

Productive Landscape: Turning vacant and underutilised spaces into urban agriculture, for social, economic and environmental benefits in the Two Rivers Urban Park (TRUP) site, Cape Town

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Abstract

In our fast changing times, where political, religious economic structure are failing to meet the need for equitable and caring world. New radical approaches are called for. The challenges before us are unprecedented both within our country and globally. The challenges of our time include the fast changing climate conditions, persisting poverty and inequality. Due to the raising urban poverty and environmental uncertainties, the planning profession globally, has begun to engage with sustainable urban food system and policies. In the past urban agriculture was view as a rural activity hence it was not planned for in cities. Urban agriculture has been largely advocated as the primary strategy for poverty alleviation, improving food security and for economic opportunities. The city of Cape Town UA policy views Urban Agriculture as an economic opportunity and a livelihood strategy. However, the benefits of UA are more than economic opportunities. In the literature reviewed, urban agriculture has many benefits associated with health and social wellbeing and social cohesion, For this reason, a case study of the Two Rivers Urban Park, present opportunities of turning vacant and disused spaces into urban farming.

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Acronyms:

UA	Urban Agriculture
TRUP	Two Rivers Urban Park
FSUPD	Food Sensitive Urban Planning and Design
CPULD	Continuous Productive Urban Landscape Design



Chapter: 1 Introduction

Introduction

1.1 Context and purpose of the study.

The UN Department of Economic and Social Affairs 2011 projection for urbanisation estimates that by 2030 the average world percentage of residents living in urban areas will be 59.9 percent and 82 percent in more developed regions (Viljoen and Bohn, 2017). Due to rapid urbanisation, South African cities are faced with urban issues such as high demand for land, housing, and the need for economic opportunities as well as essential services. This is mainly a result of rural-urban migration, where most rural population move to cities for opportunities. The corollaries for lack of economic opportunities, education and essential services in rural areas of South Africa resulted in the shifts in the geography of poverty from rural to urban areas. Thus in South Africa, rapid urbanisation has been accompanied by an increase in poverty and a rising population of urban poor (Peyton, Moseley & Battersby; 2014). "South Africa's population is already more than 60% urbanised and is expected to reach 80% by mid-century. Meeting the food security needs of the country's population is – and will be – an increasingly urban challenge" (Battersby, 2011; 1). As a consequence of growing population and spatial inequality, South African largest cities are

confronted with the growing urban poverty. Rapid urban growth and expanding urban poverty also raise concerns, mainly about urban food security, supply, and distribution systems (Dubbleling, 2011).

In the past, the concept of food insecurity was viewed as a rural issue (Pothukuchi, 1998). However, as times are changing and a majority of poor urban residents are experiencing the same challenges as the rural dwellers. Pothukuchi (1998) writes that until recent years urban food systems have been less visible than other problems that are facing cities, such as transport, housing, and the economy. In Cape Town, the second largest urban area in the country, with a population approaching four million, urbanisation patterns have concentrated in impoverished, sprawling townships far from the urban core. The most unfortunate people in Cape Town who do not have stable sources of income and purchasing power are the ones who are particularly vulnerable to rising food and transport prices and are severely food insecure. (Battersby, 2011; World Bank Study, 1986).

Battersby and Marshak, (2013) argue that the City of Cape Town faces many social and economic challenges that are embedded in the apartheid spatial planning legacy, which aimed at socially excluding people of colour from well-located land, economic opportunities, and natural resources. The painful legacy of apartheid spatial planning resulted in great urban inequalities and high rates of poverty in South African cities including Cape Town. Mathe (2010) argues that post-apartheid planning has done little to address the situation and in some respects even aggravated the situation. In post- Apartheid South Africa, the legacy of segregation and fragmentation persists and is exacerbated by the competitive land markets, where private developers compete for best-located land within South African cities (Kroll, 2016). Kroll, (2016) further argues that the spatial legacies have also led to splintered and expansive spatial patterns where vast distances separate peri-urban, dormitory townships, workplace, and markets. Cape Town is still faced with extreme inequality, and it is food insecure. The vast majority of its residents live in the low-lying area of Cape Town known as the Cape Flats, an area characterised by social fragmentation, where service delivery is inconsistent or, in some cases, non-existent.

Turok and Watson (2001), further argues that Cape Town is facing a divergent development. Low-income groups are located on cheap land far from the inner city and far from economic opportunities. This form of development reinforces apartheid spatial planning of segregation rather than integrating people of all racial groups and socioeconomic class in the same space. Due to rising land markets in the city of Cape Town, economically stressed urban residents from low-income areas are further excluded from well-located areas and services in the city, and they do not have access and cannot afford land, thus they have settled illegally in informal dwellings on the periphery of the city.

Another challenge is the spread and dependence on supermarkets as a source of food in Cape Town. Frayne, Battersby, Finchman & Hayson, (2009), argue that marketisation of food contribute to food insecurity. The majority of the urban population depend on supermarkets as the main source of food. The constantly rising food prices, exclude poor people from accessing healthy, and nutritious food. This is because some people cannot afford to buy food on a regular basis. Also, because of spatial disparities mentioned above, people from low-income areas in Cape Town spend more time on mobility and often spend money on transport to access places of work and markets. The absence of income, land and the lack of affordability of food are some of the issues contributing to food insecurity in Cape Town (Frayne, Battersby, Finchman, and Hayson, 2009). Thus, access to healthy and affordable food is important for strengthening food security.

Kaur and Kaur (2016) state that the impacts of climate change will negatively affect the availability of food. Rising temperatures and changes in rainfall patterns resulting in less rainfall and dry periods will directly affect both irrigated crops and crops, which depend on rainfall. Thus, agricultural production will decline, and the availability of locally produced food will be reduced. The city of Cape Town is vulnerable to the impacts of climate change. As a consequent of raising temperatures the city of Cape Town is experiencing drought conditions, water cut off, and water shortages are becoming the new normal. It is mostly the urban that will be affected the most. Gregory, Ingrams, & Brlicich (2005) argue that climate change, together with other global environmental changes such as changes in water availability, and land cover, (all strongly influenced by human activities), has increased concerns about achieving food security, especially for the urban poor.

It is clear from the challenges presented above that new ways of thinking, and the new approach, models, policies and frameworks are needed to tackle urban challenges. Urban agriculture is important in creating a resilient city and self-sustaining city that can withstand any future shock that might be caused by negative impacts of climate change. The city of Cape Town urban agriculture policy aims to address some of the economic and social imbalances, which have their roots in the city's apartheid spatial policies (Battersby and Marshak, 2013). "The principle aim of Cape Town urban agriculture policy is to develop an integrated and holistic approach for the effective and meaningful development of urban agriculture in the City of Cape Town" (City of Cape Town, 2007). The city's perspective on urban agriculture is that urban agriculture can play a pivotal role in poverty alleviation; to improve household food security and nutrition status of people and economic development; as economic activity, it can contribute to job creation and income generation (City of Cape Town, 2007). However, there have been many critiques of this policy. It situates UA as a strategy for poverty reduction and an economic activity. UA is more than economic activity, UA brings with it many potential and benefits. As noted by (Drescher, 2001) urban agriculture promotes community and local economy while reducing environmental harm by

practising sustainable farming. Urban Agriculture has a potential to create welcoming green open spaces, creating spaces of integration, sustainable and safe community spaces. Furthermore, urban agriculture has a potential reconnect people to nature.

Agriculture is largely perceived as rural practice, activity and occupation, therefore, most urban populations have not been able to grow their own food. The majority of the urban population in the City of Cape Town are dependent on food that is sourced from the supermarkets and wholesalers. The dependence on market limit the accessibility of food for the urban poor. Thus, food security is an issue, which revolves around access; access to food sources, land, and affordability of food. The motivation for the research is to highlight and engage with the issue of inequitable access to food in Cape Town and how enabling spaces in the urban environment for urban agriculture can play an important role as a livelihood strategy for people who are food insecure and live far from opportunities. The Two Rivers Urban Park site in Cape Town metropolitan area has a potential to integrate people who live in Cape Town's sprawling townships far from economic and social opportunities. Furthermore, the site has the potential for social integration and for safe and open space for people to engage and interact with one another.

1.2. Objective of the research

Therefore, the primary aim of this dissertation is to explore the role of planning in facilitating and creating spaces for sustainable urban agriculture, improving access to food and enhance livelihood strategies in Two Rivers Urban Park, Cape Town. To evaluate how enabling spaces in TRUP site for urban farming could enhance social cohesion, cultivate care and create nourishing and healing spaces.

1.3. Research questions

The primary research question asks; *what is the role of spatial planning in facilitating sustainable urban agriculture to support and improve livelihood strategies of the urban poor and people's access to food in TRUP site?* I have set subsidiary question, which will assist me to gather information to be able to answer and evaluate the role of spatial planning in UA. Bellow, I have divided the subsidiary question into theoretical and site-specific questions.

1.3.1. Theoretical questions:

1. How does planning for agriculture contribute to building a sustainable city?
2. How does planning for agriculture help strengthen the social and economic resilience of cities?

3. What are the social and economic benefits of urban agriculture?
4. What are the main issues that hinder people from practising urban agriculture?
5. How can planning overcome these issues?

1.3.2. Site-specific questions:

1. What are the spatial planning challenges and constraints that hinder the implementation of urban agriculture in TRUP site?
2. What are the opportunities that the TRUP site have to advocate strong urban agriculture practices on the site?
3. How can planning help support and encourage urban agriculture in TRUP site?
4. How can the current City of Cape Town urban agriculture policy be enhanced to address the issue of food security and limited access to food in TRUP site?

1.4. Ethical position

Values and Normative standpoint guiding this dissertation.

From the above articulated socio-economic disparities, poverty and inequality, disempowerment, persisting social class segregation and lack of opportunities and access to basic services by the vast majority of Cape Town Residents. It is enshrined in the South African constitution that everyone has the right to access to basic services: water, food and shelter. It is also stipulated in section 24 of the constitution that everyone have the right to an environment that is not harmful to their wellbeing. However, in Cape Town, only a selected few are enjoying these rights. The vast majority of Cape Town's residents live in fragmented spaces and have limited access to not only economic opportunities and services but have limited to natural and ecological systems. The ethical standpoint of this dissertation is rooted in role of spatial planning can play in achieving spatial justice, social inclusion and sustainability, fostering equitable access to healthy sources of food, and basic service.

1.5. Scope of the study: case selection

The spatial focus of this research is on the Two Rivers Urban Park site shown in figure 1 below. The Two Rivers Urban Park (TRUP) is located at the confluence of the Black and Liesbeek Rivers about 5 km from the city centre. The Western Cape Government (2016) vision for the Two Rivers Urban Park (TRUP) Project is primarily aimed at overcoming the legacy of apartheid spatial planning. The site comprises of cultural and environmentally significant properties (City of Cape Town, 2003). The city of Cape Town, (2003) vision of the site was to rehabilitate, protect and enhance the intrinsic ecological qualities of the area, to conserve the unique cultural landscape, to encourage environmental education, to maximize opportunities for all people and promote sustainable development.

What motivates the choice of this study area is the fact that the Two Rivers Urban Park site holds a great potential to reverse the painful apartheid legacy of spatial segregation. TRUP is well located; it has the potential for social integration, as it is a prime location at the intersection of diverse neighbourhoods. Some of the underutilised vacant spaces found within the TRUP site study area have the potential to be used productively for urban farming. The park area is well integrated within the city, and it has the potential to hold both and metropolitan and local significance. The site is serviced by public transport with seven train stations, which run from different lines such as the southern line, Cape flats line, central line and the northern line. These commuter rail lines connect people from different income groups, from the southern suburbs, the sprawling townships and the Northern suburbs to the central city.



Figure 1 Two Rivers Urban Park.

Sources: City think space, 2012.

1.6. Methodology

1.61. Research Methods and Techniques

The purpose of this section is to set out the methodology to be followed to efficiently answer, and give reasons for posing, the research questions of this dissertation. Broadly, the section will seek to motivate as to why a case research methodology has been adopted, and what kind of a case method will be followed.

1.6.2 The Case Study Method

Yin (1981), defines a case study as an empirical inquiry that investigates a contemporary phenomenon with its real-life context. Yin, (2014) and Flyuberg, (2006) note that in order gain an in-depth knowledge about the real context of a particular case, the case study method is the most suitable research method. As noted by (Duminy, Waston & Odendaal, 2014) the main component of the case study method is to understand the uniqueness of single case. The nature of this research requires an in-depth contextual analysis of the Two Rivers Urban Park to get a deep insight of the socio-economic environment of the site.

According to (Yin, 2014), there is three specific type of case study application, which are explanatory, exploratory and descriptive. Yin, (2014) notes that the most important is to explain the assumed casual links in real-world interventions that are too complex for survey or experimental methods. The second application is to describe the intervention and the real world context in which it occurred. The thirdly, exploratory case enlighten that situation in which the intervention being evaluated has no clear, single set of outcomes.

This research explains development issues an and challenges, it is exploratory and descriptive in nature, and this is the reason why I will employ case study method.

