

PRINCIPLES FOR SUSTAINABLE PUBLIC OPEN SPACES IN SANDTON: A RECOMMENDATION FOR THE JOHANNESBURG METROPOLITAN OPEN SPACE SYSTEM (JMOSS)



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Declaration

I, Ingrid Shelton, declare that the entirety of the work contained in this research report is my original and unaided work. It is being submitted for the degree in the Master of Science in Town and Regional Planning by Research Only to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other university.

..... (Signature of Ingrid Shelton) day of year.....

Abstract

Public open spaces such as parks provide vibrancy to the ordinary city by means of providing spaces for the community for recreational, health and leisure activities. A sustainable public open space provides an opportunity for a city to become more sustainable where a public open space is more than a space for the community.

This research aims at developing a set of principles that may be adopted by the Johannesburg Metropolitan Open Space System (JMOSS) in order to create sustainable public open spaces. The objectives of the research report include unpacking various debates regarding the use, users and definition of public open spaces, identifying what the existing principles are for open spaces as used by JMOSS, identifying where the parks and vacant parcels of land are in the Sandton and surrounding area, identifying what makes a public open space coherent, contextual and co-existent, identifying the shortfalls of the public open spaces in Sandton in terms of their coherency, co-existence, contextuality and sustainability, and identifying local and international precedents of Sustainable Public Open Spaces.

The nature of this research report will include qualitative research where in depth interviews, photographs, mapping and case studies will be used in order to develop the principles for sustainable public open spaces. Two main concepts will be drawn on to develop the principles for sustainable public open spaces. Firstly, the concept of sustainable public open spaces by Reiter (2004) whereby the three principles of coherence, co-existence and contextuality are used. Secondly, the concept of sustainability as discussed by Gedikli (n.d.) where sustainable urban development incorporates social justice, sustainable economies, and environmental sustainability. Therefore, the concept of sustainability is the focus of how public open spaces can become more resilient, adaptable, efficient and effective spaces within the city for the public to use, by developing a set of principles for sustainable public open spaces.

This research report culminates in the development of a set of principles for sustainable public open spaces, entitled “The Three Cs for Sustainable Public Open Spaces”. These principles can be applied on a generic scale but require guidelines in the context in which they are applied. Therefore, these principles are derived alongside guidelines for the context of the public open spaces within and around the Sandton CBD.

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Completing this research report has been the highlight of my academic career. I unpacked a fascinating topic that inspired me to go out of my comforts and explore the topic with wonderful people who guided and helped me along the way. Family, friends, colleagues and lecturers, it could not have been possible without you.

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I would like to thank all of my colleagues that participated in the interviews during this research, your input is invaluable and helped to shape the final product of this research.

A special thanks to my husband, family and friends. Words cannot express how grateful I am that you supported me in striving towards my goal.

Ingrid Shelton

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List of Acronyms

BRT	Rea Vaya Bus Rapid Transit System
CBD	Central Business District
CPTED	Crime Prevention Through Environmental Design
GIS	Geographical Information System
IDP	Integrated Development Plan
JMOSS	Johannesburg Metropolitan Open Space System
RSDF	Regional Spatial Development Framework
SAPS	South African Police Service

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Chapter 1: Introduction

Introduction

Public open spaces provide vibrancy to the city. They provide a space to the community for recreational, health and leisure activities including sporting facilities, benches for reflection in a beautiful setting, concerts, walks and exercise. A sustainable public open space provides an opportunity for a city to become more sustainable. Not only in their development as an urban centre but create pockets of public open spaces, such as parks, that provide more than just an open space back to the community.

Reiter (2004) critiques the contemporary city and argues that open spaces in the contemporary city lacks the integration between each public space, their local context as well as their coherence. Reiter (2004) goes on to say that in order for public spaces to be sustainable, they need to be developed according to three principles, namely contextuality, co-existence and coherence. Reiter (2004) explains that coherence entails creating an identity in the open space while co-existence includes offering diversity of uses and public in the open space. Lastly, contextuality includes public spaces that are well integrated and are related to one another. (Reiter, 2004)

This research aims at developing a set of principles that may be adopted by the Johannesburg Metropolitan Open Space System (JMOSS) in order to create sustainable open spaces. It thereby looks at the current Johannesburg Metropolitan Open Space System and where in the existing policy these principles may be inserted. The proposed principles for public open spaces will include concepts such as crime prevention through environmental design (CPTED), the image of the city, placemaking, sustainability, contextuality, coherence and co-existence. The analysis will further focus on public open spaces in terms of the existing parks within the Sandton Node and vacant land that may be transformed into well-functioning parks and thereby sustainable public open spaces. The research will therefore focus more on the physical features such as aesthetics, accessibility and uses and activities of the public open spaces in order to make them more sustainable.

The public open spaces within the Sandton node and surrounding areas will be used as a case study for the purpose of this research report. Chapter 3, the Research Methods, will give further details about the

node and surrounding area. Diagram 1 indicates the context of the Sandton Node in relation to the City of Johannesburg and Gauteng.

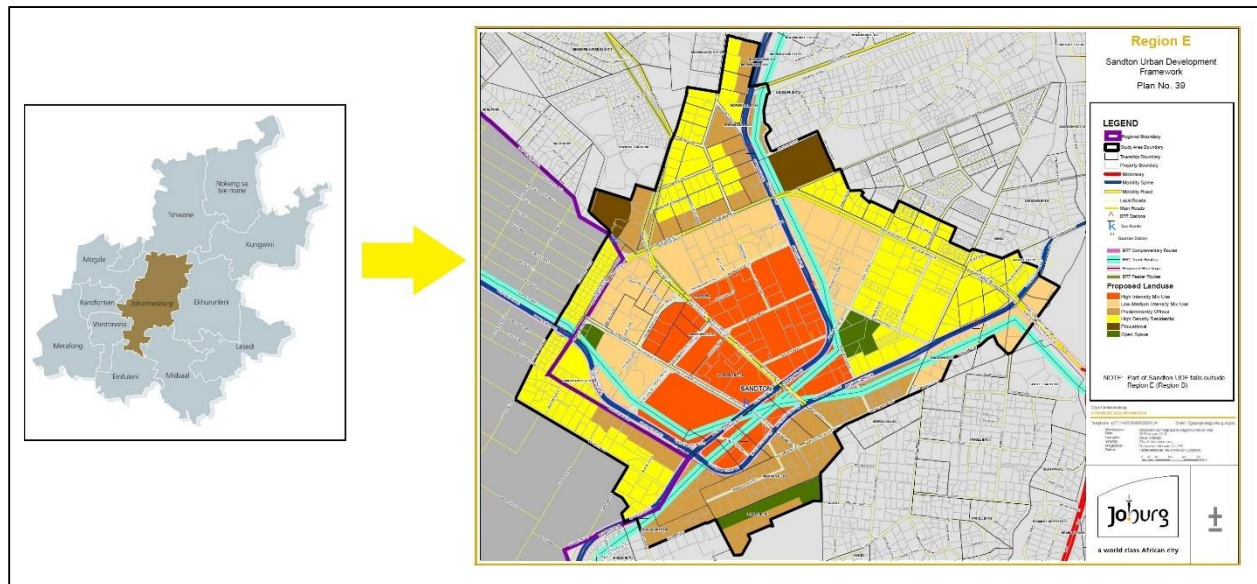


Diagram 1: Positioning of the Sandton Node in relation to the City of Johannesburg Metropolitan Municipality and Gauteng (After City of Johannesburg, 2015 and City of Johannesburg Metropolitan Municipality, 2010)

Previous land use planning experience in the Sandton and Johannesburg regions has culminated in the desire to improve upon the policies for sustainable public open spaces in Sandton. The Sandton node in particular offers an opportunity to reshape the principles for public open spaces due to the existing popular public open spaces and the investment opportunities in the area.

The node further provides a wide variety of types of public open spaces and will therefore provide more insight into the development of principles for sustainable public open spaces. These include more established parks such as Mushroom Farm Park, Innesfree Park and Sandton Central Park. These further include green belts such as the Sand Spruit and public open space that have the potential to develop into sustainable public open spaces

Chapter 1 will serve as an introduction to the research as well as indicate an outline of the research report. In the first part of this chapter, the background and problem statement will be discussed. Here the tone for the research is established by discussing definitions that are most related to the proposed field of study. The problem statement will indicate why the chosen field of study is chosen from a personal, academic and professional point of view. Once these two sections are deliberated, the design of the

research will be outlined. Lastly, a chapter outline detailing the content of the individual chapters will conclude the chapter.

Background

Gedikli (n.d.) argues that open spaces are the realm in which social bonds are formed but due to urban sprawl, globalisation and urbanisation these spaces are not necessary as readily available as before. In order to combat this, Gedikli (n.d.) suggests that public events such as festivals should be used in order to revive public open spaces within the city. He goes on to say that the greenery of the public spaces is not the only factor to consider when revitalising a space, it is necessary to consider the social, environmental, economic and health factors. These factors together promote a higher quality of life and thereby sustainable urban development and sustainable public open spaces. (Gedikli, n.d.)

The Johannesburg Metropolitan Open Space System identifies open spaces as any land which is undeveloped and may be ecological, social, institutional, heritage or agricultural in nature (Strategic Environmental Focus, 2002). The JMOSS report denotes that there is no specification of what defines a public open space, thereby all are included as part of public open spaces.

The Johannesburg Spatial Development Framework works hand in hand with JMOSS, which is aimed at the development of an environmental management strategy for open spaces and is closely linked to principles of sustainable development. Currently, the Johannesburg Metropolitan Open Space System formulates maps of open spaces for each of the sub areas and regions within the Johannesburg RSDF.

A sustainable city can be defined as a city that is designed with consideration for the environment whereby the city will deliberate the environmental impacts on the local environment. The city will likewise consider the positive impacts that the natural environment can have on the local communities. Therefore, the sustainable city uses resources for maximum gain at the least cost of these resources possible (Satterthwaite, 1999).

It can be established that sustainable public open spaces can lead to more legible and coherent cities, whereby there are policies to incorporate the planning, design and sustainability of these spaces. Sustainable public open spaces will protect and enhance the heritage as well as the biodiversity of the space whilst meeting the needs of the community. This is accomplished by maximising the use of facilities that can be found on these spaces, building upon the sense of place and pride of these spaces as well as the city (Charnwood Borough Council, 2013)

There are several theories and typologies for open spaces. These can vary according to their users as well as their size. According to the Charnwood Borough Council (2013) in England, there are six types of major open spaces. These include: parks and gardens, natural and semi-natural urban green spaces, amenity green space, open spaces for children and young people, outdoor sports facilities, allotments, community gardens and urban farms, cemeteries, disused churchyards and other burial grounds, green corridors and civic spaces.

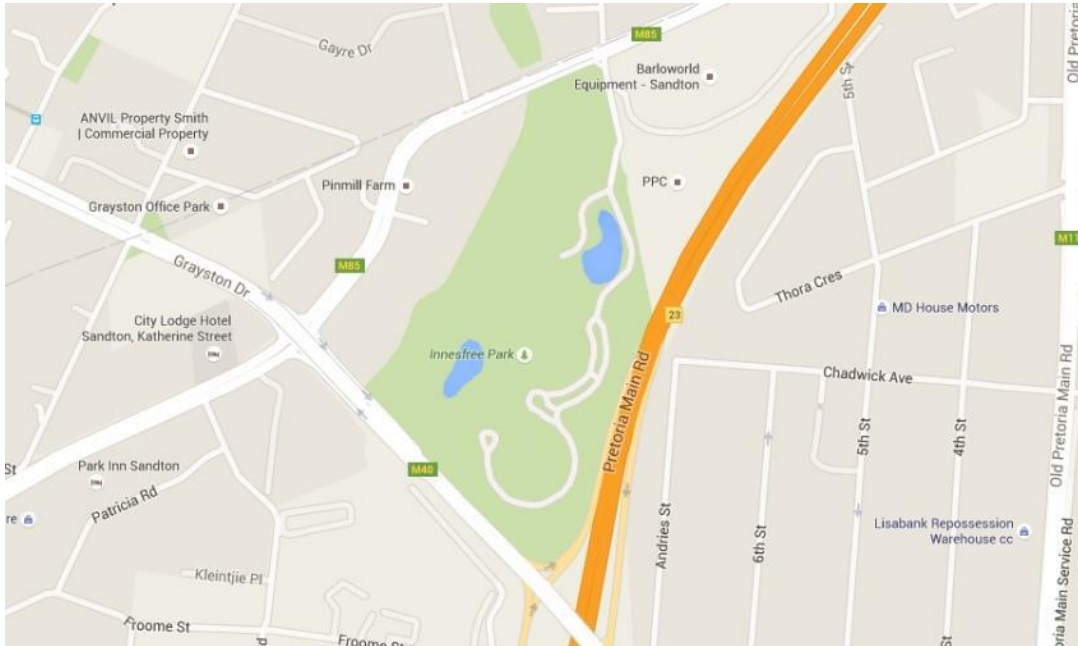
The City of Stirling, in Australia, shares a similar view of open spaces and identifies open space in terms of local, community, district and regional open spaces, natural conservation areas, special purpose open space, and residual land (The City of Stirling, 2008). The difference between the Charnwood Borough Council and the City of Stirling is that the City of Stirling identifies spaces in terms of their scale and locality of these spaces in terms of the jurisdiction that they fall into.

According to the City of Cape Town open spaces include cemeteries, conservation areas, regional parks, local parks, undeveloped public open spaces, sportsfields, greenbelts, coastal dunes, beach resorts, road amenities and public transport interchanges (City of Cape Town, 2003).

While this may not be an entirely ideal typology of open spaces, the City of Cape Town, City of Stirling and Charnwood, have a category specifically for public open spaces. The City of Stirling and Charnwood have a category for public spaces inclusive of parks and gardens whereas the City of Johannesburg categorises open spaces based on the surroundings, i.e. water body open spaces. In terms of the City of Johannesburg typology, the question is where parks and gardens would be included.

As shown in Map 1, a park such as Innes Free Park, Sandton, has several water bodies and therefore is classified as such but the park can likewise be classified as an ecological network and a social open space due to the fact that the park is used for social events. It therefore could be understood that a clear definition should be provided for each typology and that criteria is established and used to classify the different types of open spaces.

It is recommended that the typology for open spaces by JMOSS be used and amended to include a grouping for public open spaces that may include spaces such as parks, playgrounds, cemeteries and vacant land. A typology for public open space will be derived from the literature review to follow in the next chapter.



Map 1: Waterbodies in Innesfree Park, outside of the Sandton CBD (Google Maps, 2015)

Positioning the Study

There are seven regions within the Johannesburg Spatial Development Framework of 2010/2011. Each Region has a set of objectives and guidelines that facilitate development in the Region and its sub areas. There is little local literature written regarding public open spaces within South Africa. There is less written in the Johannesburg Spatial Development Framework regarding open spaces. It is for this reason that this topic is not only important locally but globally too. With more literature coming from academics in South Africa, local public open spaces can be used as precedents and case studies internationally.

This topic has been chosen due to the themes covered within the degrees completed and work experience. An ever growing interest in urban design and environmental planning has always been present throughout academic years in the completed Bachelor's Degree and Honours Degree in Town and Regional Planning. Furthermore, Raven Town Planners, a private planning consultancy, has offered an opportunity to gain experience in RSDFs within the private sector since 2012. This growing experience in RSDFs and an everlasting interest in open spaces have culminated in developing a new set of principles for sustainable open spaces within JMOSS. During initial observations, there is a necessity to have principles for public open spaces within the Johannesburg Metropolitan Open Space System, in order to assist the City of Johannesburg in achieving the definition of a Sustainable City.

Public open spaces in the Sandton CBD and surrounding areas are not all well used and nor are they all designed with the same principles. This thereby leads to a distinct difference between well-established public open spaces such as the Mushroom Farm Park and the Sandton Central Park, to that of undeveloped land that is zoned for public open space but is not used as such. This margin between well-established parks and undeveloped parks is increasing due to the lack of policies guiding sustainable public open spaces.

For the purpose of this research, the concept of sustainability is key and is the focus of how public open spaces can become more resilient, adaptable, efficient and effective spaces within the city for the public to use. Therefore, the concept of sustainability will be the overarching concept that ties the theory of the research report together. Sustainability will be addressed in terms of environmental, social and economic concerns and will be dealt with simultaneously. This is due to a distinct relationship that exists between the above principles for sustainability and public open spaces.

There are several definitions for sustainability. Some definitions look at sustainability in terms of a single concept, contrary to the definition used for the use of this research report that makes use of environmental, social and economic factors that may result in sustainability. Therefore, definitions of sustainability only referring to one of the three principles will not be included in the research, as they will not aid in the development of holistic principles for addressing public open spaces.

Furthermore, in terms of the principles for sustainable public open spaces, the research will culminate in the development of these principles that guide the design of these spaces. The research report does not criticise JMOSS as a management system of these spaces. The research report offers a critique of the lack of policies within JMOSS in guiding public open spaces. It will therefore, unpack the theory revolving around sustainability, sustainable public open spaces, imageability, and placemaking. All of which offer design interventions or policies that guide the development of a public open space. These principles may then be inserted into JMOSS in order to make the system more holistic in addressing public open spaces.

Lastly, the research sets out to identify principles for sustainable public open spaces. These principles and guidelines will be physical in nature and therefore look at the contextuality, co-existence and coherence and how these can be physically improved upon. Therefore, the interviews and analysis of the public open spaces will focus on physical features of the public open spaces. This is elaborated in Chapters 3 and 4.

It is however, not the purpose of this research report to deal with the management, crime and transport. The research report will culminate in the recommendations for increasing accessibility, redesigning the

public open spaces and allowing more activities in the spaces. The recommendations will not revolve around the necessity to increase or include security guards within the public open spaces.

Problem Statement

Infrastructure plays a vital role in the sustainability and efficiency of cities on a micro and macro scale. There are three main types of infrastructure. These include physical, green, and community or social infrastructure. Physical infrastructure includes the structures providing services to the public such as roads, electricity lines and water and sewerage pipes. Green infrastructure comprises rivers and coastlines and all types of open spaces. Green infrastructure deals with the protecting or conserving these spaces with relevant departments for land development, growth management and physical infrastructure planning. Community or social infrastructure consists of public spaces and services used by the public on a day to day basis. (Klein, Klug and Todes, 2012)

It is the assumption of spatial planning, that the development of infrastructure in cities by the relevant departments would adhere to the same frameworks and master or spatial plans as introduced by the RSDFs. This is generally not the case for the infrastructure departments within cities across Africa. It can be argued that the relevant departments in the City of Johannesburg are not working together in creating sustainable public open spaces. (Klein, Klug and Todes, 2012)

This was evident during the circulation phase of the Johannesburg Spatial Development Framework for 2010 / 2011, there was an objection received by Web Environmental Consultancy with regards to the open space management. The comments that were raised in their objection state that there are some open spaces in Johannesburg that may be misused and neglected. The main concern raised included the lack of emphasis on open space in the Johannesburg Spatial Development Framework. Further to these objections introduced above, the Johannesburg Spatial Development Framework may lack principles regarding the planning, design, management and uniqueness of open spaces and therefore results in open spaces that are underutilised and neglected. (City of Johannesburg Metropolitan Municipality, 2010)

Waterbodies, agricultural land, heritage and institutional open spaces, prospective open spaces, social and existing ecological open spaces, ecological network of open spaces, ridges, wetlands, and sensitive areas identified for proclamation open spaces are plotted on maps titled "Johannesburg Metropolitan

Open Space System” for each region in the Johannesburg Spatial Development Framework (City of Johannesburg Metropolitan Municipality, 2010).

Contrary to the typology discussed above, the Johannesburg Metropolitan Open Space System defines open space as “any undeveloped vegetated land within and beyond the urban edge, belonging to any of the following six open space categories: ecological, social, institutional, heritage, agricultural and prospective (degraded land)” (Strategic Environmental Focus, 2002). The typology here excludes waterbodies, ridges, wetlands and sensitive areas as indicated on the JMOSS maps.

Yet another typology is described in the Johannesburg Spatial Development Framework whereby open spaces include ecological open spaces, social open spaces, public open spaces, heritage spaces, institutional spaces and prospective open spaces (City of Johannesburg Metropolitan Municipality, 2010). The RSDF further indicates examples of these spaces and does not offer a definition classifying each type of space. It therefore is only a list of spaces that exist under the term Open Spaces. The main difference between the typology proposed by the RSDF in relation to JMOSS is that of public open spaces. Where the RSDF has a category for public open spaces, the Johannesburg Metropolitan Open Space System does not separate public open spaces from open spaces in their definition nor in the Regional Maps.

The Johannesburg Town Planning Scheme 1979 defines public open spaces to include parks, squares, and sportsgrounds and can further allow for smaller restaurants (City of Johannesburg, 1979). The Sandton Town Planning Scheme 1980 however defines public open spaces as “land zoned for used by the public as an open space and it includes a park, garden, playground, recreation park of plain and buildings incidental hereto” (City of Johannesburg, 1980:11). Here lies another discrepancy. The Sandton Town Planning Scheme is more in tune with the RSDF. This is due to the fact that the Johannesburg Town Planning Scheme includes squares and sportsgrounds in their definition but the RSDF does not.

It is therefore a recommendation that a typology for public open spaces is fashioned and adopted by JMOSS, into their typology for open space, alongside a unified definition for public open spaces that is adopted by all town planning policy and legislation in South Africa.

Research Question

The research topic looks at the development of a set of principles for sustainable public open spaces within the Sandton Node and surrounding areas. It particularly looks at public open spaces in terms of parks and vacant and undeveloped land that can be transformed into sustainable public open spaces. The research question asks: *What principles may be adopted by the Johannesburg Metropolitan Open Space System to create sustainable open spaces?* The research question and its structure alongside the exploratory and inductive nature of this research demonstrates that a hypothesis would be redundant and is therefore omitted from this research report. According to Struwig and Stead (2001), hypotheses are seldom used in qualitative studies and are omitted when the research question already gives direction and focus to the research.

Within the above mentioned research question, the research sets out to explore the following sub questions;

- What guidelines can be adopted by JMOSS to create Sustainable Public Open Spaces?
- What makes a public open space?
- What are the various debates on what public open space means, to whom and in what context?
- Where are the parks and vacant land in Sandton and the surrounding areas?
- What makes vacant land earmarked for parks?
- What makes a public open space coherent, contextual and co-existent?
- What are Sustainable Public Open Spaces?
- What makes a public open space sustainable?
- What local and international precedents are there for sustainable public open spaces?

These sub questions formulate the aims and objectives of the research report as explored in the Chapter 3, the Research Methodology. The set of principles that may be used for sustainable public open spaces, will be derived in the context of 7 erven zoned as public open space found within the Sandton CBD and surrounding area.

For the purpose of the research, a position must be taken concerning a working definition of a sustainable public open space. As the definition set out by Reiter (2004) and Gedikli (n.d.) work hand in hand, a working definition can be derived. Reiter (2004) indicates that public spaces should be coherent, co-existent and contextual. Gedikli (n.d.) argues that public spaces should have economic, social and environmental benefits to be sustainable. Here coherence and environmental benefits overlap, co-

existence and social benefits overlap, and contextuality and economic benefits overlap. Therefore, these two definitions for sustainable public open spaces will be used.

Chapter Outline

The research report will include the following chapters. Chapters 1, 2 and 3 are the Introduction, Literature Review and Research Methodology Chapters. Chapters 4 and 5 include the 'Open spaces in Sandton: A Photographic Analysis' and 'Open spaces in Sandton: A Professionals' Opinion'. Chapter 6 will include the Principles for Sustainable Public Open Spaces. Chapter 7, the Conclusion will be followed by the References and Appendices.

Chapters 1, 2 and 3 outline the research topic, normative position, the literature review and research methodology respectively. These three chapters will discuss key concepts to be covered in the research report as well as what methods will be used to conduct the research. These research methods are indicative of qualitative research. Chapter 4 is a photographic analysis of the open spaces within the Sandton node and immediate surroundings. This chapter will include the photographs of the typology of open spaces as well as the mapping of these spaces. Chapter 5 will explore the professionals' perspective in terms of sustainable open spaces, the pros and cons of the Johannesburg Metropolitan Open Space System as well as their recommendations for principles for sustainable Public Open Space. Chapter 6 will discuss the recommended principles for sustainable public open spaces, particularly the parks in the Sandton Node and surrounding area. The chapter will further indicate precedents of sustainable public open spaces as a means to indicate how the spaces in Sandton may transform into. Chapter 7 will conclude the research report after which the references and appendices will be listed.

Conclusion

This research aims at developing a set of principles that may be adopted by the Johannesburg Metropolitan Open Space System in order to create sustainable open spaces. It thereby looks at JMOSS and where in the existing policy, these principles can be inserted. The Literature Review to follow will unpack the various debates and definitions for public open spaces, sustainability and sustainable public open spaces, imageability, placemaking and will consider the existing policies and legislation pertaining to public open space in South Africa, particularly Sandton. The result of the research report will be a recommendation for principles for Sustainable Public Open Spaces. Some of these principles for public open spaces include concepts such as crime prevention through environmental design, the image of the

city, placemaking, sustainability, contextuality, coherence and co-existence. The research will further focus on public open spaces in terms of the existing parks within the Sandton Node and vacant land that may be transformed into well-functioning parks and thereby sustainable public open spaces.

Chapter 2: Literature Review

Introduction

The following chapter discusses the literature pertaining to open spaces, public open spaces, sustainable cities and sustainable public spaces, imageability, and placemaking. This chapter furthermore looks into the existing policies and legislation pertaining to Public Open Spaces in the Sandton CBD. As aforementioned, public open spaces are considered in terms of existing parks, undeveloped or unmaintained parks and vacant land that can be utilised for parks. This chapter serves to identify initial principles for sustainable public open spaces using the literature explored in this chapter. This will be represented in the form of a theoretical framework for public open spaces at the end of the chapter.

The research uses public open spaces within the Sandton CBD to develop a set of principles for sustainable public open spaces. Therefore, the principles derived will guide the existing public open spaces to be more sustainable and allow vacant and undeveloped zoned as public open spaces to become sustainable public open spaces. The literature includes topics related to sustainability, public open spaces, imageability, placemaking and the current legislation on open spaces in the Sandton area.

Open Spaces

Defining Public Open Space

With regards to Town Planning Schemes, the City of Johannesburg Town Planning Scheme of 1979 provides a definition for public open spaces as well as private open spaces (City of Johannesburg, 1979). Private open spaces are identified as “land zoned private open space for use as a private ground for sports, play, rest and recreation, or as an ornamental garden or a pleasure ground for buildings reasonably required in connection with such uses” (City of Johannesburg, 1979:14). The City of Johannesburg further identifies public open spaces as “land zoned for public open space which is used by the public as open space, park, garden, square, or for any game, sport, recreation or cultural activity or other uses as may be permitted by the City Council and includes restaurants, cafes, refreshment rooms, and any apparatus facility, structure or building which in the opinion of the City Council is necessary or expedient for the purpose of such open space” (City of Johannesburg, 1979:14). The Roodepoort Town Planning Scheme of 1987, defines public open spaces as “any land used by the general public as open space, park, garden,

playground, recreational ground, sports ground, pleasure resort or square” (Roodepoort Municipality, 1987:7)

The typology discussed within the JMOSS report indicates that open spaces include ecological, social, institutional, heritage, agricultural and prospective open spaces (Strategic Environmental Focus, 2002). However, JMOSS identifies open spaces as waterbodies, agricultural land, heritage and institutional open spaces, prospective open spaces, social and existing ecological open spaces, ecological network of open spaces, ridges, wetlands, and sensitive areas identified for proclamation open spaces and are plotted on the seven regional maps which are inserted into the RSDF (City of Johannesburg Metropolitan Municipality, 2010).

Furthermore, JMOSS identifies principles for open spaces. JMOSS argues that open spaces should be equitable, accessible, safe, diverse, connected, ecological engaging, cared for, funded, community driven, inclusive, science-based and innovative (Strategic Environmental Focus, 2002). As indicated by the JMOSS report, it does not provide for public open spaces such as parts, squares and gardens. It is necessary to easily identify between private open spaces and public open spaces on these maps. Moreover, it is necessary to provide principles for public open spaces. Principles such as open space being funded community driven and science base should be guidelines rather than principles as poorer communities cannot fund, design and manage these spaces. The management of public open spaces should be contracted out to a private consultancy or the City.

The varying definitions given for private open spaces and public open spaces is indicative that the City of Johannesburg, Johannesburg Metropolitan Open Space System and the Regional Spatial Development Framework may need to use an amalgamated definitions and typology for public and private open spaces. This would enable the private and public open spaces to be more easily mapped. This definition should be included into the existing typology for open spaces in JMOSS.

With regards to the definition for public open space provided by the City of Stirling (2008), local open spaces include smaller parks within residential suburbs whereas community open spaces are larger parks and gardens offering more social and recreational benefits. District open spaces serve several suburbs and are therefore larger. These spaces include sporting facilities and other larger recreational activities. Regional open spaces serve a city or a region of a spatial development framework and tend to be of a tourist nature. Special purpose open spaces are spaces with a unique character that may serve across a

city and may vary in sizes. Lastly residual land is undeveloped land that may or may not be earmarked for development or open space planning. (City of Stirling, 2008)

In this definition, the City of Stirling does not provide for green corridors, in terms of open spaces along a road, rail or river. Nor do they provide for wetlands or protected spaces. Protected open spaces, including wetlands, and green corridors will be included in the proposed typology of public open spaces.

Open spaces can be defined as undeveloped land within the city that offer the local residential community economic, social and environmental benefits and can include green and civic spaces (Gedikli, n.d.). Green spaces include natural areas such as parks, gardens, playgrounds and protected land (Gedikli, n.d.). Civic spaces on the other hand include public squares, sporting facilities and pedestrianized spaces within the city (Gedikli, n.d.).

A further definition for open space describes land that is easily accessible to the public and that includes any form of land that is not developed (Griffith, 2010). These can include parks, wetlands, forests and agricultural land. Therefore, they do not necessarily have to be zoned as open land. Furthermore, public open spaces or urban green spaces, as identified by Haq (2011) have several benefits for the public and the city in which they are placed. These benefits will be discussed in the following section.

Purposes and Benefits of Public Open Spaces

City Parks is a public entity that is owned by the City of Johannesburg Metropolitan Municipality. City Parks has the responsibility to improve and maintain more than 2000 parks within the city. Their vision includes “to create, protect, maintain and develop green open spaces for the recreational use of the citizens of the city” (City of Johannesburg, 2011:32). This is strengthened by Councillor Mpho Parks Tau, Executive Mayor of the City of Johannesburg. Councillor Mpho Parks Tau goes on to say that “Real quality of life requires that everyone enjoys easy access to a range of services that improves their quality of life and enhances their sense of belonging and patriotism. We will partner with people of this city to constantly find new ways of expressing and celebrating our diversity.” (City of Johannesburg, 2011:33)

The City of Stirling (2008) indicates that public open spaces provide social, economic and environmental benefits to the public and the city. Public open spaces achieve these benefits by performing the following functions: “relaxation, exploration, social interaction, exercise (humans and pets), improving/maintaining health, sport (competing and spectating), children’s play and development, opportunities for seniors’ activities, learning, improving/maintaining environmental quality, nature, wildlife habitat and biodiversity conservation, water management, interaction with the natural environment, supporting the organisation

and function of the urban environment, connectivity of networks (pedestrian, cycle, wildlife migration), sense of place, identity and history, visual amenity (landscape), contributing to community and economic value of localities, tourism, arts, celebration and quality of life” (City of Stirling, 2008:4)

Haq (2011) explains that public open spaces have several benefits. These include environmental benefits, economic and aesthetic benefits as well as social and physiological benefits. Environmental benefits include ecological benefits such as the regulation of urban climate, pollution control, biodiversity and nature conservation. Secondly, economic and aesthetic benefits include energy savings and the increase of property values around the public open space. Lastly, social and physiological benefits include the provision of a recreational space, increased wellbeing and human health. (Haq, 2011).

