructure is KSDM’s Standard Bylaws relating to roads and streets. This policy was published in accordance to terms Section 13(a) of the Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000), and was approved by KSDM.

The policy regulated the provision of road infrastructure relating to vehicular and “sidewalks” (King Sabata Dalindyebo Municipality, [Sa]: 5). The is framed to give rights to the municipality to prosecute those who damage signage (ibid.: 9), trees and the street surface (ibid.: 7, 9).

Achieving a sustainable livelihood for the populace of Mthatha has direct socio-political implications on the ruling authority. Daluddung (2011: 345) posits that sustainability in (municipal) governance is about conserving resources, delivering services in an efficient manner. The plans and details of the policy documents are examined in Chapter 4 to ascertain the extent to which they propose sustainable development. The examination will form part of the analysis of the data collected during direct observation and data from the interviews and questionnaires on Mthatha.

This discussion in Chapter 4 of this study shall examine the extent to which existing policies, as identified above, respond to urban growth, rural-urban migration and sustainability in Mthatha. This is to gain an understanding of the state of spatial order and infrastructure versus the plans set out in the policies of the City of Mthatha. The identified gaps will inform the study of the guidelines that should be formulated to facilitate sustainable development in Mthatha.

2.10 Conclusion

The literature review on sustainability and secondary cities shows that:
- Sustainability is the concept that involves development and conservation that considers people, the environment and the economy. Sustainability research between the years 1987-2010 has focused on natural environmental considerations.

- Sustainable cities are cities that are planned and designed to accommodate the current and future needs of people, the economy and the natural environment. Sustainable cities must be designed to consider the urban poor. These cities must consider the link between the formal and the informal activities (such as human settlement and economy).

- Secondary cities are cities with a population of 50,000 to 100,000 people. Over 50% of the world urban population lives in secondary cities. Secondary cities in South Africa are the urban centres for their surrounding villages and smaller towns. Secondary cities in South Africa are not homogenous, although they share basic characteristics, such as high unemployment rate; service-based economies (as opposed to manufacturing); and the presence of informal settlements which is the gateway for rural migrants to urbanity.

- The urbanisation in Africa is not necessarily a result of economic activity. Globally, the urbanisation trends tend towards Africa and Asia. Secondary cities in South Africa are characterised by unemployment, and particularly, youth unemployment. Several factors. Urban growth is the main driver of the change in the spatial patterns of cities. Historic policy, such as the Group Areas Act, has had an impact in the spatial order of South African cities. Affordability and availability of land within existing formal cities are the cause of the emergence of informal settlements in secondary cities. The migration of people from rural to urban areas is also a reason for the emergence and growth of informal settlements in secondary cities in South Africa.

- Secondary cities have a distinct socio-economic profile. A segment of the population will live in the formal city; this suggests some income and access to education and amenities. Another segment of the population will be unemployed, with little or no income and will reside in informal settlements.
The result is a city that has a distinct socio-economical and spatial divide. Informal settlements are a dominant human settlement-typology in South Africa with 10% of its population residing in informal settlements. Informal settlements may be built with basic materials such as discarded corrugated iron sheeting and timber. Informal settlements may also be constructed of traditional building material such as bricks and mortar.

- Urban growth in secondary cities is a result of the phenomenon of rural-urban migration. This migration is necessary and unavoidable to ensure the socio-economic success of nations. The problem of integration of migrants into urbanity remains a major issue in creating sustainable livelihoods in cities.

- Politics and economical activities define cities. Policy has a direct effect on the sustainability of cities. Policy documents are the enabling instruments that the government uses to effect spatial planning and infrastructure projects. There is a tendency to allocate many resources for technical matters in cities, such as vehicular road infrastructure. This contrasts with the allocation and policy direction towards spatial integration, environmental issues, and informality, which enjoy a smaller allocation of resources. Historical policies, such as spatial policies during apartheid in South Africa, are the leading causes of the spatial and economic make-up of cities. Contemporary policies in South Africa are premised on a reversal of socio-economic and spatial disintegration that was caused by pre-1994 policies in South African cities.

- Infrastructure plays a crucial role in spatial integration and creating accessibility to cities. It has an impact on the natural environment. Infrastructure is the starting point in the creation of sustainability in cities. The planning and allocation of infrastructure needs coordinated planning to ensure that the infrastructure is designed and delivered to forward the sustainability plans of a city.
CHAPTER 3 - RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the methods used in this research. A mixed-method approach is utilised in the study using qualitative and quantitative methodology. A combination of primary and secondary data is employed in the research. The primary data is collected by using the qualitative research tools (Braun & Clarke, 2013) such as questionnaires, interviews, and direct observations by the author.

This method is aimed at understanding qualitative aspects of the case study, namely Mthatha. This approach is used to gain understanding from key stakeholder representatives in government, spatial practitioners, civic organisations and local government. The approach focuses on assessing the information gained from the stakeholder representatives and spatial professionals in the different spheres as mentioned above.

The study uses secondary data, such as academic publications, policy documents, journals, and books. The data is used to explore the concepts of the theoretical themes identified in the study. Maps, photographs, newspaper articles, historical archives, diagrams, recorded correspondences from the local library, government policy documents, and legislation are used as additional secondary data. The data is used to get a contextual understanding of the case study of the City of Mthatha. The approach of the study is outlined in Figure 9, which shows the process followed to the completion of this study.
Figure 9: Study Process Diagram
3.2 Research design

The following six questions were formulated to structure this study. They were formulated to establish the positioning of Mthatha as a secondary city and as a means to explore guidelines that can be recommended to facilitate sustainability in Mthatha.

3.2.1 Research Question one: Is Mthatha a secondary city, and what are the implications for its sustainability as an urban centre?

The research is designed to ascertain if Mthatha is a secondary city. The review of the literature on secondary cities is used to test whether Mthatha has the characteristics of a secondary city. The respondents in the questionnaire further provide qualitative answers based on their knowledge of the meaning of the term ‘secondary city’, and its appropriateness to defining the City of Mthatha.

The implications of sustainability in Mthatha are drawn from the understanding of the literature review. The observations and questionnaires provide data that is used to interpret the sustainability implications of the City of Mthatha, using triangulation.

3.2.2 Research Question two: What is the current spatial and infrastructural development taking place in Mthatha?

This research question is posed to understand the current state of infrastructure in Mthatha. The assessment of infrastructure is limited to roads, access paths (pavements and walkways), water and sanitation, and social infrastructure (urban parks). The spatial development aspect of the question will look at the current spatial development integration of the Greater Mandela Park with the City of Mthatha.

Direct observation, photographs, and the interpreted data from the participants in the survey questionnaire comprise the method used to answer this research question. The data collected from the interview with the officials from the two officials from KSDM will also be used to ascertain the current development in Mthatha. The two data-capturing methods are then triangulated with the policies and project plans to reveal potential policy and implementation gaps in the delivery of infrastructure and spatial integration in Mthatha.
3.2.3 Research Question three: What is the current spatial and infrastructural state of Greater Mandela Park?

This research question is designed to explore informality in the City of Mthatha, as a key consideration for sustainability in secondary cities. Firstly, the informal settlement of Greater Mandela Park is tested against literature to ascertain whether it can be described as an Arrival City.

Secondly, the current spatial form, settlement, typology, and growth is explored during direct observation, drawings and photographs by the author and from available sources. Aerial photography and interviews are used to answer the spatial and infrastructural aspects of Greater Mandela Park. Primary data from KSDM through interviews with two key participants are used to determine the state of infrastructure in Greater Mandela Park.

These participants are officials in the infrastructure and planning departments of KSDM. The purpose of the question is to identify what gaps and opportunities in the identified areas of inquiry arise and which guidelines can be used to address these deficiencies.

3.2.4 Research Question four: How inclusive and sensitive is the spatial and infrastructural development in Mthatha?

This research question seeks to understand the effect on socio-economical inclusion and environmental sensitivity in the spatial planning and delivery of infrastructure in Mthatha. The literature review is used to assess what the theoretical position on inclusive and sensitive development is.

This literature review is to establish current practices and theories that are used in achieving sustainability in cities. This literature review is tested against the observations of the author and qualitative assessment through the survey questionnaires data provided by the participants. The triangulation of these methods will then give the answer to the extent of inclusiveness and sensitivity in the development of Mthatha.
3.2.5 Research Question five: What understanding can we derive from the rural-urban migration taking place in Mthatha and its periphery?

The question is designed to understand the patterns and characteristics of the urban growth in Mthatha. Data from available statistics on the growth of Mthatha inform the study on the rural-urban migration trends that are taking place in Mthatha. The literature reviewed on rural-urban migration is tested against the data on Mthatha to establish consistencies or deviations in rural-urban migration in other parts of the world. The objective of the question is to gain an understanding that will inform the study to provide guidelines that respond to migratory trends in Mthatha.

3.2.6 Research Question six: What responses, in the form of guidelines, can be formulated to respond to the sustainable development needs in Mthatha?

This question is designed to respond to the findings from the triangulation and interpretation of data on the City of Mthatha. The suggested guidelines are relevant recommendations that are informed by the study process. The purpose of the guidelines is to provide decision makers with practical sustainability principles that can be applied to the development of the City of Mthatha, and as principles that can begin to be implemented in secondary cities in South Africa.

3.3 Data collection

Qualitative research is included by means of questionnaires to stakeholders that are involved in the urban and rural spheres of Mthatha. The qualitative data analysis is a method of collecting selected facts about the case study city and the immediate surrounding region.

The themes of sustainability, urban growth, and rural-urban migration will be based on the insights from existing literature as identified and reviewed in Chapter 2 and discussed in Chapter 4. Several other themes are expected to emerge during the data coding and analysis stages in Chapter 4 of this study (Bloomberg & Volpe, 2008). The study uses descriptive analysis to substantiate the responses to the research questions.

The data collection includes the available population and socio-economic information in the form of statistical records and the insight on rural-urban migration
trends, as well as the current spatial and infrastructure development taking place in Mthatha, provided by the respondents in the survey questionnaire. The theme of rural-urban migration and urbanisation is a key factor in the collection of data. This will assist in determining the current state of migration and its effects on urban growth and thus, the sustainability of Mthatha. Data about the current infrastructural state of Mthatha, particularly of the infrastructure in the informal settlement of Greater Mandela Park, is to be collected using observation and interviews conducted with two KSDM officials in the infrastructure and planning departments.

### 3.3.1 Survey Questionnaires

Primary data on the perception of the participants of whether Mthatha is a secondary city or not; if the planning and development of Mthatha is occurring in a sustainable manner; if the development taking place in Mthatha considers the rural-urban migration; and whether the participants perceive the local government as playing a vital role in the provision of spatial integration and infrastructure development in Mthatha, are collected by means of a qualitative tool, which is a survey questionnaire, in this study. The results are coded, and quantitative results from the questionnaire are presented in Chapter 4 (Creswell, 2014: 117).