The advantage of using a case study method is that it is a useful way for gaining deeper insights and knowledge about a specific geographic area where space production processes are uncovered. Case study method allows for an intensive description and analysis of a single individual or (sometimes) group.

The advantage of using a case study method is that it is a useful way for gaining deeper insights and knowledge about a specific geographic area where space production processes are uncovered. Case study research allows for an in-depth understanding of how global issues manifest locally. This will be useful for me as a researcher because I will gain a better understanding of the study area.

However, there are limitations that come with case study method. It is difficult to generalize in a case study method. Case studies provide a minimal basis for scientific generalization since they use a small number of subjects, some conducted with only one subject (Yin, 1984:21 adopted in Zainal, 2007). To use case study method, research questions why and what needs to be analysed need to be clear. Yin, 2014 writes that case study research is not rigorous enough. Too many

times, case study researchers have been sloppy, has not followed a systematic procedure or has followed an equivocal evidence to influence the direction of findings and conclusion.

As noted by (Flyvberg, 2006) there are different understanding and misconception of the case study method. The five common misunderstanding if a case study research that (Flyvberg, 2006) writes about are:

- (a) “theoretical knowledge is more valuable than practical knowledge;
- (b) One cannot generalize from a single case. Therefore, the single-case study cannot contribute to scientific development;
- (c) the case study is most useful for generating hypotheses, whereas other methods are more suitable for hypotheses testing and theory building;
- (d) the case study contains a bias toward verification; and (e) it is often difficult to summarize specific case studies”. (Flyvberg,2006: 219).

1.6.3. Research techniques and tools.

One of the key strengths of case study method is that it uses multiple techniques. This dissertation employs a qualitative research approach. In the process of data gathering, I will use multiple research techniques to collect data. Some of the research techniques that I will use gather data for this dissertation research include mapping, discussions, interviews, engagements, participant observation and open and desktop study.

Participation observation involves listening, watching, recording and note taking of what is happening in the study area. In participatory observation, the researcher is actively participating in an event or setting of the research. The advantage of observation techniques is that it provides information from spontaneous, unplanned, and unexpected events. Most observations do not require any special recording equipment.

Mapping techniques: This technique will be useful for contextual analysis of the study area and mapping of current opportunities and constraint in the TRUP site.

I will conduct **One-on-one conversation to collect data**. The format that I will use is open-ended interviews, and dialogue with the city of Cape Town officials who have worked with urban agriculture policy and food security.

I will also make use of secondary research techniques such as desktop study. This technique will be useful in my research for literature review, collecting previous work that has been done elsewhere that is a similar case as the nature of this research. This technique will also help me with interrogating existing opportunities and constraints of Cape Town urban agriculture policy and framework, current and previous projects that have been planned for the TRUP site.

1.7. Ethical considerations

For the quality and integrity of this research, I aim to seek informed consent from all the participants who will partake in this study. I will respect the confidentiality and anonymity of my research participants. I will ensure that the research participants participate in this study voluntarily. I will avoid and cause no harm to the research participants. I am acutely aware of ethical issues, and I will use information thoughtfully, responsibly and with integrity. I will not compromise any of the sources or quote out of context. I recognize and acknowledge that my own subjectivities will invariably influence my research; therefore, I will position myself. I will be using ethics consent form, every time I engage with research participants.

1.8. Assumptions and Limitations of the research

Time constraints.

The time constraints of this research demand that I will rely primarily on published information and material.

1.9. Structure of the dissertation

This section outline the structure of the dissertation.

Chapter 2 will be the literature review, which looks at literature that have been published in both the Global South and the Global North on; planning for urban agriculture, urban food security, productive landscape, sustainable cities and the significant of urban agriculture for social and economic resilience; constraints and opportunities of urban agriculture and policy implications or urban agriculture. Chapter 3 follows the literature review, is a contextual analysis of two rivers urban park. This chapter will provide an in-depth, detailed analysis of the sub-metro (TRUP site). This study will look at the environmental, social and economic potential and constraints in TRUP site. The contextual analysis of the site will guide intervention and proposals on the TRUP site. Thus chapter 4 is interventions, which a sub Metropolitan urban agriculture development framework will be developed for TRUP site. Chapter 5 will be implementation. This chapter set out

how the proposed interventions in the previous chapter will be implemented. It indicates the role of different stakeholders (public, private and NGO's). The last chapter, which is chapter 6, concludes the research study and reflects on the research process. This chapter will identify gaps, opportunities, and constraints found in the research process about the topic under study.

Conclusion

This chapter began by setting the scene and highlighting the global trends and issues affecting urban areas in the 21 century. This is followed by a brief highlight of urban challenges facing Cape Town. This chapter has outlined the primary objectives of this research and explained the main research question that this dissertation is asking and provided the subsidiary question. Furthermore, this chapter articulated values and normative standpoint that drive this dissertation. A brief motivation behind the selection of the Two Rivers Urban Park as a case used in this dissertation is provided. This chapter outlined and identified research method and technique that this dissertation employs. Within this chapter, there is a section on ethical consideration of the research as well limitation, and shortcoming of this dissertation are articulated



Chapter 2: Literature Review

2.1 Introduction

The purpose of this literature review is to first ground the topic of this dissertation in the academic debates around urban agriculture, secondly to review how the field of spatial planning engages, and respond to urban agricultural practices. Authors in the field of urban agriculture have noticed that urban farming brings with it multiple benefits that are different in different context. In the global south, urban agriculture is perceived as an excellent strategy for poverty alleviation, food security and plays a significant role as livelihood strategies (Battersby & Marshak, 2013). There is also strong emphasis on urban agriculture as having economic potential, regarding employment benefits and contributes to cities' economic development. While in the global north, the literature on urban agriculture focuses mainly on the role of community gardens improving individual health, welfare and contributing to social integration. (Battersby & Marshak, 2013). This chapter will provide a brief overview of the basic concept and definition of sustainable urban agriculture and food security, climate change urban resilience and sustainability as well as regenerative development concepts. This will be followed by the exploration of the urban agriculture literature. Although the UA literature covers a wide range of theories, this literature review will focus on specific themes that stand out repeatedly through the literature reviewed and that are relating to constraints and potential impacts of urban agriculture. These themes are:

1. Ecological sustainability
2. Community cohesion
3. Crime prevention through community gardens and
4. Health and nutrition

5. As well as spatial planning responses and policies to urban agriculture.

To this end, this chapter aims to position urban agriculture as having potentials not only as an essential contributor to economic development and food security but also contributes to sustainable and positive development that supports social cohesion, community integration encourages sustainable food systems and facilitate easy access to healthy and nutritious food.

In this research, I will use the terms urban farming, urban food production and urban agriculture interchangeably.

2. 2. Urban agriculture: concepts and definitions

The term urban agriculture (UA) is associated with several different meanings and it has been defined in various ways over the years and across disciplines. Writing from the global north perspective, Tornaghi (2014; 551) define urban agriculture as:

“the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities. It includes small-intensive urban farms, food production on housing estates, land sharing, rooftop gardens and beehives, schoolyard greenhouses, restaurant-supported salad gardens, public space food production, guerrilla gardening, allotments, balcony and windowsill vegetable growing and other initiatives”. Writing from the Global South perspective Crush, Hovorka &Tavera, (2011: 288) state “urban agriculture is often advocated as a means to address growing vulnerability and poverty, persistent food insecurity, declining livelihood opportunities and gender inequality in the contemporary urban economy”. They argue that local production of food and associated local marketing of fresh produce and processed products improve the food security of poor urban residents by making food locally available and at much lower price. Similar to the definition used by (Tornaghi, 2014), Crush, Hovorka &Tavera (2011: 288) concur that “Urban agriculture involves the production of plants and tree crops and animal husbandry on plot, in open public spaces and on unused privately owned land within the city and in the peri-urban zone”.

The literature reviewed Identifies two types of urban agriculture, which include small-scale inner-city farming, and peri-urban farming. Inner city farming usually consists of community-driven gardens and allotment gardens. Non- Governmental Organisation (NGO's) usually support these community garden projects. In addition to their contribution to nutrition and access to fresh food, community gardens also contribute and improving social relations, health, environmental education, youth development, job training, promote psychological well- being, ecological healing and connects people to nature. Peri-urban farming is practised on the urban edge of cities; it is

ordinarily large-scale farming that supplies food to big retailers. This type of farming is associated with its economic contribution to cities.

Due to the dynamic nature of urban agriculture, (Mougeot, 2010) notes that definitions, for urban agriculture will continue to change and evolve as it is applied in in different context. Therefore, there are various types and scale of urban agriculture activities. According to (Hayson, 2015a) urban agriculture activities may take place on household level (on -plot) or on land away from the residence (off-plot), on private land (owned or leased land) or on public land (parks, conservation areas, along roads, streams and railways), or semi-public land (schoolyards, grounds of schools and hospitals). The scale of production in urban areas usually ranges from very small-scale household farming to micro, small and medium-sized enterprise (Hayson, 2015).

The main focus of this research is mainly on small-scale community gardens. Hence, I chose these definitions because they both include plant cultivation/ production within the city not only in peri-urban areas and they also include different types and scale if of production such as public space food production, allotment gardens and urban household farming. In this research, I will use the terms urban farming, urban food production and urban agriculture interchangeably.

2.3. Urban sustainability and Resilience concepts

In the context of rapid transition, increasing socio-economic and ecological uncertainty and complexity urban sustainability and resilience perspectives are critical and need to be explored to understand the dynamic and evolving nature of cities globally. The constant changes in cities come with rapid urbanisation, increasing population, climate change effects and urban poverty. Therefore, adaptive strategies in cities are important in planning for uncertainty. As results of economic, social and environmental difficulties. Morgan (2009) state that food planning is becoming an important and legitimate part of the planning agenda globally. There are different understanding and models of sustainability, and there is a growing critique of sustainability and resilient concepts. The sections below explore urban resilience sustainability and regenerative development concepts to get a better understanding of how cities can move towards a more positive caring development.

2.3.1. Understanding urban sustainability

The concept of sustainability is complex. The classical definition of sustainability is the one adopted from the Brundtland report on sustainable development (1987), which states that

"sustainable development is the development that meets the needs of the present generation without compromising the ability of future generation to meet their own needs". As noted by Elmqvist, Barnett and Wilkinson (2014), most urban sustainability responses have failed to match the magnitude required for the global sustainability problems. Due to capitalism and development pressures, cities are not safer, healthier, equitable and sustainable. As mentioned above, cities are dynamic (constantly changing) and complex system, which includes of connected social, economic, and environmental systems. Thus, Elmqvist, Barnett and Wilkinson (2014:19) suggest that "a more appropriate conceptualisation of urban sustainability is one that incorporates a complex systems perspective of urban areas and their global hinterlands with a focus not just on sustainability goals but also on the resilience of urbanisation processes". (Elmqvist et al. 2014:20) "define sustainability as managing of resources in a way that guarantees welfare and promotes equity of current and future generation". Meerow, Newell, and Stults (2016) argue that the concept of urban resilience has become the increasingly important goal for cities, particularly in the aspect of climate change and rapidly changing urban environments and socio-economic uncertainty. The following section will explore the concept of urban resilience.

2.3.2. Understanding Urban resilience

Because of the engagement and interest of multiple disciplines in this field of study, there are numerous definitions of the term resilience. Pickett et al. (2014; 373) define the term resilience as "the ability of a system to adjust in the face of changing conditions". While, Almqvist et al. (2014;20), defines resilience as "the capacity of a system to absorb disturbance and reorganise while changing so as still to retain essentially the same functions, structure and feedbacks". As noted by Folke et al. (2010), adaptation and transformation are essential to maintaining resilience in a social, ecological system. Wiseman et al. (2014; 32) define a resilient city as a "community which can 'bounce back' from external shocks and to transform its self proactively to reduce the impacts of future shocks". Thus, Almqvist et al. (2014;22) argue that "if sustainable development is viewed through different lenses, sustainable development can be defined as a form of development which fosters adoptive and transformative capabilities and creates opportunities to maintain equitable long-term prosperity in complex interlinked, social economic and ecological systems". From these definition and explanation above, it is clear that in order for communities to be sustainable and resilient they need to be innovative and adaptable so that they will be able to bounce from external shocks.

2.3.3 The New Urban Agenda (NUA); Sustainable Development Goal (SDGs) 111



Figure 2 SDG 11.sustainable cities and communities

Source: UN-Habitat 111 (available online)

The New Urban Agenda was adopted by the UN-Habitat 111 conference, which was held in (Quito, Ecuador) on October 2016 to guide the urbanisation process over the next 15 years. The 2030 Agenda for Sustainable Development includes a set of 17 Sustainable Development Goals (SDGs) which aim to eradicate poverty, fight inequality and injustice, and tackle climate change by 2030. This roadmap makes explicit commitments to improving food security and nutrition, strengthening food systems planning, working across urban-rural divides and coordinating food policies with energy, water, health, transport and waste (United Nations, 2016).

The concept of resilience is emphasised in goal 11. Goal 11: which is sustainable cities and communities: making cities resilient, safe, inclusive and sustainable. As noted by (Kaika, 2017), Goal 11 in the 2015-2030 SDG hailed as an acknowledgement of what urban scholars have been systematically arguing and documenting: that we cannot address global socio-environmental problems without addressing urbanisation processes.