Dirsuweit (2008) defines public space as a vital component to the development of urban life. Through public spaces, the public can express themselves by communicating and creating a local image of these public spaces. Within these public spaces, the users can engage in social interaction and thereby build a stronger and more interactive local community (Dirsuweit, 2008).

According to Fermino, Reis, Hallal and Farias Jr (2012) public open spaces include parks, recreational spaces as well as other green spaces. Public Open Spaces in Curitiba play a vital role for physical and leisure activities (Fermino, Reis, Hallal and Farias Jr, 2012). The results from the research completed by Fermino, Reis, Hallal and Farias Jr, (2012) indicate that residents have a better quality of life where these residents have easy accessibility to parks, as well as a good accessibility to bicycle lanes (Fermino, Reis, Hallal and Farias Jr, 2012). A popular park in Curitiba is Parque Barigui, as shown below in Images 1 and 2 (Parque São Lourenço, n.d.)



Images 1 and 2: Signage and entrance to Parque Barigui in Curitiba, Brazil (Parque São Lourenço, n.d.)

In Curitiba, Brazil, there are 1052 public open spaces (Fermino, Reis, Hallal and Farias Jr, 2012). These public open spaces include open green areas, plazas and parks and are commonly used for physical activities. These public open spaces are successful upon sound urban planning in terms of accessibility and safety. However, it is the opinion of Fermino, Reis, Hallal and Farias Jr (2012) that town planners and urban designers in Sao Paulo should focus more attention on safety in and around public open spaces as some of these spaces may be situated in less safe areas and thereby mitigating the usability of these spaces.

Tângari and da Silva (2010) provide a generalist approach to open spaces and open areas within the city and indicate that open spaces offer a social function where recreational and leisure activities are prominent and aid in physical and psychological health. They begin with an 'umbrella concept' of open areas. These areas include vacant or undeveloped land and that are not serviced by infrastructure. They go on to describe that open areas can be divided into two types of spaces, namely open and green spaces. Open spaces provide the social function to public in the form of parks and other recreational spaces. Green spaces are undeveloped parcels of land like open spaces but do not necessarily perform a social function but more of an environmental function. (Tângari and da Silva, 2010)

Tângari and da Silva (2010) indicate the importance to plan public open spaces on a regional and local scale, thereby supporting sustainable public open spaces and environmental sustainability. Tângari and da Silva (2010) use the three suburbs of São Cristóvão, Jacarepaguá and Cidade de Deus located in Rio de Janeiro, Brazil, as examples of how public open spaces in these three suburbs should be more integrated with one another and be more accessible not only to the immediate public but also from one public open space to the other. Key points raised for the São Cristóvão suburb include the necessity to plan for green corridors and creating linkages connecting fragments, nodes and public open spaces within the suburb as shown in Diagram 2 (Tângari and da Silva, 2010). In all three districts, it is important to differentiate public open spaces between spaces that the public traverses and those where the public remain and use the space for leisure and social activities (Tângari and da Silva, 2010).

A conclusion was drawn by Tângari and da Silva (2010), that there was an imbalance in the neighbourhoods. This was due to the lack of consistency in the quality of public open spaces between districts or neighbourhoods, as a result of socio-economic factors (Tângari and da Silva, 2010). Tângari and da Silva (2010) make a recommendation where the planning of public open spaces should consider the accessibility, legibility and integration where there is a possibility for new connections and possible economic opportunities in the area. This is shown in Diagram 2 where connections and linkages are drawn between nodes and public open spaces.

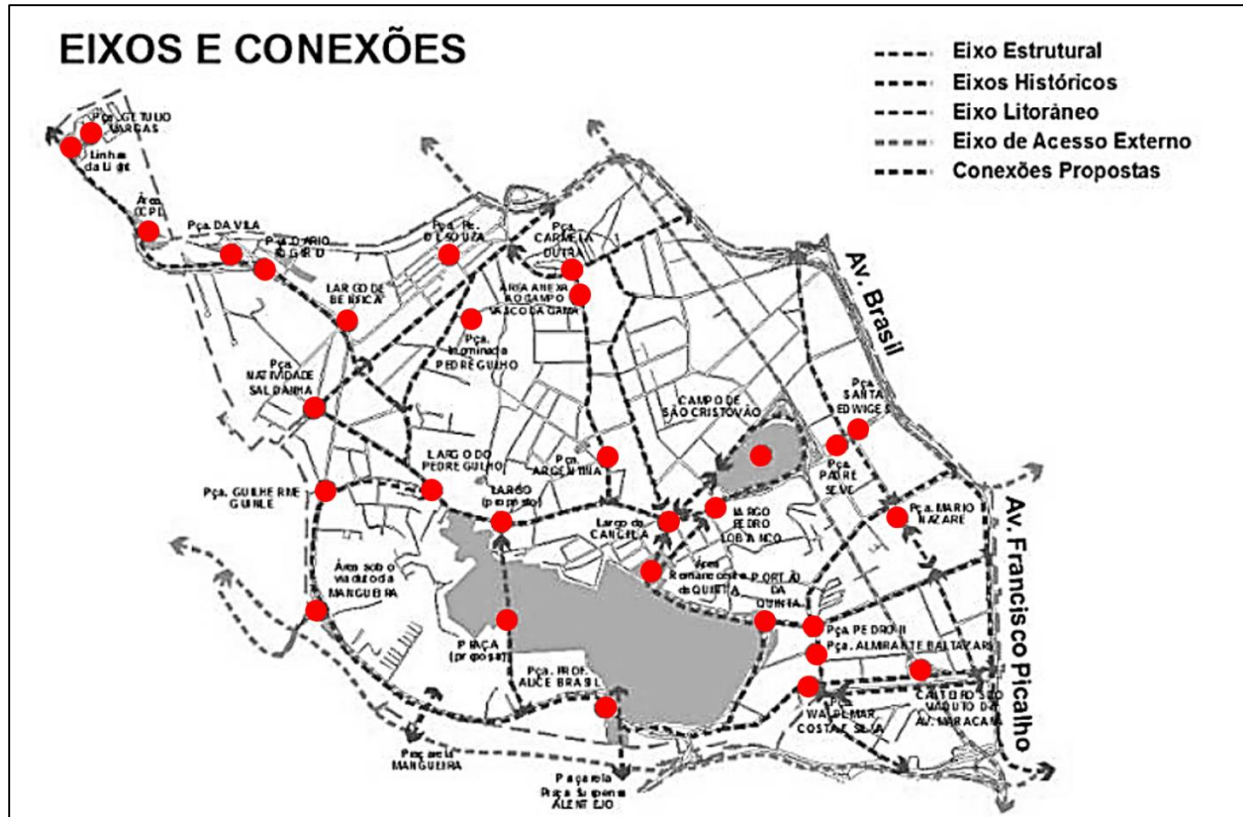


Diagram 2: Linkages connecting nodes and public open spaces in São Cristóvão (After Tângari and da Silva, 2010)

The New York City Open Space System is similar to that of São Cristóvão, Brazil. The New York City Open Space System consists of two major components, namely connective corridors such as the Manhattan Waterfront Greenway and anchors such as Central Park. Central Park lies in the center of Manhattan, New York, boasts 840 acres of open space and is managed by the Central Park Conservancy (University of Washington, 2006). Due to the structure of Manhattan, Central Park is located and designed to meet the ideals Reiter (2004) discusses. As Central Park is well located in the middle of Manhattan, the park is coherent. With the accessibility to public transportation, the park is contextual. Lastly, due to the array of activities in Central Park, it is co-existent.

The New York City Open Space System is well incorporated into the planning of the city and is well integrated with other programmes used within the City of New York. Some of these programmes include the “Developing a Citywide Waterfront Open Space Plan”, “Waterfront Park Coalition” and “Creating a Waterfront Blueprint for New York City”. Furthermore, Regional Plan Association drafted the plans for their vision of the Metropolitan Greensward’s “Planning within a Larger Open Space System”. This includes a spatial framework of open spaces in the New York, New Jersey and Connecticut metropolitan area. (University of Washington, 2006)

To summarise, open spaces improve the quality of lives of those staying around public open spaces (City of Johannesburg, 2011). This is as a result of the public open spaces offering economic, social, recreational, environmental and aesthetic benefits (Haq, 2011). Therefore, public open spaces are a vital component to the city and the development of urban life (Dirsuweit, 2008).

Sustainability and Public Open Spaces

Sustainable City

The sustainable city is designed with consideration for the environment. It takes into account the impact that developments have on the environment as well as the rest of the city. Sustainability is not just concerned with the natural environment but the built environment. That is why it is important to develop sustainability principles that are conducive to the natural and built environment. When a city is considered to be sustainable, it uses resources for maximum gain and benefit without destroying the resources for future generations. (Satterthwaite, 1999)

In order for a city to be sustainable it should consider the relationship that exists between equity, ecology and economy. Equity refers to the public's accessibility to full participation of all activities. Ecology relates to the need to conserve and protect the natural environment whilst still allowing the city to grow. Lastly, economy refers to the economic activities resulting in the common good for the city. (The Regional Environmental Centre for Central and Eastern Europe, n.d.)

Sustainable Urban Development

Sustainable Urban Development incorporates social justice, sustainable economies, and environmental sustainability, as indicated in Diagram 3 (Gedikli, n.d.). Therefore, in Sustainable Urban Developments there is balance that exists between social, economic and environmental aims. Du Plessis (1998) reiterates this where he argues that sustainability can only be achieved when social, environmental and economic concerns are addressed simultaneously. The definition discussed by Gedikli (n.d.) relates the above definition from the Regional Environmental Centre for Central and Eastern Europe (n.d.). Economy is the commonality between the two definitions. Ecology and Environmental sustainability relate to one another alongside equity and social justice.

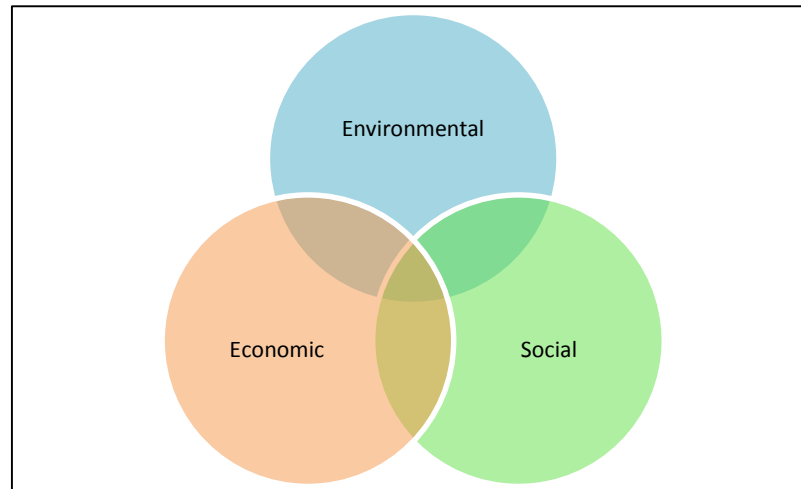


Diagram 3: Aims of sustainable urban development (After Gedikli, n.d.)

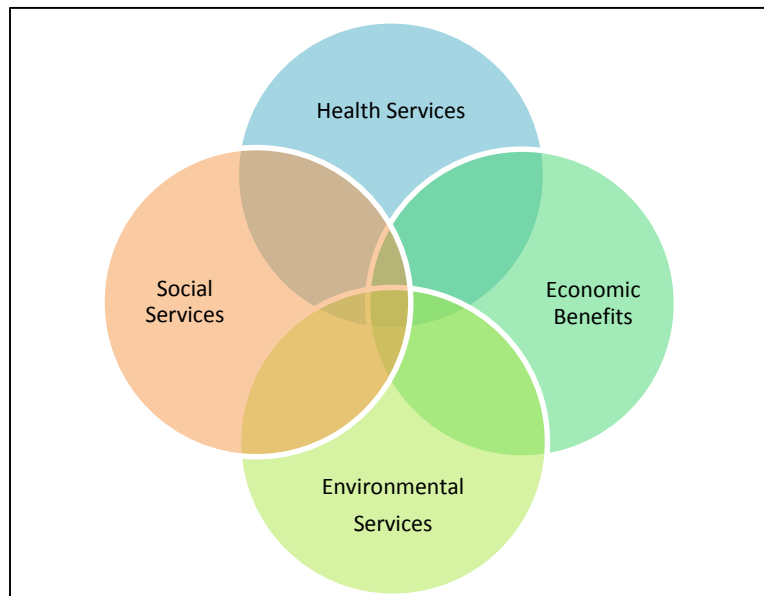


Diagram 4: Benefits of open spaces (After Gedikli, n.d.)

Open spaces offer benefits to the city and the local communities. When successful, they can offer a better quality of life and a healthier life. As indicated in Diagram 4, Open spaces offer social, health, environmental and economic benefits. Thereby creating a better quality of life and finally, sustainable urban development (Gedikli, n.d.). Using this theory and related concepts, It can be argued that due to the public open spaces offering services back to the community, they are in themselves sustainable. It can be assumed that in order for a public open space to be sustainable, they require environmental, economic, and social qualities that not only serve the needs of the public space but that of the city too.

Sustainable Public Open Spaces

Reiter (2004) offers a perspective to sustainable public spaces. He argues that in order for public spaces to be sustainable, public spaces should be designed and planned around three pillars, namely co-existence, contextuality and coherence as indicated in Images 3, 4 and 5 taken. Co-existence refers to a public open space offering several uses whereas contextuality refers to public spaces that are well integrated and are related to one another (Reiter, 2004). Finally, Coherence entails creating an identity for the public open space (Reiter, 2004).

Within the three pillars of sustainable public open spaces, contextuality refers to the integration of these spaces with that of other public open spaces and the rest of the city. In order to guarantee that the contextuality of the public open space is met, its integration, participation and adaptability have to be supported. Public Open Spaces should strive to form part of its context whereby it is integrated into the city, its taking part in the local economy and in the everyday functions of the city, and adapt and evolve with the city. (Reiter, 2004)

With regards to the 'co-existence' pillar to sustainable public open spaces; it is necessary to consider the public open spaces' diversity and opening to the public. Therefore, the public open spaces should be open to public and be inviting to the public, the public open spaces should offer a range of uses and thereby allow for a range of users in the spaces. (Reiter, 2004)

Some public open spaces may include Green Outdoor Gyms. The Green Outdoor Gyms was first piloted in Gauteng in the Petrus Molefe Eco-Park, Soweto, in 2012 by the City of Johannesburg. As majority of the public can use the equipment, it raises interest in the park whereby an additional activity is provided in a secure setting. Not only do these parks provide a physical activity, it provides economic relief in the sense that those who cannot pay for a gym contract cannot use the equipment in their local park. (City of Johannesburg, 2011)

Coherence, the last pillar of sustainable public open spaces, requires a more physical approach and design orientated approach to the sustainability of these spaces. Therefore, the identity, significance and naturality should be supported and designed in an integrated and coherent manner whereby a sense of place is created and a park image is created. (Reiter, 2004)



Image 3: The co-existence of users in the public open spaces between car users and the pedestrian (Reiter, 2004:2)



Image 4: The contextuality and integration of the public open space in relation to the surrounding city, including landmarks and accessibility (Reiter, 2004:2)



Image 5: The coherence of the public open space in terms of design features and surrounding urban form (Reiter, 2004:2)

Another perspective for the successful public open spaces is that of Fermino, Reis, Hallal and Farias Jr (2012), whereby the quality of the surrounding buildings, accessibility, maintenance of the space and surrounding properties, aesthetics and safety should be considered when designing public open spaces. These qualities are similar to that of Reiter (2004), where the quality of the surrounding buildings and aesthetics relate to the coherence principle. Secondly, the maintenance and accessibility relates to the contextuality principle. Lastly, safety relates to the co-existence principle and forms part of the sociability of the public open space.

Another standpoint for sustainable public open spaces is provided by DiTommaso (2015). He indicates what American cities should consider when designing public open spaces and makes use of Italian piazzas as examples of this approach to sustainable public open spaces (DiTommaso, 2015). DiTommaso (2015) expresses the need for a public open space to consider four main principles. These include keeping centres at the centre, connecting the urban paths, activating the edges, and setting the stage and the arena (DiTommaso, 2015).

Keeping centres at the centre and connecting the urban paths refers to the location and accessibility of the public open spaces (DiTommaso, 2015). The space should be well integrated into the rest of the city whereby the space is easily accessible to the public. DiTommaso (2015) goes on to say that these public open spaces become the nuclei of the city and should be planning accordingly. These two factors are

closely related to a principle as discussed by Reiter (2004) of contextuality. The two principles above posed by DiTommaso (2015) and that of contextuality as posed by Reiter (2004) both argue for the spaces to be well connected in order to be well integrated, and should be adaptable to a changing urban form and therefore resilient.

Activating the edges refers to the co-existence of users within the public open space and is therefore related to Reiter's concept of the sustainable public open space (Reiter, 2005). Not only does this refer to the space being used by various people but it also refers to the need to activate buildings that are adjoining to the public open space (DiTommaso, 2015). Once the restaurants or coffee shops on the ground floor of a building are activated onto an adjoining square or public open space, they can expand their business onto the square inviting more of the public to the open space (DiTommaso, 2015).

The last principle including setting the stage refers to the coherence and physical design of the public open space. Here again, the principle is closely related to the principles as set out by Reiter (2004) for sustainable public open space. Setting the stage refers to the imageability, design, surrounding urban structures and unique features in the public open space (DiTommaso, 2015). An example of a sustainable public open space that DiTommaso (2015) investigates is the Piazza Maggiore as shown in Image 6 where there is a balance between contextuality, co-existence and coherence. In DiTommaso (2015) terms, there is a balance between keeping centres at the centre, connecting the urban paths, activating the edges, and setting the stage and the arena.



Image 6: Piazza Maggiore as an example of a sustainable public open space (DiTommaso, 2015)

The City of Stirling (2008) further outlines ways in which to improve upon the quality of public open spaces by providing more social, economic and environmental benefits on these spaces. This includes providing uses on the public open spaces that cater to a wider range of age groups and a diversity of cultural backgrounds, thereby making the spaces more co-existent. Public open spaces should be easily accessible to the public by foot and by means of private and public forms of transportation. Public open spaces should further allow for social and community interaction and connectivity. The public open spaces should enhance the natural environment and at the same time allow for smaller informal markets and events. Public open spaces should be able to host several uses at the same time, thereby increasing the diversity of the spaces. Lastly, public open spaces should be designed in a way that promotes a safe and secure open space that has natural and built forms of shade and that is clean and well maintained and are therefore more coherent. (City of Stirling, 2008)

Reflecting back, the above criteria can be used to create sustainable public open spaces. This is due to the fact that the above criteria can be split up into three sections, social benefits, economic benefits and environmental benefits. This directly relates to the definition for sustainable urban development and sustainable public open spaces (Gedikli, n.d.). Furthermore, the criterion addresses the three principles for sustainable public open spaces as discussed by Reiter (2004) including co-existence and contextuality and coherence.

Placemaking and Imageability in Public Open Spaces

Placemaking and Public Open Spaces

Placemaking is a newly developed term in the past decade but can date back to literature written by Jane Jacobs (1961). Placemaking is a planning process that aims to create not only successful public open spaces but a network of spaces that are used on a day to day basis by the public, and in particular, the pedestrian (The Project for Public Spaces, 2011). This is achieved by improving upon the physical space, the health and economic opportunities of the spaces as well as the public, whilst designing spaces that are attracting to the public (The Project for Public Spaces, 2011).

When considering the parameters of a successful public open space, placemaking considers four main principles, sociability, access and linkages, comfort and image, and uses and activities. The principles of placemaking are indicated in Diagram 5 on the following page. With regards to 'sociability', public open spaces should allow for cultural, ethnic and land use diversity. These spaces should be safe throughout

the day and evening. When considering the principle ‘uses and activities’, spaces should allow for a diversity of uses and activities, thereby attracting a range of users. Another principle of placemaking, ‘comfort and image’ lends itself to the theory of the image of the city by Lynch (1960) whereby the aim is to create attractive and unique spaces. This will be elaborated on further in the following subsection entitled “Imageability and Public Open Spaces”. The last principle of placemaking ‘access and linkages’ argues that public spaces should be easily accessible to the public, whether by foot, private vehicles or public transportation. (The Project for Public Spaces, 2011)

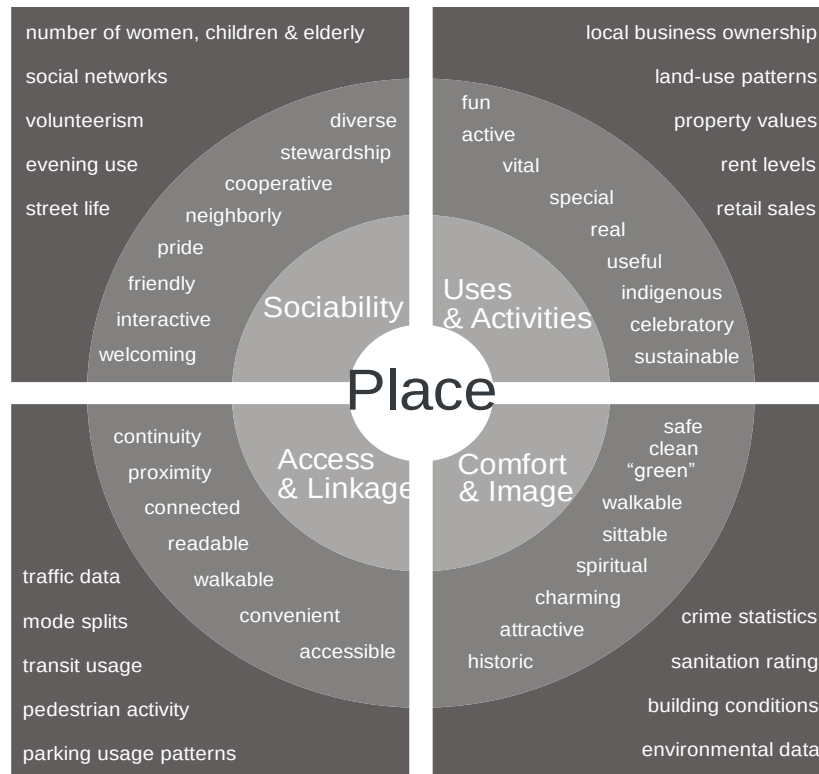


Diagram 5: The four principles of placemaking (After The Project for Project for Public Spaces, 2011)

The principles for placemaking are closely related to the principles for a sustainable public open space. The principles for a sustainable public open space as discussed by Reiter (2004) are contextuality, co-existence and coherence. Contextuality relates to the accessibility of the public open spaces whereas co-existence relates to the sociability and uses and activities within these spaces. Furthermore, coherence relates to the comfort and image of the public open space and thereby links to the theory of the image of the city (Lynch, 1960). Moreover, sustainability revolves around social, health, environmental and economic factors that are closely related to the principles of placemaking (Gedikli, n.d.)

Imageability and Public Open Spaces

Imageability plays an important role in creating unique and sustainable open spaces. Imageability is further related to placemaking and creating a sense of place. Imageability helps to promote coherence, contextuality and co-existence not only within the public open spaces but also within the city. Through urban design and the creation of a city image and a sense of place, there will be a better quality of place, responsive environments, and legible cities (Sparks and Chapman, 1996). Furthermore, the public realm is reinforced through urban design features such as street furniture, lighting, murals, public facilities, art, and infrastructure placed within these open spaces (Flemming, 2007). Finally, through urban design and creating an image and sense of place within these sustainable public open spaces, we are building upon Kevin Lynch's theory of the Image of the City (1960).

As discussed by Lynch (1960), in order for a city to be legible, accessible and structured, it is necessary to identify the city paths, edges, districts, nodes and landmarks and thereafter design them appropriately. The above theory of the image of the city will result in good city form (Lynch, 1981) and ties back to the theory of the sustainable public open spaces by Reiter (2004). As discussed above, public open spaces should be well integrated into the rest of the city and should take into account the context in and around the public open spaces. Therefore, the creation of a city image can in turn help to create sustainable public open spaces and vice versa.

Lund (2010) claims that the memories of the public open spaces bring the public back to the space. Public open spaces should therefore create memories through unique qualities separating the space from others in the city but at the same time add to the general organization and coherency of the city (Lund, 2010). In order for public open spaces to be coherent and contextual, the entrances to the public open spaces should face the street, allowing for permeability or otherwise known as eyes on the street (Macdonald, 2001). These public open spaces should furthermore protect the public by designing the borders of these spaces with a rows of trees or bollards (Macdonald, 2001).

Carmona, Heath, Oc and Tiesdall (2011) articulate that the physical setting, activity, and image of a place builds a sense of place. In order for public open spaces to be sustainable, the spaces should address three qualities namely ownership, access and use. Ownership refers to who owns and uses the space whereas access indicates that the public open spaces should be easily accessible by the public. Furthermore, use refers to how the public open spaces are used and for what reasons the spaces are used (Carmona, Heath,

Oc and Tiesdall, 2011). Public open spaces should therefore accommodate a variety of uses, be easily accessible to the public and should not only cater for a particular group of the public, based on gender, race or age group.

Figure-ground, rhythm, repetition, size and scale are characteristics of form (Rubenstein, 1997). Rubenstein (1997) argues that these characteristics should be considered when designing spaces for the pedestrian, in the same light the same characteristics can be used to design sustainable public open spaces. Sparks and Chapman (1996) share a similar view whereby qualities of place, responsive environments, legibility and visual and spatial qualities are required to design public open spaces. Improving upon the quality of space, having legible and coherent spaces, public open spaces will become more sustainable. Design elements such as street furniture, paving, tree grates, lighting, signage, art and sculptures, fountains and bollards, seating, plants and general public services should be designed into the characteristics of city form and imageability (Rubenstein, 1997). These assist in the coherency, contextuality and co-existence of the public open spaces in the city. Landscaping such as paving, tree grates, fountains, sculptures, art, seating and plants enhance the imageability and sense of place. This is closely related to the principles of placemaking that is discussed in the next section. Some of the design interventions that enhance placemaking include art, function, use, and maintenance.

Rhythm and repetition looks at the rate of design elements within a public space as well as the routes leading to these public spaces. Lighting plays an important role in the safety of a public open space. With more lighting, there is more visibility, giving the pedestrian or user of the public open space a sense of security. Shade during the day, to escape the heat of the sun, offers the users another sense of comfort. (Sparks and Chapman, 1996)

Reflecting back, imageability is an important factor to consider when designing and planning sustainable public open spaces. Imageability is closely related placemaking and creating a sense of place and city image. By creating sustainable public open spaces by means of urban design, city image and sense of place, cities can create a better quality of places (Sparks and Chapman, 1996). Furthermore, legible cities are created using the elements of the city (Lynch, 1960) thereby creating coherent, co-existing and contextual public open spaces and cities. These public open spaces are strengthened using street furniture, infrastructure and design elements as discussed by Sparks and Chapman (1996), Rubenstein (1997) and Lynch (1960).

Legislation and Policies for Public Open Spaces

Urban and spatial planning are in constant change adapting to the needs of the city as well as the continuous need for sustainable cities and sustainable urban spaces (Gondo, 2012). Research completed by Gondo in 2012 indicates that four Ethiopian cities all require better accessibility and improved design elements within the public open spaces (Gondo, 2012). These cities include Dire Dawa, Nekemte, Chanco and Addis Ababa (Gondo, 2012). Gondo (2012) goes on to say that there are three major concerns for these cities. These include the lack of a land use strategy for public open spaces and a poor development control policy on illegal land uses (Gondo, 2012). Most importantly, there is generally a low quality of infrastructure in the public open space (Gondo, 2012). Gondo (2012) recommends that spatial planning in Ethiopia should guide public open spaces by means of addressing the three concerns raised above.

Spatial planning in the form of spatial development frameworks can assist in developing cities with more legible, coherent open space systems. This is due to the fact that spatial planning is a process which is constantly planning towards integration, considering a wider range of factors that are ordinarily addressed and arranges them into spatial plans on a micro and macro scale. Moreover, a spatial development framework is used as a guide for all development and resources distribution within a municipality. It also forms part of the greater Integrated Development Plan. In South Africa the general aim of the spatial development plan is to promote sustainable human settlements that are functional as well as integrated. Another objective is to create human settlements that are aware of the resources that they use, as well as the creation of a sense of place and ownership and creating cities that are well integrated with one another but at the same time, unique to the next city. (Department of Rural Development and Land Reform: 2011)

A spatial development framework indicates the desirable land uses within the region and the core areas to be focussed upon. The framework outlines the vision, goal as well as development objectives that all development should adhere to. Furthermore, the Spatial Development Framework should follow on the vision, goals and objections of the municipal Integrated Development Plan (IDP). (Department of Rural Development and Land Reform, 2011)

According to Todes (2009), spatial development frameworks are indicative of strategic spatial visions for that particular area of focus. These frameworks concentrate on the key areas of development, intervention and conservation. Spatial Development Frameworks identify areas for nodal and corridor development and identify areas that require interventions to mitigate urban sprawl and fragmented development across the city (Todes, 2009).

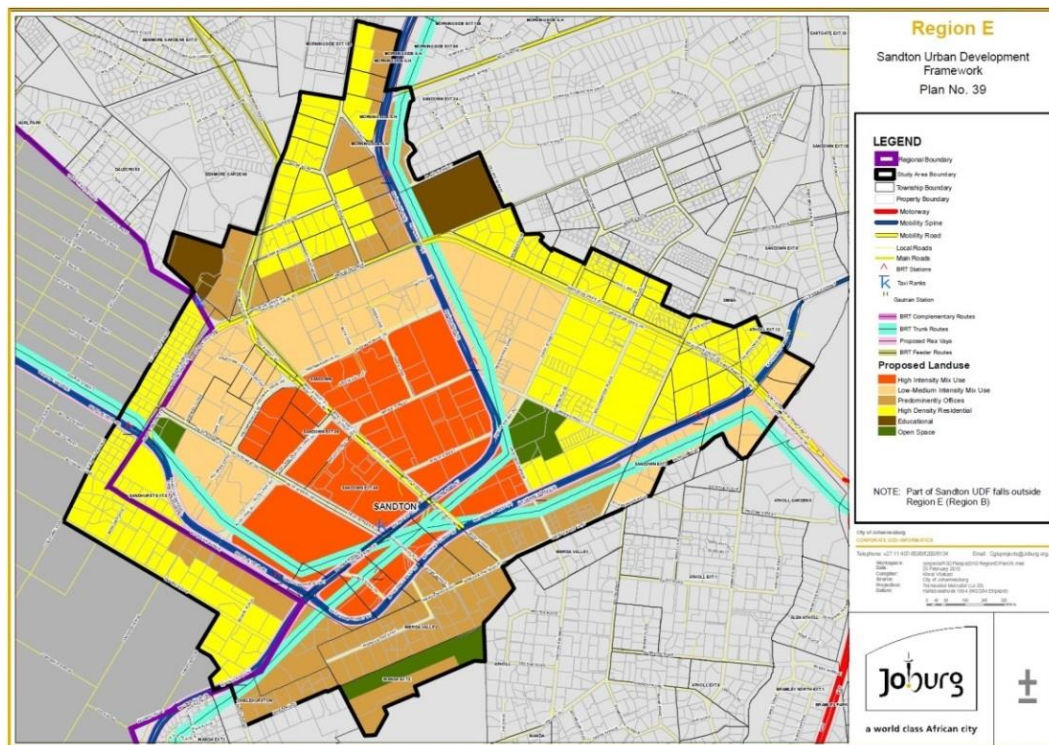
Within the Johannesburg Spatial Development Framework of 2010/2011 there are seven regions, each with their own sub areas. There is little written regarding the open spaces within the Johannesburg Spatial Development Framework. The only set of published guidelines touching on open spaces is the Johannesburg Metropolitan Open Space System. However, there is no policy guiding the management, design or sustainability of these spaces, in particular to public open spaces. JMOSS, as discussed above, provides generalist principles for open spaces. For the purpose of this research, public open spaces and parks are the focus in the Sandton Node and Surrounding areas, which fall into Region E of the Johannesburg Spatial Development Framework for 2010/2011.