The data to be collected is about the City of Mthatha and the informal settlement of Greater Mandela Park. The data are collected using a survey questionnaire. An information sheet accompanies the questionnaire for the participant (See Appendix A). The consent form (Appendix B) is attached to the questionnaire.

The consent form is the instrument that affirms the participants’ rights and gives permission for the author to conduct the survey and use the results of the study. The participants are given 25 minutes to complete the questionnaire by themselves. The questions in the questionnaire are the same for all the participants. The participants are representative of business, government, civic organisation and traditional leadership in Mthatha (See Appendix A).

The questions were designed to collect primary data to answer the research questions of the study. The questionnaire is divided into two sections:

- **Section A**: This section has four questions that focus on the biographical and professional information of the participants. These questions address gender,
age demographic, stakeholder group, organisation and expertise (see 3.3.1.1 – 3.3.1.3), and the number of years operating in Mthatha in that stakeholder group.

- **Section B**: This section has technical questions regarding the data needed to analyse the participants’ understanding of sustainability as a concept. Questions 2, 4 and 5 use a four-category Likert scale to measure the attitudinal responses of the respondents. Lozano (2008) argued that the optimum number of alternative answers on a Likert scale be between four and seven. An instrument with less than four and more than seven alternatives has a decreased validity and reliability in analysing attitudinal data.

The survey questionnaire used in the study has four response alternatives, namely strongly agree, agree, disagree, and strongly disagree.

The author will assign values (i.e. 1 for strongly agree and 4 for strongly disagree) during the analysis of the data.

The questionnaire uses a variation that includes question 1 of ‘Section B’ use of a descriptive question, the request to elaborate on as a follow-up to question four in Section B and the question (see question 6 of Section B) requiring the participants to identify what they perceive as challenges to sustainability in Mthatha. The variation approach, it is argued (Elliott & Timulak, 2005), produces research that seeks to understand phenomena based on perceptions and understanding of participants in a survey. This is different from an approach that uses only numerical statistical analysis.

The selection of participants to be surveyed is based on the key stakeholders in the three ‘legs’ of sustainability (namely economy, people, and the environment) in Mthatha. These participants are the leaders of the following stakeholder groups.

### 3.3.1 Economy

- A business leader in the City of Mthatha – a representative from the O.R Tambo Chamber of Commerce.
3.3.1.1 People
- Government officials and political leaders at the local government level.
- A Civic organisation leader.
- Knowledgeable long-term (+20 years) residents of Mthatha.

3.3.1.2 Environment
- Town and Regional Planning professionals and government officials
- An Architectural professional
- An Engineering professional and government officials

The participants were selected and contacted by the author, informing them of the general purpose of the study. An information sheet (see Appendix A) was provided. Participants signed a consent form to acknowledge their participation in the study. The questionnaires (see Appendix C) were printed and delivered to the participants. The questions in the survey were the same for all the groups.

3.3.2 Interviews

Interviews were conducted with two selected senior officials in KSDM. The officials were chosen because they are knowledgeable about spatial planning and infrastructure provision and its current state and future plans thereof. The interviews were conducted using an interview guideline (See Appendices E and F). The interviews were carried out in person at KSDM premises. The purpose of the interviews is to gain insight into the state of spatial planning (Appendix E) and infrastructure (Appendix F) from the key local government officials in the City of Mthatha, with a particular interest in the Greater Mandela Park settlement of Mthatha.

3.3.2 Photographs and direct observations

Photos and direct observations by the author form an important part of the study. This collection of primary qualitative data has the risk of supporting a preconceived bias from the researcher. To maintain objectivity, the researcher follows an analytical framework which gives structure to the descriptions and observations. This framework serves the study by maintaining a scientific scepticism to the things that the researcher observes, records, sees and remembers (Wolcott, 1994: 21).
The author uses nonparticipant observation. Williams (2008: 561) argues that nonparticipant observation is a relatively unobtrusive method that can be used to collect primary data in social science without interacting directly with participants in the setting. The use of direct observation and photographs in this study is to record data about infrastructure, the natural environment and the spatial patterns in the selected observation area.

There are limitations to nonparticipant observation. These include ethical issues regarding consent of people that may be observed as part of the data collection. However, observation of people in the observation area is limited to their effect on infrastructure and the natural environment as opposed to their subjective perceptions and actions. The use of questionnaires (see 3.3.1) serves as a method to address the limitation of participation that is lacking in the observations of the study.

The framework for observation uses progressive focusing. An observation guideline (Appendix E) is used. The purpose of the observation is to answer the research questions using descriptions from observation and taking photographs. The observations have limitations in that the researcher is not able to visit the whole urban area of Mthatha. Time was the main limitation which necessitated the careful selection of observation areas. The areas selected represented what the author saw as possessing attributes to contribute to the successful completion of the study.

There are two areas of Mthatha that were used to carry out the observations. These are located on the observation map (Figure 10). The observation is intended to provide qualitative insights on the state of infrastructure and spatial planning in Mthatha and its effect on the urban environment. Area A (Refer to Figure 10 and Figure 11) was selected to observe the provision of roads for motor vehicles and public transport. This point is informed by the research question about how inclusive the development of the City of Mthatha is (see 1.1.5). Another important aspect was to ascertain the provision of the pedestrian road (pavement) infrastructure. The observation was on the delivery of the physical public transport and pedestrian road network, and how long and how much this form of mobility took users to get to places and amenities. This is a consideration that will provide an understanding of how sustainable the livelihoods of the people of Mthatha are.
The selection of an Area B (Figure 12) in Greater Mandela Park is informed by the research questions about spatial order and infrastructure. One of the key areas of enquiry is the understanding of the urban development taking place in Mthatha, and
how the informal settlement of Greater Mandela Park can be planned to facilitate sustainability (see 1.1.5). Additionally, the study reveals (see 1.2.1) that Greater Mandela Park has a large population and can, therefore, be considered as being representative of the source of urban growth and rural-urban migration, which are the main themes of the study.

Figure 12: Map showing observation Area B (adapted from Google Maps, 2016).

The observation visits to Mandela Park were done to observe the urban form, mixture of building use and typology and the current state of infrastructure (roads, pavements, water and sanitation). The observation data provide a guide for the understanding of the case study. The observations are used in the analysis opposed to the existing literature (government policy, news articles) to assist in ascertaining an understanding of the sustainability positives and negatives that are present in the case study area.

The selection of both areas was made to answer the question if Mthatha is a secondary city and what its role is as an urban centre. The observation focused on access to the inner city by public transportation and pedestrian mobility, spatial planning development, and linkages between the two areas. The observations are to be presented in photographs, and in a summary of the field notes taken by the author during the observation. This data will be added to the discussion that includes the data from the survey questionnaire.
3.4 Data analysis and interpretation

The analysis of data is a controlled and systematic approach which is impassive and particularistic in its execution (Wolcott, 1994: 23). The data analysed in this study provides an understanding of the qualitative aspects of the case study be. The use of direct observation and questionnaires creates a challenge for a purely impassive or reductionist analysis. Wolcott further posits that analysis must be coupled with the interpretation which provides for a mixture of casual, subjective and creative responses to the data analysed (ibid.).

This study uses triangulation approach to analyse the information from literature, direct observation, and the responses of interviewees from the three groups of stakeholders involved in the sustainability of and in Mthatha, to derive themes and principles in response to the research questions. The method is beneficial in qualitative research where replication and validation of the research are not critical (Bloomberg & Volpe, 2008; Creswell, 2014; Malterud, 2001).

3.5 Ethical considerations

The research for this dissertation is conducted with strict adherence of Section H: Ethical Clearance (Form HDC-1) (Appendix H), administered by the Faculty Academic Ethics Committee of the University of Johannesburg. The section below represents selected points from the form that gives the context in which methods (such as interviews and survey questionnaires) will be conducted and participated in:

a) The aims of the investigation should be communicated as well as possible to participants;

b) Participants should have the right to remain anonymous; and

c) Permission to conduct this study is granted by KSDM, as the local authority for the City of Mthatha. Appendices are provided.

The correct procedure set by the FADA Academic Ethics Committee is undertaken and recorded throughout the investigation. Disclosure about this dissertation and use of the material will be given before requiring permission for the use of any material which may be acquired from any consultation.
3.6 Conclusion

The study is a qualitative exploration of concepts of sustainability in secondary cities. The study employs the use of primary data in the form a survey questionnaire, and interviews with two senior officials at KSDM responsible for infrastructure and spatial planning. Direct observation and photographs by the author are also used to collect data. The study uses secondary information in the form of books and journals to identify the current theoretical positions within the identified areas of inquiry. The study employs the use of maps, plans and historical archives about the City of Mthatha as secondary data to build and understanding about the case study area. The study analyses policies that affect sustainability in the City of Mthatha. This policy analysis is limited to policies in the spatial planning and infrastructure in Mthatha. The intention of the literature review is to inform the discussion on the case study and, by triangulation of the data collected, existing guidelines for sustainability of secondary cities.
CHAPTER 4 - CASE STUDY: MTHATHA

4.1 Introduction

This chapter contains the discussion of the findings of the exploration of Mthatha. The chapter briefly summarises important geographical and population characteristics of Mthatha to give context to the discussion on sustainability in the secondary city as the first step in the investigation of the local context of Mthatha. The chapter discusses and interprets the data from the direct observation of selected areas in Mthatha.

The chapter analyses and interprets results of the survey questionnaires and interviews. The analysis of these data is done so under the research questions outlined in Chapter 1 of this study. Chapter 4 begins by giving further contextual information about Mthatha. The study then outlines the demographic data about the participants in the survey questionnaire and interviews. Following that, the chapter then presents the data from the observations, questionnaires, interviews and secondary data in the forms of maps and policies about sustainability in Mthatha.

The finding of each research question is summarised at the end of the discussion of each research question. The intention of this chapter is to gain an understanding of the case study and answer 5 of the six research questions on which the study is based. The finding in Chapter 4 will be used to formulate guidelines in Chapter 5 of this study. The guidelines are formulated to facilitate sustainability in secondary cities in South Africa. Research question 6, which questions about the responses and guidelines for sustainability in secondary cities, is presented in Chapter 5 of this study.