The New Urban agenda for UN-Habitat 111 introduced the importance of cities in the sustainable debates.

However, there is a growing body of critique for sustainability and resilience. (Kaika, 2017) argues that sustainability is coming off- age. (kaika 2017) contends that the "policy, institutional and technological experimentation that followed the excitement and optimism of the 1987 Brundtland report, did not deliver the "sustainable development" that the report conceptualized". (Kaika, 2017) State Since 1987 when the Brundtland report, which is the commission that coined sustainability, cities have been perusing sustainability through techno-managerial solutions, smart technology and smart cities approach. Cities have been thinking that socio and environmental inequality solutions are something that we can inject in cities in the form green aesthetic artefacts or smart technologies (Kaika, 2017).

It becomes clear, methods, models and institutional frameworks for sustainability that have been adopted in the past have failed to solve the socio-environmental ills. (Kaika, 2017) Argues that instead of perusing the design of the best sustainability and resilience indicators and the pursuit of the perfect techno-managerial solutions to manage socio-environmental challenges in cities, market-led and smart city approach should not be prioritised over real lived experiences. The failures of the past have made us more knowledgeable. Methodological tools and institutional framework are still the same to tackle socio-environmental challenges globally are still the same. The problem with the four indicators, resilience; sustainability, safety and inclusiveness, are attributes which can be handed down by those in power to those in need. They do not provide overt solutions to global environmental equality. They only act as Immunological practices. They vaccinate people and the environments so they can take more inequality and environmental degradation in the future so that they can be called resilient.

2.4. Understanding and food systems and food security

In many urban areas, food is taken for granted; many urban dwellers do not know where and how the food we consume is produced. There is an unfortunate disconnect between people and food production (Rocha and Jacobs, 2017). The disconnect is strengthened by supermarkets which divide the relation and between food production and people. As noted by Pothuckchini and Kaufman, (1998) that food is usually viewed as agricultural or rural issues, it is less visible and complex. The reason for its invisibility includes the raising of urban policy, which designated zones for specific activities. Battersby et al. (2014) note that urban food systems comprise of production of food, processing, distribution, wholesaling, retail and consumption. As noted by (Rocha and Jacobs, 2017) multiple channels across food systems threaten human health. The resulting health impacts are severe but are rarely examined together, systematically. Each impact appears as discrete and unrelated to the next, but through systems view their inter-relationships, linkages, and complex associations are revealed. The health impacts of food systems disproportionately affect the most vulnerable in our communities and are compounded by climate change, poverty, inequality, poor sanitation, and the prevalent disconnect between food production and consumption. The true costs of these impacts are staggering.

Crush et al. 2017 The food system at a global and local level is profoundly unsustainable. Although notoriously hard to calculate, it is estimated that the food system is responsible for at least 30 percent of global greenhouse gas emissions. At the local scale, the food system accounts for over 40 percent of Cape Town's ecological footprint. The food system in developing countries is undergoing rapid transformation, characterized by increased presence of imported, highly-processed foods, lengthening supply chains and the increased presence of large-scale formal retailers (Battersby, 2017). The overall trajectory is towards a less, not more, sustainable food system, characterized by greater chemical inputs, greater carbon emissions across the value chain, more waste, and other externalities. At the urban scale the privileging of this system increases food and food packaging waste, increases energy demand, increases the overall carbon footprint through increased transport, and undermines local food economies.

A food system analysis has often been the first step in planning for a sustainable and secure urban food system.

"Times are changing we must slow down". African proverb.

2.5. Climate change

Climate change is the ramification of global warming. As noted by (King, 2017) climate, change is happening much faster than predicted. Mediterranean climate is changing, experiencing fires, getting hotter and drier with less rainfall. A practical example of a city, which experience Mediterranean climate and is affected by the dramatic and unprecedented effects of climate change is Cape Town. Cape Town is officially water scares city, and it is experiencing drought.

2.6. A paradigm shift

This section reviews new ways of thinking, framework and approaches to sustainability and new forms of resilience.

2.6.1. The key characteristic for achieving sustainability and innovation for resilience.

During the times of socio-environmental confusion and uncertainty, new ways and new forms of thinking are called for. This section look at the key characteristic of achieving sustainability. As mentioned above a socio-technological approach has up to now been the traditional way of analysing urban complexity (Elmqvist et al. 2014:23). However, when dealing with new urban challenges such the increasing urban poverty, climate change, and urban socio-ecological approach become an important approach. This section recognises the interdependence between biophysical, social, and economic.

The following section introduces some of the key characteristics, innovations, and concepts towards achieving urban resilience and sustainability.

2.6.2 Social-ecological systems- connecting people with nature

"The urban social-ecological system is represented by a diverse mosaic of different land uses such as parks, gardens, green roofs, and urban farms, influenced by biophysical drivers on

the one hand and, social and economic drivers on the other”(Elmqvist et al. 2014). As noted by Grimm et al., (2008) these urban social-ecological systems are dynamic. However, they create direct and indirect ecosystem services, which contribute to the well-being of humans (TEEB, 2011) and contribute to the ecological healing of cities. Elmqvist et al. (2014; 23) identify some examples of these urban ecosystem services which include; climate change regulation, protection against hazards, prevention of soil erosion and opportunities for recreational and cultural inspiration. The social ecological system such urban parks and community gardens, help to regulate climate change effects, build a community that can bounce back from any external shock and contributes to ecological healing. Humans and nature exist alongside each other People are part of nature, and they must actively participate instead of being isolated from nature due to its protection status. Instead of conserving and protecting the environment, it needs to be made accessible and meaningful for everyone, building meaning and relevance in everyday life of ordinary people (Katzschner, 2017).

2.6.3. Urban food policies.

As noted by (Hawkes and Halliday, 2017) It is becoming evident that the food challenges (food insecurity and poverty) are associated with the urban area, and these problems outlined above must be addressed to make sustainable development a reality. Some of the innovative tools or strategies for urban resilience are city food planning, (Pearson and Dyball 2014). “An urban food policy is coordinated action on the part of city government to address food-related challenges. Urban food policy often emerges through the significant involvement of civil society and other actors” (Hawkes and Halliday, 2017: 9). Hawkes and Halliday (2017) Further explain that urban food policies range from integrated approaches to single-issue policies. Integrated urban food policies refer to policies seeking to address multiple food systems challenges and require multiple government departments and policies.

2.6.4 Regenerative development concept

Imagine a home that heats itself, provides its water and grows its food. Imagine that it needs no expensive technology, recycles its waste, and has its power source.

2.7. A global perspective on urban agriculture

When researching urban agriculture, most of the literature found a focus on the social benefits of urban agriculture in the cities of the global south. The sections below explore the literature reviews the different perspectives, thinking and ideas on urban agriculture and planning for urban agriculture globally.

The first part of this section focus on the urban agriculture in the global south, this is followed by a review of urban agriculture in the global north. Secondly, a section which reviews urban agriculture and panning. Thirdly, this will be followed by case study examples and fourthly potential benefits.

2.7.1. Urban agriculture: A South global perspective.

In the Global South, studies in different disciplines noted an increasing importance of Urban Agriculture in the 1980's (Maxwell, 1995). As noted by (Maxwell 1995), the first discipline that engages with the ideas was urban planning; other studies were focused on poverty alleviation and the impacts of urban agriculture on household food security. The interest in urban farming was raised because of the 1975 global food conference highlighting food insecurity as a critical development challenge (Battersby and Marshak, 2013). Maxwell and Zaziwa (1992:13) state that urban agriculture were argued to be as old as African cities, and vital to understanding how poor people survived in cities. Across sub-Saharan Africa "the main push factor encouraging the practice of urban agriculture is an increasing economic hardship" (Hampwaye et al. 2007). With increasing urban poverty as the urban population increases, urban agriculture has emerged as a critical economic activity linked to poverty alleviation (Hampwaye et al. 2007). Thus this is the reason why (Battersby and Marshak, s2013) state that in recent history urban agriculture has been supported as a solution to the particular type of urban challenges in the global south. In African cities, in particular, research on urban agriculture (UA) has focused on the role of UA in poverty alleviation, food security and economies of urban agriculture (Smith, 2010; de Zeeuw, 2011). Also, (Maxwell, 1995) argued that urban agriculture improve the nutrition and provide additional household income. For example, households engaged in food production appeared to achieve greater food security and their nutritional status tended to be better than that of non-farming urban households of the same socioeconomic status. Also, production for consumption and sale could generate revenue and reduce monthly household expenditures on food, leaving more cash available for other basic household needs (such as health, housing, education and clothing) (Crush et al., 2011).

The book by Egziabher et al. 1994 *cities feeding people*, concludes that urban agriculture contributes positively to household food security. This was later confirmed by Smith, *Cities feeding people: An update of East Africa (2010)*, who argued, "there is no doubt that urban agriculture provides one important solution to the problem of food security confronting many African regions". Overall, studies in the global south focus on the contribution of urban agriculture on economic opportunities nutritional benefits.

However, there are voices of disagreement in particular based in Southern Africa. Crush et al. (2011) stress that the benefits of urban agriculture for the poor have been "exaggerated". Ellis and Sumberg (1998: 221), for example, noted that 'the term urban agriculture both claims too much and offers too little in the context of urban poverty and food security. (Crush et al.2011:287) Explain that "It claims too much by equating all food production in towns with improved food security for poor people, and it offers too little by failing to consider the role of rural, urban interactions in explaining the survival capabilities of the urban poor". The majority of urban farmers in the global south are poor, and they do not have access to land while 80% of the wealthy population and 20% of the middle class have access to land (Smith, 2010). Tevera (1999) argued that there was little evidence to suggest that the truly poor derived much benefit from urban agriculture. Most of the urban poor have limited access, and some do not have access plots of such magnitude that they can provide their whole family with food (Bryld, 2003). As noted by Smith (2010) and Bryld (2003) the lack of access to land is the main reason poor urban populations do not practise urban farming and do not derive much benefit from UA.

2.7.2. Urban agriculture: a global North perspective

As noted by Tornaghi (2014), in the global North the literature on urban agriculture is concentrated on the role of community gardens as well as the promotion of community gardening within educational institutions. Community gardens in many cities of the global north were influenced by Ebenezer Howard's garden city model, which allocated space within the city for vegetable gardens and allotments (Battersby and Marshak 2013). The intention was to connect urban dwellers better with nature and provide access to food. Deelstra and Girardet (2000) argue that food production in the global North emerged in the time of crises like wars and recession and in times when food became increasingly scarce. Similarly to the global south, UA is conceived as a strategy in response to poverty, hardship and crises. It emerges as painstaking effort when need is so urgent that citizens are compelled to take new roles and take matters into their own hands.

Lovell (2010:2505) also states that "in the 1890's, community gardens were emerging on vacant lots in the cities such as Detroit, New York, and Philadelphia, to provide food for nearby residents. During the Great Depression (the 1930's), some city residents dealt with the problems of the time by producing their food in urban garden plots and gaining employment through jobs created on city farms." Hanna and Oh (2000:209) restate that "During times of hardship, gardens proved to be a sufficient way to unify people and feed a community". The gardens developed during the World Wars were called Victory Gardens (including backyard gardens and allotments in public spaces), 'they eventually were referred to as community gardens because they were owned by the locality and created by the community' (Battersby and Marshak, 2013). In the 1970's, community gardens were developed to support the renewal of urban areas—offering food, recreation, and social benefits to help revitalize communities (Lovell, 2010).

While the impulse of urban agriculture is often in a response to hardship and survival, there has been changes over time. Urban food production in the Global North is thus, advocated as having social benefits associated not only with the contribution of urban agriculture to food security and improvement of livelihood strategies but also plays a role in building strong communities, health and promotion of active citizenships.

(Lovell, 2010) claims that "In the Netherlands, 250,000 community and allotment gardens exist across 4,000 ha of land, and Amsterdam alone contains 350 ha of land for urban gardens clearly, urban agriculture continues to be an extensive and important activity in regions across the world".

2.8. Urban Agriculture and planning

In recent history, planning authorities viewed urban agriculture as an illegal activity. Hence, the land market for UA is mostly informal, and most people cultivate land that they do not own (Crush et al., 2011). Rogerson (1997) state that "despite the wide spread occurrence for subsistence consumption, urban food production is not supported by city officials and therefore it is not planned for. Urban agriculture was neglected because it was regarded as "trivial and insignificant" (Hampwaye et al. 2007). It was regarded as an artefact of rural life that did not belong in cities and pose health treats to urban dwellers (Havorka, 2003). Planners thought that urban food production was messy "UA was stigmatised as being "backwards", 'rural and traditional', an activity that had no place in the context of modernising cities" (Hampwaye et

al. 2007:557). Since the early 1990s, the international interest on the UA as grown. Some cities and national authorities (deZeeuw, 2007) now recognises the significance of urban agriculture. Many cities and several countries such as, (Brazil, Sri Lanka, Sierra Leon) have developed policies regarding UA and initiated programmes to facilitate the development of safe and sustainable urban farming.