Like master planning, local spatial development frameworks have been widely criticised. In order for local spatial development frameworks to be effective, extensive research and analysis is required. This places a large strain on the capacity of the different municipalities where they have to manage and engage with the entire process of establishing the frameworks. As the spatial development frameworks have to be revised every five years, they soon become outdated. Furthermore, spatial development frameworks require an on-going process of integration between the different departments in order to best deliver services to the public. Moreover, there needs to be inter-sectoral and intergovernmental coordination meetings. For instance, to deal appropriately with informal trade it is necessary to involve the relevant departments, on a local and national level and relevant stakeholders in informal trade in meetings to address issues in informal trade. Other matters to address in spatial planning include the lack of flexibility and lack of innovation due to the rigidity of master planning that spatial development plans still revert to. (Todes, Karam, Klug and Malaza, 2010)

Contrary to that, Spatial Development Frameworks allow for an improved and more focussed approach to sustainability, there is better integration between sectors than in previous master planning. Furthermore, there is a higher level of public participation as well as participation with stakeholders. Spatial development frameworks offer a wider understanding and knowledge of public investments and the reality of informal settlements and slums. Finally, they provide an effective form of land use planning and management whereby they are pro-poor and recognise diversity. (Todes, Karam, Klug and Malaza, 2010)

A Spatial Development Framework may introduce new concepts for open spaces as they can be the central theme to the spatial development frameworks. Within the Johannesburg Spatial Development Framework of 2010/2011, there are smaller micro level spatial development frameworks such as the

Sandton Urban Development Framework (which includes Sandton Central Park and Mushroom Farm Park) as indicated in Map 2. (City of Johannesburg Metropolitan Municipality, 2010)



Map 2: The Sandton Urban Development Framework including the Sandton Central Park and Mushroom Farm Park (After City of Johannesburg Metropolitan Municipality, 2010)

According to Wong (2001) spatial development frameworks allow for the development of more coherent and strategic visions for the distribution of activities and resources at a regional level. Wong (2001) however argues that spatial development frameworks are restricted by administrative boundaries such as municipal and regional boundaries and therefore may not necessarily be able to identify all shortfalls within that particular administrative region. Spatial development frameworks allow for regional growth where there is regeneration and renewal of urban and rural areas but at the same time struggle in identifying all key areas for redevelopment (Wong, 2001). Wong (2001) further argues that spatial development frameworks would improve their effectiveness if they were more integrated with different levels of government and stakeholders involved in town planning and if spatial development frameworks were more coordinated with different policies within that region.

According to Watson (2009), strategic spatial planning is an improved approach to planning as it involves civil society and the government in planning. It further coordinates and integrates various policies

including economic, social and infrastructure. Watson (2009) further outlines that spatial planning is driven by implementation and has an increased focus on sustainability, whereby several development frameworks “promote sustainability, inclusiveness and qualities of public space” (Watson, 2009:60). Watson (2009) argues that the main disadvantage of spatial planning is the inability to address issues across the whole city. As spatial planning is strategic in its approach, it focusses on particular key areas within the city and therefore will prioritise these areas, leaving the rest of the city (Watson, 2009).

Todes, Karam, Klug and Malaza (2010) reiterate Watson (2009) whereby the main weaknesses of spatial planning include the difficulties revolving around inter-sectoral coordination, stakeholder and political involvement, the reviewing process of the spatial plans and policies (Todes, 2009). Another identifiable weakness pertains to spatial planning’s ability to become very static and rigid with regards to the key areas of focus, especially considering that they are only reviewed once every five years. Furthermore, spatial planning as a concept has also been argued to be too broad and conceptual resulting in poor infrastructure planning due to the lack of focus on the entire city as a whole (Todes, 2009). Therefore, it is important that spatial planning addresses infrastructure development (Todes, 2009).

Theoretical Framework and Conceptual Framework

From the definitions and typologies of public open spaces discussed, the following definition was established for the context of this research: *“Public Open Space is land that is zoned for use by the public and includes spaces such as parks, gardens and playgrounds. These spaces may further include an ancillary place of refreshment”*. Therefore, public open spaces include existing parks, gardens and playgrounds and land that can be developed into these spaces. Furthermore, these public open spaces may include an economic and social benefit, such as a place of refreshment, an outside gym as well as a jungle gym for children, as seen in the Mushroom Farm Park in the Sandton CBD.

Alongside the definition for public open space where the spaces may include a social or economic benefit such as a place of refreshment or jungle gym for children, the public open space becomes more sustainable. This is due to the fact that the public open space already provides an environmental benefit to the public. By further establishing a place of refreshment or kiosk it provides an economic benefit to the local economy and a social benefit to the public using the public open space. Even though the definition for a sustainable public open space as proposed by Reiter (2004) is taken from a social position whereas the definition for sustainable urban development as proposed by Gedikli (n.d.) is a generalist

view of sustainability, the two definitions may go hand in hand to establish principles for sustainable public open spaces for the public.

Using the above literature, key terms, and definitions, a conceptual diagram can be constructed. Diagram 6 indicates the conceptual diagram that will be used for the further expansion of this research report. The main point raised within the literature review is that there are three main pillars that create sustainable public open spaces. These include coherence, co-existence and contextuality. Secondly, that the generalist principles of a sustainable city, i.e. economic, social and environmental factors have to be factored in when designing and planning these public open spaces. Third, the principles of placemaking (The Project for Public Spaces, 2011) and the Image of the City Lynch (1960) relate closely with the first and second tier of the theoretical framework as indicated in Diagram 6. A detailed conceptual diagram can be seen in Diagram 7, following the explanation of the conceptual diagram as seen in Diagram 6 below.

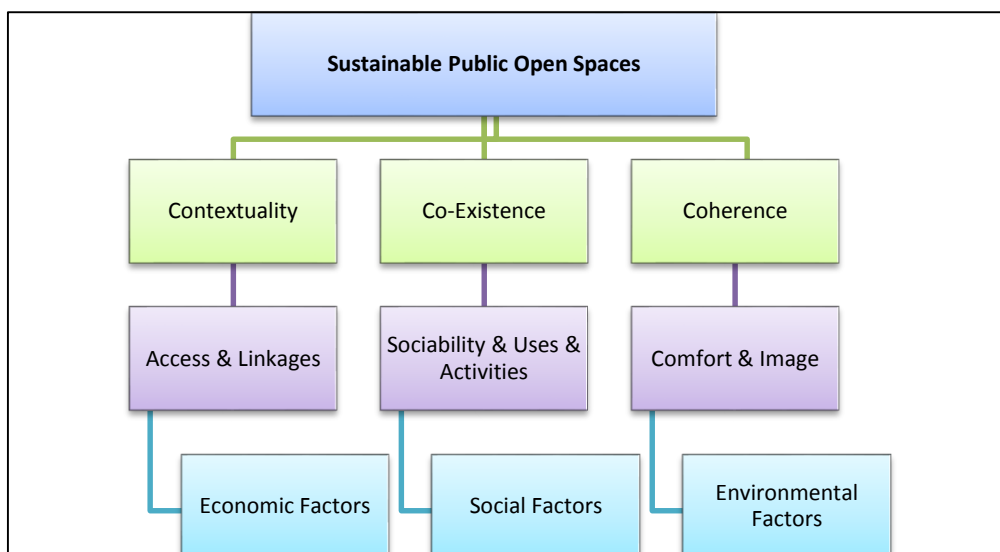


Diagram 6: Conceptual diagram for sustainable open spaces

Contextuality

Contextuality refers to the integration of the public open spaces with that of the rest of the city whereby the public open space should form part of the city and considers economic factors (Reiter, 2004). Contextuality will be evaluated in terms of its accessibility and linkages within the Sandton Area as well as its economic factors that the public open spaces pose (The Project for Public Spaces, 2011).

The accessibility of the seven public open spaces will be analysed in terms of the ease at which the public have access to these spaces. Accessibility to the public open spaces can be in the form of pedestrian

movement, buses, private vehicles, accessibility to train stations and bicycle lanes (Fermino, Reis, Hallal and Farias Jr, 2012). The public open spaces will be analysed in terms of their linkages within the city, this may be closely related to accessibility where transportation networks link public open spaces and nodes within the area of study. Energy savings, increases of property values, economic opportunities are examples of Economic benefits (Haq, 2011).

Co-Existence

Co-existence relates to the sociability and uses and activities within these spaces (Reiter, 2004). It revolves around the social aspect of the public open spaces whereby there is a diversity of activities and users within these spaces. Co-existence will be evaluated in terms of the provision of different uses and activities within public open spaces as well as the sociability of the spaces (The Project for Public Spaces, 2011). If these public open spaces have a high level of co-existence, the spaces will provide social benefits. Social benefits include the provision of a recreational space, increased wellbeing and human health, and the provision of various uses in order to attract numerous users (Haq, 2011).

The 7 identified public open spaces will be analysed in terms of the provision of uses and activities in order to accommodate a wider public population. Uses and activities should provide from toddlers to the elderly and thereby should include jungle gyms, outdoor gyms, walkways, facilities for dog walkers, as well as unique activities that draw the public into these spaces (The Project for Public Spaces, 2011). Most importantly, the public open spaces should offer a safe and secure place for leisure and relaxation (Fermino, Reis, Hallal and Farias Jr, 2012). Examples of safer spaces include the provision of lighting at night for a safer environment as well as the provision of security guards at the gates of the park to monitor who enters and leaves the public open space. Once the safety of the park is addressed, it is more likely that the public will use the spaces (Fermino, Reis, Hallal and Farias Jr, 2012).

Coherence

Coherence relates to the comfort and image of the public open space and thereby links to the theory of the image of the city (Lynch, 1960). Coherence refers to creating a sense of place and identity within the public open space whereby environmental factors are considered (The Project for Public Spaces, 2011). Therefore, coherence is closely related to the comfortability and imageability of the public open spaces. Environmental benefits to include ecological benefits such as the regulation of urban climate, pollution control, biodiversity and nature conservation (Haq, 2011).

Within coherence, the public open spaces will be analysed in terms of the image of the public open space as well as the legibility of the spaces. Design elements such as street furniture such as seating, paving and tree grates, lighting and signage, murals, art and sculptures, fountains and bollards, plants, public facilities and infrastructure placed within these open spaces will aid in creating more coherent spaces as well as creating a sense of place and image (Flemming, 2007). The public open spaces should cater to the public by creating unique and memorable spaces that draw the public back to the spaces (Lund, 2010).

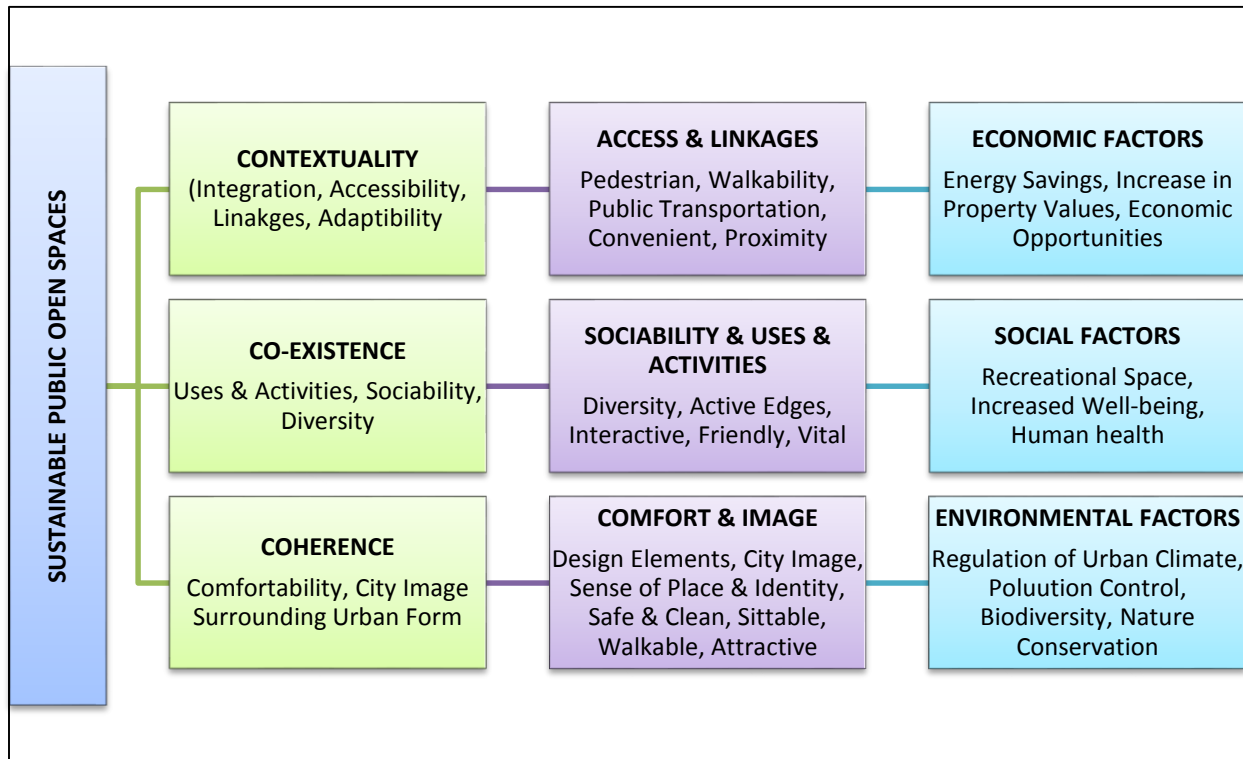


Diagram 7: A detailed conceptual diagram for sustainable open spaces

Conclusion

This chapter gave an indication of the literature surrounding public open spaces, sustainability and sustainable public open spaces. The chapter discussed the different definitions for public open spaces not only locally but internationally too. It more importantly began to identify principles for sustainable public open spaces. The literature indicated that three main pillars creating sustainable public open spaces, including coherence, co-existence and contextuality (Reiter, 2004).

As the central theme is sustainability and public open spaces, the chapter indicated that there is a relationship between the principles of sustainable public open spaces (Reiter, 2004) and the principles of

a sustainable city, i.e. economic, social and environmental factors (Gedikli, n.d.). Another relationship that was established in the chapter exists between the principles as set out by Reiter (2004) and placemaking principles such as sociability, uses and activities, access and linkages, and comfort and image (The Project for Public Spaces, 2011).

As a result, this chapter serves to identify principles for sustainable public open spaces. Together with the findings from the interviews to follow and the above literature, principles can be identified. It is suggested that there are three main principles that should be adhered to, namely coherence, co-existence and contextuality. These three principles will have certain guidelines to follow, i.e. the principles for placemaking and the factors that should be considered for the sustainable city. .

The conceptual diagram above indicates the tools that will be used to analyze the public open spaces. Therefore, in order to see whether a public open space has the potential to be a sustainable public open space, factors such as contextuality, coherence and co-existence will be considered alongside the factors that make up the concepts of placemaking and sustainability.

Chapter 3: Research Methods

Introduction

Chapter 3 sets out to explore and discuss the research aims and objectives, research methods and the limitations of the research. This chapter indicates that the type of research that was used alongside the normative position. Following the aims and objectives of the research, the research methods will be discussed where qualitative research methods were used throughout this research report. The research methods included case studies, the use of photographs, notes taken from the site visits of the parks, in depth interviews with professionals in the fields of town planning and urban management, as well as maps indicating cadastral information and where photographs were taken.

Research Design

The following section discusses the strategy for the research report. This includes the scope of the research and key concepts and definitions used in the context of the research. With an understanding of the strategy proposed for the research, the aims and objectives for the research report can be identified. Once the aims and objectives have been identified, the subsequent section discusses the research methods used.

The primary focus of the research is centred on the current state of parks and vacant land that can be used for parks within Sandton. An objective of the research therefore sets out to develop principles that can transform vacant spaces and underutilised parks into sustainable public open spaces that take into account a variety of uses and users. Therefore, the definitions adopted for the research were pro-pedestrian and pro-public.

Raven Town Planners, a private planning consultancy, offered an opportunity to gain experience in land use planning within the private sector since 2012 with a particular attention to the Sandton CBD and Sandton Town Planning Scheme. This resulted in experience and exposure to the Johannesburg Regional Spatial Development Framework. This growing experience in the RSDFs and an everlasting interest in open spaces have culminated in pursuing the development of a new set of principles for sustainable open spaces within the Johannesburg Metropolitan Open Space System. It was noticed that there is a necessity to have principles for public open spaces within the Johannesburg Metropolitan Open Space System, in order to assist the City of Johannesburg in achieving the definition of a Sustainable City.

The Sandton CBD was chosen as a case study as a result of the prior town planning experience within the area. Further reasons for choosing the Sandton CBD include the dynamism of the CBD as well as the array of public open spaces and vacant parcels of land that can be found within the Sandton CBD. The section entitled “Case Study: Sandton CBD”, elaborates on the key characteristics of the Sandton CBD and why it is important to use the CBD as a case study for the said research. The chosen public open spaces and vacant land parcels allow for a comparison between existing public open spaces and vacant land that can be transformed into public open spaces. At the same time, using existing public open spaces and vacant land parcels, the research can identify principles that can be used to make the existing public open spaces more sustainable and create new sustainable public open spaces on the vacant parcels of land.

The existing public open spaces include Mushroom Farm Park, Sandton Central Park and Innesfree Park. These public open spaces not only vary in size but in their location in relation to the Sandton CBD and their access to public transportation. The three vacant parcels of land are located in the residential areas surrounding the Sandton CBD. They were chosen due to the fact that these residential areas do not have established public open spaces. These too vary in size and their proximity to the Sandton CBD, nodes and transport networks. The last public open space is the Sand Spruit, which has the potential to develop into a public open space and conservation area. The space is not well maintained and lacks users on the space and therefore requires intervention in order to attract the public back into the space.

For the purpose of this research report public open spaces are defined as: *“Public Open Space is land that is zoned for use by the public and includes spaces such as parks, garden and playgrounds. These spaces may further include an ancillary place of refreshment”*. The definition argued by Reiter (2004) is used to define sustainable public open spaces alongside the definition proposed by Gedikli (n.d.) for sustainable urban development. These three definitions were used concurrently to identify principles for Sustainable Public Open Spaces.

Furthermore, Spatial Development Frameworks are tools by which a municipality can realise the aims and objectives of the municipality as a whole. It is the perspective that even though spatial development frameworks help to attain human settlements that are sustainable, functional and integrated, it is just as important to focus on the sustainability of public open spaces in the city. Alongside the Spatial Development Framework, the Johannesburg Metropolitan Open Space System protects the open spaces within Johannesburg and provides a set of principles for all open spaces to adhere to. It is recommended that a separate set of principles is derived for parks and vacant land that can be used for parks, in order to create sustainable public open spaces.

Research Aims and Objectives

As indicated in Chapter 1, the aim of the research is to identify a set of principles that may be used for sustainable public open spaces in the Sandton CBD. The sub questions found in the research design in Chapter 1 helped to derive the following objectives for the research:

- Unpack the various debates regarding the use, users and definition of public open spaces,
- Identify what the existing principles are for open spaces as used by JMOSS (if any),
- Identify where the parks are in the Sandton and surrounding area,
- Identify where the vacant land is in Sandton that can be developed as parks,
- Identify what makes a public open space coherent, contextual and co-existent,
- Identify the shortfalls of the public open spaces in Sandton in terms of their coherency, co-existence and contextuality,
- Identify what makes a public open space sustainable,
- Identify the shortfalls of the public open spaces in Sandton in terms of their sustainability, i.e. economic, social and environmental factors,
- Identify local and international precedents of Sustainable Public Open Spaces,

The objectives were achieved by using a series of interviews with professionals in the field, a photographic analysis and mapping. From these interviews and key theoretical concepts, principles for Sustainable Open Spaces were derived to be incorporated into the Johannesburg Metropolitan Open Space System. Shortfalls explored in the photographic analysis, interviews, as well as international examples of existing Sustainable Open Spaces were used to derive the principles for sustainable open spaces in the Sandton and surrounding area, particularly for parks.

Within the Recommendations Chapter, a set of principles were developed in order to create sustainable public open spaces. These are in the form of written principles and precedents of sustainable public open spaces. The outcome of the research report is to create principles for Sustainable Open Spaces that can be easily applied to cities locally and internationally on a generic level. After which, guidelines are required to realise these principles based on the context and situation of the public open space in relation to the surrounding areas. Therefore, the public open spaces within the Sandton CBD have a clear identity, are integrated and co-exist in the city. Furthermore, the public open spaces help create an accessible public realm that promote good city image, identity, sense of place and community, thereby linking back to the recommendation made by Reiter (2004) for sustainable public open spaces.

Research Methods

Qualitative Research

The nature of the research question indicates that inductive research was completed in the form of qualitative research methods. Qualitative research is an interdisciplinary, multi-paradigmatic and multi-method approach to research (Struwig and Stead, 2001). Qualitative research methods meld well with the inductive research where the researcher builds theory from data collected on the field (Creswell, 2003). Thereby in depth interviews, photographs, mapping and case studies were used in this research approach.

Qualitative research is characterised by the focus on the perspectives of participants in the research, this includes the researcher. Another distinct characteristic of qualitative research is that of contextualism. The researcher understands that human behaviour should not be observed in isolation, but rather in the context of all other human realms. Furthermore, qualitative research is an on-going process of research whereby interrelated events and changes were observed. Therefore, qualitative research is a more flexible form of research as it will adapt along the research process. (Struwig and Stead, 2001)

Within qualitative research, forms of data were collected in the form of questionnaires, observations, interviews, photographs and documents (Struwig and Stead, 2001). A photographic analysis helped to establish the shortfalls, the users and uses, the co-existence, contextuality and coherence within the public open spaces. As a research method, mapping was used to identify where the public open spaces are and their contextuality in relation to the rest of the city. Lastly, interviews with professionals in the relevant field were used to identify what makes a sustainable public open space, their perceptions of these spaces as well as their recommendations for spaces to be coherent, co-existent and contextual.

Case Studies as a Research Method

Case studies are an “empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 1994:13). Case studies offer a more detailed approach to research where different research methods can be used concurrently (Soy, 1997). For instance, documenting observations in the form of diaries and photographs to graphically represent information can be used.

A case study is a qualitative method where the researcher collects information from an in depth study using various collection procedures (Creswell, 2003). The in depth study can include a group of individuals, events or a process and can be explored across time and activities (Creswell, 2003). Shuttleworth (2008) indicates that case studies offer a more realistic result than a quantitative study. Rowley (2002) argues for

case studies, stating that they allow the researcher to investigate the phenomenon in its exact situation thereby allowing the researcher to observe and collect comprehensive data. As a counter argument, Shuttleworth (2008) argues that case studies can be a narrow field of study and therefore cannot be applied holistically. As a consequence of multiple methods used for this research, this point is made mute.

Case Study: Sandton CBD

This research set out to explore the need of principles guiding sustainable open spaces. The research developed the principles in the context of a case study, the Sandton CBD and surrounding areas. Within the case study of the Sandton CBD, seven public open spaces were analysed. These public open spaces were researched using photographs, observations of how these spaces were used, and mapping. Lastly, these public open spaces were interpreted within the interviews conducted to explore the concepts of the sustainable city, sustainable public open spaces and placemaking.

As illustrated in Maps 4 and 5, the Sandton CBD and surrounding areas are located in the City of Johannesburg Metropolitan Municipality, centrally located in the province of Gauteng. The Sandton Node is situated in Region E of the Johannesburg Spatial Development Framework, as shown in Maps 4 and 5. The Sandton node offers an opportunity to reshape the principles for public open spaces due to the existing popular public open spaces within the area and the investment opportunities in the area, locally and internationally. Therefore, principles derived for sustainable public open spaces for the Sandton region can be applied nationally and internationally on a generic level but still requires guidelines that guide these principles based on the context and situation of each public open space. The Sandton node and surrounding areas offer a range of Open Spaces ranging from Golf Courses and Community Recreational Centres to parks and vacant undeveloped land.

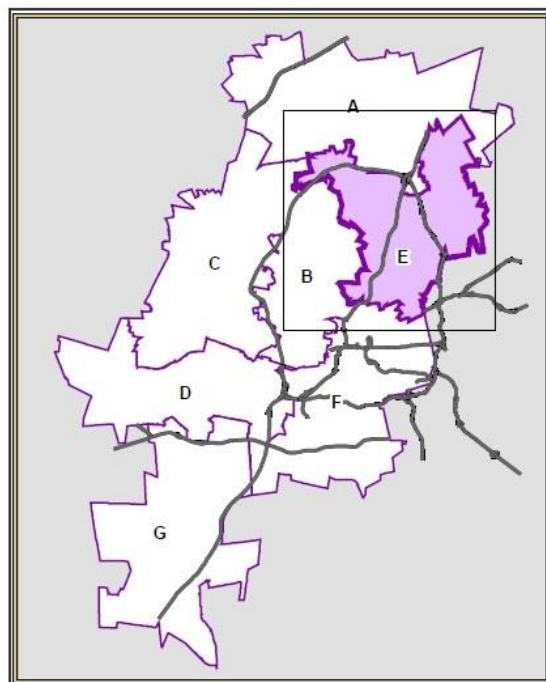
As illustrated in Maps 3 and 4, Sandton is located within Region E which is well positioned in Gauteng. It is bounded by Tshwane Metropolitan Municipality to the north, the Johannesburg CBD to the south, Ekurhuleni Metropolitan Municipality to the east and Mogale City to the west. More importantly, the region forms a buffer between the City of Johannesburg and Ekurhuleni Metropolitan Municipality. As shown in Maps 4 and 5, Region E is a dynamic region due to the Greater Sloane, Rivonia, Woodmead, Melrose Arch and Surrounds, Wanderers, Killarney, Fourways, Rosebank, Bruma, Illovo, Greenstone nodes. (City of Johannesburg, 2010)

Due to the above economic nodes, Sandton is experiencing a growing economy and is evident by the higher rate of construction in the region as well as the growth in employment (City of Johannesburg,

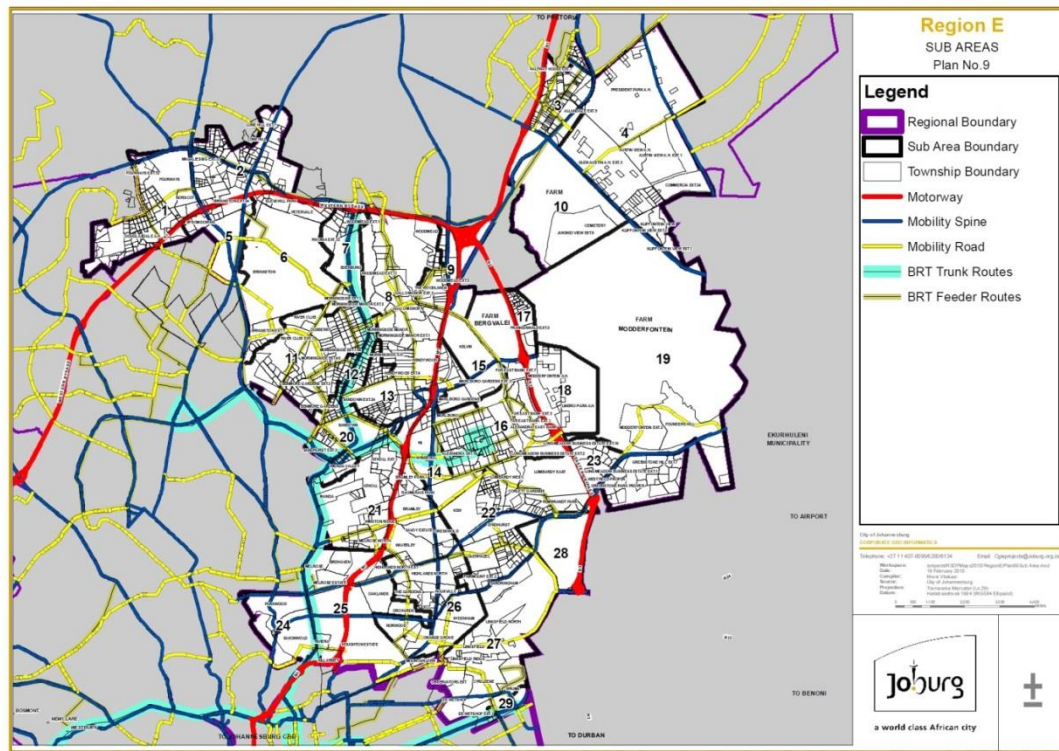
2010). This is also evident by the 15% increase in population during 1996 and 2001 (City of Johannesburg, 2010). As a result, developers and investors are attracted to the City of Johannesburg and in particular, Sandton.