4.2 Mthatha

The name of the city, Mthatha, was adopted on 2nd March 2004. From its inception, the town was known as Umtata, the historical name of the river that meanders past the city. Both Mthatha and Umtata (with the former being linguistically more correct) are Xhosa names that mean “take”. (Department of Sports, Recreation, Arts and Culture [Sa]: 13).
4.2.1 Geographical location

The Eastern Cape covers an area of 168,966m$^2$ (13.8% of the total of South Africa) which makes it the second biggest province in South Africa behind the Northern Cape. It has a population of 6,562,053; making it the third most populous province, after Kwazulu Natal and Gauteng province (Statistics South Africa, 2012: 14). Mthatha is the only major urban centre located in the eastern half of the Eastern Cape Province and is the third biggest municipality in the province. The Eastern Cape Province is located in the south-east of South Africa (Figure 1 and Figure 13), bordered by Lesotho and the Free State Province to the North, Kwazulu Natal to the north-east and the Western Cape and Northern Cape Provinces to the west.

4.2.2 Population

KSDM has a population of 451,710 (Statistics South Africa (SSA), 2015). The population of Mthatha was estimated at approximately 98,219 in 2001, and 137,589 in 2011 (City Population, 2015). These figures show that the urban population of Mthatha has grown by 39% in the 10-year period between 2001 and 2011.

Figure 13: Map of Eastern Cape showing Mthatha and the extent of KSDM (Adapted from GoogleEarth, 2016).
The population of the City of Mthatha include the population of the formal townships and suburbs of Mthatha. They exclude the rural periphery of places such as Payne and Ncise which have a combined population more than 25,000. The study also excludes the population of the rural periphery. The population figures of Mthatha also exclude the population of Greater Mandela Park.

This exclusion seems unjustified. Greater Mandela Park falls within the urban edge of the City of Mthatha (Figure 10) and excluding this area in the population consideration is problematic. The problem is that any spatial and infrastructural planning may take into account the population figure of the City of Mthatha without considering the population of this informal settlement area of Greater Mandela Park, of Joe Slovo Park (12,209), Mandela Park (11,463), Chris Hani (9,548), and Phola Park (8046) (Firth, 2016).

Figure 14: Location of Greater Mandela Park with the urban edge of Mthatha (Adapted from King Sabata Dalindyebo Municipality, 2013c).
The inclusion of the population of Greater Mandela Park shows that the population of Mthatha has grown from 98,219 to approximately 160,000 between 2001 and 2016. This represents a 3.9% growth per year in the urban population of Mthatha; almost five times the annual growth in the population of KSDM which has a growth rate of 0.8% (Statistics South Africa, 2015). The study assumes that the population growth has remained constant (at 3.9% per year) which supposes that the approximate population in Mthatha in 2016 is 165,000 (see Table 1).

![Mthatha Population Graph](image)

**Table 1: Population Growth of Mthatha: 2001–2016 (Adapted from Statistics South Africa, 2015; King Sabata Dalindyebo Municipality, 2013).**

### 4.2.3 Human settlement typology

Most the population still have permanent residence in the rural periphery of Mthatha. Studies by ORTDM (O.R Tambo District Municipality, ([Sa]: 30) estimate that 71% of the dwellings in the district are traditional homes. The ORTDM is the greater district municipality that KSDM is located in (see Figure 10). Mthatha is the main urban area in the greater ORTDM district and the KSDM area. Some information and data about ORTDM and KSDM will invariably have similarities as Mthatha is an important urban centre for both the district and local municipal areas. Reference made to ORTDM in this study is done when the information, such as residential typology, is being analysed.

The purpose of this is the progressive focusing method outlined in Chapter 3 of this study that zooms between contexts (in this case district and local) in efforts to explore broader data to explain certain aspects of the case study, Mthatha. The
traditional homes are classified as dwellings such as huts built from traditional materials, namely mud bricks for walls and thatch roofs. The study shows that 27% of the housing is formal. This housing typology is so classified by its using brick structure in the construction of the dwelling. Two percent (2%) of the residential dwellings in the ORTDM are classified as informal or inadequate housing (Table 2).

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
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<tr>
<td>Traditional</td>
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</tr>
<tr>
<td>Formal</td>
<td>27%</td>
</tr>
<tr>
<td>Informal</td>
<td>2%</td>
</tr>
</tbody>
</table>

Table 2: Breakdown of human settlement typology in the ORTSM (adapted from Statistics South Africa, 2015)

The human settlement typology trend of the district (ORTDM) is closely correlated with that of the local KSDM. There are, however, key differences in the human settlement typology of the ORTDM and KSDM. This is mainly due to the prevalence of informal settlements in KSDM which is identified in evidence from the study and analysis of the human settlement trends in KSDM.

The human settlement trends here reveal that a total of 90,060 dwelling types are found in KSDM. Of these dwellings, it is identified (King Sabata Dalindyebo Municipality 2013c) that 29,009 (or 32.2%) of these are located in the urban areas, while 61,050 (67.8%) of these dwellings are located in the rural areas of KSDM.

The study by KSDM (ibid.) shows that informal settlement makes up 4% (See Table 2) (National Upgrading Support Programme. Sa) of human settlement typology in KSDM. This is double that of the district (ORTDM), which has a human settlement typology of 2%. This suggests that the Mthatha is the area of concentration for informal settlements in the region.
4.2.4 Regional importance

Mthatha is an urban centre for the small towns and rural communities within a 50-km radius. The urban edge of Mthatha occupies an area that is less than 1% of the land area of KSDM (See Figure14). Mthatha serves as the only major urban area in the eastern part of the Eastern Cape. According to the Sustainable Mthatha Consortium (2009:[Sp]), the population within a 50-km radius of Mthatha is 1.5million people. The KSDM region is largely rural with approximately 70% of the households located in areas that are classified as rural. Mthatha thus plays a critical role as these rural areas depend on it for access to markets, higher education, government services, and financial services.

4.3 Demographic characteristics of stakeholder participants

The survey questionnaire (Appendix A) was used to collect data from the selected stakeholders operating within the Mthatha. Nine participants completed the survey based on the questionnaire provided. There were 15 targeted participants; however, five of the participants (in the traditional leadership, government, and business spheres) did not respond to multiple attempts by the author to participate.
There were three females and seven males who participated in the survey. Table 4.5 shows the summary of the participants in the survey questionnaire. 50% of the participants were between the ages of 36 and 55 years, while there were no participants over the age of 75 years. Half (50%) of the participants were representatives of local government, and no participation was given by stakeholders in the traditional leadership group. This was a result of slow or no responses to requests from the author to representatives from this stakeholder group to participate.

The majority (60%) of the participants have been operating in their respective stakeholder groups for over 15 years. The intention of the author was to do an in-depth survey of the representative or top management in each stakeholder group.

<table>
<thead>
<tr>
<th>Demographic characteristic</th>
<th>Number of participants</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>70</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-35</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>36-55</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>56-75</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>75+</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stakeholder Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
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<td>50</td>
</tr>
<tr>
<td>Business</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Traditional</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Civic</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Years in operation in Mthatha of participants (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>5-10</td>
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<td>10</td>
</tr>
<tr>
<td>10-15</td>
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<td>10</td>
</tr>
<tr>
<td>15+</td>
<td>6</td>
<td>60</td>
</tr>
</tbody>
</table>

The number of participants that have 15 years of involvement is reflective of the

*Table 4: Summary of demographic characteristics of survey questionnaire participants.*

Participants’ relevant authority in their respective organisations, 20% of the participants have been operating in their respective stakeholder groups for less than five years. The intention of the author here was to survey younger participants who
are in positions of management to balance the view of the more experienced participants.

4.4 Responses to Research Questions

The responses to the research questions are presented by analysing the three qualitative tools mentioned in Chapter 3. These tools are the literature review, the results of the survey questionnaire and interview, and the findings of the direct observations by the author. The questions in the survey questionnaire were designed to gather the perceptions of the participants from the perspective of their respective areas of expertise, or stakeholder group.

The questions in ‘Section B’ of the questionnaire (see Appendix C) are a mixture of questions that make use of the Likert scale and Likert-type data analysis procedure. The method of was developed to measure attitudinal and character traits (Likert, 1932). This approach for collection of qualitative data is appropriate for gathering the perceptive insight of the participants of the survey questionnaire about the City of Mthatha.

Boone and Boone (2011: 1) have noted that the difficulty of transferring qualitative inputs into quantitative data make the use of the Likert scale and Likert-type appropriate in qualitative research. The original Likert scale (Likert, 1932) was a measure of a series of questions representative of an attitudinal scale. This differs from the Likert-type analysis which looks at individual questions and analyses them as singular data points. (Boone & Boone, 2011: 3).

The use of Likert-type analysis is dominant in the presentation of the data from the survey questionnaire. Though the responses are analysed as individual inputs, it must be noted that the questions are posed as interlinked questions. Therefore, the approach to handling the responses is a mixture of the Likert-type and Likert scale analysis and interpretation of the data.

The second approach to the questions in the survey questionnaire is the identification of phenomena using listing and elaboration. These questions are open-
ended. The elaboration, however, may be asked as an extension to a closed question. The approach of using the open-ended approach, by asking the participants to list or elaborate, has disadvantages. The main disadvantage is the extensive data coding required before analysis of the data can occur (Payne, 1980).

However, the use of this approach explored to gather a deeper qualitative understanding of the case study by the participants. The interviews conducted with the two KSDM officials use only open-ended questions whose answers are written by the interviewer. This differs from the survey questionnaire, which the participant answered themselves without the presence of the author. The results of the interview questions (see Appendices E and F) provide additional data that is discussed in this chapter below.

The responses are grouped together according to their relevance to the research questions that have already been identified. The direct observation findings are presented as part of the discussion in the form of photographs and information collected using the observation guideline (Appendices E and F).

4.4.1 Response to Research Question one: Is Mthatha a secondary city and what are the implications to its sustainability as an urban centre?

As noted earlier, secondary cities have been identified globally to be urban centres with a population band of 100,000 to 500,000 (per Rondinelli, 1983) and 50,000 to 150,000 (UNHABITAT, 1996). The study has also found that secondary cities will have a population of between 150,000 and 5 million. Though there seem to be differing views on the population band, the consensus is that cities with less than one million inhabitants will have a significant influence in the phenomenon of urban growth in the twenty-first century.

Of these cities, it has been shown (United Nations Population Division, 2007a: 7–8) that most the world’s urban population will reside in cities of 500,000 or less. This suggests that the 500,000-population upper band is a logical and reliable point of departure in characterising secondary cities.

In the South African context, secondary cities are cities that have a population of between 50,000 and 500,000. Mthatha was identified as one of 23 secondary cities
in South Africa in earlier studies (Dauskardt, 1994:11). The population of Mthatha, which is approximately 160,000, fits into the neat categorisation by the population of a secondary city.