Reflection and interpretation of the above UA Literature.

2.9. Benefits of urban food production

As seen from the above sections, the benefits of urban agriculture vary with time and place. As noted by Bryld (2003) urban agriculture brings great potential for enhancing the situation of the urban poor and as a tool for social integration. Smit and Nasr (1992) argue that it is often the first line of defence against poverty and malnutrition in the time of stress. It also is a major process of poverty alleviation during the period of economic recovery. It improves the quality of the urban environment through greening and reducing pollution.

2.9.1. Ecological sustainability

Urban agriculture contributes to an improved urban environment in many ways (Bryld 2003); some of the ecological contributions by UA is by closing the open linear system and reducing the throughput of resources in cities. UA can play an important role in the recycling of organic waste, which includes; solid and wastewater. Wastewater can be recycled and substituted for fresh water, which then increases the availability of freshwater for drinking and cooking and other uses. If appropriately planned and integrated into urban planning and urban design, UA can contribute to the comfort of citizens (Deelstra and Girardet, 2000). Greening spaces in neglected areas within the city help improve the physical climate because vegetation can: can help reduce humidity and lower the urban heat island. An example of this is Sofia, the capital city of Bulgaria, where growing of food around housing compounds, along river banks, and in other vacant spaces where public green spaces have been neglected by the municipality, led to an I increased vegetation and an improved microclimate.

Agricultural activities in the cities can indirectly improve urban water management because green spaces with permeable land surfaces allow rainwater and run-off to infiltrate through the soil (Deelstra and Girardet, 2000). Large cities are dominated by built-up areas and hard surfaces, little attention is focussed on green soft, permeable land surfaces which capture surface water run-off and store water as groundwater. Thus, UA is an essential aspect in reducing the risk of flooding. Lack of water is a major problem in many cities including Cape Town, therefore to reduce the risk

of surfaces and groundwater pollution from agricultural practices; farmers have to use organic fertilisers.

2.9.2. Health

Many authors have argued that those who grow their food receive nutritional benefit from UA and they are more food secure than those who depend on supermarkets. This is mainly because those who grow their food through community gardens have access to fresh produce and nutritionally rich foods. Bremer et al. (2003) also state that studies have shown that community gardeners and their children eat healthier, more nutrient-rich diets than do non-gardening families.

Research on UA has shown that community gardens contribute to a variety of mental health benefits. Maller et al. (2005), adds that being in natural places promotes recovery from mental fatigue, and helps with and recovery from stress, improves people's ability to recover from illness and injury, restores concentration, and improves productivity. Armstrong, (2000) claims that urban farming can improve psychological health and can contribute to self-confidence and general wellbeing. As noted by Amstrong, (2000) during 1988- 1991 59% of men and 42% of women in the US reported gardening as sources of leisure and exercise. Battersby and Marshak (2013) emphasized that the older generation viewed urban farming as a form of exercise, which brought improved health.

2.9.3. Community cohesion: building social networks.

UA contributes to better public health and promotes a healthy city (Smit and Nasr, 1992). It contributes to social sustainability while increasing ecological sustainability. Building social networks is one of the most important benefits contributed by UA (Olivier, 2015). Urban gardening plays a role in integration, and cultural transfer as different people from different backgrounds come together in one space, Interconnecting communities and creating common spaces. Thus, urban agriculture can foster community development with shared experience and tools and skills. Urban farming can also turn unsightly plots into green areas, preserving the much need green belts in the cities.

2.9.4. Crime prevention through urban farming

Urban agriculture also plays a role in transforming dangerous, vacant spaces into thriving and beautiful communities and landscapes. According to Schukoske (1999), the development of community gardens has led to the beautification and greening of many neighbourhoods and fostered the spirit of community cooperation. Many authors have argued that community gardens create the sense of place and decrease criminal activity in vacant plots /areas known as hot crime

spots. Schukoske (1999) emphasized that the gardens are used a defensible space limiting escape routes for criminal perpetrators and increasing public range and vision to prevent anti-social behaviour. As noted by Battersby and Marshak (2013) the idea of community gardens as a tool for defensible spaces has its roots in Jane Jacobs argument eyes on the street as means to improve safety in urban areas(Jacobs, 1961). Urban food gardens are referred to as creating safe spaces for young children and women, providing space for children to play away from the harsh environment and creating space for women to interact.

2.10. Global Constraints and Barriers to urban agriculture

Planning policy constraints

With the multiple potential and benefits of Urban Agriculture, still, the planning policy context (that is, the policy, legislation, organization of government and elected officials and government staff involved in planning communities) is so often accused of posing the greatest challenges to urban agriculture (Quon,1999).

When researching urban agriculture, the majority of the articles reviewed highlight that both in the Global North and the global South context, urban managers and city planners in the past few decades have neglected and were reluctant in facilitating and supporting urban agriculture policy (Quon,1999.; Bryld,2003). Urban agriculture suffers from restrictive urban policies, laws and regulation due to a mainly illegal status of urban agriculture and lack of supportive services.

For example, in Lusaka, Urban agriculture was still illegal in 2007, and in planning land use for urban development, UA was often left out. Before UA was incorporated in the Dar es Salaam 2012 Master Plan, UA despite its many benefits received little political support from the central and local government due to its informal state (Halloran and Magid,2013). As a result, many urban farmers' experience insecurity of land access and ownership, and are unable to invest in the improvement of their land, inputs and infrastructure. Although there have been several attempts by various international and foreign organisations to legitimise and institutionalise urban agriculture in Dar es Salaam, very little has changed politically over the past 30 years.

Lack of secure land tenure

As noted by Lovell (2010) and Bryld (2003), one of the most significant constraints to the widespread adoption of urban agriculture is limited access to land for those who would like to grow food. The lack of security of tenure on that land, mostly where urban food production is competing

with other uses (such as commercial development and housing development) that provides greater profit for the landowner particularly in the global south where there has been an urgent need housing development. Marginalized groups and minority populations are particularly vulnerable to the problem of land access and security since they often do not have the means to purchase land. These are the people that are significantly food insecure (Lovell, 2010). Bryld (2003) claims that 20% of the urban agriculture cultivated in the city in the global south, is cultivated on land that is owned by the cultivators. The ongoing migration into cities also puts pressure on the few available plots of land. New urban dweller and citizens who cannot afford land are often excluded from access to land due to older residence gat keeping (Bryld, 2003). Another barrier to urban agriculture is the limited availability of land that is suitable for producing food based on the location, size, and access to necessary resources (Lovell, 2010).

The primary constraint related to urban planning for agriculture in the US, however, is probably the intense competition from other land uses. In cities of the global south, agriculture and urbanisation are viewed as conflicting activities (Smit and Nasr, 1992). Lack of land availability and water surfaces is also a constraint that limits urban farmers who do not have land.

Theft and vandalism

Theft and vandalism is a major problem faced by urban agriculture. Urban farmers are faced with insecure yields due to theft and slashing.

Health implications

Multiple problems can occur when water and solid waste are reused for irrigation and fertilizers. Poor management of compost piles increase diseases; untreated wastewater being used for farming resulting in cases of cholera. As noted by (Smit and Nasr, 1992) Chemical fertiliser used for urban farming may lead to serious environmental problems and, such pollution if underground water and surface water. Hence, City planner and other city authorities particularly in the global south, have resisted urban farming on the grounds of public health. City planners and other city authority were traditionally concerned about the health implications of using wastewater and solid waste for agricultural purposes. Thus, urban farming was resisted on the grounds of

How planning can facilitate urban agriculture lessons from Belo Horizonte, Brazil

Case study: Food planning in Belo Horizonte, Brazil

An example of a city that has adopted successfully integrated food policy is the case of Belo Horizonte, Brazil. The government of Brazil included urban agriculture policy in its zero hunger policy programme, and many urban districts are developing UA programmes aiming at enhancing food security, poverty reduction and social inclusion (de Zeeuw, 2007).

In the early 1990s, Brazil was in the grip of economic crisis, and food prices were rising beyond the means of many citizens. In Belo Horizonte, a city of about 2.5 million people, around 11% of the population was living in poverty, and 20% of children were going hungry each day (Lappe, 2009). To redress the inequality and improve citizens' access to sufficient, healthy and nutritious food, in 1993 the city established an integrated approach to food security policy that remains in place today.

The guiding principle behind the policy is the human right to food; the policy has mainstreamed the pursuit of inclusive, universal food and nutrition security into public policy. The policy encompasses a range of different programmes, which are managed by SMASAN- the 'Municipal Secretariat for Food and Nutrition Security (Hawkes and Halliday, 2017). The programme falls under six work stream:

Subsidized food sales, e.g. four Popular Restaurants that serve nutritious meals at (or below) cost.

- Food and nutrition assistance, e.g. the School Meals Programme; the Food Bank.
- Supply and regulation of food markets, e.g.(low-cost food) stores that sell food staples at a price fixed by the municipality; straight from the Country, through which associations of small-scale producers sell directly to consumers.
- Support for urban agriculture, e.g. school gardens, community plots, container growing.
- Food and nutrition education, e.g. online resources and a policy knowledge centre.
- Job and income creation, e.g. professional food courses in schools and for mature students.

This case study shows that the main enablers for developing Belo Horizonte's approach to food and nutrition security and establishing SMAB/SMASAN were political commitment of the then-mayor, and strong support from within the community and the civil society sector which made the very idea of addressing food security a powerful one that politicians would be wise to address. Ongoing policy processes, including the development of a new Food and Nutrition Security Plan, have been enabled by public participation through members of COMUSAN, which ensures the

policy is relevant to needs in the city. The main planning lesson that comes out of this case study is

Conclusion and Findings

Over the last few decades, cities around the world have developed urban farming policies. As noted by Morgan, (2009) food planning is becoming important of planning agenda. Some of the reason why planner now starts to plan for food farming is that of many development complexities, which include rapid urbanisation, and the rise in urban poverty which is also exacerbated by rising food prices; increasing food insecurity is becoming a major crisis and the effects of climate change. Most research has strongly focused on the economies of urban agriculture and its contribution to improving food security and poverty alleviation. However, the benefits of UA are more than just about economic opportunities. In the literature reviewed, urban farming has other benefits associated with health and social wellbeing. Community gardens have great potential for community cohesion and, and contributes to building active social networks. For example, the farmers interviewed by Battersby and Marshak in their (2013) research in two areas within the Cape Flats, in Cape Town have articulated that, urban farming has contributed significantly to their health and physiological benefits. The busyness that came with growing food and a sense of purpose was important given the high unemployment rate. Some of the farmers mentioned that UA contributes to spiritual benefits. Building strong social networks through forming the friendship and interacting with surrounding neighbourhoods. From the literature reviewed, it comes across that community gardens have the potential to perform as multifunctional spaces, for example as, as a public open space, as a growing space, and healing space. However, if urban farming is not facilitated and regulated it can bring with it many problems, mainly health-related



Chapter 3 Contextual Analysis

3. Introduction

This study has so far undertaken a literature review, which has laid out the theoretical context for interventions. This chapter now carries out a contextual analysis of my study areas TRUP site, in order to understand the current state, opportunities, and constraints in relation to UA and creating meaningful UA opportunities and space. As this study focuses on the role of spatial planning in relation to urban agriculture, the analysis will thus focus in the study area with a focus of food systems. This analysis is primarily limited to desktop research and policy review, and it relies on key informants such as relevant legislative documents (SPLUMA, NEMA, Municipal by laws) as well as Spatial Development Frameworks, academic research and various specialist studies that have been conducted for the TRUP site.

This chapter is divided into 4 parts. Part one, (3.1) begins with a brief history of the origins of urban farming in Cape Town and history of urban agriculture in the TRUP site. This section explores the relationship between the early development of the City and food. Section (3.2) provides a brief analysis of the current food system, flows, food sources as well as people's access to food. Although the food system analysis is brief and it doesn't focus on a city-wide scale, it is conducted to better understand the current food routes within Cape Town and the role of existing urban farms in facilitating access to food for Cape Town's residents, particularly the urban poor, and improve people's nature relationship by reconnecting people.

Part 2, provides a contextual analysis of the Two River Urban Park (TRUP) with an emphasis on exploring opportunities for urban farming. Part 3 reviews key informants (current policy and legislative context) that are relevant to this study. The reviewing of the key informants will influence and inform interventions. Part 4, will draw out opportunities and constraints from the contextual analysis. This will be followed by a summary and conclusion.

Part 1:

3.1. Origins of urban farming in Cape Town Metropolitan areas.

This section provides a brief history and origins of urban agriculture in Cape Town.

The origins of urban farming in Cape Town metropolitan area dates back to the 1650s when Jan Van Riebeeck arrived at the Cape as an employee of the Vereenigde Oostindische Compagnie (VOC). The VOC is also known as the Dutch East India Company. Jan Van Riebeeck came to the Cape to spearhead the establishment of a refreshment station to provide fresh water, vegetables, fruit and meat for VOC ships, the settlers, traders and soldiers on their way to East Indies (South African History online, 2017). Ensuring that a stable supply for refreshments and meat, it became important for the VOC to acquire land to cultivate gardens and rear livestock (South African history online, 2017). The Cape became a colony when the settlers from Europe began to settle there. According to the South African history online (2017), around 1652 the VOC granted men permission to own land, become farmers, and improve food supply. It was that the first garden that Jan Van Riebeeck established was what is now known as the company gardens shown in figure 3 below. The garden was alongside the fort situated on 17 ha of land (Dunn 2010). By 1655, some company employees were growing their own vegetable plots near the castle. As noted by (Dunn 2010) In 1656, Van

Riebeeck found suitable land in the Rondebosch area for more gardens. The Rondebosch area is located on the southern side of the Cape Town metropolitan area.