Map 3: Location of the City of Johannesburg Metropolitan Municipality in relation to the remaining municipalities in Gauteng (City of Johannesburg, 2015)

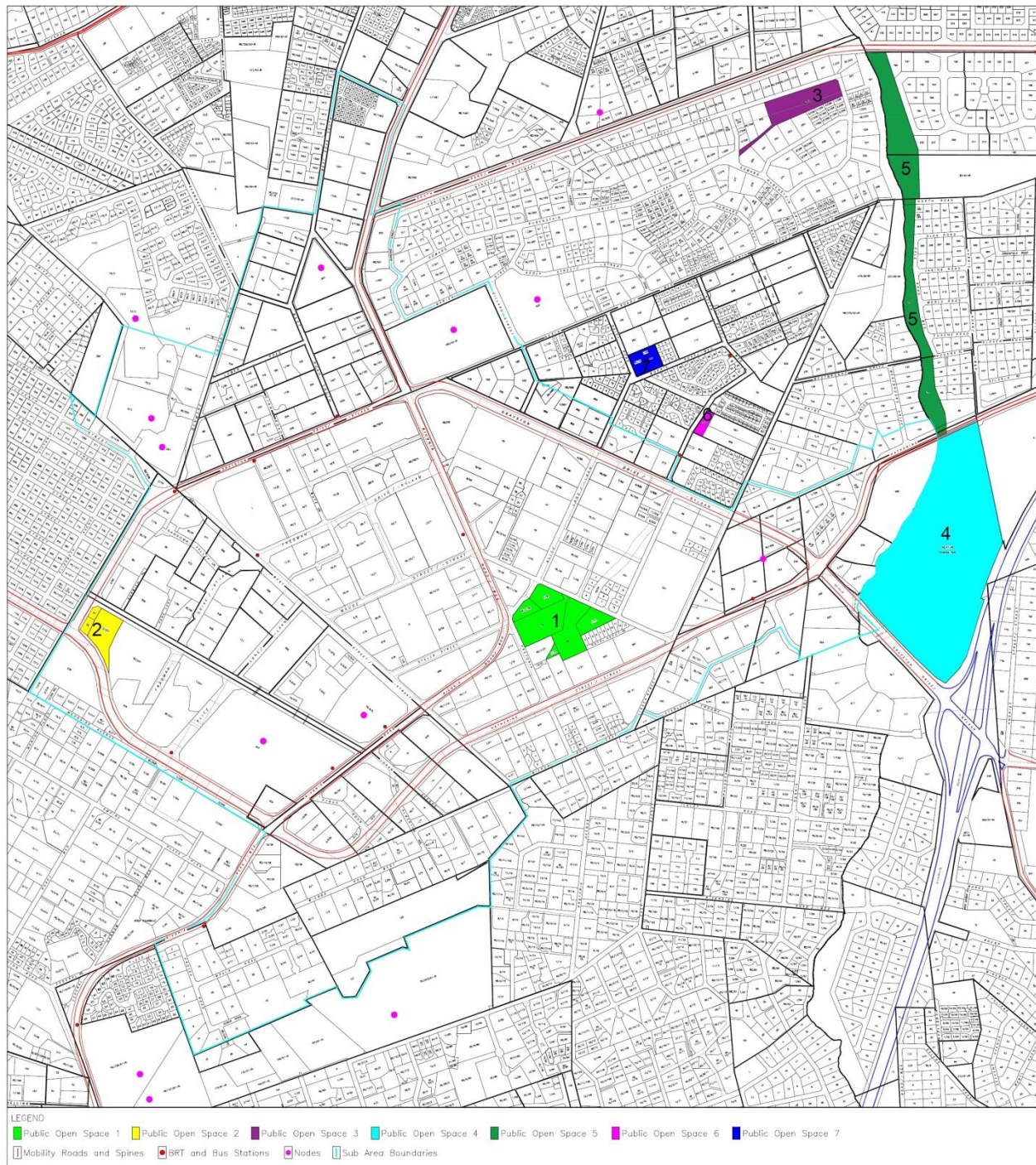


Map 4: Location of Region E in the Johannesburg Spatial Development Framework 2010/2011 and the City of Johannesburg Metropolitan Municipality (City of Johannesburg Metropolitan Municipality, 2010)



Map 5: Sub Areas, including the Sandton CBD, found in Region E of the Johannesburg Regional Spatial Development Framework (City of Johannesburg Metropolitan Municipality, 2011)

Map 6 indicates the seven public open spaces analysed for the purpose of this research report. These include Mushroom Farm Park, Sandton Central Park and Innesfree Park as established public open spaces and are used frequently that not only range in size but their location in relation to the Sandton CBD and their access to public transportation. Three of the public open spaces are located in the residential suburbs and are not used frequently, as they are not established parks and public spaces. These too vary in size and their proximity to the Sandton CBD, nodes and transport networks. The seventh public open space is the public open space along the Sand Spruit, which has the potential to develop into a public open space and conservation area. The Sand Spruit further borders the residential area from the Sandton CBD and the industrial and commercial area of Kramerville.



Map 6: Seven public open spaces used as a case study for the research report

Interviews as a Research Method

The derived set of principles for sustainable public open spaces should be applicable on a generic level with adjustable guidelines taking into consideration the context of the public open spaces. It was therefore necessary to interview the professionals in the private sector of land use planning and urban management

as well as town planners in the department of Development Planning, Transport and Environment at the City of Johannesburg. These experts and professionals offered information of what should be done on a theoretical basis and on a practical basis with regards to the Johannesburg Metropolitan Open Space System and principles guiding the public open spaces. These experts and professionals were shown the photographs of the public open spaces and as a result did not need to have personal experience in the spaces. This method would result in principles that may be applied throughout the city.

The objectives for all of the interviews was to understand the current shortfalls of public open spaces, identifying these shortfalls and developing a set of principles that can be used to make these spaces sustainable. Within the theme of public open space, it was necessary to understand what makes a public space and what may attract the public to these spaces. Within the theme of sustainability, definitions and principles for sustainable public open spaces were explored. A secondary objective of the interviews was to establish a set of criteria used to analyze the photographs of the public open spaces taken in the next phase of the research.

As an insider of the field of town planning, public management and urban design, in depth semi-structured interviews were completed throughout the research process. This method is closely related to insider research whereby the researcher conducted the investigations and studies within a “social group, organization or culture of which the research is also a member” (Greene, 2014:1). In the case of this research, I undertook to complete the interviews with those in my field of work and with those who have similar experience and qualifications.

As an insider, it provided a stronger research base as a result of a prior knowledge of the research topic, not only for the researcher but those being interviewed (Greene, 2014). Another point advocating for insider research was that of interaction (Greene, 2014). As an insider, the researcher was more comfortable with those being interviewed, allowing the interaction to be more natural. Thirdly, accessibility to information and contacts was easier for the researcher as an insider (Greene, 2014).

Therefore, interviews were conducted on a basis of a conversation rather than a question and answer basis, to make the process more comfortable and give the interviewee the freedom to speak outside of the static questions (Cranz, Taylor and Broudehoux, 1997). This method can otherwise be known as the Open-Ended approach to interviews (Thibodeaux, 2015). This approach is generally used in qualitative research rather than quantitative research as these interviews generally cannot be quantifiable (Thibodeaux, 2015). Therefore, there was a standard set of questions that each interview would use

(Thibodeaux, 2015). Thereafter, subsequent questions were asked for clarity on questions that were not fully answered by those being interviewed. Furthermore, subsequent questions such as these introduced the interviewee's personal opinions regarding the matter. Thereby allowing for more honest and substantial information to be divulged (Thibodeaux, 2015).

This is also known as the semi-structured interview as discussed by Sommer and Sommer (1980). The semi-structured interviews allow an opportunity to delve more into questions that may not be answered in enough detail and often seeks to understand the subjective side to the answer than the initial objective answer. Therefore, interviews provide a means to yield more accurate information than other research methods that may be too rigorous and objective. (Sommer and Sommer, 1980)

In the South African context, town planning is the management and development of the natural and man-made environments (Todes and Mngadi, 2007). Town planning seeks to regulate, maintain and manage land uses as well as the implement infrastructure and services for the public within the city (Todes and Mngadi, 2007). In order to reach the optimal level of sustainability, the planner has to integrate and coordinate the three sectors that comprise city environments: social, physical and political (Todes and Mngadi, 2007). Therefore, interviews with town planning colleagues in the private sector of Town Planning offered information regarding JMOSS, Sustainability and Public Open Spaces.

Interviews were conducted on professionals and specialists within the larger fields of research and thereby explored several fields relating to sustainable public open spaces as well as various theoretical concepts. In order to establish the shortfalls and recommendations, within this method, there were three main fields of research that needed to be addressed, namely; Public Open Spaces, Sustainability and Sustainable Public Open Spaces, and the Johannesburg Metropolitan Open Space System. An interview with a Regional Manager for Region E from the City of Johannesburg Municipality was necessary in order to discuss the open spaces within the Sandton CBD and surrounding areas.

Related to the sample of the interviews to be conducted for the purposes of this research report, the following is relevant. Data saturation is directly related to the sample size. Data saturation refers to the amount of data that is received at a positive rate. When the results become repetitive with no new results, the data is said to be saturated. The researcher therefore instinctively goes on how many interviews they think were necessary to reach this point as there were no guidelines on how many interviews were required to reach data saturation. (Marshall, Cardon, Poddar and Fontenot, 2013)

Another perspective offered on samples and sampling is that of Struwig and Stead (2001) where it is indicated that qualitative research is focused on the complexity and reliability of the data collection during the research process. They further indicate that researchers tend to select their samples on purpose rather than at random. They do however discuss various sampling strategies and techniques that qualitative researchers can make use of to select their sample for the research proposed. Some of the techniques and strategies for sampling include, extreme case sampling, intensity sampling, maximum variation sampling, homogenous sampling, critical case sampling, stratified purposeful sampling, snowball or chain sampling, criterion sampling, theory based sampling, confirming and disconfirming sampling, opportunistic sampling, purposeful random sampling, and convenience sampling. (Struwig and Stead, 2001)

For the purpose of this research, three techniques were used to derive the sample for the research. These include intensity sampling, critical case sampling and convenience sampling. As a result, the sample was chosen bearing in mind the convenience for the researcher and accessibility of the resources. Furthermore, the sample was derived using a population that has a prior knowledge of the said research topic and that enables the research to address key issues in an intense manner of collecting data by means of in depth interviews. Therefore, colleagues in the field of Town Planning and Urban Management during the research process would be interviewed alongside any contacts they referred to speak to in informal discussions regarding the research report.

In the form of critical case sampling and convenience sampling, it was decided to use town planners and urban management specialists for the purpose of the research. Therefore, the sample included Town Planners from a private land use company and a private urban management company that the researcher had professional contact within the past 3 years. An informal discussion allowed the colleagues of these two companies the choice to participate in the research. From these discussions, six town planners agreed to take part in the research. A referral from one of the town planners was made for the Regional Manager for Region E from the City of Johannesburg Municipality, who too agreed to partake in the research.

Therefore, in total the sample included seven town planners between the ages of 25 and 40, with similar qualifications. The sample furthermore included four males and three females. As a result, the sample would provide a variety of perspectives but at the same time indicated similarities in the responses due to the common field of study, i.e. town planning and urban management.

The proposed sample were interviewed and upon receiving repetitive answers with no new information, it was an indication that the sample was indeed correct. If this is not reached after the 7th interview, the sample would have been increased. For the purpose of this research, the sample of seven town planners is the correct sample size due to the fact that the recommendations they proposed were no longer providing new ideas. Furthermore, the sample, allowed linkages to be made between the key theoretical concepts and the fellow interviewees resulting in a sound data collection.

The above sample did not include the users found on the public open spaces. This was as a result of a lack of pedestrians or users found on the public open spaces. Upon the initial investigations into the public open spaces, in the form of the photographic analysis, there were very few to no pedestrians or users found on the public open spaces. The results of the photographic analysis are discussed and illustrated in Chapter 4. The following section elaborates the use of a photographic analysis as a research method. The photographic analysis was taken over two days, a mid-week afternoon and a Saturday morning. The pedestrians found on the vacant pieces of land, Innesfree Park, Sand Spruit and Sandton Central park were homeless people. Public found in the Mushroom Farm Park were smaller families having a birthday party and as a result, were not approached for the purposes of this research report. As a result, the lack of users limited the interviews that could be conducted.

Photography as a Research Method

Using photography is a research method used within qualitative research. It is a visual and observational form of research and is often used in fields such as sociology, social sciences, social anthropology, health, nursing studies, education, criminology, geography, media, politics and management. Modes of observations include behavioural observations, i.e. how public use space, and the recording personality typologies. Finally, a photograph is a quick method of recording information where a picture tells a story and says a thousand words. (Knoblauch, Baer, Laurier, Petschke and Schnettler, 2008)

As the main objectives evolve around the current state of the public open spaces and how these spaces were used, a photographic analysis was done. The photographic analysis indicated who was using these spaces, how they were using the spaces and when these spaces were being used. At the time of the photographic analysis, observations of how people used these spaces was completed. Therefore, the observations were done in the naturalist context, where the public is unaware of the researcher observing the behaviour and trends on these public open spaces. These observations were done in the form of written notes and the photographic analysis. (Struwig and Stead, 2001)

During the time when the photographs of the public open spaces were taken, observations of the spaces were done. This was completed in the form of field notes observing the qualities of these public open spaces as well as how the public use these spaces. Mouton (2001) indicates that field notes alongside other forms of data collection were vital in the development of a sound qualitative research. He further indicates that researchers keep field notes as they participate in the research, not only to collect data from their observations but also to record decisions, dates, key points, and other any factors that need to be taken into account during the compilation of a research report (Mouton, 2001).

The field notes aid the researcher in the capturing of more detail than in other forms of research. This is due to the fact that the researcher can record data that is ordinarily ignored in a single visit to a case study, in this case the public open spaces. Therefore, field notes were written down during the time when the photographs of the public open spaces were taken. This served to validate the photographs against the notes taken with these photographs.

As the field notes were a result of the photographs of the public open spaces, the primary form of research was the use of a photographic analysis of the various public open spaces in Sandton as well as the vacant land that may be used as such. These photographs were used to indicate the present status of these open spaces and set a good foundation for the initial analysis of the open space system in the Sandton Node and surrounding area. Photographs were taken and analysed in terms of the theoretical framework derived in Chapter 2 as well as the interviews conducted. Therefore, photographs and field notes indicated the accessibility, image and aesthetics, uses and activities and the context of the public open spaces.

Mapping as a Research Method

In order to identify the integration of the public spaces with the rest of the city, including economic opportunities, resources and infrastructure, mapping was used. Mapping can be used as a tool to indicate observations. A single map can indicate the cadastral information of the public open space and may be layered with information such as mobility roads and spines, bus stops and nodes in the area.

Mapping is a graphical tool used for the organisation and representation of information. It is used as a form of recording data from the observations made over a specific area. Mapping can indicate behavioural patterns such as activities and movements. Geographic Information Systems, also known as GIS, is a mapping system that allows the observer to layer further information on top of the original map. Therefore, on a single map, it is possible to map the social, demographic and neighbourhood

characteristics of a single suburb whereby strengths and weaknesses within an area were easily visible. (Boyd and Chan, 2002)

Town planners often use maps as a means to bridge the gap between transportation networks and land use (LeGates, 2005). The mapping of these two systems together helps to understand the relationships that exists between the two and thereby helps to plan them more effectively (LeGates, 2005).

In the context of this research report, maps were used as a form of information and identification. In the chapter to follow, the photographic analysis of the public open spaces in Sandton, there were two maps per public open space. The first was a locality map of each of the public open spaces and was downloaded from Google Maps (2015). These maps were easily accessible and readable to the reader. These Google Maps indicated the location of the public open space in green, suburbs, road names, nearby nodes and highways and a basic road structure including roads, main roads and highways.

The second map is a cadastral map drawn on AutoCad. This map was manipulated to show layers of specific additional information. These maps were used to indicate the erf number on which the public open space is located in order to establish the locality of the Public Open Space from a GIS and Town Planning perspective. These cadastral maps further indicated the Mobility Spines and Mobility Roads, as per the Johannesburg Regional Spatial Development Framework, as a means to indicate the accessibility of the public open spaces to transportation routes. The cadastral maps indicated the nodes within the vicinity of the public open spaces. These nodes included shopping centres, bus stops or stations. Lastly, the cadastral maps indicated where the photographs were taken of the relevant public open spaces used in this research.

Research Methods Used Together

Diagram 8 indicates the relationships that exist between the research methods chosen for this research report. The use of case studies, interviews, photography and mapping were all methods of qualitative research methods. Mapping, photography and case studies allowed for observations to be done in different manners. Mapping and photographs recorded their data graphically and were manipulated to show additional information, whereas case studies made use of mapping and photographs to record the data. Furthermore, case studies made use of interviews in order for the researcher to be an insider into the field of study and in order to accumulate more accurate and objective information.



Diagram 8: Relationships between research methods chosen for research report

For the purpose of this research report, mapping was used as a tool for graphically representing the position of the public open spaces in the context of the Sandton CBD. The maps allowed for the technique of layering further information on the maps such as bus stops, mobility and activity spines and nodes to be completed. Photographs were taken of the public open spaces. They were a means of observing the spaces and therefore graphically represented what was existing on the public open spaces. The common denominator between mapping and photography was the case study, namely the 7 public open spaces in the Sandton CBD and surrounding area. Interviews allowed for an interaction between the researcher and experts and colleagues in the field of study. Colleagues at Raven Town Planners shared the experience in the Sandton CBD and can therefore provide further insight to the case study.

Limitations of Research Methods

Some aspects of the research and interviews were time consuming. It was a long process in terms of the photographs taken of all the public open spaces within the Sandton Node and surrounding areas. These photographs were taken of all the existing parks and vacant land that could be utilised for parks. Furthermore, a one on one interview may result in prejudice due to subjectivity of questions but allow for

spontaneous questions to arise and result in a conversation more than a formal question and answer session (Cranz, Taylor and Broudehoux, 1997).

Insider research may have some factors that raise concerns. Insider research may be biased as the researcher may be too close to the research topic and may lead the research in a particular direction and further lead the interviewees in answering the questions in the manner in which the researcher wants. Furthermore, insider research has been critiqued as it can be too subjective where the researcher is too narrow minded or familiar within the topic. (Greene, 2014).

Atieno (2009) indicates three limitations to qualitative research. The first is the lack of classifications of data being analyzed, as done in quantitative studies. This is due to qualitative studies analyze the data together allowing for a finer distinction to be drawn (Atieno, 2009). Qualitative studies recognize different meanings of the same concept, can be harder to single out one definition to work from, and therefore can result in ambiguities (Atieno, 2009). The third issue that is raised by Atieno (2009) is the validity of the data collected. In quantitative research, the data can be quantified or statistically proven. Qualitative research is harder to prove as the methods include mapping, photographs and interviews. Here the data can be collated but is harder to quantify.

The pedestrians found on the vacant pieces of land, Innesfree Park, Sand Spruit and Sandton Central park were homeless people and as a result, were not approached for the purposes of this research report. This research seeks to improve upon the public open spaces for the public using the spaces for recreational reasons and as a result, the homeless people were not interviewed. This further limited the interviews that could be conducted. It is however noted, that if there were users within the spaces, it would have been beneficial to interview them for another perspective rather than just experts regarding the public open spaces. Even though the town planners interviewed for the research were experts in their field, they did not necessarily use the spaces regularly. Interviews with the users could have diverged more insight into the management of the spaces, what the users need and want in the public open spaces and what the users would suggest in improving the spaces. To rectify the above problem, questions in the interviews were shaped around the interviewee's precedents for public open spaces and what makes them sustainable. Therefore, a more generalist approach was used in the interviews in order to create principles and guidelines that can be applied globally and locally.

Conclusion

The research report culminates in the development of a set of principles for sustainable public open spaces in the Sandton node and surrounding areas. In order to best develop these principles, qualitative approach to research was used. Photographs, mapping and interviews were used as a means of collecting data. Photographs of the public open spaces offer validity of the current state of the public open spaces. Mapping further allows for an analysis of the current position of the public open space in relation to the surrounding areas and the relationships that exist between the surrounding area and the public open space. Lastly, interviews aided in understanding the professional's opinion of the definitions, importance and recommendations for sustainable public open spaces.

The research methods began with the development of a set of tools that was used to analyse the public open spaces in Sandton. These tools were used to analyse the photographs taken of the public open spaces. Following the photographic analysis, a set of questions was derived and used to interview professionals in the fields of town planning and urban management. Once the interviews were completed and the results were collated from the interviews, the results from the interviews and photographic analysis were examined together in order to draft recommendations for sustainable public open spaces.

Chapter 4: Open Spaces in Sandton: A Photographic Analysis

Introduction

Chapter 4 encompasses a photographic analysis of the public open spaces in Sandton. It begins with a situational analysis of the Sandton CBD and includes the mapping of Public Open Spaces in the Sandton CBD and surrounding areas. The chapter makes use of the theoretical diagram as interpreted in Chapter 2 as a tool for the analysis of these public open spaces. A photographic analysis of the public open spaces includes maps locating them within the area of study. This includes a situational map as well as cadastral map. Lastly, Chapter 4 begins to identify principles for sustainable public open spaces.

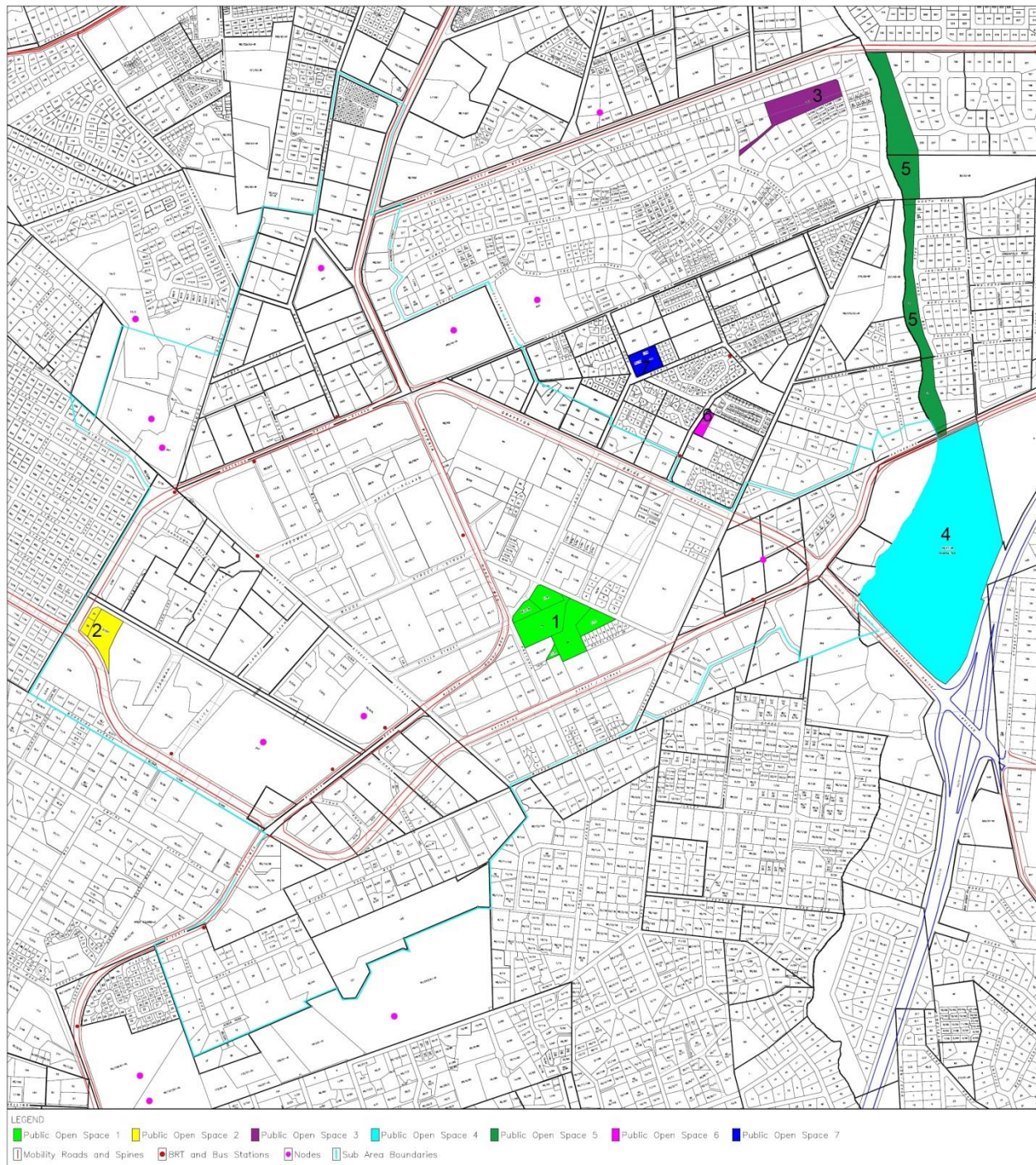
Public Open Spaces in Sandton

The Sandton CBD is located within Region E of the City of Johannesburg Metropolitan Municipality. The boundaries of the Sandton Node are indicated in the blue line illustrated in Map 7. The Sandton Node can be regarded as the Financial District of South Africa as well as a mixed-use node offering a range of hotels, guesthouses, employment opportunities, shopping centres and transportation networks. The Sandton Node is strengthened by the presence of the head offices of larger companies in South Africa such as Standard Bank, Rand Merchant Bank, Industrial Development Corporation and the South African Breweries. (City of Johannesburg Metropolitan Municipality, 2010)

The Sandton node and surrounding areas offer a range of Private and Open Spaces ranging from Golf Courses and Community Recreational Centres to parks and vacant undeveloped land. For the purpose of this research report public open spaces in the form of parks and vacant land that may be used for parks were analysed. For the purposes of this research report Sandton Central Park, Innesfree Park, Sand Spruit and Mushroom Farm Park were analysed in conjunction with smaller parks and vacant land that could be transformed into well-functioning public open spaces. These include open spaces along Helen Road, at the corner of Morris and Daisy Roads, and at the corner of Aston and Adrienne Streets. The 7 public open spaces as described above are indicated in green on Map 7 on the following page.

What is evident from the photographs to follow for each of the individual public open spaces is the lack of users within these spaces. The photographs were taken over two days, a midweek afternoon and a

Saturday morning. On both days, with the exception of Mushroom Farm Park, there were a lack of users present in the public open spaces. The remaining public open spaces only had homeless people sleeping under trees or staying in makeshift housing. As a result, there were no users within the public open spaces for recreational or social reasons and were therefore absent in the photographic analysis of the spaces.



Map 7: Public open spaces in the Sandton CBD and surrounding areas

Tools for Photographic Analysis

Using the literature from Chapter 2, a theoretical framework was formulated. This is illustrated in Diagram 9 and can be used as a tool in the analysis of the photographs of the public open spaces. The photographs of the public open spaces were analysed using contextuality, co-existence and coherence.

Contextuality is evaluated in terms of its accessibility and linkages within the Sandton Area as well as economic factors that the public open spaces pose. Co-existence is evaluated in terms of the uses and activities within public open spaces as well as the sociability of the spaces. Lastly, coherence is evaluated in terms of the comfortability and imageability of the public open spaces as well as the environmental factors that the space offers.

Regarding the environmental, social and economic factors that a public open space should have, Haq (2011) describes environmental benefits to include ecological benefits such as the regulation of urban climate, pollution control, biodiversity and nature conservation. Energy savings, increases of property values, economic opportunities are examples of Economic benefits. Social benefits include the provision of a recreational space, increased wellbeing and human health, and the provision of various uses in order to attract numerous users. (Haq, 2011)

The principles of placemaking (The Project for Public Spaces, 2011) are used to analyse what makes a successful or sustainable place. This included the analysis of these public open spaces in terms of their sociability, access and linkages, comfort and image, and uses and activities (The Project for Public Spaces, 2011).

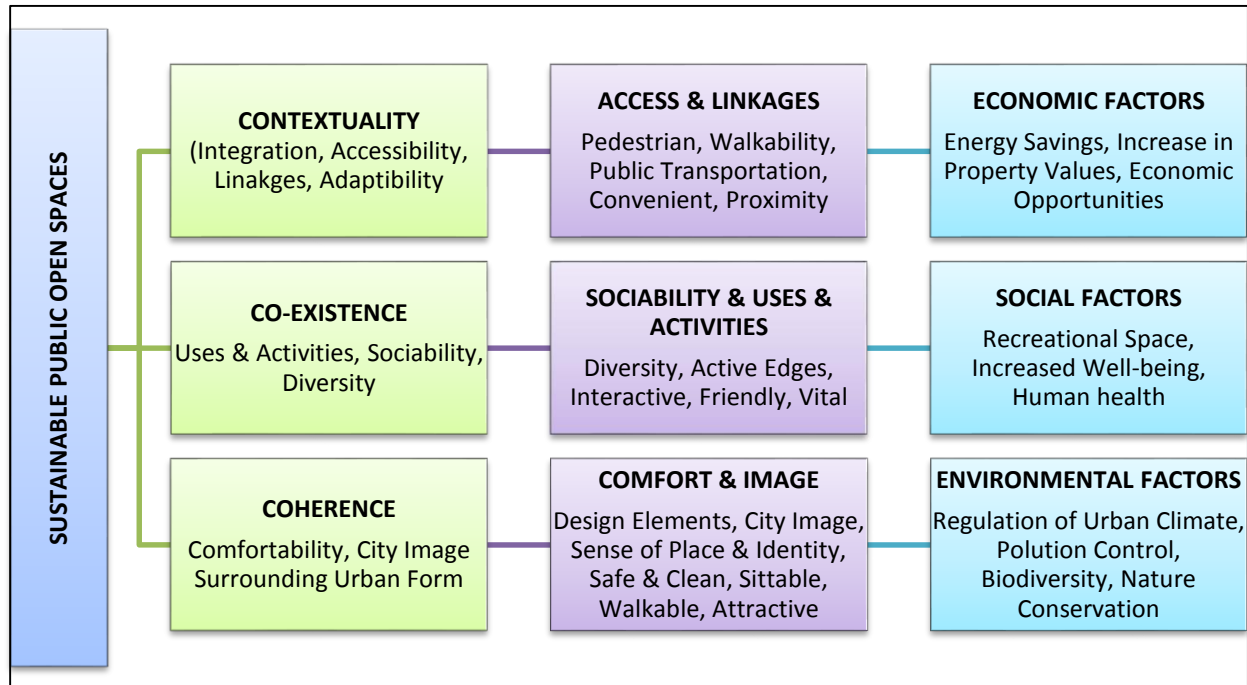
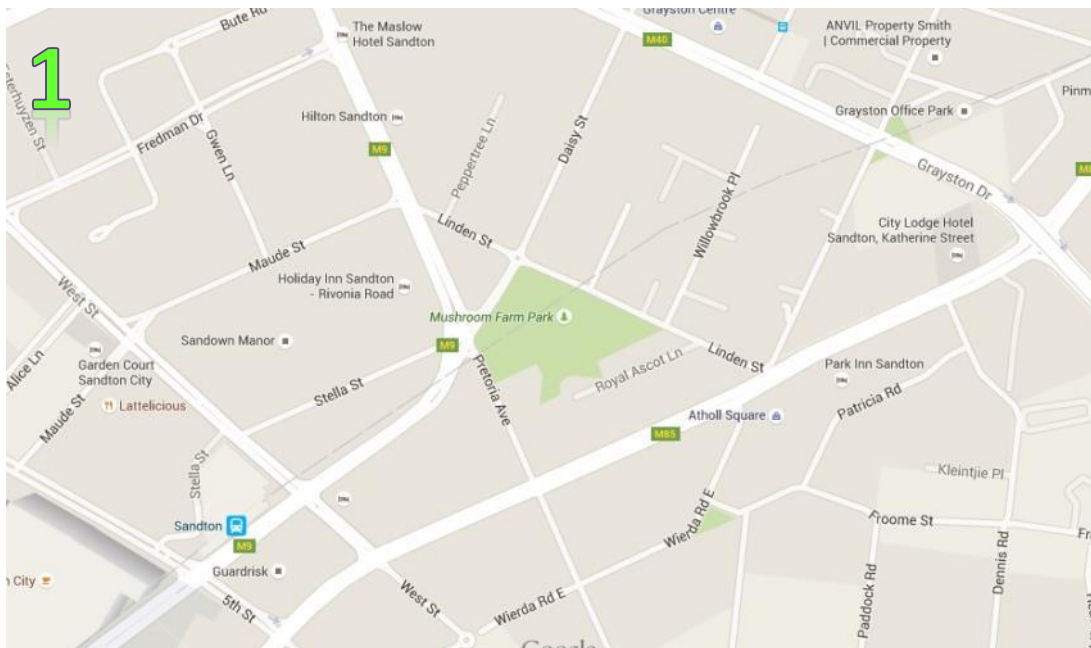


Diagram 9: Tools for analysing public open spaces

Public Open Spaces in Sandton: Photographic Analysis

Mushroom Farm Park



Map 8: Mushroom Farm Park in Sandton (After Google Maps, 2015)



Images 7, 8 and 9: Key factors such as entrance, economic opportunities and pathways in Mushroom Farm Park



Images 10 and 11: Green outdoor gyms in Mushroom Farm Park



Images 12 and 13: Sitting and play areas in Mushroom Farm Park



Images 14 and 15: Environmental setting including lawns, trees, pathways and shrubbery of Mushroom Farm Park



Images 16 and 17: Parking facilities for private car users and the Hyundai Sky Park for economic opportunities in Mushroom Farm Park



Images 18 and 19: Bathroom facilities for the public in Mushroom Farm Park and Surrounding Developments in Sandton overlooking Mushroom Farm Park



Map 9: Cadastral map of Mushroom Farm Park in Sandton. Stars indicate photographed areas.