The study has found, however, that the use of an exact population figure is not a definitive characteristic of what a secondary city is. Secondary cities are a distinct urban typology with disparities in spatial form, economic and social development. The common trend in secondary cities is their importance as regional cities, and their distinct feature of a combination of rural and urban characteristics (Hohmann & Roberts, 2014: 2).

Secondary cities serve as urban centres for largely underdeveloped and rural surrounds in which they are located. The City of Mthatha is located in KSDM which has the densest rural settlement in South Africa (Sustainable Mthatha Consortium, 2009: [Sp]). The towns of Qumbu, Mqanduli, Coffee Bay, and Libode, in the ORTDM, rely on Mthatha as the only developed urban centre. The City of Mthatha has the largest economic contribution to the ORTDM. The GDP of KSDM, the municipality in which Mthatha is located, was recorded at R12.1 billion in 2011. This represents 70% of the total GDP of the ORTDM (King Sabata Dalindyebo Municipality, 2015a: 9). This economic influence points to the relevance and importance of Mthatha as an urban centre for its surrounding region.

The services of education (particularly higher education), community services, medical facilities, trade and finance that the Mthatha has are key factors that define the influence of Mthatha (King Sabata Dalindyebo Municipality, 2015a: 09). The study has found that regional influence can be measured by a population estimated to be 1.5 million from a 50-km radius of Mthatha, which use the city as the urban centre (King Sabata Dalindyebo Municipality, 2009: [Sp]).

The primary data collected from survey questionnaires found that 80% of the participants agree that it is a secondary city. Ten percent (10%) of the participants opined that Mthatha is not a secondary city. The remaining participant did not answer the question. Instead the participant wrote the question, “what is a secondary city?” in the answer section of the survey questionnaire. This question was posed to find out, without prior explanation to the participants by the author, about the
participants’ understanding of the hierarchy of cities, to distinguish between primary cities, secondary cities, and rural settlements.

The study has found that current policy takes cognisance of the regional importance that the City of Mthatha plays as an urban centre (Sustainable Mthatha Consortium, 2009: [Sp]). The key development policies such as IDP and SBDIP consider sustainability as a principle to guide development. However, these policy documents prioritise development of infrastructure over spatial integration and development. Budget allocation and programmes such as the Presidential Intervention programme have identified the need for the provision of infrastructure to improve electricity, roads and human settlements.(King Sabata Dalindyebo Municipality, 2016a:2).

Primary data reveals that 50% of the participants believe that sustainability was the mode of operation in their area of expertise within the City of Mthatha. This differed from 30% of the participants who suggest that sustainability principles are not the defining concept used in the City of Mthatha.

The study has found that the implications for the sustainability of the City of Mthatha are varied and complex. The key finding on the implications of sustainability in Mthatha is policy and the projects that are proposed to address sustainability issues.
in Mthatha. These policy and project interventions in the City of Mthatha do not address the issues that deal with rural-urban migration and the spatial integration of the City of Mthatha as it continues to grow. Additionally, little mention of plans to address the impact of urban growth on the natural environment is stated in policy documentation.

The SDP does recommend the revitalisation of the Mthatha River (Sustainable Mthatha Consortium, 2009: [Sp]). The State of the Municipality makes mention of the “Mthatha River remediation”, which is a project to clean up the river system of Mthatha which; received support from the Department of Environmental Affairs (King Sabata Dalindyebo Municipality, 2016b:17). Primary data collected from the direct observation, however, reveals that no remedial work on the Mthatha River is currently being undertaken. The observation revealed the state of the river bank that has raw sewerage and industrial effluent flowing directly in the river (Figure 15).

Figure 15: Industrial affluent and waste along the Mthatha River bank at the end of Owen Street.

The sustainability implication of Mthatha being a secondary city can be summarised as:

d) Mthatha is the urban centre surrounding towns and villages. This area of influence extends to at least a 50-km radius, and a population of 1.5 million people depend on the resources of the City of Mthatha, which places pressure on the infrastructure and natural resources of Mthatha. Policy initiatives in place are aware of these pressures. However, projects currently underway are not matching the speed of the impact of this growth on the infrastructure and the natural resources of the City of Mthatha. These implications are dealt with in more detail in the answers below.

e) The classification of secondary cities that use the population band of 150,000 – 500,000 is ineffective in classifying these cities. This classification does not
consider localised differences and thus assumes that if cities fall within this population band, they can be treated in a similar way. An example of localised differences, in the case of the City of Mthatha, is the rural nature of the periphery.

The planning and development of the City of Mthatha would have to focus on the impact of rural-urban migration on its sustainability and the classification of cities as secondary is not sufficient in indicating their status. Thus, the term “secondary city” should be used as a starting point for an investigation into developmental needs of an urban centre. The study finds that the identification of localised differences is the key component in formulating policy, guidelines and implementation plans for the sustainable development of secondary cities.

4.4.2 Response to Research Question two: What is the current spatial and infrastructural development taking place in Mthatha?

4.4.2.1 Spatial development in Mthatha

Mthatha is characterised as having underdeveloped and business and industrial spaces, with an overconcentration of activities in the inner city. This underdevelopment can be attributed to under use of well-located land within the urban edge. This study has found that land claims influence the spatial patterns of the City of Mthatha. This has direct constraints on spatial development. These limitations are identifiable in the analysis of the extent that land claims within the urban edge Mthatha. Figure 16 shows that the land claims are concentrated in north and south of the inner city. The inner city is largely under claim as seen by the shading indicating the gazetted land claims in the City of Mthatha. The map shows, however, that none of the land occupied by Greater Mandela Park is under claim and that only the northeast and northwest outer edge of Phola Park and Chris Hani, respectively, have land under land claim. Thirty percent (30%) of the participants of the survey questionnaire identified land claims as one of the three most important developmental challenges in Mthatha.
The study found that spatial planning and development in Mthatha is driven and regulated by the local authority, namely KSDM. The interview with the senior official in the spatial planning department found that KSDM was responsible for the planning and land use management. The Umtata town planning scheme, the township ordinance and SDF are the key policies used in accessing development proposals that affect the spatial development of the city. These policy documents do not refer to spatial integration of Mthatha and Greater Mandela Park.

Figure 16: Map of Mthatha showing the extent of land claims within the urban edge of the city (adapted from King Sabata Dalindyebo Municipality, 2013).
The study found that the current land use plan (Fig 17) is a situational analysis of the current use of land in Mthatha. This plan reveals the spatial disintegration between Mthatha and the informal settlement to the east. The plan does not suggest any possible current or future links to the city. The study found that the land use plan, with specific focus on area A, is a continuance of a master plan (Figure 18) that was designed in 1978.
This suggests that very little contemporary urban planning principles can be found in the City of Mthatha which relies on its inner city, both as a transportation centre and where most of the financial, medical and employment amenities are located. Mthatha was established as a colonial city. It was noted in Chapter 2 of in this study that cities are spatially and economically fragmented.

The urban form and pattern of Mthatha are that which prioritised development in the urban nucleus. Figure 18 shows the residential suburb of Central (known as the hill) and Norwood, which are located west and north of the CBD respectively. These are the suburbs around which the city was planned. The emergence of informal settlements such as those of Greater Mandela Park has not greatly influenced the planning and policy in the City of Mthatha. The current spatial pattern of Mthatha also points to a pattern that encourages the emergence of informal settlements on the edge of the city. The pattern can be identified by the existence of the buffer, in the form of the Ingeli Nature Reserve, between Greater Mandela Park and Fortgale (Refer back to Figure 3).
The buffer creates and perpetuates a separation. Thus, the spatial development of Mthatha is considered to be separate. That is Mthatha (or Area A), and Greater Mandela Park (Area B) are developing in isolation from each other. There is no evidence of coordination in the spatial and infrastructure development. This is evident in the KSDM SDF, which treats and views Area A and B as separate areas, as indicated in land use and spatial planning, and in the planning and delivery of infrastructure. The exploration of the infrastructural development in Mthatha in 4.2.2.2 will identify how the allocation of resources, the planning and delivery of infrastructure in the City of Mthatha is impacting on the integration of Mthatha.

The study finds, therefore, that the current spatial development in the City of Mthatha, with regard to integrating Greater Mandela Park (Area B) to the existing City of Mthatha (Area B), is inadequate. Spatial planning policy and its implementation seem to be reinforcing separatist planning principles that are grounded in the colonial city planning on which Mthatha was founded.

4.4.2.2 Infrastructure development in Mthatha

The government is an important stakeholder in infrastructure development in urban areas in South Africa and the case study of Mthatha. The participants were asked to what level of agreement or disagreement they felt the government is playing in planning and executing roads and sewer infrastructure, in the context of the urban growth and its impact on the people living in the city. 50% of the participants strongly agree that the government is executing its role in infrastructure development (see Table 5).

The participants who strongly agree cite that funds from the Municipal Infrastructure Grant and the selection of the City of Mthatha as part of the Presidential Intervention (KSDM PI) are making it possible for the government to focus spending on the provision of infrastructure. These participants operate in the government stakeholder group and thus have insight into the programmes within KSDM.

30% of the participants agree that government is playing a central role, while 20% of the participants disagree that the government is executing its role effectively. The participants who agree and disagree claimed that infrastructure provision is slow in the City of Mthatha. They further cite that the provisions are driven by political
objectives rather than holistic planning which considers the broader environmental impacts.

Table 6: Data from participants’ answers on government role in infrastructure in Mthatha

The study finds that the government plays a fundamental role in infrastructure development. However, the study also finds that the driving principle in infrastructure development in Mthatha is not responsive to the sustainability of Mthatha. No clear coordination of creating infrastructure links between the inner City of Mthatha and Greater Mandela Park is present. The basis for infrastructure development then seems to be driven largely by national and regional road infrastructure. Internal connectivity and mobility, in the form of a pedestrian and alternative mobility infrastructure, is absent in the infrastructure development of the City of Mthatha.

4.4.2.3 Road and Pavement infrastructure in Mthatha

It has been stated earlier in the study in Chapter 2 that providing access to places of employment and essential services is key to facilitating sustainability in cities. It was further noted that budget allocations towards road infrastructure are often prioritised over other services, such as social infrastructure. The assessment of the current road and pavement infrastructure development is done in this study to ascertain the impact that this development has on the sustainability implications to the City of Mthatha.
The policy relating to road and pavement infrastructure in Mthatha is focused on the functional aspects of road infrastructure in that it gives instruction on where a road can be built, procedures for maintenance, and prohibitions on what is not to be done on roads. However, no framework or principle seeks to address mobility or prioritise pedestrian networks as a means of promoting alternative mobility to reduce pressure on the road infrastructure in policy documents by the KSDM. The current state of roads Mthatha is grossly inadequate to serve its mobility needs. The evidence of this inadequacy of the roads in Mthatha is discussed in 4.4.2.3.1 and 4.4.2.3.2 of this study.