It is recorded that during that During 165, various vegetables, grains and tobacco were planted in the new gardens. The Company's orchard was also established at Rondebosch. Due to the success of the company gardens It is mentioned in the South African history online(2017) and Dunn (2010) also notes that in 1657 the VOC released some employees from their contracts granted them freehold rights on land along the Liesbeeck valley, Devil's peak and the lower slopes Lion's head for them to start farming. The company (Dunn, 2010) provided them with seed and loans. These farmers were known as the free burgers.

Dunne (2010) states that, farms were established in the Philippi located in the low laying areas called the cape flats, during the late 1800s after the Cape government decided that the Cape Flats, The low-lying area of Cape Town known as the Cape Flats, an area characterized by social fragmentation that it should be used for agricultural development. During the 1870s German settlers arrived in the Cape, instead of seeking job opportunity from the VOC, many of the German immigrants chose to farm the Cape flats areas and soon began to establish vegetable farms (dune, 2010). It is documented that the German farmers struggled to grow vegetables in the sandy Cape Flats. They also struggled to sell their produces in town, as there was no roads in the Philippi farming area, and the farmer were not able to sell their produce in town without licence. Over the years they overcame these hardship, hurdles and difficulties were successful in establishing horticulture in the Cape Flats area (Dunn, 2010).

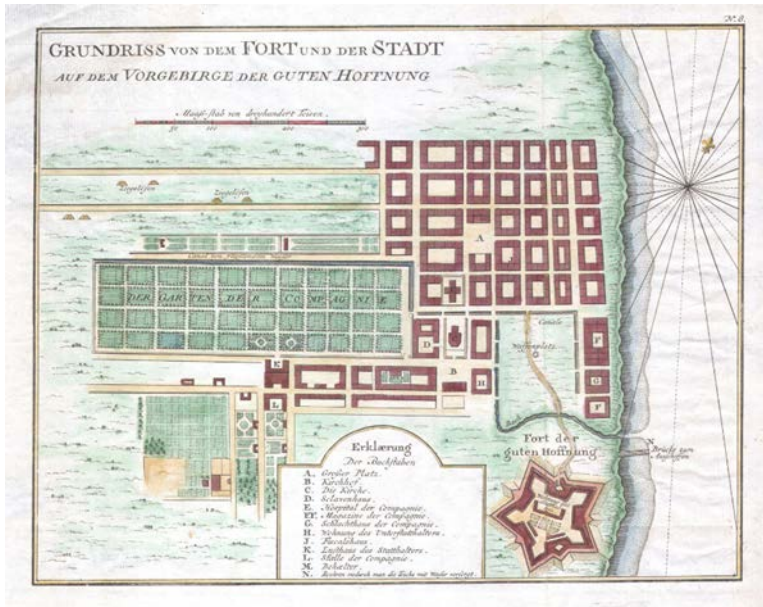


Figure 3 First VOC Vegetable Garden
sources: <http://www.theheritageportal.co.za>

3.1.1 History of urban farming in Two River Urban Park

The Two Rivers Urban park is an important site from a heritage perspectives and from an environmental perspectives (PGWC; 2016). The TRUP study area has a history of agricultural use. Orchards and wheat fields were irrigated along the riparian landscapes of the Liesbeek and the later the Black river. Figure 4 shows agricultural production before the residential development, with neat ordered orchards and wheat fields, which were irrigated by the Liesbeek River.

In terms of heritage, it is noted by the (PGWC, 2016 Two River Urban Park Baseline Report) that the TRUP site is significant from a heritage perspective. TRUP site include unique structures associated with agricultural, scientific, institutional, industrial and residential areas.

As result of its strategic position in relation to the river systems, the TRUP site has a significant role in pre-colonial history in terms of the history of transhumance and the indigenous residents of the Cape and their struggles to retain their land. As a result, it plays an important role in the cultural identity of the First Nation.



Figure 4 early urban farming along liesbeeck
Sources, Heritage Baseline Study, (PGWC, 2016).

The cultural heritage and natural landscapes of the TRUP are closely linked with the cultural landscape and have evolved from the constraints and opportunities presented by the topography and the riverine systems

The use of the site has produced overlapping patterns of use and significance including the following:

- The use of the site for summer grazing by transhumant pastoralists, largely the Gorinhauqua and Goringchoqua during the pre-colonial period.
- The placement of barriers and the development of frontiers by the Dutch East India Company (VOC) to limited access to fertile land and water systems.
- The sites of the granting of the first lands under individual tenure; and the introduction of private property ownership and use in the early Dutch Colonial Period.
- Early industrial use and the development of windmills to support agriculture in the area. These include the Oude Molen, and the Nieuwe Molen which remains.
- The presence of early homesteads and werfs which faced the Liesbeek River and used the riverine system for the purposes of irrigation using channels, weirs and dams.

- The use of the site for scientific institutional purposes i.e. at the Astronomical Observatory.
- The use of the site for medical purposes which required societal distance and separation i.e. the Valkenburg Mental Hospital and the Alexandra Institute.
- The use of the site for racially based segregation in terms of medical institutions i.e. the Valkenburg East Mental Hospital.
- The use of the site for segregated formal housing systems i.e. at Maitland Garden Village.
- The development of high density housing on the periphery of the TRUP in Observatory and Salt River
- The growth of the railway transportation links, the development of rail lines across the mouth of the isthmus and the estuary
- The loss of the historic werfs to development i.e. at Malta Farm and Vaarschedrift.
- The use of the areas prone to flooding and unsuitable for housing for recreation purposes i.e. Hartleyvale and the sport fields along the Liesbeek Parkway.
- The cultural landscape of the area including mature tree plantings and avenue of trees.

From the above section, it is apparent that urban agriculture has played a vital role in the origins and the built form of Cape Town as a city. Urban agriculture has played an important role in the economy of the Cape and for livelihood strategy in times of hardships, poverty and war. It is mentioned in Battersby et al. (2014) that the city of Cape Town and its relationship with food production is deeply embedded within the historical development and structuring of the city (Battersby et al.2014). The history of food production means that there are a number of agricultural areas within the city and on the city boundaries. The history of urban farming in Cape Town and in the Two River Urban Park deeply influenced the spatial character of the Cape Town metropolitan area. It is evident from the brief history of Cape Town and the Two Rivers Urban Park in Particular that acts of segregation began way back in the 1600s when the VOC settled in Cape Town and strategically chose well located areas to settle in, and protected land of agricultural significant. During the act of finding valuable agricultural land for urban food production the VOC undermined indigenous people's livelihood strategies and went ahead and expropriated land away from them.

3.2. Current Food flows and food systems analysis.

This section aims to provide an analysis of Cape Town's current food production and its distribution system as well as the main sources of food in Cape Town and how well connected these systems are. There are multiple way in which residents in Cape Town access food. Some people access food through major retailers, some produce their own food while other access their food through what is known as informal trade. There are substantial flows of food into, out and within Cape Town (Battersby et al, 2014). For the purpose of this research, I will explore only food flows within Cape Town Metropolitan Area.

A food system analysis has often been the first step in planning for a sustainable and secure urban food system.

3.2.1. City of Cape Town food system analysis

Food systems are generally defined as systems that includes activities, actors and institutions connected to, and interacting in the production, processing and, distribution, retail, and consumption, of food and as well as waste disposal (Crush et al., 2017). The desired outcome of these interactions is food security for the city's residents. The City of Cape Town: State of Cape Town report (2016) recognises that, food insecurity is increasingly becoming an urban challenge. Food insecurity is the inability to access nutritious and culturally acceptable food, rather than the amount of food available (CoCT, 2016).

It has been noted by (Battersby, 2012 and Smit, 2015) that Cape Town's food system is a highly complex system, which comprises of both formal and informal food sectors. The informal system is active and vibrant and engages in similar activities as the formal sector. However, the informal sector remains largely unsupported by the municipality (Crush et al, 2017). Figure, 3.2 below shows the components of urban food systems. A better understanding of the food systems is required in order to address issues of urban food security and poverty. As noted by (Battersby 2017 and Crush et al. 2015), the lack of or an absence of a food governance mandate in Cape Town means that no institution is tasked with the monitoring of the food systems. The food systems is largely in the hands of the private sector, which means that data in terms of food flows, is not uniformly recorded or readily available (Crush et al.2017).

FOOD SYSTEM DIAGRAM

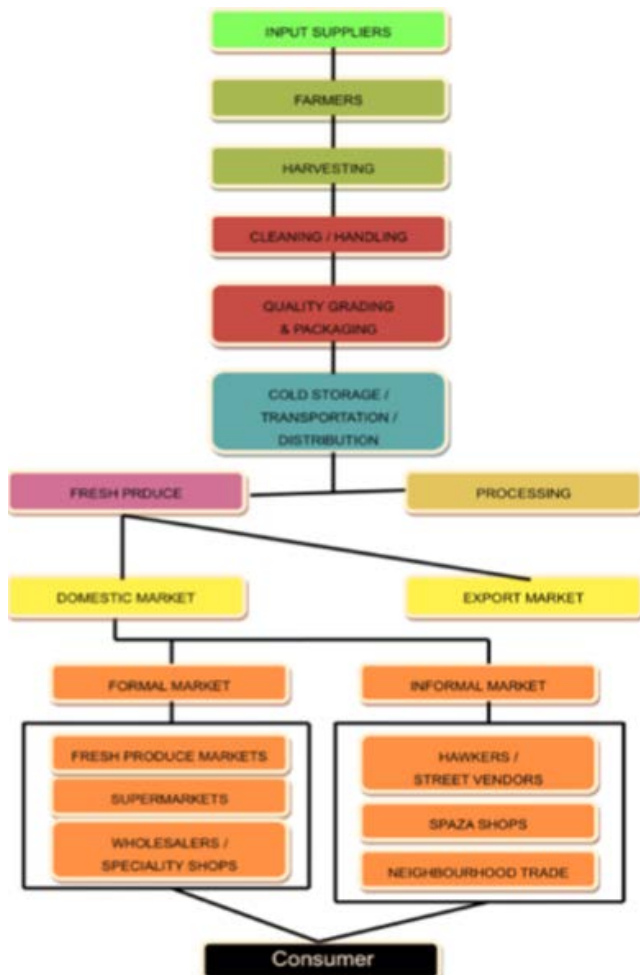
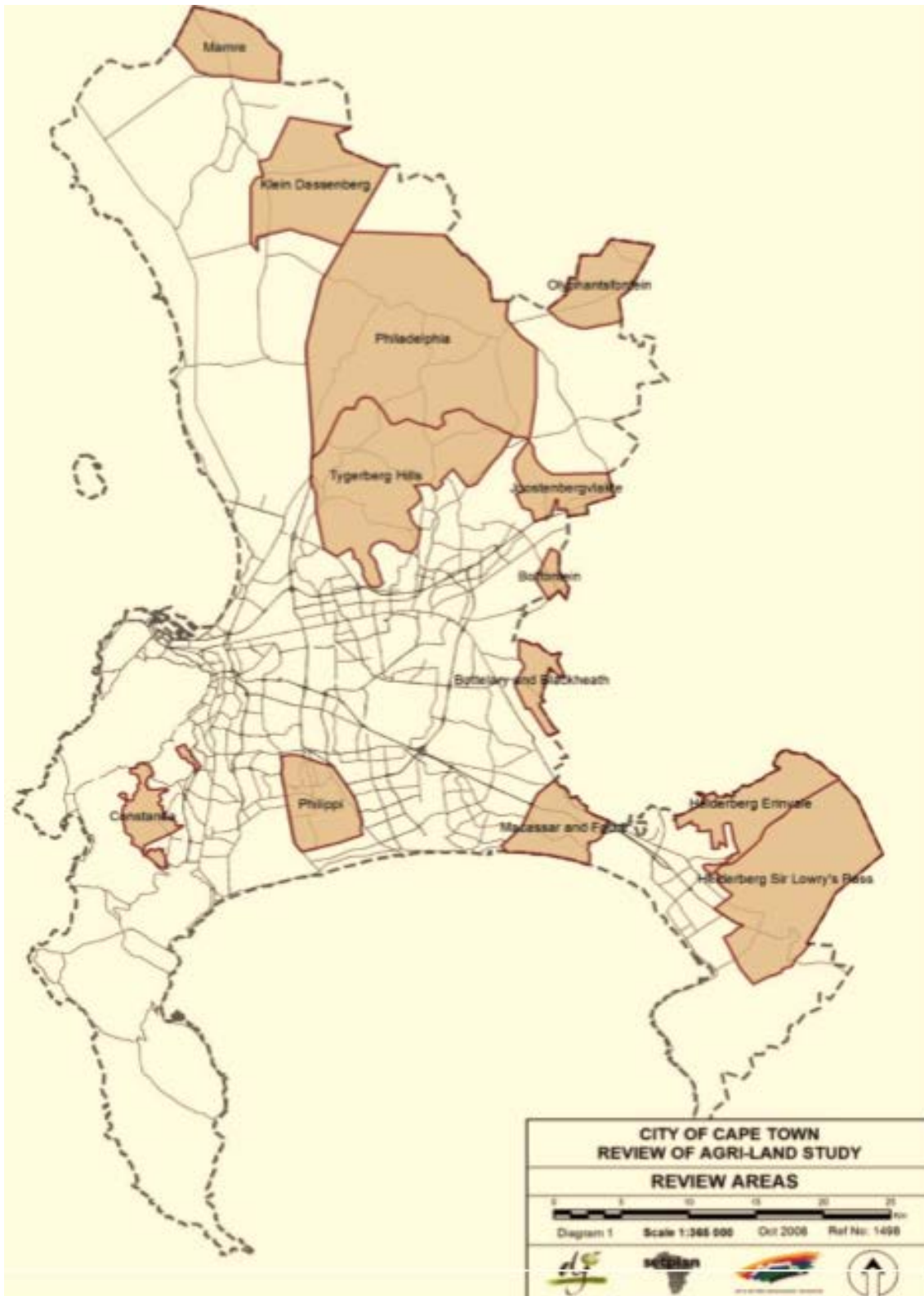