Contextuality and Economic Factors

In terms of contextuality, the Mushroom Farm Park is an accessible park to the pedestrian, private car users and public transportation users. As indicated in maps 8 and 9, there is a bus station and train station nearby to the park due to the location of mobility roads, Rivonia Road and Katherine Street. Secondly, for private car users, there are parking facilities as indicated in Image 16. The Sandton CBD is furthermore, pedestrian friendly due to the wider walkways and pedestrian facilities. The park is walkable for the

pedestrian as there are several pathways leading the user to a range of uses and activities in the park as well as various seating areas (Images 8, 10 and 12).

The Mushroom Farm Park has the Hyundai Sky Park which is open to the users of the park offering a unique dimension to the park as well as an economic factor by means of local business. The Hyundai Sky Park is indicated in Images 8, 12 and 17. Therefore, the Mushroom Farm Park offers economic benefits to the public open space as well as the surrounding neighbourhood, whilst at the same time as offering integration between local businesses and the public open spaces.

Co-Existence and Social Factors

In terms of co-existence and uses and activities, Images 7 to 19 indicate a wide range of uses and activities that are managed within the Mushroom Farm Park. The park includes uses and activities such as a children's play area, the Hyundai Sky Park, duck ponds, amphitheatre and outdoor gym. The park has facilities for dog walkers and joggers. It thereby allows for a range of users, across age, ethnic background, gender and social standing. The Mushroom Farm Park boasts a play area for children with adult seating next to the play area for supervision as seen in image 13. Secondly, throughout the entire park, pathways lead the user to various smaller pockets of seating areas with shaded cover, as well as natural cover provided by trees.

Another unique use within the Mushroom Farm Park is the outdoor gym that is located to the right of the entrance. City Parks, in partnership with the City of Johannesburg and Johannesburg Zoo gave the outdoor gym to the Park. The company, Green Outdoor Gyms was contracted to install the gym in the Park. The outdoor gym is indicated in Images 10 and 11. Further public facilities include the bathroom facilities as indicated in Image 18.

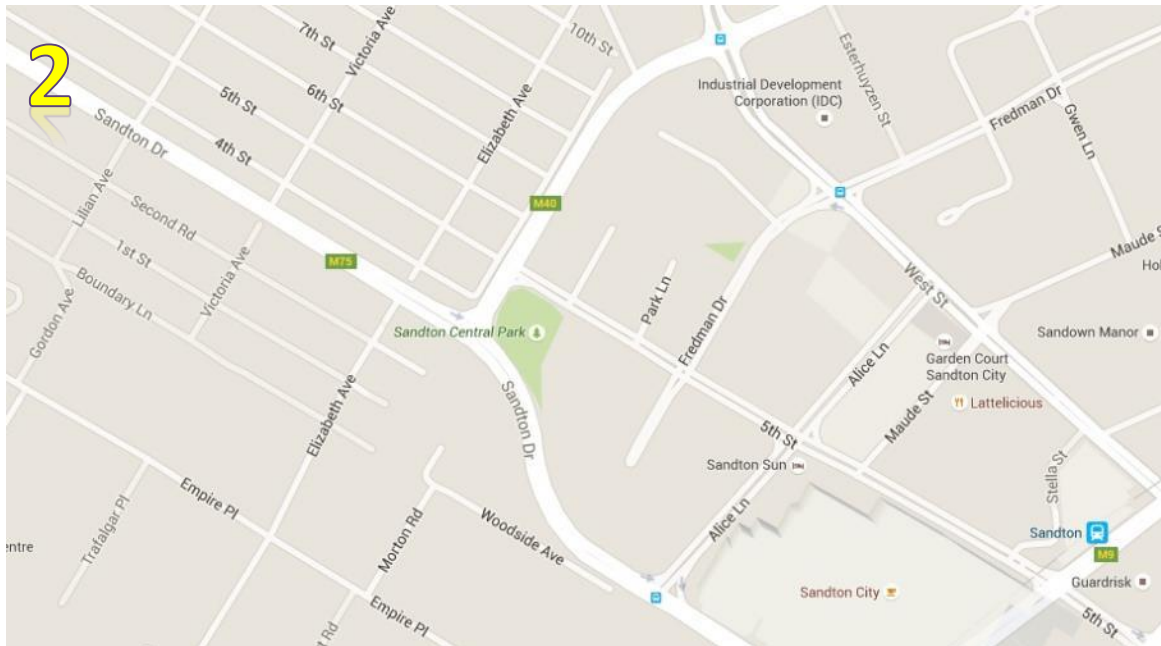
To conclude, the Mushroom Farm Park offers social benefits such as a safe and secure recreational space that offers an increase in personal wellbeing due to the outdoor gym.

Coherence and Environmental Factors

Coherence and environmental factors include the natural setting of the park in the middle of the growing Sandton CBD (Image 19). The park is well maintained and includes several types of trees and plants. With the abundant greenery, waterbodies, walkways and bridges, there is a healthy population of birdlife in the park. The access controlled entrance allows for more safety, giving the pedestrian and users a better sense of pride and thereby gives the park an identity, a unique one at that.

Signage includes a plaque indicating that the park only operates between 06:00am and 18:00pm. Another sign indicates that dogs are allowed in the park as long as they are on leashes (Image 7). Smaller signs on the ablution facilities indicate the female and male bathrooms. The signage not only provides the users with information, but helps to create a sense of place. The sense of place within Mushroom Farm Park is improved upon by means of design elements such as lighting, paving, seating and greenery.

Sandton Central Park



Map 10: Sandton Central Park in Sandton (After Google Maps, 2015)



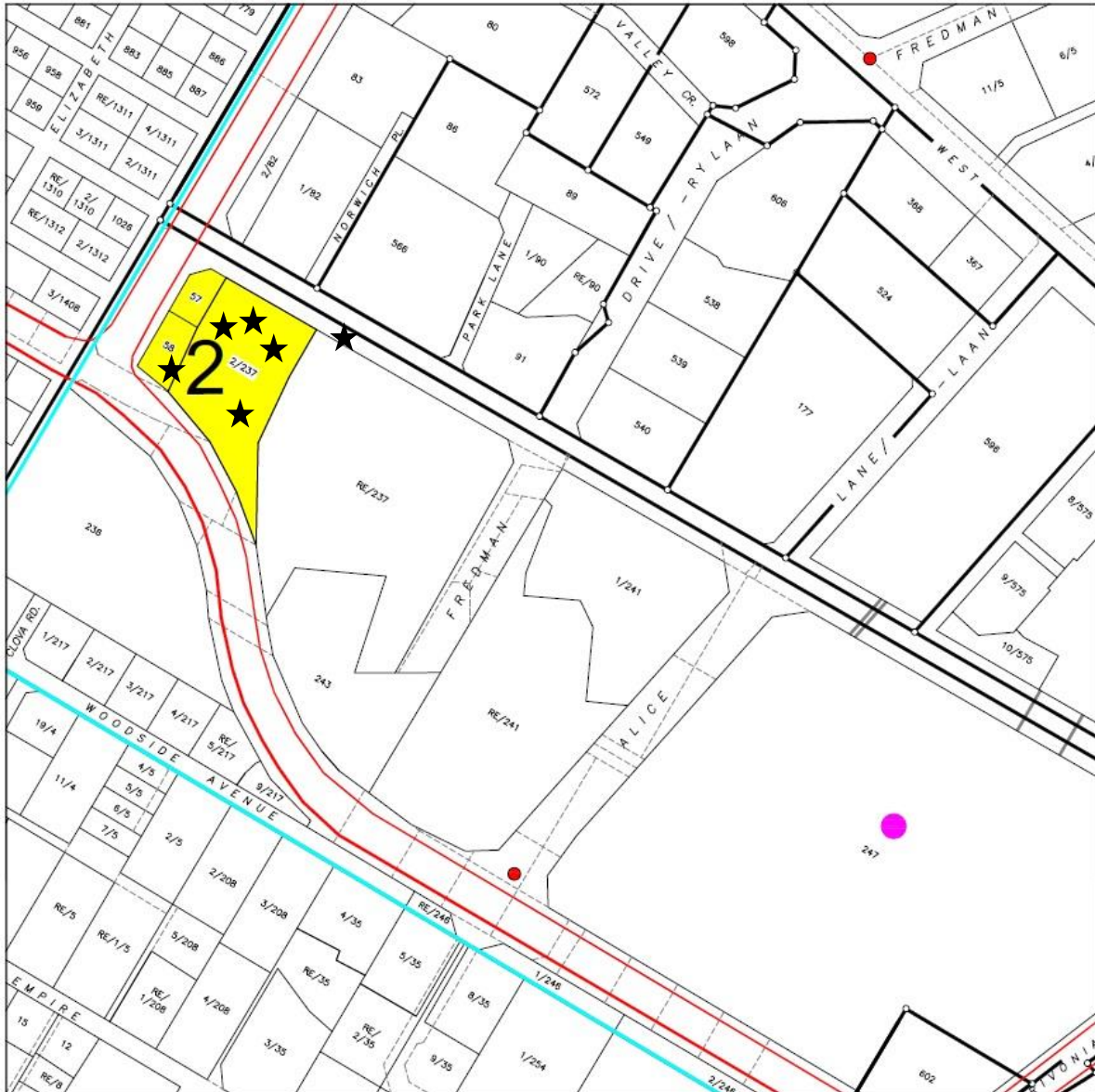
Images 20 and 21: Accessibility and entrances to Sandton Central Park are not very visible to the pedestrian and passing car



Images 22 and 23: Pathways and Environmental setting including rolling lawns, trees and shade in Sandton Central Park



Images 24 and 25: Public facilities such as shade, dustbins and pathways with a lack of seating in Sandton Central Park



Map 11: Cadastral map of Sandton Central Park in Sandton. Stars indicate photographed areas.

Contextuality and Economic Factors

The Sandton Central Park, as indicated in Maps 10 and 11, is located at the intersection of two mobility roads. Furthermore, Sandton City, a node in the area is located up the road from the site along 5th Street. Sandton Central Park furthermore, is accessible to the public due the Gautrain Station and Bus network by the Sandton CBD up 5th Avenue at the intersection with Rivonia Road. There is a further bus stop for Metro Buses at the intersection of Fredman Drive and West Street. Therefore, the Park is contextual in terms of its accessibility and linkages but does not offer any economic opportunities. This is due to the

fact that the public open space does not offer a wide range of uses and activities thereby not offering co-existence as discussed below.

The Sandton Central Park is located on the each of its Sub Area within the Region E of the Johannesburg Spatial Development Framework. Therefore, in terms of contextuality, the park is well positioned in the Sandton CBD in terms of transportation through which integration of the park with the rest of the Sandton CBD is possible. The park however does not have parking facilities. Therefore, the Sandton Central Park is accessible to the pedestrian and public transportation users but not private car users.

Co-Existence and Social Factors

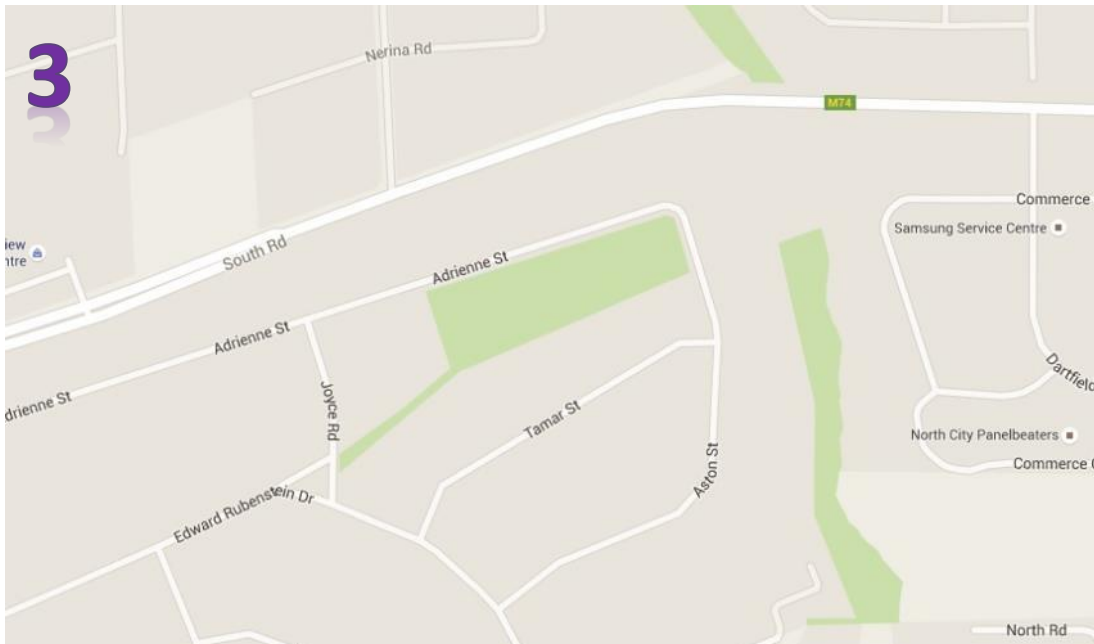
The Sandton Central Park does not offer a wide range of uses and activities. It is a primary opportunity where the public have access to a well landscaped outdoor area that host a variety of activities. As a result, the park only provides social benefits in terms of a recreational space. As access is not controlled, the space cannot be guaranteed to be safe and secure.

As indicated in Images 20 to 25, there is an abundance of spaces with seating and shade for public use. There are pathways throughout the park which are maintained and usable. Additionally, there are pathways that have lights sunken between bricks that offer a sense of security at night. A large expanse of the park offers an opportunity for events over weekends and at night. The park further offers an opportunity for market days, due to the accessible shade that is offered by the trees.

Coherence and Environmental Factors

Poor signage and lack of sense of place and identity makes the public unaware of the park, even though the park offers an arguably beautiful setting in terms of flowers, shrubbery, trees and rolling hills. Design elements that the Sandton Central Park has made use of includes the logs used as unusual seating, greenery and pathways. There is a recommendation that the space provides more design interventions such as lighting, signage to make the space more welcoming, seating, artwork and sculptures.

Cnr. Aston and Adrienne Streets



Map 12: Public open space at Cnr. Aston and Adrienne Street in Sandton (After Google Maps, 2015)



Images 26 and 27: Power lines on public open space at Cnr. Aston and Adrienne Street



Images 28 and 29: No facilities or signage on public open space at Cnr. Aston and Adrienne Street



Map 13: Cadastral map of public open space at Cnr. Aston and Adrienne Street in Sandton. Stars indicate photographed areas.

Contextuality and Economic Factors

The above public open space is the vacant land situated at the Corner of Aston and Adrienne Streets in Sandton. As seen on Maps 12 and 13 the site is located south of South Road, a mobility spine towards the Sandton CBD. Furthermore, as evident by Images 26 to 29 and Map 13, there is a servitude registered over the vacant land. This servitude is registered in favour of the Local Municipality and is used for power lines distribution. There is a narrow entrance to the site along Joy Road.

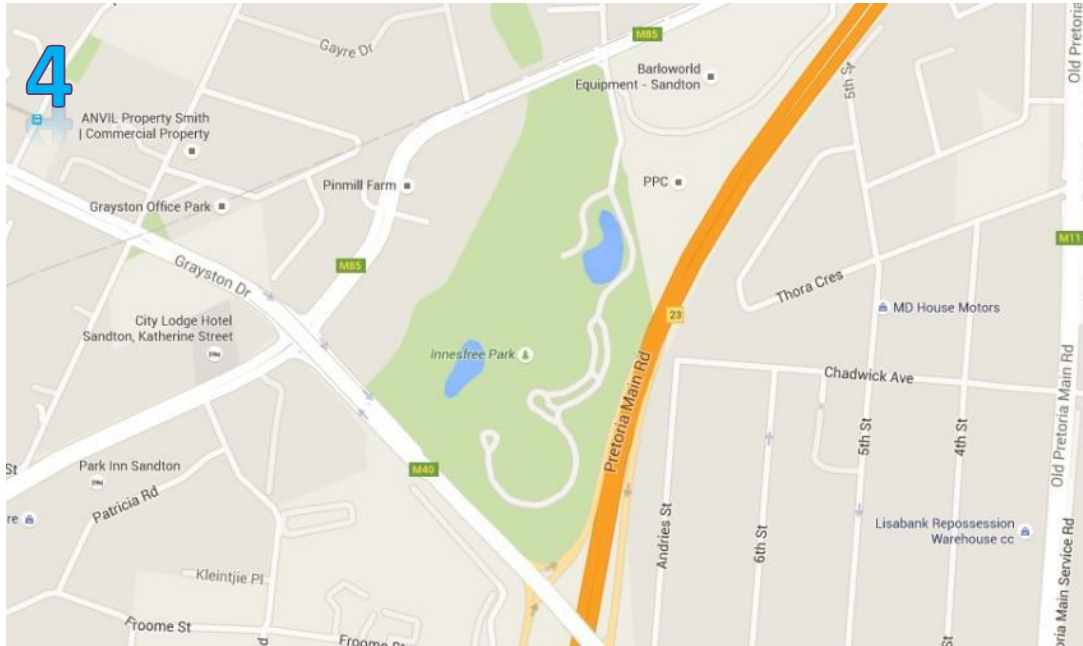
The site is accessible to the public but only as a result of the lack of access control or demarcated boundaries. There is no wall or fence around the entire property. The site is located in a predominantly residential area resulting in no access to public transportation facilities nearby. Even though the site is in close proximity to South Road, it does not have direct access to the mobility road (City of Johannesburg, 2010). As a result of the aforementioned qualities, the public open space does not offer any economic benefits. We may speculate that should the public open space become more sustainable through the principles herein, the values of the surrounding properties increase as the spaces become more usable by the surrounding public and local business.

Co-Existence, Coherence and Social and Environmental Factors

Due to the lack of maintenance, public facilities, economic opportunities, public transportation and design elements on the public open space, there was no visible presence of people at the site upon observation of the open space. The lack of users is further exasperated by the absence of lighting, greenery or shaded areas that are designated to improve upon the image of the public open space.

As a result, there are no social benefits, nor environmental factors that the public open space can offer. However, due to the size of the public open space, it has the ability to cater to a wide range of uses and activities thereby increasing the wellbeing of those using the space. Furthermore, once maintenance of the indigenous fauna is included as part of the design elements of the park, the public open spaces provide environmental benefits such as pollution control, biodiversity and conservation of open spaces.

Innesfree Park



Map 14: Innesfree Park in Sandton (After Google Maps, 2015)



Images 30 and 31: Accessibility to Innesfree Park and benches in Innesfree Park



Images 32 and 33: Private car facilities such as roads and parking and pedestrian facilities such as seating, pathways and shade in Innesfree Park



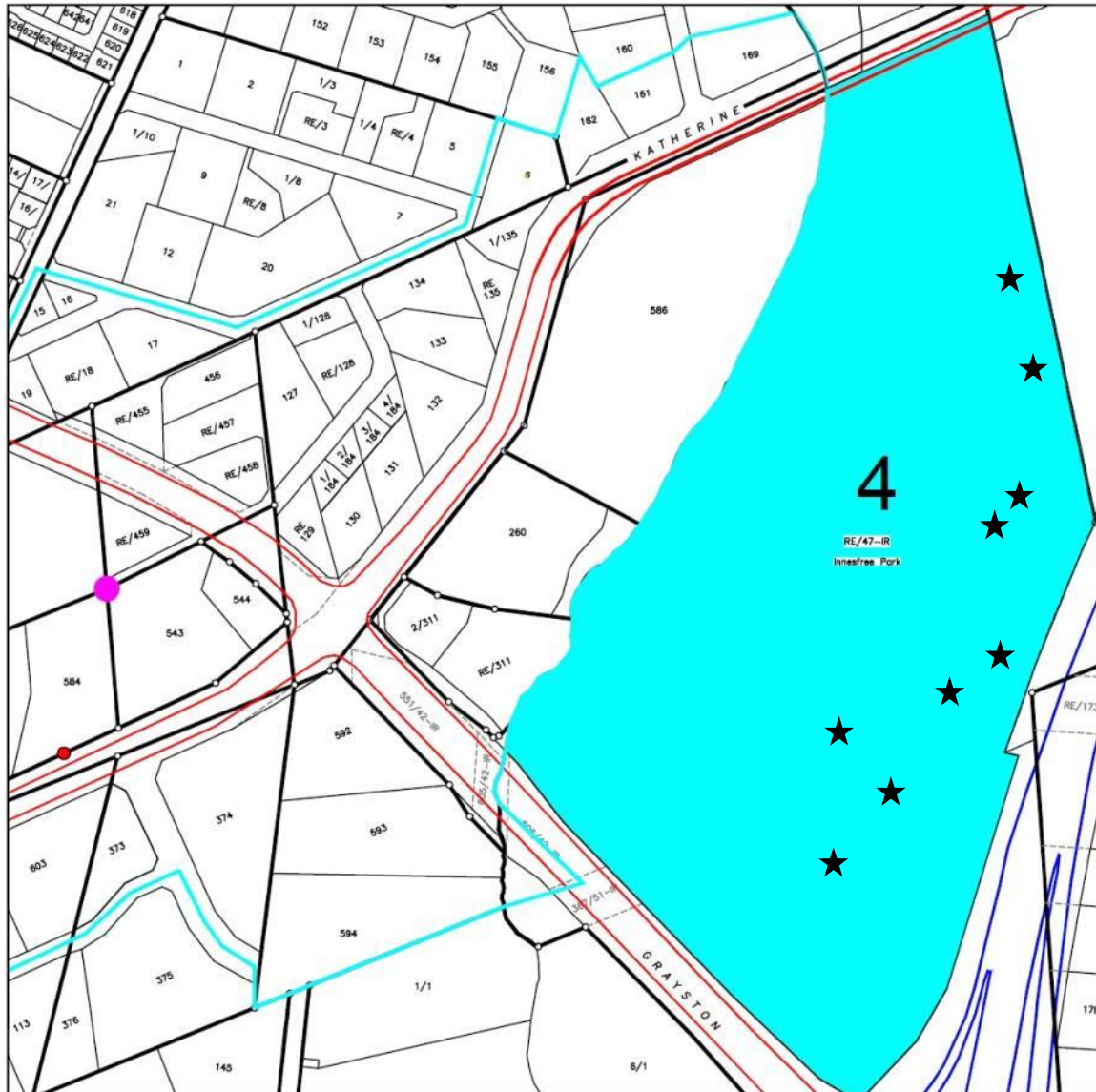
Images 34 and 35: Landscaping in Innesfree Park, the Sandton Skyline overlooking Innesfree Park



Images 36 and 37: Environmental setting including lawns, trees and shade in Innesfree Park



Image 38: Informal settlement detracting from sense of safety in Innesfree Park



Map 15: Cadastral map of Innesfree Park in Sandton. Stars indicate photographed areas.

Contextuality and Economic Factors

As evident in Map 15, Innesfree Park is located along three major mobility roads and spines in Sandton. To the northern boundary of Innesfree Park is Katherine Street, a mobility spine. To the southern boundary of the site is Grayston Drive, another mobility road. Lastly, the M1 highway runs along the eastern boundary of Innesfree Park not contributing to accessibility to the park.

In terms of accessibility, Innesfree Park has two access points. The first is off Grayston Drive and is only used during events. The second point of access is off a service road that turns off Katherine Street. This entrance is the main entrance as evident by the large entrance point with signage as indicated in Image 30. There is however, a lack of advertising or identification and directional signage around the large park.

There is a lack of signage along Grayston Drive, a busy mobility spine running past the park and thereby giving exposure to the park. This is the main view of the park from the Sandton CBD, Wynberg and Sandown and as a result, should indicate the importance of the park and use this vantage point for the marketing of the park.

Innesfree Park is accessible to the pedestrian, private car users as well as public transportation users. The entrance to the park allows for private car users and multiple modes of public transportation to enter into the grounds. Furthermore, as indicated in Image 32, there are parking facilities for private car users. In terms of public transportation, Katherine Street and Grayston Drive are classified as a Mobility Roads as indicated in red on Map 15 and a BRT route (City of Johannesburg, 2011). This route has not yet been developed. There are however several other bus stops along Grayston Drive. Therefore, Innesfree Park has access to public transportation. Public transportation is further improved upon once the Rea Vaya Bus Rapid Transit System is developed along Grayston Drive.

The City of Johannesburg utilised Innesfree Park as a Fan Park due to the large grounds of the park and being able to house a large number of the public population during events and activities. The park is further used for special events such as concerts and in particular, the Castle Lager Braai Day. As a result, the park allows for ease of access, is well integrated with the surrounding areas due to transportation and has economic benefits such as hosting events.

Co-Existence and Social Factors

Even though Innesfree Park is utilised for special events such concerts and fan parks, there are no permanent facilities for the public. At each of the events, the organisers have to plan for ablution facilities and braai facilities as there are none on in the park. On days that there are no events planned, the park is used as a public open space for walking, relaxation and as picnic areas. There are no playgrounds for children, braai facilities, ablution facilities and dogs are not allowed. Therefore, it restricts the public that users the Park. There is not enough seating within the park. The current seating that is provided is only along tared roads, within Innesfree Park as shown in Images 32 to 35.

It is evident that there is not a very high level of sociability and therefore social benefits. Even though Innesfree Park has given the illusion of a safe space in terms of security at the entrances and the signage of Chubb as a security company, the homeless people still have access to the park making the user feel unsafe as indicated in Image 38. This is due to an inherently social predisposition to feel unsafe around

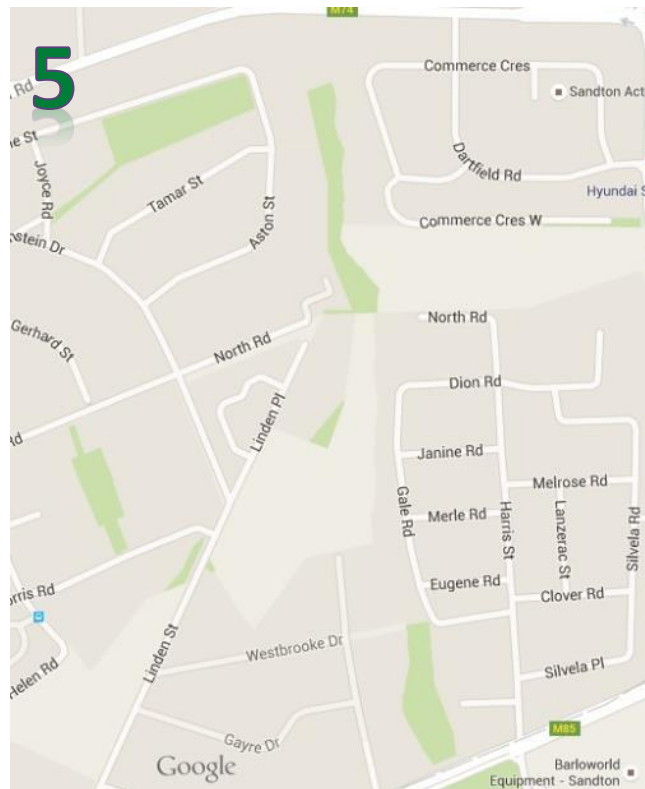
homeless people, as explained by one of the interviewees. The usability and sociability of the park is not sustainable and therefore there are very few social benefits for the public.

Coherence and Environmental Factors

Environmental benefits include the environmental setting that the park is situated on. As indicated in Images 34 to 37, there are well maintained flower beds, large overarching trees, bird life, small hills, water bodies and views of the Sandton CBD skyline. Design elements such as the seating, landscaping, roads and pathways add to the environmental setting and the general image of Innesfree Park.

There is however a lack of lighting in the park, where current lighting is placed strategically close to seating. It could be beneficial to increase lighting along the roads and pathways for the pedestrian to feel safer and have a more defined sense of place. The sense of place and safety is low and suffers further due to the homeless people living on the park as in indicated in Image 38.

Sand Spruit



Map 16: Open space along Sand Spruit in Sandton (After Google Maps, 2015)



Images 39 and 40: Bollards and power lines in the northern section of the Sand Spruit



Images 41 and 42: Environmental setting including the Sand Spruit and trees alongside the lack of facilities in the northern section of the Sand Spruit



Images 43 and 44: Gated southern section of the Sand Spruit and informal settlement in gated southern section of the Sand Spruit



Map 17: Cadastral map of open space along Sand Spruit in Sandton. Stars indicate photographed areas.

Contextuality and Economic Factors

The Sand Spruit runs between Innesfree Park and the Ernest Ullmann Park Recreational Centre. For the purpose of this research, the Ernest Ullmann Park Recreational Centre is excluded from the scope of research due to its position away from the Sandton CBD. Furthermore, the Ernest Ullmann Park Recreational Centre is run privately and therefore does not qualify as one of the spaces to address. Therefore, the section of the Sand Spruit that is analysed, is located between two mobility roads, Katherine Street to the south and South Road to the north of the open space as indicated in Map 17.

Photographs of the Sand Spruit were taken in two different locations. The first location where Images 39 to 42 were taken was situated along a road running parallel to the Sand Spruit in Krammerville. Images 43 and 44 were taken at the second location, situated in the residential area off Katherine Street.

Due to the proximity of the two mobility roads to the Sand Spruit, the park gains accessibility for private car users and public transportation, however there are no parking facilities. Furthermore, no signage indicates the accessibility or availability for public use.

Co-Existence and Social Factors

The Sand Spruit is zoned as a public open space according to the City of Johannesburg but is not treated as such. As shown throughout Images 39, 42 and 44, the main users of the public open space include the homeless people found on the space. As the space does not offer facilities or structured public events drawing the public to the space, the space does not draw an array of users. As a result, the public open space only offers an unmaintained recreational space.

The Sand Spruit offers an opportunity for the City of Johannesburg to create a public open space that is unique to the Gauteng region due to the river running through the public open space. The Sand Spruit, if planned correctly, has the ability to host a variety of uses. These may include hiking and bike trails, picnic areas, market areas in larger open spaces, outdoor gyms and children's playgrounds. It could be said that the Sand Spruit has the capability of offering an increase in social benefits through health and wellbeing, a recreational and relaxation area in a well maintained environmental setting.

By creating a space that draws from the sustainability demonstrated by the Ernest Ullmann Park Recreational Centre, it creates a green belt of sustainable public open spaces. The belt spans from Innesfree Park, the Sand Spruit and the Ernest Ullmann Park Recreational Centre. The uses and activities provided on the Sand Spruit should support those provided in the Ernest Ullmann Park Recreational Centre. Not only does the Ernest Ullmann Park Recreational Centre provide a recreational and relaxation area, it provides a space where activities are provided in a well maintained environmental setting. Some of these uses and activities include Ajay's Art Foundation, cake decorating, calligraphy, belly dancing, Celtic dancing, Chinese classes and pottery stamp auctions (Megaplex (Pty) Ltd, 2008).