4.4.2.3.1 Vehicular Roads
Mthatha is a major road or transport metropolitan transit area. Mantshantsha (2016: 11) notes that the National Department of Treasury and the South African National Roads Agency (SANRAL) acknowledges the importance of Mthatha’s location as a transport corridor. The area has historically lacked sufficient investment in infrastructure. The upgrading of the N2 and the widening of the R62 along the Mthatha transport is evidence of this underinvestment (King Sabata Dalindyebo Municipality, 2016a: 4). It is seen as a foundation for which the economy of the Eastern Cape may be revived.

The underinvestment is evident in the state of the roads within Area A of the City of Mthatha (Figures 19 & 20). The observation revealed that the roads are characterised by poor or absent road surfacing and parking (Figure 19), and deep potholes that are created by inadequate storm water management (Figure 20). Though ongoing urban road maintenance is carried out by KSDM, the interview process found that KSDM needed R1 billion to service the existing road networks.

Figure 19: Road and pavement condition on Leeds Street
The policy determining road infrastructure in KSDM claims to be guided by principles that seek to create socio-economic benefits for poor communities (King Sabata Dalindyebo Municipality, 2015a: 5). This suggests that creating better access to the facilities and service for informal settlements, such as Greater Mandela Park, would be prioritised. However, the 5-km stretch of the R61, which is the regional road that connects the inner city and Greater Mandela Park, has no road infrastructure development at this stage. Figure 18 shows the current state of road infrastructure along the main arterial route on the R61 from Mandela Park to Mthatha inner cities. It is indicative of what the Executive Mayor of KSDM (Cllr. N Ngqongwa) identifies as
92% of the roads of Mthatha as having outlived the life spans they were designed for (King Sabata Dalindyebo Municipality, 2016a: 4).

The dilapidated road network of Mthatha causes traffic congestion along the R61 and N2, as they are a regional and national road, respectively that pass Mthatha in the inner city. The policy objective of creating access for the poor communities is stifled by two factors in the current state of road infrastructure. The first is the time it takes to travel from Mandela Park to Mthatha inner city.

The dominant form of transportation is private minibus taxis. The observation revealed that a single trip on this route costs R7.00 That translates to R15.00 for a return journey. The average time to commute between these two points on a single trip takes 25 minutes. This translates to 50 minutes for return trips, despite the fact that the distance is 5km.
4.4.2.3.2 Pavement and pedestrian infrastructure

The ease of mobility of people within a city is critical to facilitating access to amenities. The concept of access to the city has been dealt with in Chapter 2 of this study. The study has suggested (in Chapter 2) that the focus on infrastructural development in cities is on providing for vehicular roads. It has been suggested (Speck, 2008:74) that designing infrastructure that considers pedestrian mobility is a principle that needs to be applied as a component of a sustainable city.

The observations revealed that the state of pedestrian pavements and walkways in Mthatha are in a poor state (Figure 22). This infrastructure network is characterised by uneven walking surfaces, hazardous protruding manhole covers, and limited walking space (Figure 23) due to the width of the pavement relative to pedestrian usage.
The pedestrian infrastructure in Mthatha does not contribute positively to the walkability of the city for its users. The policy that directs this infrastructure input does not give a guideline to attending to this problem. The policy document is framed to only give prohibitions on why no one can lay a sidewalk without the approval of the local authority (King Sabata Dalindyabo Municipality, [Sa]: 5). There is no policy instrument that gives planning and design guidelines to address pedestrian mobility in the City of Mthatha.

The study found that no pedestrian infrastructure exists in the area between observation Area A, in the Mthatha inner city, and Area B, which is the Greater Mandela Park informal settlement (Figure 24 and 25). The walking area is unsurfaced, and no provision for pedestrians is provided on the edge of the vehicular road.
The uneven pedestrian path (see Figure 24 and 25) was created by pedestrians. This is because no pavement or surfaced walkway is provided for the use of pedestrians walking between Mthatha CBD and Greater Mandela Park.

This study found that a myriad factors constrain road infrastructure development in Mthatha. The primary constraint is the availability of funding. Another impact on road infrastructure is how policy and implementation differ. The evidence of this is the policy objective of ensuring access to amenities for poor and disadvantaged
communicates, and the absence of transportation projects that seeks to improve access for the residents of Greater Mandela Park.

The study further reveals that the road infrastructure development in Mthatha is focused on vehicular mobility over pedestrian mobility. This is evident from the inadequacy of planning and design policy and tools that address pedestrian mobility. This pedestrian mobility infrastructure inadequacy can be seen from the observations, which found that pedestrian links to improve access between observation Area A, the Mthatha inner city, and Area B, Greater Mandela Park informal settlement, were inadequate. This further maintains the segregation of the two areas and negatively impacts the spatial integration and, therefore, sustainability within Mthatha.

4.4.2.4 Water and sanitation infrastructure in Mthatha
The treatment of water and sanitation in the City of Mthatha is the responsibility of the district municipality, the ORTDM. This differs from the road and social infrastructure which is the responsibility of the local municipality, KSDM. However, an aspect of water management infrastructure, storm water management, is the responsibility of KSDM.

This governance overlap has the potential to create gaps if the policy does not specifically address these issues. An example of this is sewage, storm water and industrial spillage (refer to Figure 15) on the northern bank of the Mthatha River, in contrast to the upgrading of the water mains infrastructure on the north bank of the river (Figure 26).
The author of the study did not get access to ORTDM participation, nor policies regarding water and sanitation infrastructure, due to communication delays and non-availability or unwillingness to participate in the study.

The analysis of the current infrastructure development in water and sanitation was thus limited to the policy documents available, the results from the direct observations and the limited information that was provided in the interviews by KSDM officials.

Developments noted in stormwater management are the cleaning of 40 000 meters of storm water channels within the City of Mthatha, which emerged from an analysis that 90% of the storm water channels in the City of Mthatha contained blockages or where inadequate to properly channel storm water run-off (King Sabata Dalindyebo Municipality, 2015a:115).

The lack of maintenance of storm water channels was evident in the current state of the road infrastructure around storm water channels in Mthatha (Fig 20), which causes damage to the road infrastructure. The damage then necessitates more allocation for the road maintenance which creates a cycle where scarce financial
resources are directed toward road infrastructure at the expense of other infrastructural inputs.

The study found, however, that both areas A and B have adequate potable water provision; evinced by the current development on the Mthatha River (Fig 27). This development is a large-scale upgrade project of the water mains of the City of Mthatha. The adequacy of water provision in Mthatha is substantiated further by plans that indicate that both areas A and B are in regions of KSDM with adequate water infrastructure (Figure 27). The provision of sanitation will be dealtwith in 4.4.3.

4.4.2.5 Social and environmental infrastructure in Mthatha

Social infrastructure may be applied to mean a broad range of infrastructure inputs intended to improve the quality of life of a population in a particular place. For this study, however, the focus on social infrastructure is centred on the provision and development of public open space occurring in the City of Mthatha. The development with regard natural environment factors such as water and vegetation is also dealt within the context of public open spaces in the City of Mthatha.

The study found that there were two main public open spaces in observation area A. They are the Savoy Park (Figure 28) and Freedom Square (Fig 29). Savoy Park is a public park with dedicated seating, pathways and shading in the form of trees. It is provided lighting, refuse bins and a water fountain. During the observation, Savoy Park had well-maintained landscaping and was clean in appearance. It was
observed that approximately 15 people were utilising the park at the time of the observation around 1pm.

![Figure 28: Savoy Park on 'the hill' in Mthatha inner city.](image)

Freedom Square is located at along the municipal precinct in the Mthatha inner city. It is bordered by Owen and York roads (refer to Figure 18, Freedom Square occupies about 50% of the area in the middle of the CBD, dark blue in the key and located at the centre of the CBD in the “municipal” area of the key). It is located near the local and provincial government offices, financial and retail institutions. It is thus located in a densely-populated area of Mthatha. The study found that Freedom Square has insufficient seating (Figure 29) and protection from the elements for its users. There is insufficient shading in the form of trees or shading devices, which are markedly absent, save for some trees located on the north-west fringe of the square.
The study found that the provision of public areas of rest and recreation in the City of Mthatha inadequate. This finding is substantiated by the fact that the City of Mthatha has one park, Savoy Park as the only park that is available and has sitting, picnicking, shading in the form of trees and a pleasant natural environment for the public to enjoy. The other public park is located in Freedom Square in the government precinct with designated seating for approximately 50 people.

The park has little shading and vegetation. It is more suited as a meeting or temporary pause place than a recreational park. The study has shown that Mthatha has an urban population of approximately 170,000. This number cannot be adequately served by the parks that currently exist in Mthatha. Further, it has been shown in this study that Mthatha has a regional influence of up to 1.5 million people who use Mthatha, which further evidences the inadequacy in the provision of social and environmental infrastructure to deal with the recreational need of the public in Mthatha. The study further finds that though there exists environmental infrastructure in the form of trees and vegetation, this provision is inadequately disproportional to the number of users of the City of Mthatha.
4.4.3 Response to Research Question three: What is the current spatial and infrastructural development state of Greater Mandela Park?

Greater Mandela Park is an area of a large concentration of the urban population, approximately 40,000, of Mthatha. It emerged as an informal settlement for rural migrants who sought to move into the city. The state of the spatial organisation and infrastructure in Greater Mandela Park is reviewed by site observation, the interviews with the two senior government officials and the analysis of policy documents on plans about spatial and infrastructural development in this informal settlement. The triangulation approach is used to analyse the actual development versus the plans that are in place for the development of Greater Mandela Park.

![Map showing spatial layout of Greater Mandela Park](image)

Figure 30: Map showing spatial layout of Greater Mandela Park (Adapted from King Sabata Dalindyebo Municipality, 2013c).

4.4.3.1 Spatial Layout in Greater Mandela Park

Greater Mandela Park, which is also referred to as Mthatha West by KSDM, is an informal settlement located 5km west of the City of Mthatha. It consists of four
settlements, namely Mandela Park, Joe Slovo, Phola Park and Chris Hani. These four settlements are ordered around the R61, which is a regional road that connects Mthatha to the airport and the town of Ngcobo on a northeast – west axis (Figure 30).

Two natural barriers also define the spatial arrangement of Greater Mandela Park. The Ingeli Nature Reserve lies towards the east of Mandela Park. The Nature Reserve is at an apex of a hill that falls towards Mandela Park. Greater Mandela Park is defined on its western edge by a small perennial rivulet along Chris Hani. There is a brook that also runs north through Mandela Park. On the northern edge, Greater Mandela Park is contained by the Mthatha River. On the south, the settlement is contained by the Marhambeni traditional area that is controlled by local chiefs.