Figure 5 Food system diagram

Source: Source: Trooster (2015:29) adopted from Crush et al. (2017)

3.3 Urban agriculture in Cape Town

As shown in figure 3.3, below there are prime agricultural areas within the Cape Metropolitan Area, which have been provided protection status. However, the level of protection for most urban food production remains weak and several areas are under constant threat from urban development pressures (Crush et al. 2017). For example, a unique prime food production area within the city, Philippi Horticultural Area (PHA) shown in figure 6, faces ongoing development threat. Whilst areas for vineyard production seem to have far greater protection status, as they



are considered agriculturally productive well as affirming of city cultural heritage (Crush et al, 2017). Most of the agricultural production in the Cape Town Metropolitan Area (CMA) is mainly fresh produce. The most important crops include potatoes, cabbage and onion as well as fruit.

Figure 6 Productive and designated Agricultural areas in CMA

Source: CoCT (2008, 2013).

3.3.1 Role of Philippi Horticultural Area (PHA) in Cape Town's food systems.

Philippi horticultural areas, shown in figure 3.4 and 3.5 below, is prime large scale agricultural area in the heart of Cape Town Metropolitan area, it is located within an areas of significant poverty and need, namely the Cape Flats(Basttersby,2012). The production area is an important site for food as well as for water because PHA sit above the cape flats aquafer (CFA). Amid the current water scarcity in Cape Town, the Cape Flats aquifer is critically important for future water and water security of the city. According to Crush et al, (2017), the PHA has been producing food for the Metropolitan Area for more than 150 years.



Figure 7 PHA

Source author PHA visit, (2017).

A report on PHA, done by Battersby and Hayson in (2012) estimated that just under 100,000 tonnes of fresh produce is grown in the PHA annually. This included an estimated figure of over 2,000 tonnes of produce given free to farm workers annually- this food flow plays critical role in the broader food access of the communities near PHA (Battersby-Lennard and Haysom 2012). The report shows that, the areas produces over 50 range of horticultural crops, which include (“heavy-low-cost” produce (specifically cabbage, broccoli, pumpkins and butternut) these crops are the main products grown for the Cape Town food system.

PHA is surrounded by areas which experiences high levels of food insecurity and (Battersby et al. 2014) argue that the PHA plays a role in improving food security of the people living near the production area. The reason for this might be caused by the fact that the population access food at much cheaper prices directly from the farm rather than expensive food retailer. The PHA is the main source of fresh produce to major food retailer in Cape Town such as: Fruit and Veg, Shoprite, and Pick and Pay, it is therefore play an important role in Cape Town food systems. Crush et al. (2017) state that the produce from the PHA goes to markets and retail outlets in the Cape Town through a variety of channels. It is reported that 80% of the fresh produce goes direct to retail outlets stated above, about 12% to the Cape Town Fresh Produce Market (CTFPM) and about 2% straight to informal traders (Crush et al. (2017).

From a food system perspective, the location of the PHA and the reduced cost of PHA-derived produce (largely due to lower transportation costs) serve to reduce food prices and deliver cheaper food to Cape Town consumers. This was confirmed in a recent City of Cape Town food system report (Battersby et al 2014). The area also provides over 3,000 jobs, particularly for women from poor communities adjacent to the PHA (Battersby-Lennard and Haysom 2012). Thus, food system planning is an important step in achieving a more socially resilient and sustainable communities. Locally grown food is healthier and it less expensive. Local food production is much more sustainable than the current food systems. There is less packaging and the distance travelled to distribute food becomes shorter, which means that less carbon emission from transportation fuel and food becomes much accessible.

I emphasis on the role of PHA, in terms of sustainable food production, because want to highlight the importance of

3.3.2. Current urban agriculture projects within the metropolitan area

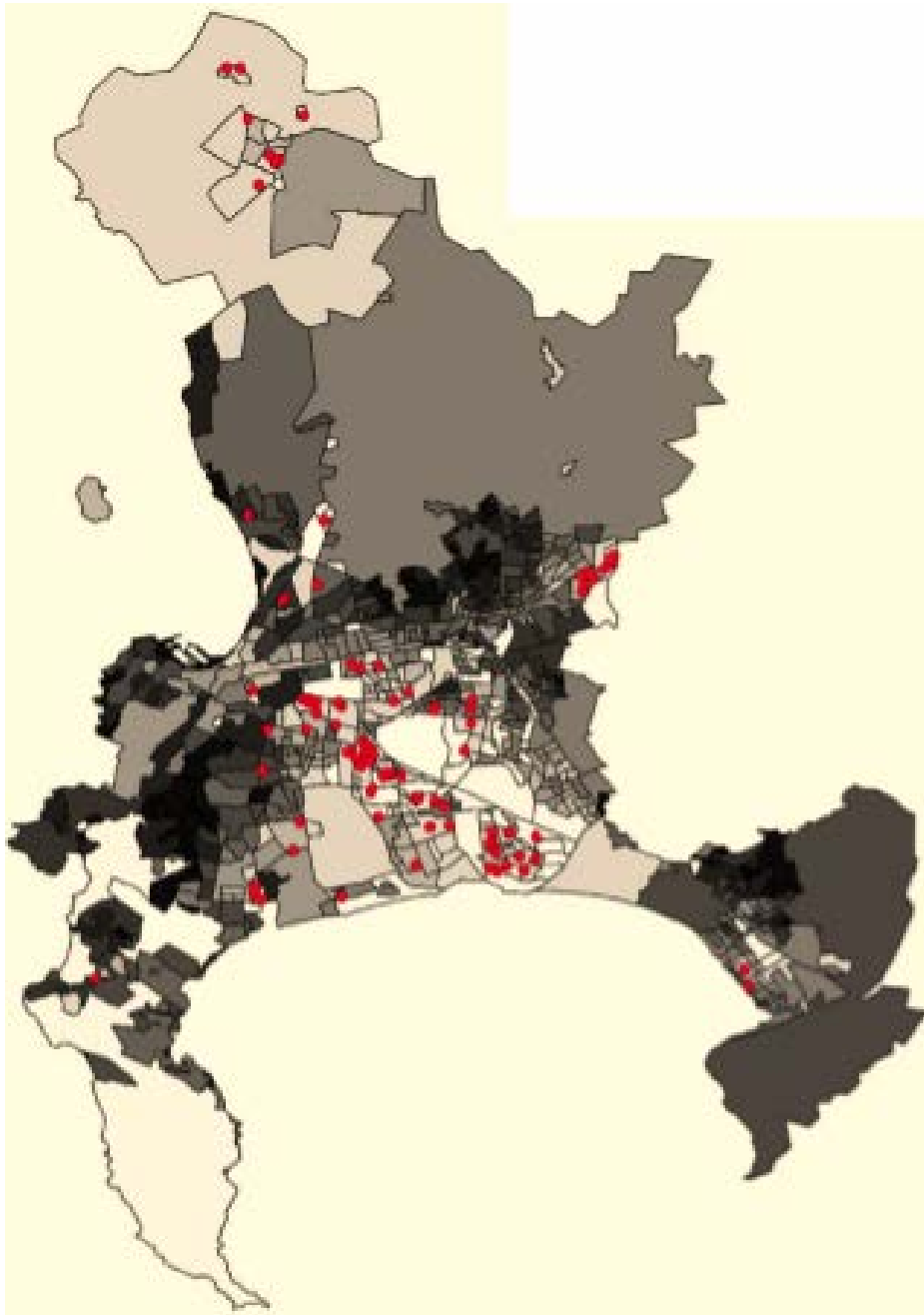


Figure 8 Existing urban agriculture project within CMA

Source: Source: Battersby and Peyton 2014

Figure 8 above shows some of the existing food gardening within metropolitan area that are drive by the City of Cape Town urban agriculture projects. Most of the projects are clustered in lower-income (lighter shaded) areas. There few urban farming projects locate in affluent areas which are supported and driven by the City of Cape Town Municipality.

Crush et al., (2017), Batterby and Payton (2014) state that even though the City supports many food garden projects, the only successful projects are the ones with strong support from NGO's. In Cape Town, there are a couple of NGO's that promote and support small-scale urban agriculture; these include Abalimi Basekhaya, SEED and Soil for life. Abalimi Basekhaya which mean planters of the home, support over 200 gardens in low-income areas. Since 2008, it has run a Harvest of Hope programme which seeks to provide a market for their farmers through an organic vegetable box sale scheme. Figure 8 and figure 9 below shows one of many projects that was undertaken by Abalimi Basekhaya. Abalimi transform disused spaces in low income areas using organic farming methods for community gardens. SEED support 100 home gardeners in Mitchell's Plain and facilitate the Mitchell's Plain Food Freedom Initiative aimed at educating and supporting home gardeners. (Brown, 2013). According to Crush et al (2017), SEED has grown food in 40 schools and has trained more than 80 young people through the accredited permaculture caucus. The Soil for Life has trained 1600 people in building soil fertility, conserving water, using available resources and ensuring no harm to humans and or environmental health.



Figure 9 Abalimi Basekhaya urban farming projects

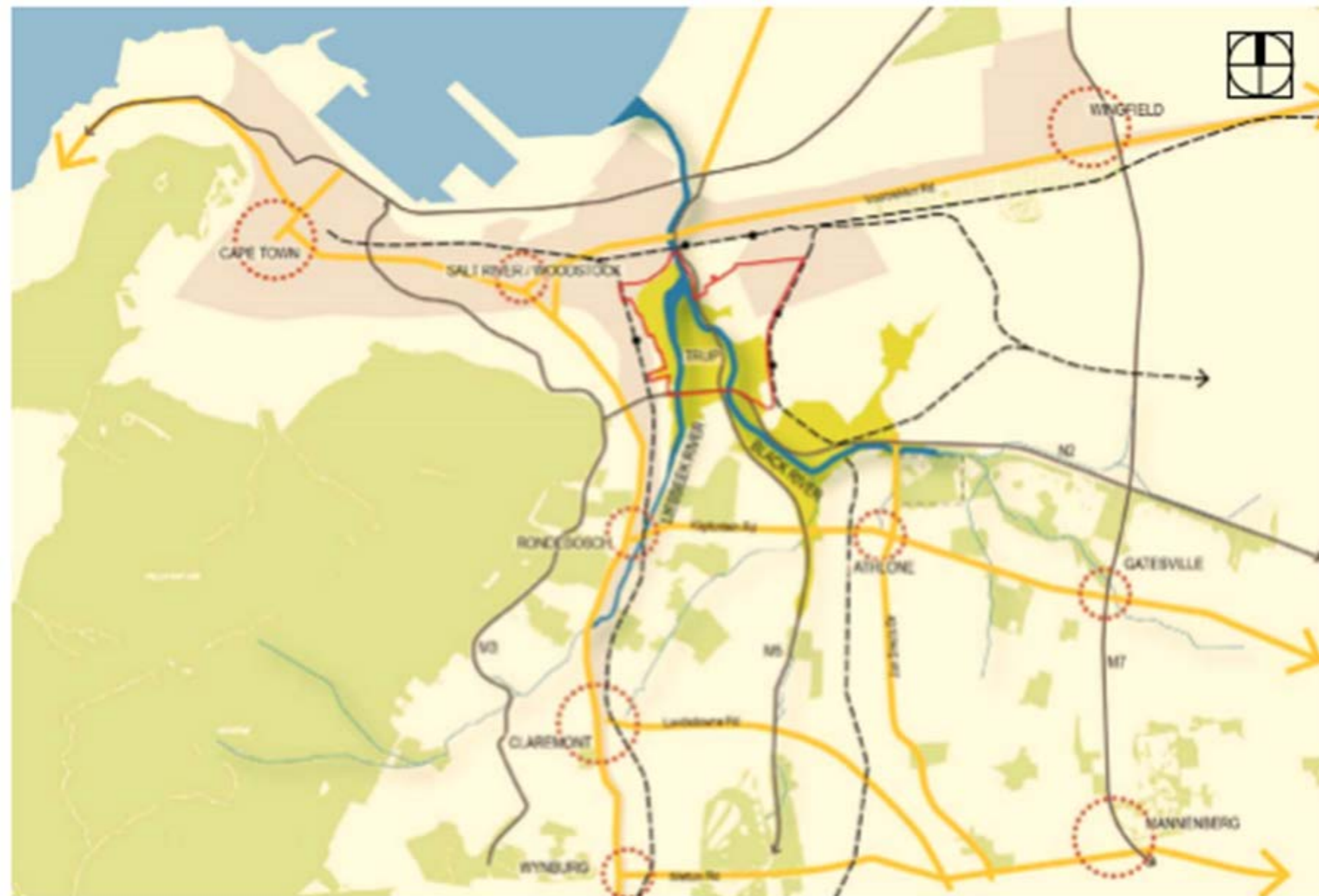
Source: Abalimi basekhaya,(2017).