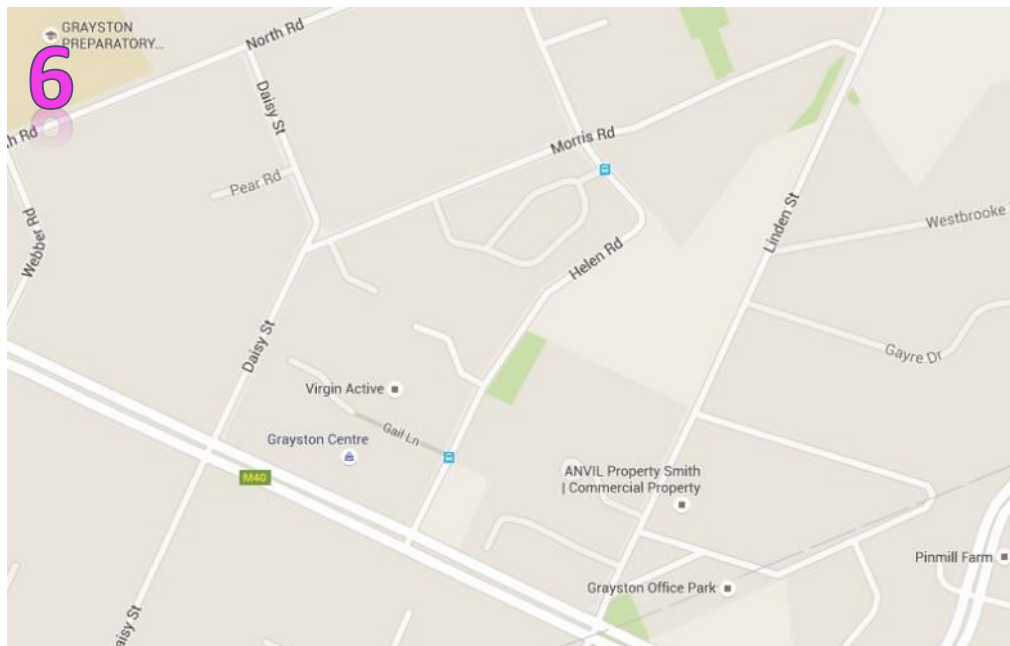
Coherence and Environmental Factors

Along the edges of the Sand Spruit, there are bollards and fences protecting the public open space. These bollards and fences are seen in Images 39, 40, 43 and 44 and prevent taxis from using the space as a taxi

rank and more importantly, keep the pedestrian and users safe from the cars. Along the edges of the Sand Spruit, there is litter indicative that there is a lack of maintenance of the area.

In terms of the environmental setting, the Sand Spruit offers a running river down the length of the public open space. The space thereby allows for bird life, large trees providing shade and an uncommon slope and gradient for walking, hiking and bike trails. The space however lacks design elements such as lighting, seating and seating areas, playgrounds, signage, pathways and landscaping. Therefore, the Sand Spruit currently offers an ecological open space in terms of environmental benefits but in unmanaged and unmaintained.

Helen Road



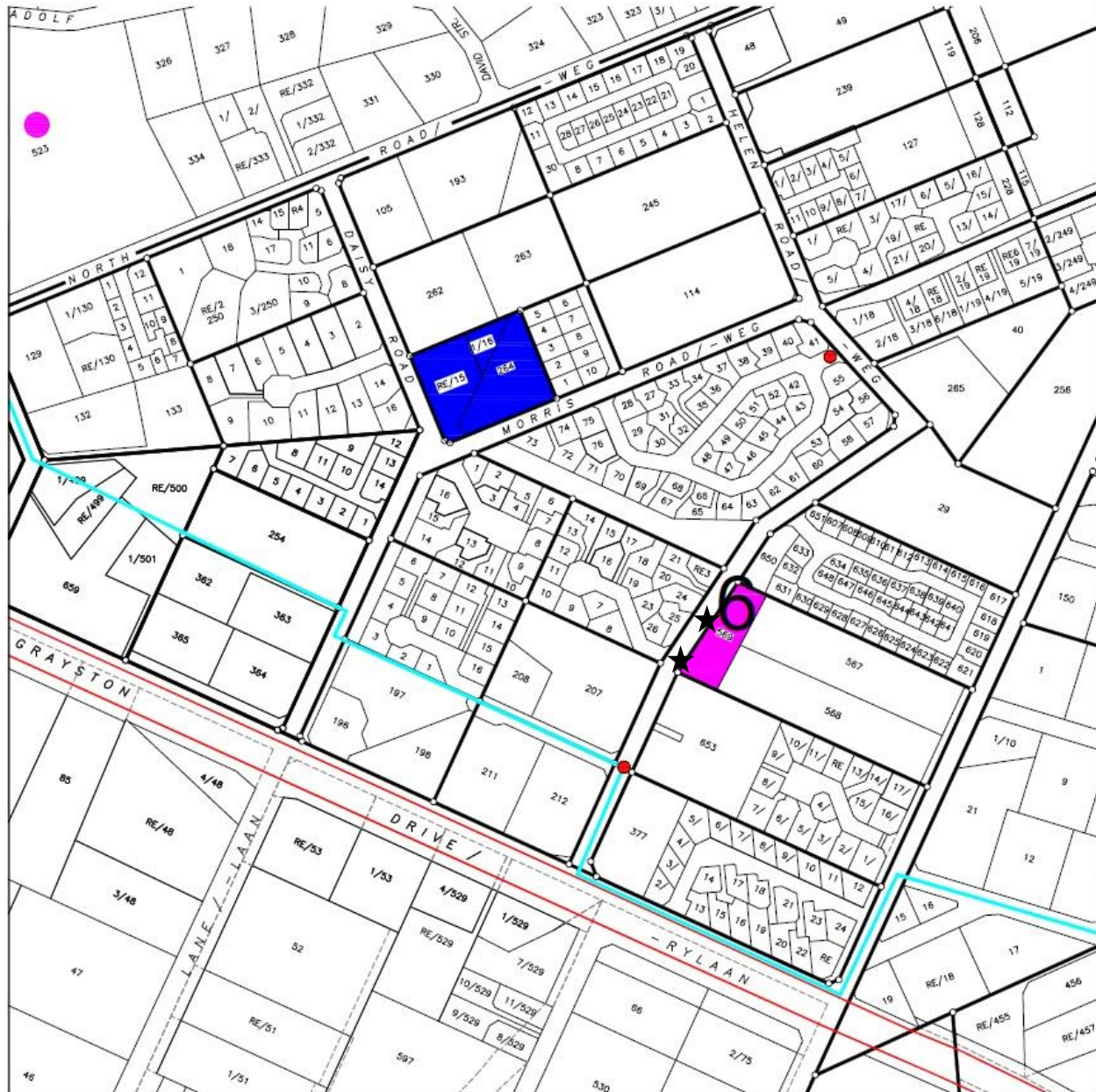
Map 18: Open space on Helen Road in Sandton (After Google Maps, 2015)



Images 45 and 46: Environmental setting including greenery and shade alongside a lack of facilities on the Open Space on Helen Road



Image 47: Warning sign on the open space on Helen Road reading *"WARNING: CCTV Surveillance, No Fly-Tipping, No Littering. Criminals will be prosecuted."*



Map 19: Cadastral map of open space on Helen Road in Sandton. Stars indicate photographed areas.

Contextuality and Economic Factors

Maps 18 and 19 indicate that the public open space is located along Helen Road, approximately 200 meters from Grayston Drive. As a result of the proximity to a mobility spine the area has access to public transportation. The BRT Route offers an added opportunity. Furthermore, the public open space is walking distance to the Sandton Ext Bus Stop located at the intersection of Helen Road and Gail Lane and a second located at the intersection of Helen Road and Jennifer Grove. The public open space has good accessibility for the pedestrian and public transportation user. The limitations of the space are presented through the

lack parking facilities, making the space hard to access with a private car. Due to the proximity of Grayston Drive, the park is accessible to the surrounding residential areas, the Sandton CBD and the Grayston Preparatory School along North Road to the North West and the Grayston Centre, 200 meters away. As a result, the public open space can be understood to be well integrated into the surrounding residential areas and commercial areas.

In terms of economic opportunities, the space is too small to include a large scale economic activity. However, the established trees do offer some shade and could be used for informal market days for the surrounding residents and school children. By improving upon the public open space, the residential property values may increase due to the proximity to a well-used and maintained public open space.

Co-Existence and Social Factors

The open space is currently under-utilised. This could be attributed to the absence of facilities within the space. Therefore, there is little to no co-existence and there are few social benefits. Due to the nature of the surrounding context, an outdoor gym as seen in the Mushroom Farm Park, a playground or sports facilities, seating and shade brings more of the public to the space. This creates a more sustainable public open space that provides a recreational space that increases the wellbeing of the surrounding residents in the area.

It is indicated on Image 47, that the open space is under surveillance even though there is no signage indicating that the public open space (and zoned as such) is used as a park. The sign reads: *"WARNING: CCTV Surveillance, No Fly-Tipping, No Littering. Criminals will be prosecuted."* The sign does not indicate who is managing this surveillance and nor are there any City Parks signs throughout the space. If managed correctly, surveillance can lead to a safer feeling space, allowing the public to feel more comfortable in the space (Fermino, Reis, Hallal and Farias Jr, 2012).

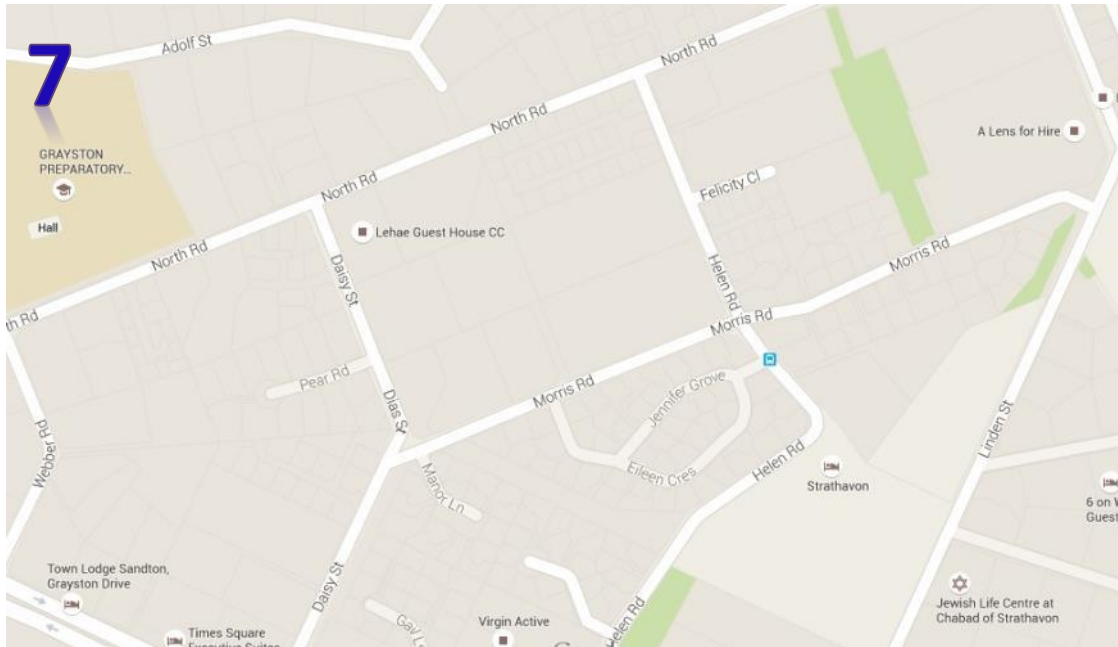
Coherence and Environmental Factors

Images 45, 46 and 47 indicate an environmental setting that safe from cars, offers shade as well as a usable space for an array of uses including market days, outdoor gyms and playgrounds. The only design elements that the open space provides are the bollards for pedestrian safety, the well maintained green grass and the natural setting, including the stream and large trees. Therefore, the public open space does offer environmental benefits, including ecological and nature conservation.

In terms of comfort and image, if the space is well maintained and the surveillance is managed by a security company or City Parks, the public will have a clean and safe environment. The public open space

is walkable but there is no seating and there is only shade towards to back of the space. Due to the lack of design elements and public facilities, the public open space does not facilitate an image for the park, nor a unique design. Therefore, there is a lack in the facilitation of a coherent public open space.

Cnr. Morris and Daisy Roads



Map 20: Open space at Cnr. Morris and Daisy Roads in Sandton (After Google Maps, 2015)



Images 48 and 49: Vacant and unused public open space at the corner of Morris and Daisy Roads



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Contextuality and Economic Factors

The public open space is situated at the intersection of Morris Road and Daisy Road in a residential suburb in Sandton. This is seen in Maps 20 and 21. The surrounding residential area can be seen in Images 48 to 51. Daisy Road intersects with Grayston Drive, a Mobility Spine. Furthermore, as indicated on Map 21, the public open space is in close proximity to the Sandown Extension Bus Stop located at the intersection of Helen Road and Jennifer Grove. Therefore, with walking distance to the local bus stop and walking distance to Grayston Drive, a mobility spine offering an array of public and private accessibility the site, the public open space is well integrated into the surrounding areas.

In terms of economic benefits, the public open space is currently underutilised and therefore does not offer any economic benefits. The possibility does exist of increasing property values when the public open space is more established and providing noticeable benefits, with facilities that the surrounding public can use. Furthermore, a well-established public open space needs to have economic benefits in order to be contextual (Reiter, 2004). Therefore, upon designing the public open space, an economic activity of some sort is designed into the space.

Co-Existence and Social Factors

As evident by Images 48 to 51, the public open space is currently vacant and as a result, there are no facilities for the public to use. Therefore, the public open space does not offer any social benefits as the space is not used for the purpose it should be. Once the public open space is established, the social benefits include the provision of a recreational space and increased well-being and health of the public using the space.

The public open space is large enough to allow for an array of uses. Some of these uses and activities can include an outdoor gym, playground, sport facilities such as tennis courts or soccer fields, seating areas and market areas. These activities enable the public open space to become more usable, fun, active, vital and more importantly, more diverse and co-existent.

Coherence and Environmental Factors

The said public open space does not have any design elements that help to create a sense of identity or place. The public open space does not cater to a sense of a clean and safe park and nor does it allow for a sittable or walkable space (Reiter, 2004). Therefore, in its current state, the public open space is not coherent and does not offer any environmental benefits.

As indicated on Images 50 and 51, there are currently maintenance projects being completed on the public open space. There is no signage indicating who is working on the public open space and what the maintenance includes. This is a further hindering factor for the public open space lowering the image and identity of the park.

In order to create environmental benefits, it is necessary to create an environmental setting for a public open space. This includes planting larger trees that can create shaded areas for seating. Furthermore, a well-landscaped public open space with flower gardens, manicured trees and shrubbery attract local birdlife creating a natural setting for a public open space. This results in creating a public open space that is sustainable in the sense of creating an ecological and natural environment that the public can use on a day-to-day basis.

Conclusion

The photographic analysis has identified what key characteristics make up sustainable public open spaces. The photographic analysis has acknowledged what public open spaces in Sandton are deemed to be sustainable and what spaces require more resources to be made into a sustainable public open space. What has been evident throughout this chapter is how Reiter's concept of sustainable public open space can be applied to the public open spaces in Sandton. The concept from Reiter (2004) was used as a tool for analysing these public open spaces by means of using contextuality, co-existence and coherence.

Contextuality referred to the integration of the public open space to the surrounding areas by means of looking at the accessibility and linkages between the public open spaces and the surrounding areas. This included analysing the road structure for the pedestrian, public transport systems, the ease of accessing the site, and the linkages to the public open space. Contextuality further looked at the economic opportunities that the spaces may provide in terms of economic opportunities, energy efficiency and the provision of an increase in property values in the surrounding areas.

Co-existence referred to the sociability of the public open spaces. Co-existence was strengthened through the provision of uses and activities and thereby creating social benefits that the spaces would offer to the public. Principles and guidelines for sociability were elements that made the spaces safe. For uses and activities, public open spaces should be fun, functional, offer an array of uses and activities, allowing a diverse public group to use the space.

Coherence referred to the creation of a sense of place and identity for the public open space. It further looks at the provision of design elements to increase the likability and comfort of the public open spaces and. Design elements that would be considered throughout the photographic analysis included the provision of aesthetics, shelter or shade, seating, lighting, signage, and landscaping including flower gardens, trees, shrubbery and water bodies. These design elements result in walkable, sittable and attractive public open spaces that offer environmental benefits such as environmental, ecological or nature conservation, pollution control and greenbelts.

The next chapter looks at the findings from the interviews conducted. The chapter looks at the respondent's interpretation of the literature as well as their definitions for the public open space and the sustainable public open space. During the photographic analysis, the public open spaces were analysed in terms of the contextuality coherency and coexistence of the public open spaces. The interviewees were asked questions relating to what their opinion is regarding what makes public open spaces contextuality, coherent and coexistent.

The interviews further inquired what public open spaces the interviewees were aware of and what their recommendations were for the spaces. The interviews furthermore covered the cons and recommendations of the Johannesburg Metropolitan Open Space System. The chapter further explores the examples of public open spaces that were raised in the interviews as precedents that may be used in the Recommendations Chapter.

Chapter 5: Open Spaces in Sandton: Findings from Interviews

Introduction

The previous chapter included a photographic analysis of the public open spaces in Sandton. It initially provided a spatial analysis of the Sandton CBD and surrounding areas. The chapter identified and located the public open spaces in the Sandton CBD, and vacant land that may be used to create more sustainable public open spaces. The chapter went on to analyse each of these public open spaces and vacant spaces within the Sandton CBD and surrounding areas. The chapter included maps, photographs and field notes from the day when the photographs were taken.

As a result, the following objectives (as per Chapter 3, the Methodology Chapter of the Research Report) have been met between Chapters 2 and 4. Chapter 2 unpacked the various debates regarding the use, users and definition of public open spaces. Chapter 2 further identified the existing principles that are used for open spaces by JMOSS and the lack of principles for public open spaces. Chapter 4 identified where the parks are in the Sandton and surrounding area and identified where the vacant land erven are in Sandton that can be developed into parks or public open spaces.

Furthermore, chapter 2 discussed what makes a public open space coherent, contextual and co-existent whereas Chapter 4 graphically indicated the shortfalls of the public open spaces in Sandton in terms of their cohesion, co-existence and contextuality. Chapters 2 and 4 unpacked what makes a public open space sustainable, identified the shortfalls of the public open spaces in terms of their sustainability, and identified local and international precedents of Sustainable Public Open Spaces.

In the following chapter, Chapter 5 will unpack the results from the interviews conducted. The interviews included a series of questions related to the principles used to analyse the public open spaces in the Sandton CBD such as public open spaces, Sustainable Public Open Spaces, JMOSS, and local and international precedents of Sustainable Public Open Spaces. The interviews further discussed the case study in terms of the seven public open spaces in the Sandton CBD and what recommendations there may be for these spaces. The structure of the interviews is shown in Appendix 1 and Appendix 2. A consolidation of the results of the interviews is found in Appendix 3. Quotations from these interviews are used throughout this chapter and are illustrated in grey text boxes.

Chapter 5 highlights the respondent's interpretation of the literature as well as their definitions for the public open space and the sustainable public open space. The results found from the interviews alongside the findings from Chapter 4 are used to develop a set of recommendations for the public open spaces in Sandton.

Sample of Interviews

As discussed within Chapter 3 of this Research Report, a total of seven in depth interviews were conducted. This sample included town planners in the private sector of land use planning and urban management as well as town planners in the department of Development Planning, Transport and Environment at the City of Johannesburg. Within the private sector of land use planning, one land use town planning colleague was interviewed. Furthermore, five colleagues in urban management, who had specialised in town planning, were interviewed. Lastly, a town planner at the department of Development Planning, Transport and Environment at the City of Johannesburg for Region E was interviewed.

Findings from Interviews

Public Open Spaces

The general consensus of the interviews was that public open spaces are spaces where the public can interact and use the space for recreational purposes. Definitions of public open spaces included spaces in between buildings. Another definition indicated that they are spaces for the public to use and do not necessary have to be open and undeveloped green spaces, but that they can be squares and piazzas. The following extract is paraphrased from an interview with a respondent.

A public open space is an area, where a community can relax, meet each other, socialise, do active or passive recreational activities etc. in a safe and secure setting away from threats. It should be easily accessible and not exclusionary in any way. A public open space does not necessarily have to conform to only green space, but can include hard spaces such as squares.

The results from the interviews indicate that public open spaces should not be restrictive and should not have an access fee. Public open spaces should cater to a wide range of uses and activities thereby allowing a range of users on the public open space. This is accomplished in terms of design elements and public facilities such as manicured gardens, trees, grass, benches, lighting and security. Furthermore, that public open space should ensure that the space is conducive to relaxation, socialisation and that the space is safe and secure.

Hard open spaces (squares etc.), should also have greening elements to enhance the urban ecological system within developing areas.

In terms of the importance of public open spaces, the interviews indicated that public open spaces have social, environmental and economic benefits. Social benefits include the creation of a sense of community, a space for recreational activities, and a space where social cohesion may develop in terms of integration and interaction. Economic benefits include local communities working with the municipalities and thereby invest in public open spaces to make them better as well as increased liveability and an increase property values surrounding the public open space. As indicated above in one of the extracts from the interviews, environmental benefits that were discussed during the interviews include helping the ecological system in terms of decreasing air pollution and carbon emissions, nature conservation and ecological conservation. Further benefits include the provision of green belts or pockets where densifying cities need to preserve and provide pockets of green spaces in order to break solid forms of buildings. This softens urban environment and creates a natural barrier or boundary.

Sustainable Public Open Spaces

Throughout the interviews, the following results were discussed for what makes sustainable public open spaces. The general consensus of their responses indicated that sustainable public open spaces were spaces that were self-sufficient and that were developed in the context of the surrounding environment. Furthermore, that sustainable public open space continues their existence alongside a changing urban form surrounding the space. As a result of this, sustainable public open spaces should have a sense of adaptability through a resilient design that is guided by sustainable planning and management.

Sustainability is therefore linked to a resilient design.

A sustainable public open space is a space that can remain pivotal as a recreational facility without the influence of a dynamic and ever changing urban space. It is a place that does not yield to development but is able to adapt to change and development, while maintaining its core function as a recreational space.

The interviews further indicated that sustainable public open spaces are usable spaces that add value to the user's lives. These spaces are required to be well connected to the surrounding environment and be safe and clean spaces whereby a variety of uses and activities are provided, drawing diversity into the public open spaces. The public open spaces should be efficient and effective in the provision of these uses and activities in order to fulfil the role of a public open space for the users.

Contextuality, Co-Existence, Coherence

Contextuality

The concept of sustainable public open space by Reiter (2004) was discussed with the interviewees and questions were raised around the contextuality, co-existence, usability and coherence of public open spaces. The following results were discussed and further context was developed. It was the general consensus that contextuality was the most important factor to consider when planning for a public open space. This is due to the agreed constructs that the positioning of a public open space is vital in attracting activities and users to the space. The positioning of the public open space can further aid in developing the surrounding area and vice versa.

Further perspectives offered by the interviewees dealt with the availability of private and public open spaces in residential suburbs and the contributions to making them successful or not. The participant postulated that residential suburbs with larger gardens do not need public open spaces as much as residential suburbs that have smaller or no gardens at all such as apartment blocks or townhouses. The participant further indicated that the positioning of a public open space in the city may dictate the type of events that may occur on the space.

The other participants spoke in general terms that contextuality would dictate the users found on the public open space. Secondly, that contextuality is vital in establishing the uses and activities found in the space. Third, that contextuality related to the spatial aspects and the social aspects whereby social aspects included the nature of the surrounding area being of residential or businesses. These spatial and social aspects go on to influence the type of users found on the space. Spatial aspects include the transportation network linking the public open spaces to the city as well as the integration of surrounding land uses with that of the public open spaces. The extract below discusses the location of public open spaces.

Location of public open spaces has great effects on habitat fragmentation and continuity.

Co-Existence

When discussing co-existence, the participants argued that the spaces should accommodate a variety of uses and activities allowing for a range of users on the space. This is accomplished through location, accessibility, the provision of supporting public facilities and infrastructure. Design elements and public facilities such as fencing, braai facilities, cleanliness, safety, sidewalks, trails, private streets, cycling, well

defined centres and edges help in the development of public open spaces that accommodate a variety of users within the space. One of the respondents explained that the following should be considered in order to guarantee that a variety of uses and activities are provided in the public open space.

Location, accessibility and supporting public space furniture and also nearby amenities and infrastructure

As discussed with participants, the public open spaces should take into account the nature of the surrounding area in planning for uses and activities for the public open space. A public open spaces in a residential suburb may include sporting facilities whereas spaces found in the city and next to a shopping centre may not offer the same facilities. Furthermore, in order for the spaces to be used more often, these spaces need to be safe and clean thereby attracting the public to the space.

A participant offered an interesting perspective on co-existence whereby he indicated that the public open space should have a powerful genius loci making the space unique and thereby attracting the public to the space. Further recommendations to make a public open space more usable included the provision of a safe and clean space, public facilities, walkways and general maintenance of the public open space alongside design elements such as street furniture, ease of access, shading in hot climates, natural flora and fauna and bollards.

Coherence

Participants quickly made the connection between coherence and the image of the space and thereby spoke about design elements found on the space. Some of these include benches, bins, interactive art pieces, a sense of safety as well as signage, and assist in creating coherent public open spaces. One of the participants indicated the importance of the location and contextuality of the public open space in order for the space to be coherent. Design elements influencing uses and activities may different between public open spaces. What may work for one public open space may not necessarily work for the next.

Public space furniture like benches and bins, interactive art pieces that allow people to interact with it, increase a sense of safety by having proper signage and accessibility to allow people to get to the space

Participants argue that well designed spaces will attract more users to the space and make them more comfortable in a space with good aesthetics. They indicated that coherency is related to the aesthetics of the public open space, the functionality, safety and uses and activities provided on the space.

Aesthetics refers to the design elements found on the public open space and can relate to a theme whereby the design elements are more natural facilities such as an old tree trunk cut into benches rather than concrete 'harder' design elements. The public open spaces therefore choose between natural elements that look more appealing but do not last as long or concrete or steel elements that are not as appealing but that are more durable and last longer.

Johannesburg Metropolitan Open Space System

Shortfalls of JMOSS

One of the major shortfalls of the Johannesburg Metropolitan Open Space System (JMOSS) is the lack of a reliable and routine maintenance programme for the public open spaces. Further shortcomings are as a result of a lack of partnerships between the City and the private sector in order to manage these spaces. A major concern for JMOSS is the lack of a clear plan for addressing security of these public open spaces in terms of who is responsible and how to integrate the private sector in providing these services. Within the security of the public open spaces is the mismanagement of homeless people.

Due to the poor management, maintenance and cleaning of the public open spaces, the spaces are not as aesthetically pleasing resulting in an inability to attract the public to these spaces. Furthermore, the lack of maintenance makes the public open spaces feel less comfortable for the public. Safety and overall appeal become real issues due to the mismanagement of homeless people on the space.

One participant explained that in most instances the open space system is designed around ecological needs which do not take into account social issues. Ecologically open spaces are very important, but unless social issues are addressed, open spaces will forever have to be fenced off and inaccessible to the general public. This will then further result in the development of open spaces where criminal activity and homeless people exists which further results in degrading the ecological system due to the activities associated with the homeless people. These activities in themselves then degrade a public open space. An example of this was explained by one of the participants and used George Lea Park as an example.

George Lea Park where it has become a recycling depot for the mobile trolley pushers. They use the park to live in and sort their recycling materials

Suggestions for JMOSS

It is recommended by one participant to encourage better working strategies between City Improvement Districts and the City by making it a mutual benefit to make public open spaces work. Secondly, together with creating open spaces, other departments need to address the problem of

homeless people on public open spaces. Crime Prevention Through Environmental Design (CPTED) is a useful tool here to deter homeless people and criminals at the same time as designing for a more aesthetically pleasing public open space.

A participant raised the concern that the public sector does not have the capacity to ensure the efficient security and maintenance of public open spaces. An example of this are City Improvement Districts where public spaces are managed by the private sector yet remain public open spaces open to the public. If a guideline can be instilled by the public sector to ensure public space management, then the private sector would be able to ensure these guidelines are met with and that the public open space is maintained and securitised.

Another recommendation that a participant put across was the hiring of a town planner by the City to manage the JMOSS idea. The issues could be resolved if a person with an understanding of the city and the need of sustainable public open spaces manages JMOSS. This way the open spaces will be planned for using the principles of sustainable public open spaces.

The last recommendation refers to the uses, activities and security that should be managed on the public open spaces. The activities that are allowed within certain parks should be amended based on the usage patterns of surrounding area. Instead of accommodating as many uses and activities as possible, it is necessary to rather plan to accommodate the needs of the public in surrounding area. For instance, a public open space in the middle of a CBD does not need a tennis court as much as what a public open space in a residential area does. More security or better environment safety design methods will have to be used to improve the safety of most public spaces including a manner in which to deter or manage the homeless people in public parks as they contribute to a perception of low safety and vulnerability.

Sandton Public Open Spaces

When the participants were asked which public open spaces they were aware of in the Sandton CBD and surrounding areas, the results were unanimous. These spaces included Mushroom Farm Park, Sandton Central Park, Innesfree Park as well as George Lea Park. George Lea Park however, was not included in the analysis for the purpose of this research. None of the participants are aware of the open spaces that are situated along Helen Road, at the corner of Aston and Adrienne Streets, and at the corner of Morris and Daisy Road. One of the participants made the following generalist recommendation for the public

open spaces in Sandton.

The parks are very well equipped and maintained but I would like to see the have a bit more place making and branding strategies used in and around them in order to attract more people to these spaces

One of the participants identified the Sand Spruit as a public open space that should be addressed to make it a more sustainable public open space. The participant argued that it is a large piece of land that is not being looked after and has been invaded by trailers with illegal advertising on them as well as homeless people. The participant argued that the space has the potential to be a buffer between land use zones. It can help to create a smoother transition between Sandown and Kramerville. It would also create a more suitable barrier and buffer zone separating the busy M74 route (South Road) from the residential area across South Road.

The participants recommended that George Lea Park should be made safer and remove the homeless people. More public amenities such as toilets and parking facilities should be provided in Sandton Central Park and the park should furthermore cater to the needs of the local businesses in the area by allowing the park to be used for events in order to attract more users to the park. Parks should be planned to accommodate some parking requirements, advertise the park, include more maintenance and landscaping and improve upon security.

Precedents for Sustainable Public Open Spaces

The participants were asked to discuss their perceived local precedents for sustainable public open spaces. The precedents that came up during these discussions included Mary Fitzgerald Square in Newtown, Delta Park, Zoo Lake in Johannesburg, Signal Hill in Cape Town, Johannesburg Botanical Gardens, Table Mountain in Cape Town, Civic Theatre Park and Market Theatre Park in Braamfontein,

The one participant indicated that the Theatre Park in Braamfontein is a well looked after space that is resilient and adaptable. This is due to the fact that the public open space has stood through the test of urban regeneration in its surrounding areas and it is still used by a diverse range of people including students, corporates and the elderly.

When the participants were asked for international precedents for sustainable public open space the most common response was Central Park in New York City. Other precedents included Times Square in New York, Turkey City Centre and piazzas in Rome. The Central Park and Times Square in New York are

iconic to New York and are known throughout the world and is due to the unique and iconic genius loci that the two spaces have adopted. These spaces are considered sustainable public open spaces due to the fact that they are all accessible to the general public and easily so. These spaces have diversity to them, the location of the public open spaces allows for the spaces to be well integrated into the rest of the city, and the spaces are easily used by the public as they have plentiful uses and activities as well as public facilities supporting the space. The extract below indicates the strength of some of these precedents.