4.4.3.2 Spatial development in Greater Mandela Park

The spatial development that takes place in Greater Mandela Park differs from spatial development happening in other parts of the City of Mthatha. The main difference is that development in Greater Mandela Park is driven by private or informal agents. The settlement itself is a result of the illegal occupation of land. The term *agents* is used in lieu of ownership.

The result of spatial development driven by various agents is a layout that is neither planned or coherent, in urban planning principles. Informal settlements are characterised by improper planning (Pinfold, 2013: 1) with implications for the sustainable provision of housing, infrastructure and services to communities that reside in informal settlements.

The spatial layout of Greater Mandela Park is a result of informal land occupation, informal land acquisition and informal planning construction. The existing portable water infrastructure provision by the ORTDM was the first attempt by the local authorities to formalise the settlement. According to the KSDM official interviewed the municipality provides maintenance of the gravel road infrastructure that runs in between the informally planned streets of Greater Mandela Park (Figure 31).
According to KSDM official interviewed Greater Mandela Park has not been established formally as a township. The KSDM official acknowledged that a process was underway to register 3,000 sites into formal erven in Greater Mandela Park. This is known as the Informal Settlement Upgrade (ISUP) of Mthatha West, in KSDM. This upgrade has not appeared in the SDF as it was indicated that the process was being undertaken separately. This is additional evidence of the apparent disparity and lack of coordination in spatial planning in the City of Mthatha.

The study thus finds that the spatial development of Greater Mandela Park is primarily informal. This means that the planning and construction of settlement are done without consultation or approval of KSDM. The study finds, however, that the process of formalising the settlement has commenced. This was evident during observation for this study in the provision of internal gravel road and water points along such roads, as communal potable water. The study finds that the spatial development plans of KSDM with regard to Greater Mandela Park is focused on upgrading and formalising the existing settlement only. No integration or connections planned with the existing Area A or Mthatha inner city was found during the observation and interview process of this study.

4.4.3.3 Vehicular Road infrastructure in Greater Mandela Park

Greater Mandela Park is characterised by the R61, which is the major regional road that divides Mandela Park, Phola Park and Joe Slovo Park. The Mthatha Road Infrastructure Upgrade Plan (MRIUP) (King Sabata Dalindyebo Municipality, 2013b:
[Sp]) indicates that the R61 between the Mthatha airport and Sutherland Street is to be upgraded and widened. This is part of a vital link between the newly rebuilt airport and the city. This upgrade is also seen as an important project that will enable the creation of a Special Economic Zone, envisioned around the airport, to stimulate the economy of Mthatha (Ngqongwa, 2016: 5).

The site observation revealed, however, that the upgrading of the R61 from the airport to Sutherland has not commenced as per the MRIUP. The road surface is in good condition. However, there has been no resurfacing, upgrading no widening of the existing road. The R61, passing through Greater Mandela Park, is a single-lane multidirectional road, which does not contain a shoulder with a yellow line or designated taxi or public transport stops on shoulders (Figure 32).

![Figure 32: Condition of R61 in Greater Mandela Park.](image)

4.4.3.4 Pedestrian walkways in Greater Mandela Park

The participants were asked to opine on the level to which the City of Mthatha responds, in terms of planning, to the urban growth that is caused by people moving from the rural periphery into the city. Sixty percent (60%) of the participants are of the opinion that there is no proper planning to facilitate the rural-urban migration into the City of Mthatha, these participants disagree with the statement. Twenty percent (20%) of the participants strongly disagreed with the statement that there are planning measures in place to accommodate the rural-urban migration into the City.
of Mthatha in a sustainable manner. Ten percent (10%) of the participants agree that planning measures for rural-urban migration in Mthatha are in place.

However, the participant who agrees about planning in the City of Mthatha for rural-urban migration claims that this agreement is only partial. The participant identifies that the planning in this regard is reactive of migration rather than a proactive or forward-planning measure. Ten percent (10%) of the participants strongly agrees with the statement cites that there is a broad regional policy framework that identifies Mthatha as the urban centre to 4 million inhabitants in its periphery. No evidence of this population figure could be found in this study.

### 4.4.4 Response to Research Question four: How inclusive and sensitive is the spatial and infrastructural development in Mthatha?

The rapid pace of urbanisation in the world is creating disorganised and often haphazard spatial planning and infrastructure development. This results in the exclusion of the poorest and most vulnerable segments of society from basic services. This exclusion fosters inequality and creates unbalanced societies. Belsky, DuBroff, Harris, McCartney, and Molinsky (2013) have argued that cities that seek sustainable livelihoods for their inhabitants are to invest in planning principles that are inclusive and transparent. They further claim that this planning should have long term goals for environmental, social and economic sustainability.

However, at municipal level, urban planning in developing countries tends to focus on small-scale infrastructure and regulatory issues, such as land use and waste management services (ibid.: 13). Ngqongwa (2016: 17) noted, for example, the placement of refuse collection skips in the Greater Mandela Parks area for the municipality to better deal with waste management. He wrote that these interventions address urban growth and are not efficient in creating inclusion and integration—especially between informal settlement and the formal city.

The planning process in KSDM follows the model set out by the national government. This process is guided by the NDP. The IDP is the key policy instrument that is the principal tool to spatial and infrastructure development in
municipalities. It sets out a development agenda for a five-year period. It is aligned with the objectives of the NDP.

The policy framework of the NDP and the IDP is development that espouses sustainability as a vital driver. However, the policies do not give specific guidelines for the execution of spatial planning and infrastructural provision to achieving sustainability for the cities that the policies are applied in. Thus, the study finds that there is an implementation gap between policy and execution of development projects.

The pivotal document that deals with social and economic inclusivity and environment-sensitivity in the City of Mthatha is the KSD Vision 2030 (Ngqongwa 2016: 19). This vision is articulated in the SDP. Ngqongwa (2016: 20) has noted that the KSDM Vision 2030 Sustainable Development Plan was mentioned as the fourth-best plan in a global competition hosted by the Institute of Alternative Futures. The Institute is based in the United States of America. It evaluated submissions from various parts of the world. The selection of KSDM SDP was in recognition of its pro-poor plans regarding development.

Despite the fact that the plan has received much credit, the lack of actual implementable guidelines to direct the development to foster sustainability is the cause of a continued lack of spatial and socio-economic inclusion and environmental sensitivity in the City of Mthatha.

Evidence of this lack of inclusion is ISUP, proposed for Greater Mandela Park. Figure 33 shows a plan of spatial planning that seems to intentionally treat Greater Mandela Park as a separate and this isolated settlement. The upgrade is contained within the existing spatial layout of Greater Mandela Park. Though an opportunity exists to create a physical linkage on the southern and eastern tips of the upgrade areas, the plan only proposes “future development” in both these areas. This study interprets that as a missed opportunity to develop the spatial order of Mthatha in a coordinated, and thus, inclusive manner. This lack of integration has implications in that infrastructure linkages to water and sanitation, internal pedestrian networks, and shared public open spaces cannot be achieved. This perpetuates separate development and negatively impacts on the sustainability of Mthatha.
4.4.5 Response to Research Question five: What understanding can we derive from the rural-urban migration taking place in Mthatha and its periphery?

KSDM is an area that is largely rural. The study finds that 60–70% of the 453,505 population of KSDM reside in rural areas. Data from KSDM (King Sabata Dalindyebo Municipality, 2013a: [Sa]) reveals that there is a total of 90,060 households in KSDM. Of these households 61,050 or 67.8% are rural, and 29,009 or 32.2% are urban households.

It is estimated that there is a housing backlog of 44,677 rural households versus 22,000 urban households. This backlog is stated to be as a result of housing that is inadequate or not fit for habitation. A report (King Sabata Dalindyebo Municipality, 2016b: 7) found that the City of Mthatha has an estimated housing backlog of approximately 16,385. This estimate suggests that the number of households in the City of Mthatha would have to almost double to meet the housing needs of the city.
The primary cause of this housing need is the growth in the number of people moving into the City of Mthatha.

KSDM has identified this rapid growth and movement from rural to urban. Ngqongwa (2016: 7) has identified that the rural-urban migration occurring in KSDM necessitates that the municipality takes a proactive approach in the development of an integrated human settlement and urban development plan.

The participants in the survey questionnaire have, however, identified that rural-urban migration is not planned for in the City of Mthatha. Sixty percent (60%) of the participants disagree with the statement that rural-urban migration in Mthatha is planned for and that there are measures in place to ensure sustainability as the city continues to grow, because of this migration. Twenty percent (20%) of the participants strongly disagree with the statement. Ten percent (10%) of the participants agree that Mthatha is planned to accommodate the growth caused by rural-urban migration; while 10% strongly agreed that rural-urban migration in Mthatha is sufficiently planned for.

Table 7: Participants’ data on rural-urban migration in Mthatha
The study finds that the local government of KSDM is aware of the phenomenon of rural-urban migration. It has identified and acknowledged this in policy documents. However, planning for rural-urban migration remains inadequate to address the urban growth in the City of Mthatha. Data indicates that approximately 500,000 inhabitants live in KSDM. Thus, it appears that planning on urban growth is based on these figures. The study has shown that Mthatha is a regional urban centre with approximately 1.5 million people using Mthatha as a primary urban area for financial services, healthcare and higher education. Therefore, the measure used to plan for growth because of rural-urban migration needs to change to accommodate this influence that Mthatha has on the region and the impact it has on its sustainability.
CHAPTER 5- SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives an overview, and summarises the research problem. The chapter presents the summary and recommendations of the research into sustainability in secondary cities in South Africa. These guidelines and recommendations of steps to be taken by the local authority of Mthatha, KSDM to facilitate sustainable infrastructure and spatial development. Guidelines and recommendations to be used in other secondary cities in South Africa is presented.

5.2 Research overview

The research is an investigation of the concepts of sustainability as enabling factors of development in secondary cities, using Mthatha as the case study. Mthatha is identified as a key regional urban centre and can thus be used as a starting point in the understanding and formulation of guidelines for sustainable infrastructure and spatial development in South African secondary cities.

5.3 Findings from the case study of Mthatha

a) Mthatha is a secondary city and the urban centre of surrounding towns and villages. This area of influence extends to at least a 50-km radius, and a population of 1.5 million people depend on the resources of the City of Mthatha. The classification of secondary cities that use the population band of 150,000 to 500,000 is ineffective in classifying these cities. This classification does not consider localised differences, and thus, assumes that if cities fall within this population band, they can be treated in a similar way.