There are a few number of urban agriculture programme in more affluent areas of the metropolitan areas. The most popular is the Oranjezicht City Farm shown in figure 3.9 below. Batterby, (2011; 2017) state that, these urban agricultural projects are the ones that generate much publicity, and therefore more people are aware of these projects rather than the ones in low-income areas.



Figure 10 Oranjezicht City

Source author



- | | |
|--|--|
|  Project site |  River |
|  Development |  Node |
|  Green corridor |  Activity route |
|  Biodiversity | |

3.4. Locating Two River Urban Park within the metropolitan area and within the Table district

Figure: 11 location of two rivers urban park

Source: City Think Space (2012).

The Two River Urban Park shown figure 11 is strategically located within the metropolitan area. The park is situated at the confluence of two rivers, the Black and the Liesbeek River. The TRUP site is located approximately 8km away from the Cape Town city centre at the intersection of the N2, M5 and N1 freeway. The Two Rivers Urban Park (TRUP) site is situated within the Salt River catchment area, stretching from the Cape Flats to Newlands. (PGWC, 2016). The site is surrounded by a diverse land use including residential, commercial and industrial uses. According to City Think Space, (2012) the TRUP site has the potential to function as a high order of metropolitan significance due to its location, existing natural, cultural and heritage resources.

The TRUP site falls within the Table Bay District in Cape Town metropolitan area as indicated in figure 3.11 below. The Table Bay district boundary extends from Paarden Eiland at the mouth of the Black River along the coastline to just before Llandudno, it include the CBD and the Atlantic Seaboard, the central business district, Woodstock, Salt River, Observatory, Langa, Maitland and Kensington. At Llandudno the boundary cuts across the Table Mountain National Park to the Metropolitan Road (M3) at Groote Schuur Estate. The eastern boundary runs along Settler's Way (N2) to Vanguard Drive and up to the N1 freeway at Wingfield. The district also includes Robben Island. Nearly half of the Table Bay District falls within the Table Mountain National Park (TMNP). This is managed by South African National Parks (SANParks) in terms of the National Environmental Management Protected Areas Act 57 of 2003. The district is bordered by Blaauwberg District to the north, Tygerberg to the east, and Cape Flats to the south-east and Southern District to the south.

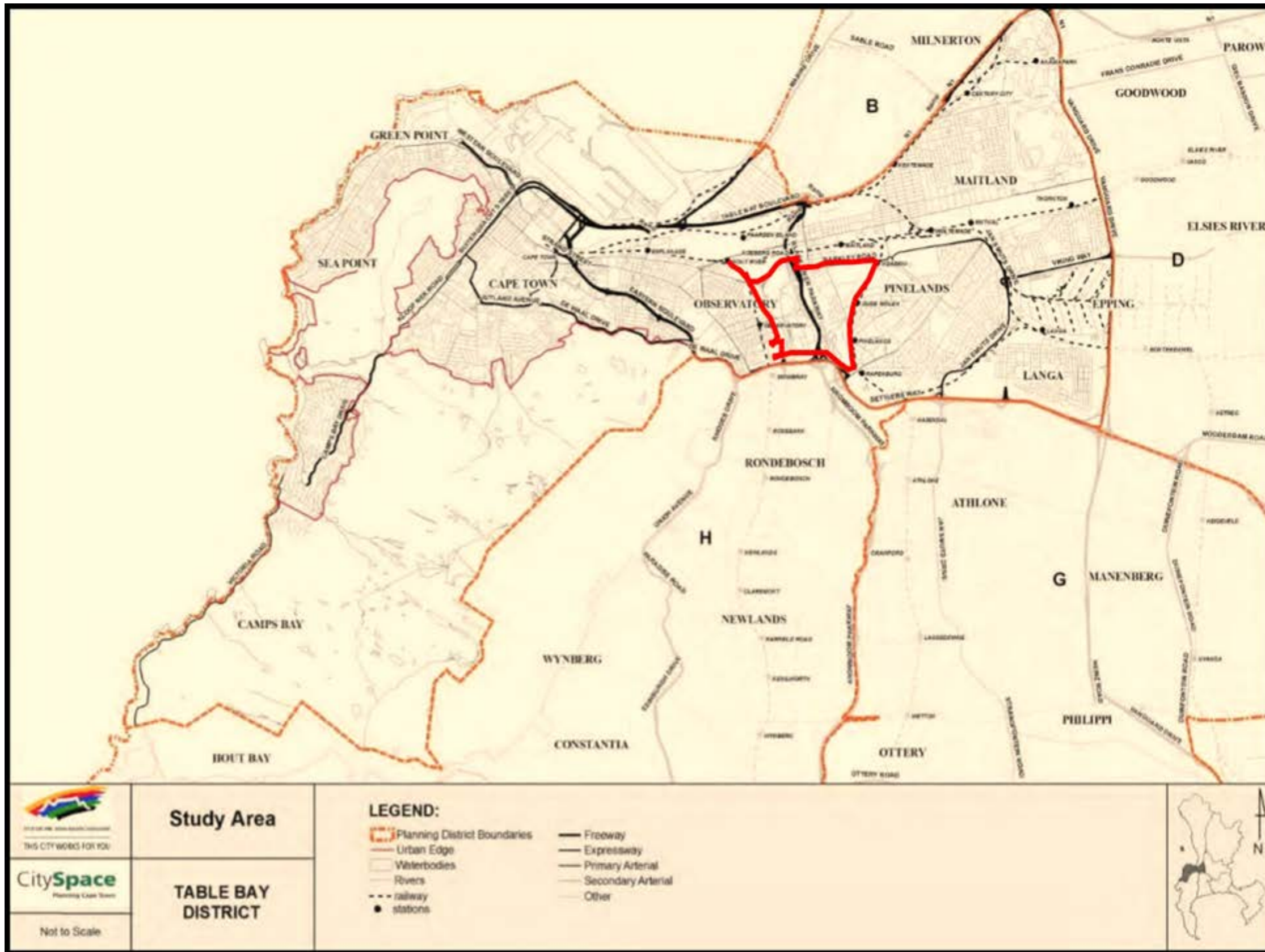


Table Bay District, the TRUP outlined in red within the Table bay district map. Sources;(CoCT, 2012a)

Figure 12 TRUP site location in Table District

The CBD node contributes a large proportion to the metropolitan economy and is the city's main area of employment within the Table Bay district. The CBD is an area that is shared by all but yet it is not shared equally. The development pattern of the district clearly illustrates the unequal distribution of economic opportunities in Cape Town and the growing mismatch between population and employment (CoCT, 2012a). Economic/employment opportunities are concentrated in the wealthy areas of the district (figure 13), away from majority residential areas; far from low-income areas and far from the rising population of the metro southeast. Overall, residential density in the district is relatively low. This disconnect results in an inefficient space economy where many workers are subject to high transport costs and inconvenience (CoCT, 2012a)

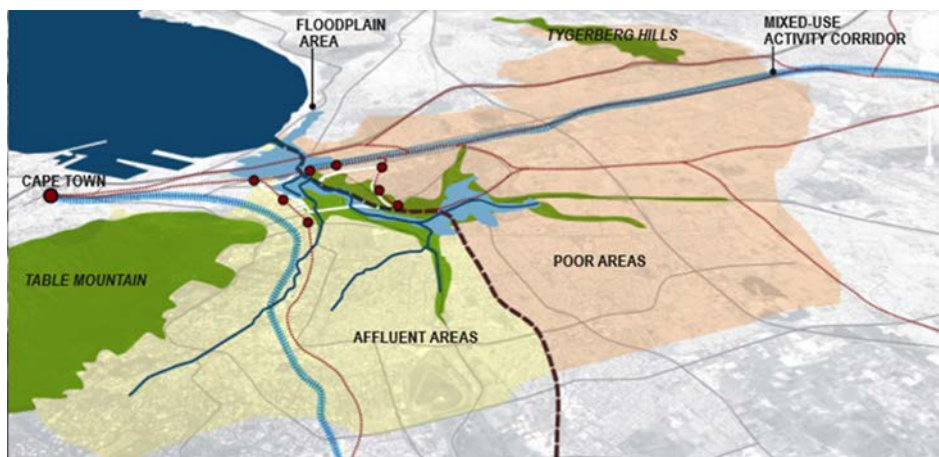


Figure 13 TRUP location in the metropolitan area

Sources (PGWC, 2016). The red dots are the 8 train station surrounding the TRUP site

3.5. Brief background of the TRUP project.

According to City Think Space (CTS), (2012:4) the Western Cape Provincial Government aims through the Cape Town central city regeneration Programme (CTCCRP) to:

- Unlock Cape Town's potential to become a city that serves the needs of all its citizens as one of the best cities in the world;
- Leverage private sector investment, capacity and expertise;
- refurbish and achieve savings in the operation and maintenance of its properties; and
- Generate an income stream to finance provincial property development and maintenance.

The objective of the programmes is to generate economic activity and create new jobs and opportunities for empowerment, but also improve access to the city's resources, facilitate social cohesion as well as enable environmental sustainability and energy efficiency. The programme supports the beliefs and objectives of this dissertation for the TRUP site development which promote positive development and social integration.

3.6 Spatial analysis of TRUP Local area.

This section focus on the physical analysis of TRUP Local area, it aims to provide status quo of the Natural Resources and landscape Resources, current movement system within the site and public facilities. It also aim to identify available open spaces that might have potential for urban farming practices.

Environment and landscape Resources:

3.6.1 Geology and soil potential for urban farming

Figure 15 and figure 15 below show the underlying geology and soil of TRUP site within the Table District context. There are three primary soil types found in the area that are the drivers of the vegetation type present (Helme,2016). The soil found in the site are generally sandy and textured soil. This type of soil is also known as podzolic soil. The TRUP site consists of structureless soil because of its sandy nature. According to the (South African Department of Agriculture n.d) soil Potential study structure less soil are loose and sandy. These soils usually comprise of high-potential agricultural land.

Sandy soils absorb water fast and sandy soil dry quickly. Sandy soils have a rapid infiltration rate but poor water retention capacity. Therefore the site has a potential to accommodate urban farming activities and it could become the next prime small scale agricultural space within Cape Town.