Their ability to create a perfect synergy between development or hard infrastructure and the environment

The photographs below were taken during a recent visit to New York and Washington DC in 2015. With a prior interest in Central Park, several photographs were taken of the iconic park from different views. Image 52 indicates Central Park on top of the Observation Deck of the Rockefeller Centre and displays the integration, co-existence and coherence of between Central Park with that of Manhattan. Image 53 demonstrates the surrounding buildings framing the shape of Central Park. Lastly Images 54 and 55 indicate some of the unique characteristics of Central Park and include the majestic bridges as seen in Image 54 and the Ball Park as seen in Image 55.



Image 52: View of Central Park from top of Rockefeller Center, Observation Deck) where surrounding urban for shapes the park (Shelton, 2015)



Image 53: Buildings surrounding Central Park overlooking the Park (Shelton, 2015)



Image 54: Bridges and walkways adding to the environmental setting of Central Park (Shelton, 2015)



Image 55: Uses and activities such as the ball park and walkways in Central Park (Shelton, 2015)

What is evident by the participant's reaction to Central Park and what is seen on the ground in Central Park is that the concepts of Reiter (2004) are adhered to. The Park is well integrated into the rest of the city and is therefore contextual. The Park further caters to the general population as there are variety of uses and activities found in the park. Some of these include the ball park, walkways, carriage rides, the zoo, the amphitheatre, coffee shops and gym areas, to only name a few. Moreover, the park has become an iconic park that is well known worldwide. The park as a result, has a unique sense of place and image. Furthermore, with the maintenance and public facilities throughout the park, Central Park has coherency.

Participants gave further reasons why the above precedents are sustainable and include the ability to host a multitude of users and events, being aesthetically pleasing, being in close proximity to other supporting land uses such as shops and housing, and that the spaces are safe. The precedents above are considered sustainable due to the fact that they are planned for the context in which they exist and therefore contextual. They are well maintained and clean; they are safe and have a clear sense of identity. These parks have managed to stay relevant and dynamic within their respective environments and they have adapted to the changing spaces in which they are situated.

Interviewee Responses

Throughout the seven interviews, the general feeling towards the Johannesburg Metropolitan Open Space System was negative and that more had to be done by Town Planners and the council to create sustainable public open spaces. The interviewees found the interviews interesting and were keen to be involved in the research, even though the interviews did take close onto an hour to complete. They were willing to give their honest and professional opinion alongside drawing on personal experiences.

Due to the expertise of the interviewees, they were able to give critical information regarding the definitions of the terms found in the interview. The interviewees had a good knowledge of the Sandton CBD and were therefore able to answer the relevant questions on the existing public open spaces in the Sandton CBD. However, they were not aware of the vacant open land around the Sandton CBD but showed interest in these spaces in terms of their location.

Conclusion

Chapter 5 has unpacked the results from the interviews. Public open spaces, sustainable public open spaces, the Johannesburg Metropolitan Open Space System, and local and international precedents of sustainable public open spaces were discussed throughout the chapter as topics highlighted in the interviews. The following conclusions can be drawn from the interviews on the above topics.

In the context of public open spaces, the interviews indicated that public open spaces are spaces where the public can interact and use the space for recreational purposes and can be green spaces or developed squares. Should be safe and secure but not be restrictive and should offer a range of uses and activities. Sustainable public open spaces are therefore self-sufficient, resilient, adaptable spaces through sustainable planning and management.

When discussing the concept of sustainable public open spaces by Reiter (2004), the following conclusions can be drawn. Contextuality is an important factor to consider when planning for a sustainable public open space due to the fact that the positioning and accessibility of a public open space is vital in attracting activities and users to the space. Contextuality further relates to the spatial and social aspects such as a transportation network and integration of the surrounding city. Co-existence referred to the placement of a variety of uses and activities on the public open spaces in order to attract a larger population. This is accomplished through location, accessibility, the provision of supporting public facilities and infrastructure as well as design elements. Lastly, in relation to the coherence, the

image of the public open space was considered alongside the general sense of place that the public open space creates for the users. This is accomplished through design elements and creating a safe and secure public open space.

The Johannesburg Metropolitan Open Space System was critiqued in not having sufficient guidance for the establishment and management of public open spaces. The system was further critiqued as there is little to no guidance on the maintenance of these spaces nor the management of homeless people in the spaces deterring users from the space. It was recommended that the City should enter into agreements with the private sector to manage and design the public open spaces within the city. This will include the design, maintenance and management of the public open spaces. As a result, principles to follow in Chapter 6 will include the management of these spaces in a sustainable manner to preserve the spaces for future generations.

Local and international precedents were discussed, whereby sustainable public open spaces should have the ability to host a multitude of users and events. The spaces should be aesthetically pleasing, be in close proximity to other supporting land uses such as shops and housing and transportation networks, and should be clean, safe and secure. More importantly, the public open spaces should have a design that allows the space to be resilient, adaptable and self-sufficient.

The following chapter, The Recommendations Chapter, will identify a needed definition for public open spaces and sustainable public open spaces for JMOSS as neither are currently included in the system. The chapter will further outline the principles that should be incorporated into the Johannesburg Metropolitan Open Space System for sustainable public open spaces. These principles will outline the design interventions and management interventions that should be adhered to in planning sustainable public open spaces. Precedents discussed throughout the interviews will be used to indicate how the recommended principles can be applied. These principles will be used throughout the public open spaces in the Sandton CBD and surrounding areas as well as vacant land that can be redesigned using the principles to result in sustainable public open spaces.

Chapter 6: Recommendations

Introduction

Chapters 4 and 5 discussed the findings from the photographic analysis of the public open space in the Sandton CBD and surrounding areas as well as findings from the interviews conducted with town planning professionals and colleagues. Table 1 shows the relationships that exist between the three main principles of sustainable public open spaces (Chapter 2) with the main factors considered for the photographic analysis (Chapter 4) and main points raised during the interviews (Chapter 5). It thereby shows the overlaps between the research methods and data collected.

<u>PRINCIPLES</u> <u>(Three Cs)</u>	<u>THEORETICAL CONCEPTS</u> <u>(Chapter 2)</u>	<u>PHOTOGRAPHIC ANALYSIS</u> <u>(Chapter 4)</u>	<u>INTERVIEWS</u> <u>(Chapter 5)</u>
Coherence	• Comfort & Image • Imageability • City Image • Urban Form • Design Elements • Environmental Benefits ○ Ecological benefits, regulation of urban climate, pollution control, biodiversity and nature conservation	• Design Elements • City Image • Sense of Place • Sense of Identity • Safe & Clean • Sittable & Walkable • Attractive / Aesthetics	• Aesthetics • Design Elements • Location • Uses and Activities
Contextuality	• Access & Linkages • Integration • Accessibility • Economic Benefits ○ Energy savings, increases of property values, economic opportunities	• Pedestrian movement • Bicycle Lanes • Private vehicles • Accessibility to public transport • Design Elements	• Positioning • Linkages • Accessibility • Uses and Activities • Transportation Network
Co-Existence	• Uses & Activities • Sociability • Social Benefits ○ Recreational Space, Increased Well-being, Human health	• Public Facilities • Diversity • Active Edges • Interactive • Friendly • Vital	• Public Facilities • Public Infrastructure • Design Elements • Location

Table 1: Data collected and overlaps between research methods with that of theoretical concepts

The following chapter will discuss the recommendations for a set of principles for sustainable public open spaces. These principles will be discussed as “The Three Cs for Sustainable Public Open Spaces”. For each of the Three Cs (Contextuality, Co-existence and Coherence), the principle will be identified alongside guidelines that assist in the progress of the principle being attainable. The second section of the chapter will discuss the Johannesburg Metropolitan Open Space System and how the principles for sustainable public open spaces can be incorporated into the report. This section will have three smaller subsections whereby in the first, a definition is proposed for sustainable public open spaces for JMOSS. In the second subsection, the principles for sustainable public open spaces will be discussed in terms of incorporating the principles into JMOSS. The third subsection will discuss the supplementary recommendations for JMOSS in terms of managing the system as a whole and will therefore not be specific to the Sandton CBD only.

The Three Cs for Sustainable Public Open Spaces

The chosen 7 public open spaces should have three principles guiding them to become sustainable public open spaces. The following section will outline these three principles, as derived from Chapters 4 and 5. The principles include coherence, co-existence and contextuality and are considered “The Three Cs for Sustainable Public Open Spaces”. Under each principle, guidelines will be provided on how the principle can be realised alongside precedents of sustainable public open spaces.

Coherence

Principle

“Public Open Spaces should be coherent and provide environmental benefits”

Guidelines

Guidelines should guide coherent spaces in order to result in memorable, iconic and legible public open spaces. In order to accomplish the above principle, design elements, facilities guiding accessibility and legibility should be taken into account. The following guidelines should be adhered to in order to result in coherent public open spaces:

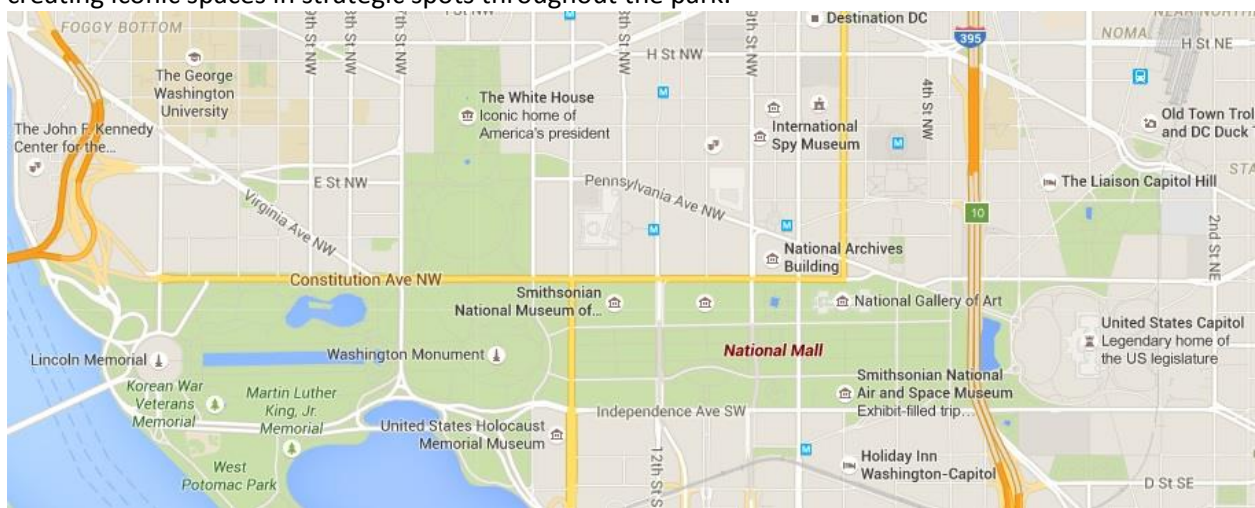
1. Public open spaces should provide a clear sense of comfort and imageability;
2. Public open spaces should take into account the surrounding urban form;

3. Public open spaces should be designed in such a way so as to promote environmental and ecological benefits such as the regulation of the urban climate, pollution control, biodiversity and nature conservation;
4. With the use of design elements and aesthetics, public open spaces should have a sense of place, safety and identity and therefore should be sittable and walkable.

Precedents

Upon a trip to Washington DC, the National Mall is a prime example of a public open space that is coherent, legible, accessible and aesthetically pleasing for the public. The National Mall is a series of public museums built around the iconic Lincoln Memorial Reflecting Pool. There are four main attractions within the National Mall that orientate the public within the space. The Lincoln Memorial is situated on the west end of the Mall, where the United States Capital is situated on the east end of the Mall. In the middle of the National Mall is the Washington Monument with the White House to the north of the monument. This can be seen in Map 22 with a detailed map of the National Mall.

Even though the scale of the National Mall is far larger to that of any of the spaces within the Sandton CBD, the principles of the National Mall can still be applied to the spaces within Sandton. This is due to the fact that the public open spaces still require a sense of place and direction. A public open space such as Mushroom Farm Park still requires more orientation throughout the park and can be achieved by creating iconic spaces in strategic spots throughout the park.



Map 22: The National Mall, Washington DC (After Google Maps, 2015)

The National Mall can be used as a precedent for a sustainable public open space due to its coherency. Due to the layout of the public open space, the public have easy access to a range of public facilities at

the same time as being easily orientated to these facilities, uses and activities. The space is furthermore, well planned in terms of its design elements. Crime Prevention Through Environmental Design Techniques, as recommended in the interviews, such as iconic buildings, benches, waterbodies, wildlife, large trees creating shade, artwork and sculptures, enable the space to be used by the public throughout the year. Image 56 indicates the National Mall looking east towards the Lincoln Memorial.



Image 56: Looking east along National Mall towards the Lincoln Memorial and Pool of Reflection (Shelton, 2015)

Another precedent that may be used as a precedent for coherent public open spaces is that of Parque Barigui in Curitiba as discussed in Chapter 2. Parque Barigui is a popular park in Curitiba. The park includes waterbodies, rolling lawns and well-manicured gardens, as indicated in Image 57. Parque Barigui can be used as a precedent for coherent public open spaces where the sense of place and imageability is of a high quality.



Images 57: Design and signage of Parque Barigui in Curitiba, Brazil (Parque São Lourenço, n.d.)

Co-Existence

Principle

“Public Open Spaces should be co-existent and provide social and health benefits”

Guidelines

The main relationship that exists within the co-existence principle is the provision of uses and activities on the public open space. Therefore, public facilities keeping the public on the space as well as activities attracting the public to the space is vital. Another factor to consider is the accessibility, ease and functionality of the public open space for the public. The following guidelines should be adhered to in order to result in co-existent public open spaces:

1. Public open spaces should cater to a wide range of uses and activities in order to allow for a diverse space with active edges;
2. Design elements, public facilities and public infrastructure should support the above uses and activities;
3. Public open spaces should therefore support social benefits such as the provision of a recreational space, increased well-being for those using the space and increased human health;
4. Public open spaces should be interactive and friendly.

Precedents

Central Park in New York City caters to a wide range of uses and activities. Moreover, the Central Park allows for various manners of moving throughout the park. Image 58 indicates that the public have the facilities in order to walk, run, cycle and use horse drawn carriages throughout the park, thereby creating

a more memorable and functional space within Manhattan. As a result, the park caters to the general health and wellbeing of the public using the space. Central Park furthermore has seating along the pathways, bathroom facilities, restaurants, museums, a small zoo, ball parks, statues and several open fields for sporting activities. Some of these activities and design elements of Central Park can be seen in Images 58 and 59.



Image 58: Modes of movement throughout Central Park (Shelton, 2015)



Image 59: Seating and shade along walkways in Central Park (Shelton, 2015)

The Central Park in New York has a unique and iconic genius loci and has adapted to the changing urban landscape of central Manhattan, the park has not been damaged by redevelopment or gentrification through urban regeneration.

In Bologna, Italy, the Piazza Maggiore is an example of a sustainable public open space that caters to a variety of uses and activities. As seen in Image 60, the space is a large open square that allows the surrounding businesses in the adjoining buildings to expand their shops onto the square. This thereby gives the users on the open space a place to sit, relax, and have a meal due to the fact that most of these businesses that do so are restaurants.



Image 60: Co-existence on the Piazza Maggiore in Bologna, Italy (DiTommaso, 2015)

In the context of the public open spaces in the Sandton CBD, Mushroom Farm Park has managed to integrate local businesses into the park by means of the Hyundai Sky Park. It is recommended from this precedent of Piazza Maggiore, that public open spaces should include the surrounding land uses in the design of the public open spaces. It is unlikely that the public open spaces chosen for this research report can develop into a plaza or square but the spaces can heed the principle of drawing the public into the spaces by creating unique spaces that cater to a wider community, not just the pedestrian passing by. This is further argued by two of the participants in the interviews shown in the extracts below.

A functional open space is quite often a destination or a thoroughfare allowing users to pass through creating a sense of social security. An open space may be considered dangerous if it is located on a periphery and has very few visitors.

Turkey City Centre has some of the most vibrant public spaces that are active during the day and night. Activities change based on cultural activities and this provides a space most used by society. Highly populated areas such as Beijing, and Tokyo also have highly functional and vibrant public spaces. Since the homes are small these public spaces provide the space required.

Contextuality

Principle

“Public Open Spaces should be contextual and provide economic benefits”

Guidelines

Contextuality refers to the accessibility, integration and functionality of the public open space. The public open spaces should consider the context in which the space is formed and be adaptable in the changing urban form. The contextuality of a public open space is strengthened by the provision of pedestrian facilities in terms of accessibility as well as public transportation. The following guidelines should be adhered to in order to result in contextual public open spaces:

1. Public open spaces should be accessible through various modes of private and public transportation and should thereby have ancillary uses supporting these modes;
2. Transportation networks should link public open spaces with one another and with local and neighbourhood nodes;
3. Public open spaces should provide economic benefits whereby design elements and public facilities provide energy savings, increased property values and economic opportunities;
4. Economic opportunities can include the provision of spaces for market days, local events and signage for local businesses to advertise on.

Precedents

In terms of the contextuality of public open spaces, there needs to be integration between the public open spaces. This can be done, as seen below in Diagram 10, in terms of transport routes and thereby creating linkages or axes between public open spaces in São Cristóvão. As translated from Diagram 10, these axes can include structural, historical, coastal, external and new or proposed axes. Therefore, public open spaces should make use of transport routes where facilities are provided on the public open spaces in order to facilitate better transportation between the different sides of the city as discussed by Reiter (2004). This, within the context of the public open spaces in the Sandton CBD, can be achieved using the Gautrain and Rea Vaya BRT system.

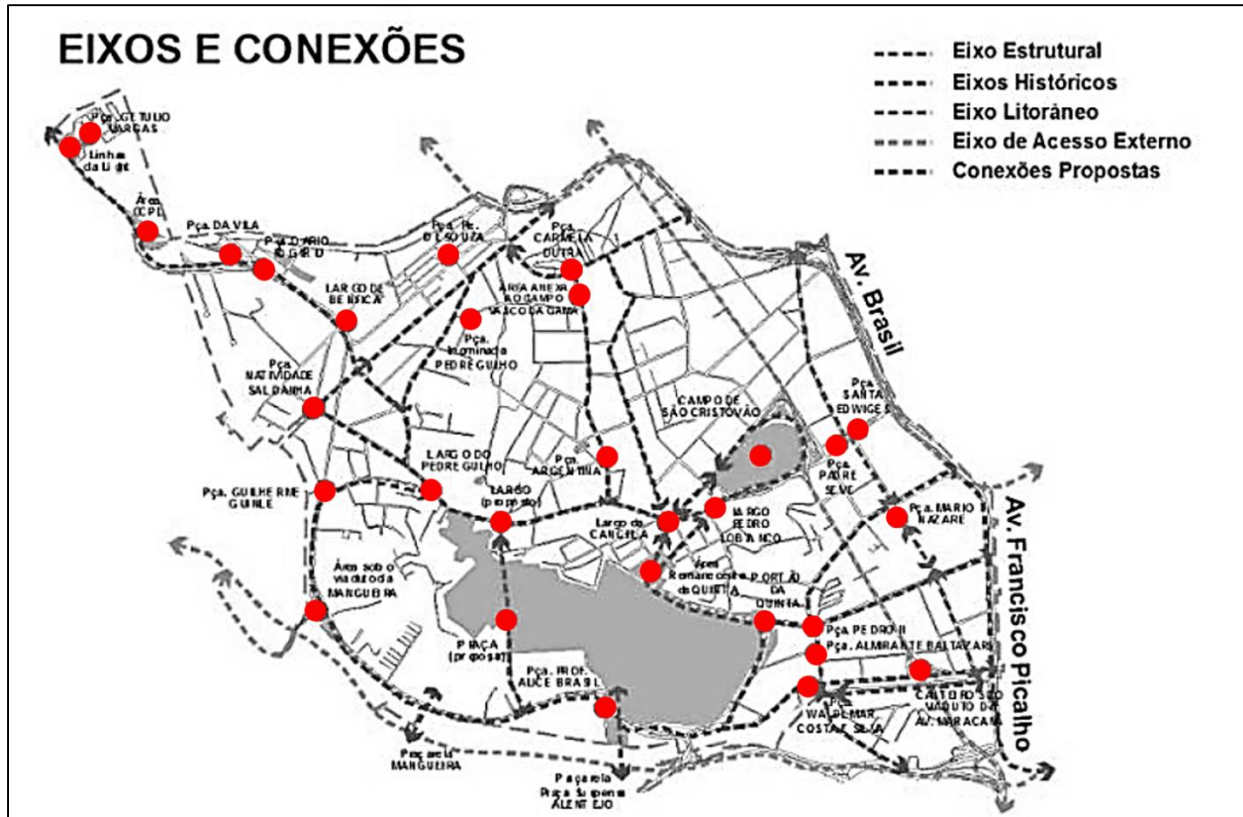


Diagram 10: Linkages creating contextuality for public open spaces in São Cristóvão (After Tângari and da Silva, 2010)

The Mary Fitzgerald Square in Newtown, Johannesburg is another prime example of a sustainable public open space. In particular, Mary Fitzgerald Square is a contextual public open space in relation to the rest of Newtown and Johannesburg. Contributing to this, the space not only takes into account the sounding context of the city but takes into consideration the needs of the pedestrian. Mary Fitzgerald Square most importantly is designed with the surrounding urban form and is formed as such. Therefore, the surrounding buildings use the public open space for their own business.

Secondly, Mary Fitzgerald Square is designed with the pedestrian in mind. Design elements such as bollards are placed along the borders of the space in order to protect not only the pedestrian from vehicles but to protect the public open space from being overwhelmed by public transportation. Image 61 illustrates these features of the space making the Mary Fitzgerald Square contextual in relation to Newtown and the greater Johannesburg.



Image 61: Contextuality of Mary Fitzgerald Square in Newtown, Johannesburg (After Alchemy Architects, 2010)

Reiter (2004) indicates how contextuality, in terms of connections and linkages, can result in a space such as The Mount of Arts situated in Brussels (Image 62) where top and bottom of the city and well connected and integrated with one another alongside the public open spaces being integrated.



Image 62: The Mount of Arts, Brussels as a precedent for contextual and integrated public open spaces (Reiter, 2004:2)

Recommendations for Johannesburg Metropolitan Open Space System

Definition for Sustainable Public Open Spaces

One of the main concerns for the Johannesburg Metropolitan Open Space System is the lack of a definition for Public Open Spaces. Within JMOSS, public open spaces are included within open spaces. Therefore, the recommendation is to have a separate section for Public Open Spaces, specifically Sustainable Public Open Spaces. The definition for a sustainable public open space reads as follows:

“Sustainable Public Open Space is land that is zoned for use by the public and includes spaces such as parks, green belts, gardens and playgrounds that are coherent, contextual and co-existent. These spaces may further include an ancillary place of refreshment”.

As a result, these sustainable public open spaces include parks, green belts, gardens, squares and playgrounds throughout the city.

Principles for Sustainable Public Open Spaces

The Johannesburg Metropolitan Open Space System should insert Diagram 11 as a means to understand what sustainable public open spaces are and where the principles are derived from. The Three Cs for Sustainable Public Open Spaces, as discussed above, should thereafter be inserted into the Johannesburg Metropolitan Open Space System report under the recommended definition for sustainable public open spaces. This will be a means to guide current and future public open spaces within the Johannesburg Metropolitan area.

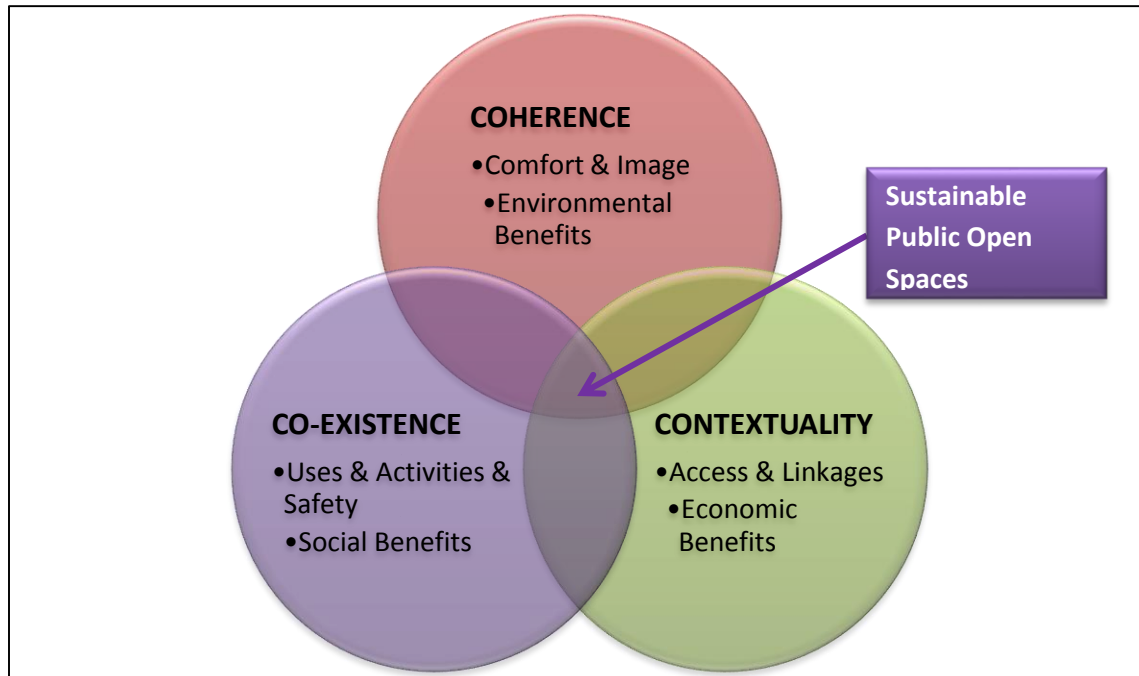


Diagram 11: The Three Cs for Sustainable Public Open Spaces

Management and Responsibility

During the interviews, a concern was raised regarding the lack of a clear management plan for public open spaces in the Johannesburg Metropolitan Open Space System. It is a recommendation to set up an independent organisation that has accessibility to the resources of local government to clean, maintain and manage public open spaces but will still be underwritten by City Parks. This may contribute to a clear identification of roles and responsibilities in the development of new public open spaces and the upkeep of existing public open spaces. This organisation will further address and manage the problem of vagrants in public open spaces and will work hand in hand in crafting the initial design of new public open spaces.

Together with creating open spaces, other departments need to address the needs and facilities for those who see parks/open spaces as their last chance of refuge. Planning and understanding broader social issues will inform what is required to protect areas which are created for the greater good of communities and city citizens, not only for a select few.

As City Parks will underwrite this organisation, the organisation will create the link between relevant departments, SAPS and the city council in order to facilitate sustainable public open spaces and the management of these public open spaces. It will assume some of the roles and responsibilities from City Parks but will work hand in hand with other departments to realise objectives for new and established public open spaces. An example of this will be the integration of the organisation in establishing a new public open space with accessibility to the BRT system or local Metro Bus System. Therefore, the

organisation will work with the transport department in order to get permission to place a new bus stop. Additionally, the organisation can work with the SAPS in order to get more surveillance on public open spaces, such as the Sand Spruit where vagrants are becoming an issue, in order to deter the vagrants from the space.

This organisation should be formed by incorporating town planners, architects, landscape architects, environmentalists and sustainability experts. The team will bring a wide range of knowledge and background that will enable the team to realise the potential of public open spaces in not only Sandton but also the greater Johannesburg area. Therefore, the organisation will be able to develop sustainable public open spaces using the proposed definition and the proposed set of principles for sustainable public open spaces.

Conclusion

The Three Cs for Sustainable Public Open Spaces have identified principles and guidelines that can be applied to the public open spaces within the context of the seven analyzed public open spaces in Sandton. What is important to note is that the principles are derived on a broader level, the guidelines however make the principles work in the context and situation of the public open spaces. In the context of the Sandton CBD, there are plans for integrating the public transport network with the rest of the city. Therefore, it is necessary to plan the public open spaces with these transport networks.

Recommendations were derived using the following chapters. Chapter 2 helped to create the theoretical framework by means of developing a theoretical understanding of the topic for the research report. Main points taken from Chapter 2 include the concepts adopted by Reiter (2004), Gedikli (n.d.), and the Project for Public Open Spaces (2011). Chapter 4 illustrated a graphical representation of what makes a space a sustainable public open space. As a result, the chapter focused on the physical features of the public open spaces and therefore identifies what features should be included on the spaces to make them more sustainable. Chapter 5 on the other hand provided a look at the professionals' opinion of what makes an open space sustainable and how they can become more sustainable. Chapter 5 more importantly provided the pillars for the recommendations for the Johannesburg Metropolitan Open Space System and precedents used for sustainable public open spaces.

This chapter has confirmed the relationships that exist between placemaking, Reiter's concept of sustainable public open spaces (2004), and the concept of sustainability as derived by Gedikli (n.d.). The

three concepts have to be used concurrently in order to result in sustainable public open spaces. Lastly, this chapter has identified manners in which the Johannesburg Metropolitan Open Space System may be improved. The chapter has identified a new section that could be included in the system alongside a new definition for sustainable public open spaces. The chapter furthermore identified ways in which the system can aid in managing the public open spaces in Johannesburg.

Chapter 7: Conclusion

Introduction

The following chapter concludes the research report and is divided into 5 sections. The first section discusses a summary of Chapter 6, the recommendations. The second section looks at the aims and objectives, as set out in Chapters 1 and 3, and discuss whether or not they have been achieved. The third section will discuss the limitations or shortfalls of the research report where the fourth section deliberates future studies that may be completed post this research report. The last section indicates what was learnt during the process of the research as well as conclude the research report.

The Three Cs for Sustainable Public Open Spaces

Chapter 6 concluded with the following three principles and guidelines that should be considered in planning for sustainable public open spaces:

- *“Public Open Spaces should be coherent and provide environmental benefits”*
 1. Public open spaces should provide a clear sense of comfort and imageability;
 2. Public open spaces should take into account the surrounding urban form;
 3. Public open spaces should be designed in such a way so as to promote environmental and ecological benefits such as the regulation of the urban climate, pollution control, biodiversity and nature conservation;
 4. With the use of design elements and aesthetics, public open spaces should have a sense of place, safety and identity and therefore should be sittable and walkable.
- *“Public Open Spaces should be co-existent and provide social and health benefits”*
 1. Public open spaces should cater to a wide range of uses and activities in order to allow for a diverse space with active edges;
 2. Design elements, public facilities and public infrastructure should support the above uses and activities;

3. Public open spaces should therefore support social benefits such as the provision of a recreational space, increased well-being for those using the space and increased human health;
 4. Public open spaces should be interactive and friendly.
- *“Public Open Spaces should be contextual and provide economic benefits”*
 1. Public open spaces should be accessible through various modes of private and public transportation and should thereby have ancillary uses supporting these modes;
 2. Transportation networks should link public open spaces with one another and with local and neighbourhood nodes;
 3. Public open spaces should provide economic benefits whereby design elements and public facilities provide energy savings, increased property values and economic opportunities;
 4. Economic opportunities can include the provision of spaces for market days, local events and signage for local businesses to advertise on.