This suggests that the classification of cities as secondary is not sufficient in indicating their status. Thus, the term “secondary city” should be used as a starting point for an investigation into developmental needs of an urban centre. The study finds that the identification of localised differences is the key component in formulating policy, guidelines, and implementation plans for sustainable development of secondary cities.

b) The current spatial development in the City of Mthatha, with regard to integrating Greater Mandela Park (Area B) to the existing City of Mthatha
(Area A), is inadequate. Spatial planning policy and its implementation seem to be reinforcing separatist planning principles that are grounded in the colonial city planning that Mthatha was founded upon.

c) The spatial development of Greater Mandela Park is primarily informal. This means that the planning and construction of settlement are done without consultation or approval of KSDM. A process of formalising Greater Mandela Park settlement has commenced. The spatial development plans of KSDM with regard to Greater Mandela Park are focused on upgrading and formalising the existing settlement only.

d) The spatial planning and infrastructure development in Mthatha are not spatially and socio-economically inclusive or environmentally sensitive. There is a lack of integration and coordination about infrastructure linkages, water and sanitation, internal pedestrian networks, and shared public open spaces. This perpetuates separate development and negatively impacts on the sustainability of the City of Mthatha.

e) The study finds that the local government in KSDM is aware of the phenomenon of rural-urban migration. It has been identified and acknowledged in policy documents. However, planning for rural-urban migration remains inadequate to address the urban growth taking place in the City of Mthatha. The measure used to plan for growth because of rural-urban migration, needs to change to accommodate this influence that Mthatha has on the region and the impact it has on its sustainability.

5.4 Recommendations

5.4.1 Process for formulation of guidelines

The proposed guidelines are responses to the identified information and knowledge gained in the exploration of sustainability in the secondary City of Mthatha. These guidelines are not exhaustive. Though there may be common principles addressed in these guidelines, there is room for their expansion and adaptation for other secondary cities in South Africa. A guideline is a suggested practice or process. It is a deductive guide to implementing the desired outcome. It allows room for some discretion in its implementation, in so far as such discretion achieves the intended outcome for the guideline (Business Dictionary, 2016).
The process for formulation of the guidelines is a critical analysis of the literature reviewed in this study. This analysis is applied to the challenges identified in the case study, Mthatha. These challenges are identified using the questionnaire and observation. They synthesis of the literature analysis and the interpretation of data collected on the case study is used to inform the responses that need to be taken by local authority of Mthatha, specifically, and local authorities in Secondary cities in South Africa

5.4.2 Guidelines for local authorities for sustainability in secondary cities in South Africa

a) Secondary cities must keep reliable data on its population. This data should be able to reflect the yearly change in the number of people residing in the city.

b) The spatial integration between informal settlements and the formal suburbs of a city must be prioritised. The identification of buffers, such as roads or natural landscape should be the point of departure. Buffers that cause a physical or spatial separation of areas need to be mitigated. This can be done by developing land-use plans that provides housing and public parks.

c) ISUPs largely focus on the immediate area of said informal settlement being upgraded. This approach perpetuates the separation of the informal settlement to the formal city. Therefore, Sups need to address connectivity issues that result in long commuting distances and thus a greater share of the limited financial resources going into transportation costs.

d) Policies such as the NDP and the IDP are framed with sustainable practices in mind. These policies acknowledge the spatial and infrastructure imbalances that are a result of restrictive pre-1994 policies in South Africa. However, implementation plans for the spatial and infrastructural development of secondary cities need to be developed with the NDP and IDP principles as the driving force. These implementation plans should be prepared by each respective local authority with the consultation of relevant stakeholders, such as community, traditional leadership, and business leadership, and built environment professionals. It should follow that implementation plans will vary from city to city in consideration of the localised conditions, factors, and differences.
e) Mobility should be elevated in its importance to promoting sustainability in Secondary cities. The provision of pedestrian walkways creates pleasant and safe environments in cities.

f) The delivery of a connected network of pathways should be planned. Connectivity can be achieved by linking existing pedestrian networks along sidewalks and extending this network. Extension of the network should prioritise a pedestrian-focused mobility plan. Within the inner city, walking should be the most efficient and quickest way of accessing amenities.

g) Development in secondary cities must prioritise spatial and infrastructure integration. Physical linkages using roads, pedestrian networks, public parks must be planned and executed to reverse the spatial effects of colonial and apartheid city planning in secondary cities. Development must be coordinated to link areas that have historically been separate. This coordination promotes social cohesion, and the shared infrastructure may reduce capital and maintenance costs as economies of scale are created.

5.4.3 Recommendations for further study

Further research may emerge to fill the following knowledge gaps that exist on:

- Land claims;
- Tradition ownership of land; and
- Integration of informal settlements in cities.

5.5 Caution for the readers

The available data and statistics, particularly on population, differ from source to source. In some instances, the data that is used is from sources collected in 2011. The five-year gap thus necessitated that the author use estimates which may compromise the reliability of the data presented. Delays and non-participation of some identified stakeholders.
References


King Sabata Dalindyebo Municipality. 2013c. *King Sabata Dalindyebo spatial development framework – combined plans*. Mthatha: KSDM.


King Sabata Dalindyebo Municipality. 2015a. *King Sabata Dalindyebo Local Municipality annual report for the year ended 30 June 2015*. Mthatha: KSDM.

King Sabata Dalindyebo Municipality. 2015b. King Sabata Dalindyebo Municipality Road maintenance policy. Mthatha: KSDM.


King Sabata Dalindyebo Municipality. 2016b. *King Sabata Dalindyebo Municipality Service delivery, budget and implementation plan*. Mthatha: KSDM.


UNHABITAT. 1996. The habitat agenda (including Istanbul Declaration). Nairobi: UNCHS.


INFORMATION SHEET

Research Report Title: Sustainability in South African Secondary Cities - The Case of Mthatha

Dear Participant

My name is Khanya Z. Cakata and I am currently studying for a master’s degree at the University of Johannesburg in the Department of Architecture. In fulfillment of the degree, I am conducting a research of concepts of sustainability in secondary cities in South Africa, with particular interest on how these principles can be applied to the case study of Mthatha. In order for me to achieve the objective of the research study, I am seeking your participation to complete the questionnaire.

Your participation in the interview and questionnaire process for the study is voluntary and you maintain the right to terminate participation at any stage. The interview shall be 25 minutes in duration. Your participation as one of the stakeholders is based on your involvement in the three legs of sustainability in Mthatha: the people; the environment; and; the economy. You maintain the right to be anonymous, should you choose. A copy of the digital/electronic format only of the dissertation shall be made available to you, on written request, should you wish to obtain it.

Please feel free to pose any questions regarding this research. I shall answer them to the best of my ability. I may be contacted via email (doktakaz@gmail.com), or via my supervisor, Dr. F.E. Saidi email (finzis@uj.ac.za) or phone 011 5591592.

Thank you for taking the time to consider participating in the research.
Yours sincerely,

K.Z. Cakata
Appendix B : Informed consent form

INFORMED CONSENT FORM

RE: Participatory Consent for Post-Graduate Mtech: Architecture (Research) study for the University of Johannesburg Faculty of Art, Design and Architecture

Dear Participant

This form is to evidence that you consent to be interviewed and surveyed for the purposes of the aforementioned study. It further evidences consent to make the contents of this study available for analysis and inclusion as qualitative data to further the objectives of the study.

In granting consent the interviewer extends your right to freedom of speech while ensuring that information divulged in the interview shall be kept in confidence and in line with academic ethical and moral practices of the University of Johannesburg.

The aim of the study is to explore concepts of sustainability in secondary cities in South Africa, with particular interest into how these principles can be applied to the case study area, Mthatha, to enable sustainable spatial and infrastructural development to occur. As such you confirm that:

- Your participation in the interview process for the study is voluntary and you maintain the right to terminate it at any stage.
- The interview shall be 25 minutes in duration.
- The responses to the questionnaire will be used in the study.
- Your participation is as one of the stakeholders identified as being involved in one of the three legs (people, environment, economy) of sustainability in Mthatha.
- You maintain the right to be anonymous, should you choose.
- A copy of the digital/electronic format only of the dissertation shall be made available to you, on written request, should you wish to obtain it.

Researcher: K.Z Cakata

___________ Signed on this _____ day of _________ 20__ at __________

Participant: Name: ___________________________ Designation __________________

Organization: ________________________________

___________ Signed on this _____ day of _________ 20__ at __________

Khanya Z. Cakata - 200817432 - Master of Technology (Architecture) Research
Appendix C: Questionnaire

QUESTIONNAIRE

Interview Questionnaire Outline (Traditional Leaders, Government officials, Spatial practitioners, Civil organization leaders, Environmentalists)

Section A: Biographical and Professional

1. What is your gender?
   Male [ ]
   Female [ ]

2. What age demographic do you fall under?
   18-35 [ ]
   36-55 [ ]
   56-75 [ ]
   76+ [ ]

3. What stakeholder group do you operate in?
   Government [ ]
   Business [ ]
   Traditional [ ]
   Civic [ ]

   Please state organization, designation, key area of focus (e.g.):
   [Blank Line]
   [Blank Line]
   [Blank Line]

4. How many years have you operated in Mthatha?
   0-5 [ ]
   5-10 [ ]
   10-15 [ ]
   15+ [ ]

Section B: Technical

1. Briefly, what is your understanding of sustainability, as a concept?
2. Sustainability is a mode of operation that defines how your area of expertise operate, in Mthatha.
   Strongly Agree   [ ]
   Agree           [ ]
   Disagree        [ ]
   Strongly Disagree [ ]

3. In your opinion, is Mthatha a secondary city?
   Yes              [ ]
   No               [ ]

4. Government is playing a central role in ensuring that infrastructure development, particularly roads and sewer infrastructure is planned and executed to accommodate the impact on these services due to the importance of Mthatha as an urban centre and the growth in the people leaving in the city.
   Strongly Agree   [ ]
   Agree           [ ]
   Disagree        [ ]
   Strongly Disagree [ ]
   Elaborate: ..........................................................
   ..........................................................................
   ..........................................................................
   ..........................................................................

5. The rural – urban migration into Mthatha is planned for and measures are in place to ensure that the growth is accommodated for in a sustainable manner.
   Strongly Agree   [ ]
   Agree           [ ]
   Disagree        [ ]
   Strongly Disagree [ ]

6. What are the challenges to sustainable development in Mthatha? Please identify 3 a.
   ..........................................................
7. What opportunities for sustainable development can you identify in Mthatha? Briefly mention 3.
   a. .................................................................
   b. .................................................................
   c. .................................................................

Additional Comments: ....................................................................................................................
..........................................................................................................................................
..........................................................................................................................................
..........................................................................................................................................

Thank you for your valuable contribution to this Study on *Sustainability in South African Secondary Cities: A Study of Mthatha*.
Appendix D: KSD Municipality Permission to conduct research

The Head of Department-Architecture,  
Faculty of Arts, Design and Architecture,  
University of Johannesburg,  
Johannesburg,  
2006

ATT: Dr. F Saidi

RE: CONSENT FOR KZ CAKATA TO CONDUCT RESEARCH

Please be informed that the King Sabata Dalindyebo Municipality Department of Human Settlements hereby given permission to Mr. K.Z Cakata to conduct research under the topic of *Sustainability in South African Secondary Cities-the case of Mthatha*, for the purpose of obtaining the Masters of Technology- Architecture degree which he is enrolled for.

Regards,

N.N SOLDATI  
DIRECTOR: HUMAN SETTLEMENTS
Appendix E: Interview questionnaire: KSDM representative (spatial planning)

Interview Questionnaire: KSDM Representative (Spatial Planning)

<table>
<thead>
<tr>
<th>Place</th>
</tr>
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<table>
<thead>
<tr>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>From</th>
<th>To</th>
<th>Duration</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Interviewer</th>
</tr>
</thead>
</table>

Introduction and role of KSDM Representative

1. What is your job title?
2. What does your position entail?
3. How long have you served in this position at KSDM?

KSDM and Spatial Planning

4. What is the role of KSDM in the spatial planning of Mthatha?
5. What policy instruments guide the KSDM in implementing its role in spatial planning in Mthatha?
6. Do the spatial planning instruments used consider sustainability principles (in terms of its impact to the people, the economy and the environment)?
7. What are the current spatial planning developments in Mthatha?
8. What is the state of spatial planning for the Greater Mandela Park Settlement?
9. Do the spatial planning instruments in Mthatha address the rural-urban migration?
10. What are the challenges in spatial planning for the City of Mthatha?
11. What can you suggest as spatial planning guidelines to achieve sustainable development in Mthatha?
Appendix F: Interview questionnaire - KSDM representative (infrastructure)

Interview Questionnaire: KSDM Representative (Spatial Planning)

<table>
<thead>
<tr>
<th>Place</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>From</td>
</tr>
<tr>
<td>Interviewer</td>
<td></td>
</tr>
</tbody>
</table>

Introduction and role of KSDM Representative

1. What is your job title?
2. What does your position entail?
3. How long have you served in this position at KSDM?

KSDM and Spatial Planning

4. What is the role of KSDM in Infrastructure development of Mthatha, particularly roads, water and sanitation?
5. What policy instruments guide the KSDM in implementing its role in infrastructure development in Mthatha?
6. Do the infrastructure development instruments used consider sustainability principles (in terms of its impact to the people, the economy and the environment)?
7. What are the current infrastructure developments in Mthatha?
8. What is the state of infrastructure in the Greater Mandela Park settlement?
9. Do the infrastructure instruments in Mthatha address the rural-urban migration?
10. What are the challenges in infrastructure development for the City of Mthatha?
11. What can you suggest as infrastructure development guidelines to achieve sustainable development in Mthatha?
### Appendix G: Observation A

<table>
<thead>
<tr>
<th>Observation Area</th>
<th>Area A – Mthatha Inner City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Duration:</td>
</tr>
<tr>
<td>Date/Day</td>
<td></td>
</tr>
<tr>
<td>Data Collector</td>
<td></td>
</tr>
</tbody>
</table>

### Observation Guideline for Area A

<table>
<thead>
<tr>
<th>EXISTING CONDITIONS</th>
<th>1. Excellent</th>
<th>2. Good</th>
<th>3. Poor</th>
<th>4. Extremely Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the state of the road?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. What is the state of the pedestrian pathway?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. What is the state of public seating/resting?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. What is the state of water and sanitation? (storm water drainage and sewerage)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. What is the state of the public open space/public urban park?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The provision of public transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The provision of private (private taxi) transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. What is the state of urban vegetation, trees, shrubs, grasses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CURRENT DEVELOPMENT TAKING PLACE

<table>
<thead>
<tr>
<th></th>
<th>10. Upgrading/maintenance of pedestrian pathway</th>
<th>11. Upgrading/maintenance of public open space, tree planting etc.</th>
<th>12. Upgrading/maintenance of Water and Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
<td>yes</td>
</tr>
</tbody>
</table>
Appendix H: Observation Guideline – Area B

<table>
<thead>
<tr>
<th>Observation Area</th>
<th>Area B – Greater Mandela Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Duration:</td>
</tr>
<tr>
<td>Date/Day</td>
<td></td>
</tr>
<tr>
<td>Data Collector</td>
<td></td>
</tr>
</tbody>
</table>

### Observation Guideline for Area B

#### EXISTING CONDITIONS

<table>
<thead>
<tr>
<th>1. Architectural Typology (number)</th>
<th>Corrugated Iron shack</th>
<th>Single detached dwelling</th>
<th>Multiple residential units/Flats</th>
<th>Non-residential: Shops, accommodation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. What is the state of the road?</td>
<td>1. Excellent</td>
<td>2. Good</td>
<td>3. Poor</td>
<td>4. Extremely Poor</td>
</tr>
<tr>
<td>3. What is the state of the pedestrian walkway?</td>
<td>1. Excellent</td>
<td>2. Good</td>
<td>3. Poor</td>
<td>4. Extremely Poor</td>
</tr>
<tr>
<td>4. What is the distance to the nearest …</td>
<td>School</td>
<td>Hospital/clinic</td>
<td>Shop/bank</td>
<td>Public open space – sports field, urban park</td>
</tr>
<tr>
<td>5. What is the transport cost by taxi to the city?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### CURRENT INFRASTRUCTURE DEVELOPMENT

| 6. Upgrading/maintenance of roads | YES | NO |
| 7. Upgrading/maintenance of pedestrian pathway | YES | NO |
| 8. Upgrading/maintenance of public open space, tree planting etc. | YES | NO |
| 9. Upgrading/maintenance of Water and Sanitation | YES | NO |
Appendix I: FADA HDC-1 Form

APPLICATION FOR APPROVAL AND REGISTRATION OF A RESEARCH PROJECT FOR POSTGRADUATE DEGREE (INCLUDING ETHICS CLEARANCE, WHERE APPROPRIATE)

Form HDC-1 (REG)

PLEASE READ THE FOLLOWING INSTRUCTIONS BEFORE COMPLETING THE FORM

- This form is to be completed by Faculty of Art, Design and Architecture students and staff who wish to engage in research activities at the University of Johannesburg (UJ) with a view to obtaining a postgraduate degree from the Faculty.
- The form must be submitted to the Faculty Research Committee.
- Where a proposed project requires ethics clearance, the last section of this form also needs to be completed, and the form submitted to the Faculty Research Committee.
- The dean is the final arbiter on whether ethics clearance is required or not.

SECTION A: PARTICULARS OF STUDENT

Surname: Coetzee
First Name: Khanya
Gender: M
Date of birth: 09/01/2004
ID number: 910045620081
Race: S
Highest qualification: B Tech Architecture Technology (Management)
Institution: University of Johannesburg
Postal address: P.O. Box 45 Mthatha 5099
Telephone No.: 063 883 3209
E-mail address: dula.hlac@gmail.com

IF YOU WILL BE EMPLOYED IN EITHER A PART-TIME OR A FULL-TIME CAPACITY DURING THE INTENDED PERIOD OF STUDY, PLEASE FURNISH THE FOLLOWING INFORMATION

Name of company employing you: King Sabata Dalindyebo Municipality
Name and title of direct superior: Ms Nobuzwe Soldi – Director Human Settlements
Post in which you will be employed: Spatial Planner/Examiner
Is your appointment part-time or full-time: Full Time
Postal address of your superior: P.O. Box 45 Mthatha 5099
Telephone No.: 047 501 4050
E-mail: 2014@tad.gov.za

* NOTE 1: In terms of Employment Equity requirements these statistics may have to be furnished. Please provide the information requested.

SECTION B: REGISTRATION DETAILS

FACULTY IN WHICH REGISTERED: Faculty of Art, Design and Architecture (FADA)
SCHOOL/DEPARTMENT IN WHICH REGISTERED: Department of Architecture
QUALIFICATION FOR WHICH PROJECT IS BEING REGISTERED (M Tech):
DATE OF REGISTRATION: 15-01-2015
DATE OF THIS SUBMISSION: 03-04-2015
EXPECTED DATE OF COMPLETION: 30-09-2016
REGISTRATION STATUS: Full-time or Part-time: Part-Time
As a percentage of the expected total research activity, approximately how much will be physically located on a UJ campus?: 20%
As a percentage of the expected total research activity, approximately how much will be spent on field trips, site visits, etc?: 80%
SECTION C: OVERVIEW OF RESEARCH PROPOSAL

IS THE PROJECT OF A CONFIDENTIAL NATURE? (Yes/No) *(If YES, please complete the form HOC 5-CONF. entitled Agreement: Confidential Research Project)*

TITLE OF PROPOSAL *(The title should be descriptive and should be used for the duration of the proposed project)*

Sustainability in South African Secondary Cities - The Case of Mthatha

SHORT TITLE *(36 characters MAXIMUM, including spaces)*

Sustainability in South African Secondary Cities

KEYWORDS *(Please list up to 8 keywords or concepts (not more than three words each) for the project, separated by commas)*

Sustainability, urbanisation, sustainable cities, secondary cities, growth, infrastructure, rural migration, urban integration

Into which approved UJ Activity Area does this application fall, if any?

SECTION D: PARTICULARS OF PROMOTER AND SUPERVISOR(S)

NAME AND TITLE OF PROJECT SUPERVISOR: Dr. E. Sard

Institution/Company: University of Johannesburg

Present post: Senior Lecturer

Temporary/Permanent: P

School: Architecture

Faculty: FADA

Postal address: P.O. Box 524

Telephone No.: 011559 1592

E-mail: esard@uj.ac.za

NAME AND TITLE OF CO-SUPERVISOR (if any): Mr. George Coats

Institution/Company: University of Johannesburg

Present post: HOD

Temporary/Permanent: P

School: Town and Regional Planning

Faculty: FEBE

Postal address: P.O. Box 17011, Doornfontein, 2006

Telephone No.: 0115590606

E-mail: goots@uj.ac.za

NAME AND TITLE OF CO-SUPERVISOR (if any):

Institution/Company:

Temporary/Permanent:

School:

Faculty:

Postal address:

Telephone No.: 0115590630

E-mail:

PLEASE ATTACH A CURRICULUM VITAE (FOR THE SUPERVISOR(S))