As discussed within the conclusion of Chapter 6, these principles and guidelines can be applied in the context of the public open spaces in the Sandton CBD and surrounding areas. The principles for sustainable public open spaces can be applied on a generic level across public open spaces. This is due to the fact that a wide range of international and local theorists, precedents, and cities were used during the research. However, it is necessary to apply different guidelines for public open spaces with varied contexts and situations.

Research Aims and Objections

The aim of this research report was to develop a set of principles that may be adopted by the Johannesburg Metropolitan Open Space System (JMOSS) in order to create sustainable open spaces. The research report shows that there may be a generic set of principles for Sustainable Public Open Spaces that can be applied alongside specific guidelines that will assist in achieving the principles.

Within Chapter 3, the following objectives were outlined. These objectives have been organised in Table 2 to indicate in which chapter each of the objectives have been dealt with.

<u>Research Objective</u>	<u>Corresponding Chapter</u>
Unpack the various debates regarding the use, users and definition of public open spaces	Various topics related to open spaces and what makes a public open space were discussed in Chapter 2, the Literature Review
Identify what the existing principles are for open spaces as used by JMOSS	Within Chapter 1, the Introduction, JMOSS was discussed where critical evaluations are provided about the system
Identify where the parks are in the Sandton and surrounding area	Chapter 4, the photographic analysis, illustrates these public open spaces on a map alongside photographs of the chosen 3 existing public open spaces for the purpose of this research
Identify where the vacant land is in Sandton that can be developed as parks	Chapter 4, the photographic analysis, illustrates these vacant pieces of land that are zoned for public open space but are not used appropriately. This is shown on a map alongside photographs of the chosen 4 public open spaces for the purpose of this research
Identify what makes a public open space coherent, contextual and co-existent	Chapter 2, the Literature Review sets the base for the theoretical understanding of coherency, contextuality and co-existence. Chapter 5, the interview responses, further elaborate on what makes these spaces coherent, contextual and co-existent
Identify the shortfalls of the public open spaces in Sandton in terms of their coherency, co-existence and contextuality	Through Chapter 4, the photographic analysis, a graphical representation of the shortfalls of the spaces in terms of being coherent, contextual and co-existent is shown in the form of a photographic analysis of the public open spaces. Within Chapter 5, the responses from the interviews elaborate on their professional opinions of these spaces
Identify what makes a public open space sustainable	Chapter 2, the Literature Review sets the base for the theoretical understanding of sustainable public open spaces. Chapters 4 and 5 offer a graphical representation of what makes these spaces sustainable and the interview responses

	discuss recommendations for how they can become more sustainable
Identify the shortfalls of the public open spaces in Sandton in terms of their sustainability, i.e. economic, social and environmental factors	Chapter 2, the Literature Review sets the base for the theoretical understanding of sustainability. Chapters 4 and 5 offer a graphical representation of what makes these spaces sustainable and the interview responses discuss recommendations for how they can become more sustainable
Identify local and international precedents of Sustainable Public Open Spaces	Chapter 2, the Literature Review, provides international and local examples of sustainable public open spaces. Precedents for sustainable public open spaces are discussed within Chapter 5, the interview responses, and Chapter 6, the Recommendations.

Table 2: Objectives of the Research Report alongside the respective chapters discussing the objective

Limitations of the Research

There were several time constraints throughout the research report. In order to complete the research effectively, more time was spent taking photographs for the photographic analysis than expected. The spaces chosen for the research report were all unique spaces where there was no repetition. Adding to time constraints was as a result of the interviews. Even though the sample for the interviews was easy to derive, the structure of the interviews did allow for the allocated time per interview to be longer than the expected hour and thus being time consuming.

When considering the literature on sustainable public open space, there is very little local literature on the topic. As a result, international theorists were mainly used for this topic. When considering the precedents, the interviews and literature use more international precedents for sustainable public open spaces than local and as a result, the recommendations in Chapter 6 makes use of mainly international precedents. There are still however some local precedents that are discussed and as a result, the principles may be applied on a more generic level.

Regarding the photographic analysis and interviews conducted, there were very few to no users found in the public open spaces. Those that were found were homeless people. As a result, the photographic analysis does not show the user in the public open space. Furthermore, due to the lack of users within the

public open spaces, they could not be interviewed. If they were present in the public open spaces, they could have provided further insight into the management of the spaces, what the users need and want in the public open spaces and what the users would suggest in improving the spaces.

A further limitation of the research is the fact that the research is theoretical and cannot be tested. The research could not be concluded with a roll out of the set of principles and guidelines for the public open spaces in the Sandton CBD. Lastly, the research intended to propose principles and guidelines for sustainable public open spaces using the public open spaces in the Sandton CBD as a case study for the research. As the research is done in the context of the Sandton CBD, it is important to create generic principles for sustainable public open spaces but then have guidelines that are specific to the context of the public open spaces. Therefore, the principles proposed can be applied locally and internationally but the guidelines cannot.

Supplementary Studies

As it can be established from the research report, sustainable public open spaces have a range of concepts and factors that make these spaces sustainable. For the purpose of this research report, the normative position indicated that the research revolved around the term sustainability. This research report indicated the relationships between Reiter (2004), Gedikli (n.d.) and the Project for Sustainable Spaces (2011). Further research could look at the relationship between sustainable public open spaces (Reiter, 2004) and Placemaking (Project for Sustainable Spaces, 2011). This would allow for both topics to be unpacked more in depth.

Another manner in which this research report could be expanded upon is by looking at one set of factors for sustainable public open spaces. Throughout the research report, coherency, environmental benefits, comfort and image were used interrelated. This was further investigated alongside co-existence, social benefits, uses and activities and safety. The last set of concepts investigated together were contextuality, economic benefits, and access and linkages. Therefore, further research could look at one of these sets in order for the research to be more focused towards coherency, co-existence or contextuality.

As this research aimed at developing principles for sustainable public open spaces for JMOSS, the research can be used to redevelop the JMOSS report for all open spaces. Principles may be derived for the entire typology as discussed by JMOSS. Therefore, a set of principles may be derived for sustainable open spaces,

sustainable private open spaces, sustainable ecological spaces etc. This is indicative that the JMOSS report may be entirely reworked in further studies.

In Retrospect

This research topic has enabled me to grow professionally and personally. The research topic made me more aware of town planning topics related to sustainability. I furthermore, have a deeper knowledge of policies and legislation in Johannesburg, South Africa and international cities that have policies guiding sustainable public open spaces.

With an inclination towards urban design and sustainability, it was rewarding to find a topic where the two disciplines were interrelated. It gave me the opportunity to explore a discourse that I enjoyed and use my skills and expertise to make the research topic work for me. In particular, my mapping and AutoCAD skills were useful during the research process.

Through my work, I have met contacts in town planning and urban management. These contacts were interviewed for the purpose of this research. They gave me further insight into the topic than the initial literature review. The professionals and colleagues gave examples of how these concepts were applied. The interviews were structured in such a manner so as to allow for a discussion rather than a question and answer session. I have learnt more about the topic through the interviews than I expected and enjoyed divulging more into the topic as the research progressed.

Conclusion

The research report has culminated in the proposed the Three Cs for Sustainable Public Open Spaces in relation to the public open spaces in the Sandton CBD and surrounding areas. Mapping and a photographic analysis indicated the shortfalls and achievements of the spaces and how they could become more sustainable. This research report has further recommended a possible improvement on the Johannesburg Metropolitan Open Space System in the provision of new section for the system entitled Sustainable Public Open Spaces. This section includes a definition, diagram for interpretation, principles and guidelines that can be applied to the public open spaces in Sandton.

Theoretical concepts were discussed in order to derive a theoretical framework and concept that could be used to analyse the public open spaces in Sandton in order to formulate generic principles for sustainable public open spaces. Further guidelines were derived during the Chapter 5 where the responses

from the interviews were discussed. Therefore, guidelines need to be formulated to suit the context and situation of the public open spaces. The Three Cs for Sustainable Public Open Spaces include *“Public Open Spaces should be coherent and provide environmental benefits”*, *“Public Open Spaces should be co-existent and provide social and health benefits”* and *“Public Open Spaces should be contextual and provide economic benefits”*.

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Appendices

1: Consent for Participation

**University of the Witwatersrand
School of Architecture and Planning**

PRINCIPLES FOR SUSTAINABLE PUBLIC OPEN SPACES IN SANDTON: A RECOMMENDATION FOR THE JOHANNESBURG METROPOLITAN OPEN SPACE SYSTEM (JMOSS)

**A dissertation submitted in fulfilment of the requirements for Masters in Town and
Regional Planning by Research Only**

Ingrid Shelton (317011)



Private Bag 3 Wits, 2050

Fax: 011 7177009; Tel: 011 7177007

Good Day,

Hello, I am Ingrid Shelton from Wits University, a Masters Student in Town and Regional Planning by Dissertation only, under the School of Architecture and Planning. I am currently undertaking research on public open spaces in Sandton in order to identify principles for sustainable public open spaces.

The aim of the research is to identify a set of principles that may be used for sustainable public open spaces in the Sandton CBD. Interviews, photographs and mapping of the parks and open spaces will be used as research methods. I will be asking you questions around the contextuality, coherence and co-existence of public open spaces in and around the Sandton CBD. The interview will be based on questions of what makes a public open space sustainable and what your recommendations are for these spaces. Therefore, the questions will look for factual information as well as professional and personal opinions on these public open spaces. Your honesty in these questions is therefore requested.

Your participation is entirely voluntary, and should you decline the request to participate you are free to do so without penalty or loss. During our interview, your answers will be transcribed on paper in the form of notes. Therefore, an audio recording will not be done. You may of course also discontinue your participation at any time and refrain from answering some of the questions asked during the session. I will use the information obtained from you together with the information from all the other participants to prepare a research report for the School of Architecture and Planning at Wits University. If you agree, the information reported will be attributed to you.

Should you have any questions or complaints about the study, the interviews or the researcher, please contact myself or my supervisor Garth Klein:

1. Garth Klein - Supervisor
 - a. Tel. (011) 717 7616; Cell (082 855 5645); Fax (011) 717 7649; e-mail address: garth.klein@wits.ac.za
2. Ingrid Shelton – Researcher
 - a. Tel. (011) 609 1237; Cell (084 391 1989); email address: Ingrid.sott@gmail.com

Thank you for your willingness to participate in this study.

CONSENT

I am willing to take part of this study and understand that my participation is voluntarily and that I can withdraw from participating at any time, for whatever reason without penalty or loss.

Signed:..... (Participant): Date:

Thank you for your willingness to participate in this study!

2: Interview Questions

Background

Reiter (2004) offers a perspective to sustainable public spaces. He argues that in order for public spaces to be sustainable, public spaces should be designed and planned around three pillars, namely, contextuality, co-existence and coherence. Coherence entails creating an identity whereas co-existence includes offering diversity of public spaces whereby the spaces are used for several uses. Finally, contextuality refers to public spaces that are well integrated and are related to one another. (Reiter, 2004)

A Spatial Development Framework may introduce new concepts for open spaces as they can be the central theme to the spatial development frameworks. Within the Johannesburg Spatial Development Framework of 2010/2011, there are smaller micro level spatial development frameworks. Some of these include the Linbro Park Development Framework, the Sandton Urban Development Framework and Atholl Precinct Plan. All of which are focussed on controlling urban sprawl, higher densities and land uses. (City of Johannesburg Metropolitan Municipality, 2010)

Interview Questions

1. What is your definition of a Public Open Space?
2. Why are public open spaces so important in the city?
3. What is your definition for Sustainable Public Open Space?
 - a. What makes them sustainable?
4. Reiter (2004) indicates that contextuality, co-existence and coherence are the three pillars for sustainable public open spaces
 - a. How does the context in which a public open space is situated, impact on the space?
 - b. What methods or factors can be used to make a public open space more diverse?
 - c. What can be done to make the public open spaces more usable by the general population surrounding the spaces?
 - d. What can be done to the public open spaces to make them more functional and desirable to the local population?

5. What do you think are the shortfalls of the Johannesburg Metropolitan Open Space System with regards to public open spaces?
 - a. What are your recommendations for these shortfalls?
6. What public open spaces or parks are you aware of in the Sandton Node and surrounding area?
 - a. What are your recommendations for these spaces?
7. What vacant land are you aware of in the Sandton Node that you think has the potential to become a Sustainable Public Open Space?
 - a. Why?
8. What precedents do you know of for a Sustainable Public Open Space?
 - a. Locally?
 - b. Internationally?
 - c. What makes them sustainable and unique?

3: Consolidated Data from Interviews

Consolidated Interviews

1. What is your definition of a Public Open Space?
 - a. My definition of public open space is any area open for the general public to utilise and enjoy.
 - b. A public open space is an area, where a community can relax, meet each other, socialise, do active or passive recreational activities etc. in a safe and secure setting away from threats. It should be easily accessible and not exclusionary in any way. A public open space does not necessarily have to conform to only green space, but can include hard spaces such as squares.
 - c. This would be the space that lies between private buildings. And is accessible by everyone. And access is not restricted.
 - d. A space which is outdoors and accessible to every urban user. It can be either undeveloped such as a park, or developed such as a public square
 - e. A public open space is a visually identifiable space usually consisting of trees, grass and benches. The space should be accessible to all income groups, should feel safe and should be safe enough for people to want to spend their time in it
 - f. A public open space is a public recreation area with none or limited restrictions in terms of accessibility. It is a common area that can be used by any member of the public without having to pay a fee.
 - g. A POS is any open or uncluttered piece of land that is usually undeveloped (implying no buildings or other built structures) and is accessible to the public where playing and socialising can occur

2. Why are public open spaces so important in the city?
 - a. Public open spaces create a sense of community in an urban space. It enables social cohesion amongst people who work and live in the area. And open spaces play an environmental role to balance out the heavy carbon emissions in urban spaces.
 - b. In an ever increasing densifying city, open spaces are becoming harder to find. It is not only important for human use, but has a function and role to play in terms of the overall ecological system within urban areas, in particular making reference to green spaces. Hard open spaces (squares etc.), should also have greening elements to enhance the urban ecological system within developing areas. It has a dual role to play.
 - c. Public space is necessary as it provides a common place for people to meet and socialise. This space is an arena where people are able to discuss and engage in society.
 - d. They are important in creating variety in terms of design, breaking up solid forms of buildings or neighbourhoods. They can contribute to social cohesion via interaction and integration, and can provide spaces for public events
 - e. Public open spaces are important in cities because they preserve space. Communities are guaranteed spaces that they can use free of charge. Cape Town

promotes it's public open spaces so well, that the public has become invested in the open spaces and visitors take pride in open spaces such as signal hill and Gardens

- f. Public open spaces are important because they serve a recreational purpose within the urban environment. Open Spaces serve as little pockets of space that allow people a platform to perform various activities and enjoy the urban environment without a large number of limitations. In certain circumstances they act as a greenbelt that softens the urban environment or create a natural soft barrier or boundary
 - g. Increase liveability and enhance property values, Essential for leisure activities and cultural practice, Offset effects of air pollution, Protection of various natural areas e.g. wetlands, Habitat continuity, Environmental education
3. What is your definition for Sustainable Public Open Space?
- a. My definition of sustainable public open spaces is spaces where it can self-maintain, self-sufficient and is able to continue its existence and work with the surrounding area to make a difference for the people who work and live in the area.
 - b. Sustainable open spaces are spaces which have been developed in the context of the environment in which it is situated. It addresses the needs and requirements of the community for which it has been designed (i.e. if it is a young community with small kids the park needs to address the needs and wants of that age group); however, the design of any open space must be resilient in terms adaptability. As time goes on, circumstances might change in any given neighbourhood/area which will require elements of it to be redesigned and reinstalled. Sustainability is therefore linked to a resilient design.
 - c. Looking at sustainability in this regard I would consider it to be based more on social, political, and economic sustainability rather than the technical aspects of sustainability. For me a sustainable public space would entail a gathering of people in an area whereby no discrimination is exchanged and people are able to engage in discourse in a manner that does not undermine any individual but rather actively engages issues in society.
 - d. The definition for a sustainable public open space is much the same in terms of physical layout and function, however with the addition of management of the space in terms of security and cleanliness
 - e. A sustainable public open space needs to be usable. People in the area need to not feel that it hinders them but rather adds to their quality of life
 - f. A sustainable public open space is a space that can remain pivotal as a recreational facility without the influence of a dynamic and ever changing urban space. It is a place that does not yield to development but is able to adapt to change and development, while maintaining its core function as a recreational space.
 - g. Public open space that is guided by a sustainable planning and management vision, open space that promotes interconnected green space and habitat continuity and essentially creates liveable communities and protection of historic, cultural and environmental resources

- h. What makes them sustainable?
 - i. It is sustainable when people uses the space without having to make too much of an effort making this space happen, it is there subconsciously and it automatically forms part of the needs of the people who use it frequently and occasionally. And the ability for it to be sustainable is when it creates a diversity of use for the people who work and live in the space.
 - ii. Resilient design and ease of adaptability as circumstances change over time. And It should further fulfil its dual role from both a human consumption point of view as well as the urban ecological system.
 - iii. This would be a space where access is not restricted and ample amount of space is dedicated.
 - iv. In order for it to be sustainable, the area should be accessible to a variety of users on an ongoing basis, with low rates of crime, and attractive design aspects.
 - v. See above
 - vi. What makes them sustainable is the ability to adapt to changing urban environments and staying relevant, while maintaining its core function as a public recreational space.
 - vii. The ability of the park to efficiently and effectively provide all the elements mentioned in question 2, but to continue to do so in the face of rapid urbanisation and future development
- 4. Reiter (2004) indicates that contextuality, co-existence and coherence are the three pillars for sustainable public open spaces
 - a. How does the context in which a public open space is situated, impact on the space?
 - i. If the public open space is well situated, it can potentially upgrade the surrounding area from a financial and social point of view. It forms part of an integral space for the community and it connects the various activities in a busy urban space.
 - ii. Public open spaces must take cognisance of its immediate setting. I.e. in suburbs where people have large erven with large gardens, public open spaces are mostly found underutilised as people will rather use their own 'private open space'. Areas of higher density, as well as areas within CBDs, with lots of office blocks, have a better chance of being utilised. Also, the actual location and size of a park will determine how it can function on a regional or city wide level – this will be in terms of events being hosted in the parks and the clientele which it caters for
 - iii. The context of the space would also dictate the people who will be engaging in the space and the activities it provides.
 - iv. Context is vital in order to establish your spacial design and user group. If you put a public square in the middle of a farm area with no surrounding buildings, there will most likely be a limited user group. The context relates to both spatial aspects and social aspects, as these play a key role in who uses the space and how

- v. The context in which a public space is situated determines its usability. If a public space is forced into a context that makes it feel “out of place” or an area where it creates opportunities for crime and loitering, it will not be used by the community
 - vi. It will determine the type of recreational space it is in terms of use and activities. It will also influence the design of a space and the facilities provided within that public open space
 - vii. Location of POS has great effects on habitat fragmentation and continuity, in this regard locating a POS in the correct area can go leaps and bounds into achieving co-existence between man and the environment and coherence amongst social and environmental activities
- b. What methods or factors can be used to make a public open space more diverse?
- i. Location, accessibility and supporting public space furniture and also nearby amenities and infrastructure.
 - ii. An understanding of the immediate community wants, needs and desires and understanding how the community functions. Refer to (a) above. The access and location is important as well as safety aspects – the more eyes on a park/open space, the better utilised it will be, especially in the Joburg context with its social issues of poverty, homelessness etc.
 - iii. The space needs to take into consideration the different needs of people. For example people who are paraplegic, or are of a different cultural class
 - iv. Nothing
 - v. No fencing, Clean, Free, Braai facilities
 - vi. The space has to be dynamic in terms of the activities it offers and its suitability or coherence to the area in which it is situated. It needs to have an element of powerful genius loci, which will make it unique and attract people to it based on the preferences.
 - vii. Sidewalks, trails, private streets, cycling, well defined centres and edges
- c. What can be done to make the public open spaces more usable by the general population surrounding the spaces?
- i. Improving safety, general cleanliness, pleasant facilities, friendly walkways and a good general maintenance of the space.
 - ii. Refer to (b) – safety in parks is one of the major concerns. Currently it is viewed as areas where the homeless reside and where criminals wait for the unsuspecting open space user.
 - iii. In modern society technology is key, and access to information through technology allows for a common topic amongst individuals. Internet access will be considered in the future as part of the basic needs amongst, water, sanitation, and food
 - iv. Design elements such as street furniture, ease of access, shading in hot climates, natural flora and fauna which can create natural barriers between vehicles and the urban space, and landscaping can make a space more usable

- v. Public open spaces should be cleaned regularly. There should be security guards. The public open space must be promoted by government and others
 - vi. Place making is an important tool in changing people's perceptions of space. If people perceive a place to be more welcoming and safe, their usage patterns will be affected and they change as a result. Therefore the key will be to create a place people want to come to like an iconic destination instead of just having a public open space.
 - vii. Safety and change of perception
- d. What can be done to the public open spaces to make them more functional and desirable to the local population?
- i. Public space furniture like benches and bins, interactive art pieces that allow people to interact with it, increase a sense of safety by having proper signage and accessibility to allow people to get to the space
 - ii. Functionality is interrelated to (a) – (c): if social issues are not addressed and people feel unsafe, open spaces will never function optimally, nor will it be desirable to frequent.
 - iii. This is where contextuality is important as the context of the space will allow for activities which are common in the society to be present. What works for one area might not work for another. However the most common of tools in public spaces is seating. This allows for people to come into a space and stay. Seating make an area more desirable
 - iv. Much the same as the previous response, design elements need functional, so taking into account who uses the area and frequency. Elements such as concrete vs wood are an example and furniture such as a bench can be used as the subject. Wood is more visually appealing and comfortable, however can wear down over time, concrete is very versatile however reasonable uncomfortable and visually not very appealing. If one was designing benches for a public park and was trying to welcome visitors, the functional design might override the attractiveness of the design. A functional open space is quite often a destination or a thoroughfare allowing users to pass through creating a sense of social security. An open space may be considered dangerous if it is located on a periphery and has very few visitors
 - v. A public open space needs to be well planned with the aim of making it functional. In cases where open spaces are created for aesthetics, functionality is not usually the main aim for the space
 - vi. As mentioned above various place making techniques will have to be used to enhance people and change their usage patterns through space perception variables.
 - vii. The ability to accommodate a wider range of social activities e.g. sports events, braai facilities, pools, events etc.

5. What do you think are the shortfalls of the Johannesburg Metropolitan Open Space System with regards to public open spaces?
 - a. Good routine maintenance due to financial and operational constraints. The inability to create proper partnerships with private sector because the mistrust and also internal organisational structure of municipal owned entities.
 - b. In most instances the open space system is designed around ecological needs which do not factor in the social issues referred to above. It is understood that ecologically open spaces are very important, but unless social issues are addressed, open spaces will forever have to be fenced off and inaccessible to the general public. This will then just become areas where criminal activity and homeless citizens stay which in any case degrades the ecological system as facilities for washing, cooking etc. are not available. These activities in themselves then degrade an area – a prime example is George Lea Park where it has become a recycling depot for the mobile trolley pushers. They use the park to live in and sort their recycling materials.
 - c. Maintenance and security are the two main factors and hinder the development and desirability of Joburg public spaces. These areas are also areas where vagrancy occupancy is at its highest. However the issue of vagrancy is of social development
 - d. Johannesburg public spaces are often viewed as unkept and dangerous. There are a number of parks which have historically been accessible and used frequently, however with increased crime, they have fallen into disrepair and users avoid them. these shortfalls come down to management and whether safety can be guaranteed. The attractiveness and landscaping elements are also an important factor when considering weaknesses in johannesburg open spaces
 - e. In my mind, there should be a clear link between the open spaces in Johannesburg with each one playing a key role. There is a lack of planning behind the Johannesburg open spaces. If properly planned, linkages should be clear and each open space should have an area specific focus that fits into a holistic framework when the open spaces are combined
 - f. The public open spaces have a large number of limitations in terms of recreational activities, they do not seem safe and they generally do not attract one to use them.
 - g. Safety
 - h. What are your recommendations for these shortfalls?
 - i. Encourage better working strategies between CIDs and the City by making it a mutual benefit to make public open spaces work. A self funded model can be looked at to both benefits the City who owns the land but yet also will be able to take care of the daily routine maintenance of a space for the users through this funding mechanism.
 - ii. Together with creating open spaces, other departments need to address the needs and facilities for those who see parks/open spaces as their last chance of refuge. Planning and understanding broader social issues will inform what is required to protect areas which are created for the greater good of communities and city citizens, not only for a select few.
 - iii. Recommendations would be to firstly understand that public sector does not have the capacity to ensure the efficient security and maintenance of

public spaces. As in the examples of City Improvement Districts public spaces are managed by the private sector yet remain open to the public. If a guideline can be instilled by the public sector to ensure public space management, then the private sector would be able to ensure these guidelines are met with and public space is maintained and securitised. This would make the space more desirable

- iv. See Above
 - v. A town planner should be employed to manage the JMOSS idea. The issues will be resolved if a person with an understanding of the city plans the JMOSS. This way the open spaces will be planned for their contexts and the necessary links will be made to form a clear holistic framework
 - vi. The activities that are allowed within certain parks should be amended based on the usage patterns of surrounding solaces. The activities should cater for the people and environment in which the park is situated. More security or better environment safety design methods will have to be used to improve the safety of most public spaces. Place making tools and brand could be the answer to attracting people to public spaces, if a place is well marketed it will entice people to use it and this will result in improved safety within that park as having eyes in public spaces limits the amount of crime and incivilities in space. The city council will also need to find a way to deal with vagrants in public parks as they also contribute to a perception of low safety and vulnerability.
 - vii. Crime prevention through environmental design
6. What public open spaces or parks are you aware of in the Sandton Node and surrounding area?
- a. Two parks namely Mushroom Farm Park and Sandton Central Park.
 - b. George Lea Park, Innes Free Park, Field and Study, Mushroom Farm Park
 - c. None
 - d. There are a number of 'public' open spaces around Sandton in the form of parks, however the official not may not actually be fully open to the public. Areas include the Braamfontein Spruit system, which runs just west of the Sandton Node, Sandton Central Park, The Mushroom Farm Park close to the Radison Hotel, Innesfree Park, George Lea Park, the Sandton Field and Study Center
 - e. Innesfree park, Mushroom Farm Park
 - f. Innesfree Park, Sandton Central Park. Fredman park, George-Lee Park. Mushroom Farm Park
 - g. Mushroom Park
 - h. What are your recommendations for these spaces?
 - i. Mushroom Farm Park is a very well located and has all the necessary facilities of what a good park should have. It is well maintained and has security in place at the entrance of the park. Sandton Central Park, not as well located as the ground is not so even. It is missing public amenities such as toilets and parking facilities. The neighbouring residents will benefit the

use of the space if the CID / private sector can take management of the space by allowing them a funding model to fund the maintenance and investment into the park.

- ii. I really don't know – George Lea and Field Study are really unsafe to use due to the homeless and recyclers living and working in the parks. There are no facilities for them (i.e. homeless shelters or waste buy back centres) and if this is not addressed the problem won't be resolved. The areas are fenced in and all that happens is the fences get stolen or broken and the problem persists...the parks are degraded and ecologically I don't know if they have any true value.
- iii. None
- iv. Maintenance and Landscaping, Security is a difficult one to enforce as it becomes restrictive to the less dominant users (ie the poor)
- v. Needs parking and promotions
- vi. The parks are very well equipped and maintained but I would like to see them have a bit more place making and branding strategies used in and around them in order to attract more people to these spaces. The activities allowed should be increased to allow more social activities linked to recreational spaces
- vii. Marketing of the park is poor and needs to focus on becoming more compelling and attractive to the greater Jo'burg area

7. What vacant land are you aware of in the Sandton Node that you think has the potential to become a Sustainable Public Open Space?

- a. None
- b. None
- c. None
- d. Sandton node has very little vacant land left I think? If it is vacant, it is most likely in the process of being developed
- e. None
- f. The servitude along the M74 between Sandown and Kramerville
- g. None at this point, structural development in Sandton has taken priority over POS

h. Why?

- i. as it is highly densified and there are already very limited open spaces in the node. What the new buildings are coming up with is a public space within the core of their building to create the open space within the confines of the building boundary.
- ii. land is at a premium and currently the City battles to find land for taxi holding facilities, never mind open space. I think the fact that Innes Free and Mushroom Farm park are well looked after and used in terms of events etc, it is sufficient open space. The City is also investing in taking back the streets from cars through the Non-Motorised Transport projects (cycle and

pedestrian lanes) which in my mind start to form part of public open space, and if developed correctly, can fulfil the function of what public open space can and must do in a densely developed area.

- iii. N/A
- iv. See above
- v. N/A
- vi. It is a large piece of land that is not being looked after and has been invaded by trailers with illegal advertising on them. This space would be ideal as it would create a smoother transition between Sandown and Kramerville through continuity. It would also create a more suitable barrier and buffer zone separating the busy M74 route to the residential house right next to it.
- vii. Downfall of Johannesburg CBD has resulted in a lack of land availability and the emergence of downtowns such as Sandton, hence land for development is highly sought after and will always be used for revenue generation purposes

8. What precedents do you know of for a Sustainable Public Open Space?

- a. Locally?
 - i. Mary Fitzgerald Square in Newtown.
 - ii. None
 - iii. See below
 - iv. Mary Fitzgerald square when it was a market long ago, now its used as parking? Delta Park, Emmarentia botanical gardens, Zoolake
 - v. Signal Hill in Cape Town, Gardens in Cape Town, Zoo lake in Johannesburg, Johannesburg botanical gardens, Table Mountain in Cape Town
 - vi. Civic Theatre Park
 - vii. Market Theatre Park in Braamfontein
- b. Internationally?
 - i. Time Square in New York, Vancouver downtown in the square outside Canada Place / Vancouver Convention Centre
 - ii. None
 - iii. See below
 - iv. Central Park (NYC), Hyde Park, Kensington Gardens, Regents Park, Richmond Park, (London), any piazza in Rome, City Park (Budapest), waterfront Park Burlington, VT
 - v. Central Park
 - vi. New York Central Park
 - vii. Central Park
- c. What makes them sustainable and unique?
 - i. Its accessibility to the space, the diversity of the space, and location of it that is able to connect the various function of the area. And most importantly, it is a space easily enabled by the people who uses it.
 - ii. None
 - iii. Turkey City Centre has some of the most vibrant public spaces that are active during the day and night. Activities change based on cultural activities

and this provides are space most used by society. Highly populated areas such as Beijing, and Tokyo also have highly functional and vibrant public spaces. Since the homes are small these public spaces provide the space required.

- iv. Multitude of users, can host events, but not all at the time. visually appealing, with accessible shops in close proximity, shops include food and equipment for games to be played in the spaces. they are safe.
- v. They are planned for the context in which they exist, They are well maintained and clean, They are safe, They are marketed, They have an identity
- vi. These parks have managed to stay relevant and dynamic within their respective environments and they have adapted to the changing spaces in which they are situated. The Central Park in New York has a unique and iconic genius loci and has adapted to the changing urban landscape of central Manhattan, the park has not been damaged by redevelopment or gentrification through urban regeneration. The Theatre Park in Braamfontein is well looked after and has also stood through the test of urban regeneration in its surrounding areas and it is still used by a diverse range of people including students, corporates and the elderly.
- vii. Their ability to create a perfect synergy between development or hard infrastructure and the environment