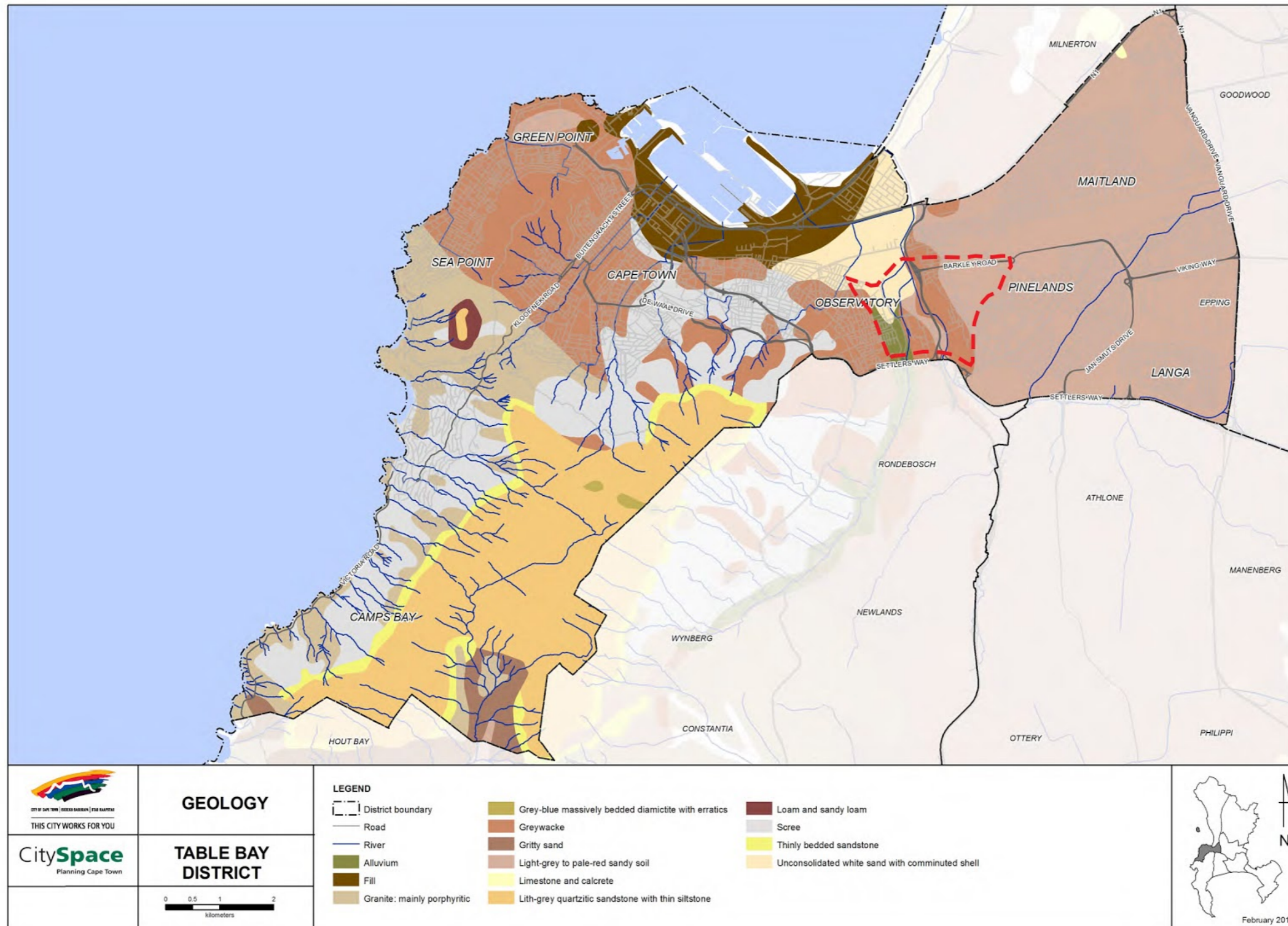


Figure 14 Geology of the study area within the Table Bay District.
 The study area is demarcated with red. Source (CoCT, 2012)

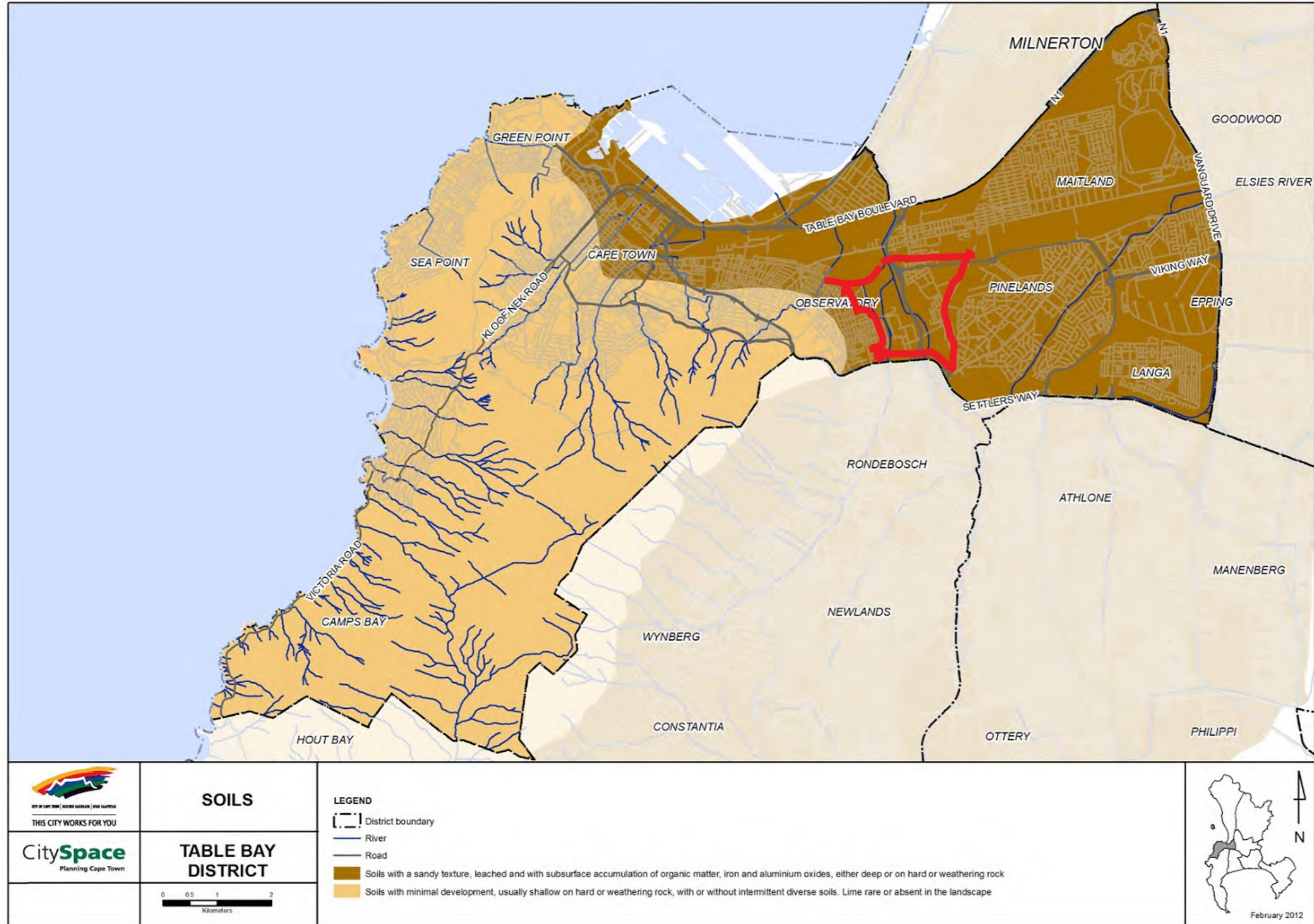


Figure 15 soil type of the Study area
 Source (CoCT, 2012a).

3.6.2 Hydrology:

Rivers

Water flows in the Two Rivers Urban Park Local Area are comprised of the Liesbeek as well as the Black river. These two rivers in figure 3.14 are found in the central river management area within the Table Bay district. The rivers flow from the south of the TRUP site to the north, they meet at the north and join the Salt rivers system. The salt river system including its tributaries (Black and Liesbeek rivers) flows through densely populated urbanised, industrial and agricultural areas and in many areas the two rivers has been canalised (DWA, 2005). As a results of canalisation of the rivers systems, most of their riparian habitat and ecological functioning has seriously been compromised (CoCT, 2012). The degraded river system have the opportunity to revitalised by sustainable urban agriculture practices.

Wetlands

There are a number of wetlands found in the study area, but almost all them are heavily transformed from their natural state. The main important wetland areas found in the TRUP study areas is the Raapenberg Bird Sanctuary, Vincent Pallotti Wetlands as well as Valkenberg wetlands (shown in figure 3.14) These wetland areas are found to be an important open spaces within the site as well as in the greater metropolitan area. Wetlands play a pivotal role in the water systems; they act as potential source of water in times of drought. Therefore, protection and restoration of functional wetland in TRUP site is key. Due to the changing climate conditions in Cape Town, it is important that sustainable measures that will help revitalise surface water quality and protect ground water be promoted. Sustainable forms of urban agriculture have the potential to restore and protect the precious commodity (water,) while at the same time it produces locally grown food.

Water quality

The Salt River system is considered one of the worst systems with very poor water quality in the City of Cape Town. (CoCT, 2012). Some of the main causes of poor river health are directlylinked to poor urban development, unsustainable agricultural runoff, pollution from industrial areas, under serviced areas Wastewater Treatment Works (WWTW's) and invasive species.

Invasive vegetation

The infestation by invasive vegetation is evident in the Salt river system. As a results of invasive vegetation along the river systems, most of the indigenous riparian vegetation has been removed and replaced by invading plants (DWA,2005). Invasive vegetation may disturb the ecological functioning of the the river systems and wetlands. According the Ecological state of the river report (2005), one of the evident invasive vegetation species? in the Salt River system is Water hyacinth. Water hyacinth clogs the water surface of the Black river, depleting oxygen smothering aquatic life, fostering mosquitoes and restricting water flow (DWA,2005). As noted by the CoCT (2012) bits of the remaining threatened natural vegetation occur along the Black River in the vicinity of its confluence with the Liesbeek River.

Urban development

Urban development has contributed to the poor quality of the river systems that flow through the site. Urban pollution from stormwater runoff (as indicated in figure,3.14), treated effluent from Athlone Wastewater Treatment plant, directly overflows into the Salt rivers system. Poor surface water quality in the middle and lower reaches, results from wastewater discharge, storm water, runoff and litter disposal. This reduces the ecosystem functioning and pose threat to human health. According to DWA (2005), the state of the Black river has deteriorated from poor to very poor. Some areas along the banks of the Black, Liesbeek and Salt Rivers are also particularly prone to flooding.“Cape Town’s landscapes, rivers, wetlands and beaches are natural assets that, if managed correctly, can provide economic benefits. Therefore, it is critical to prevent development from resulting in degradation of these green assets” (CoCT,2016:83).

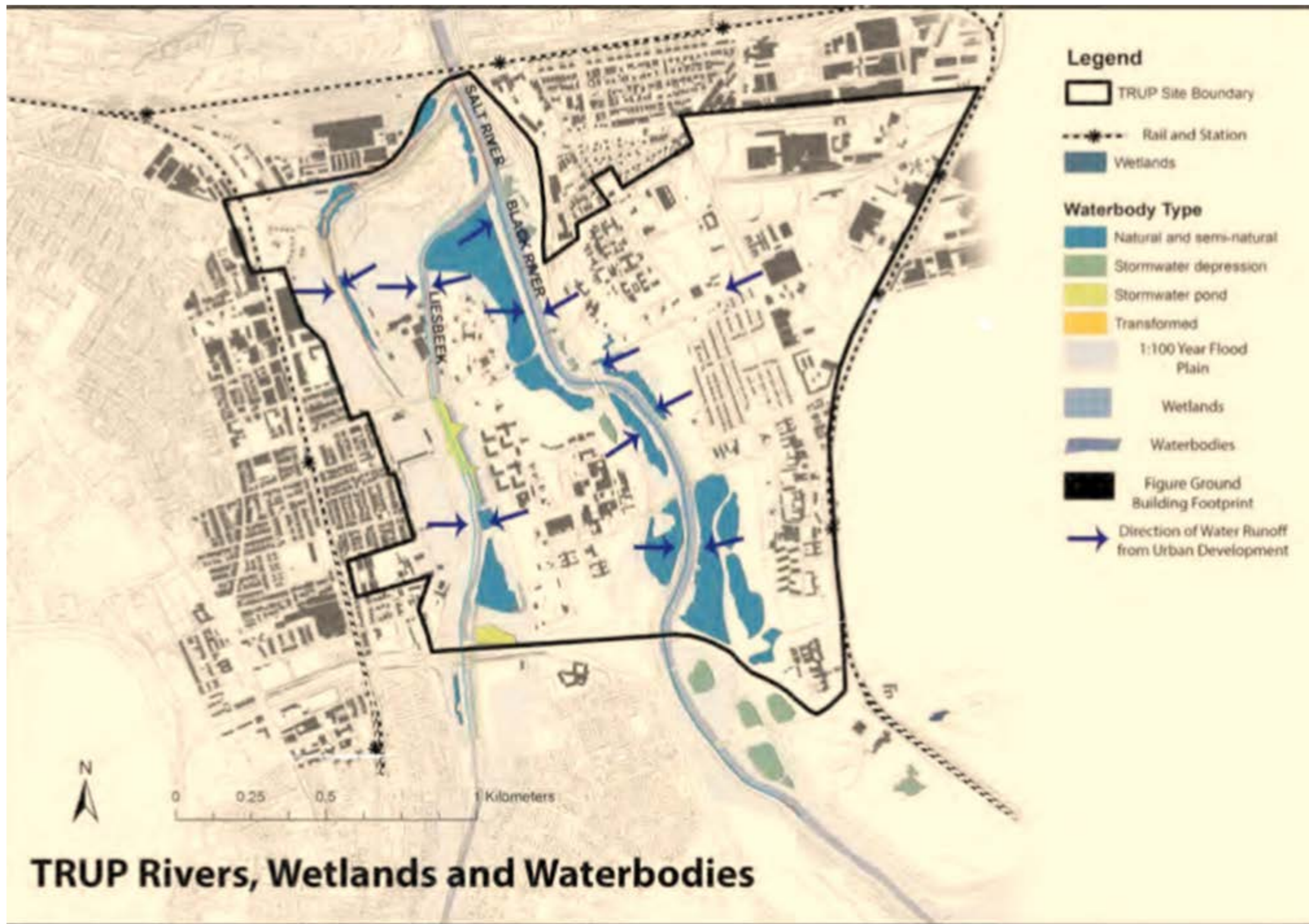


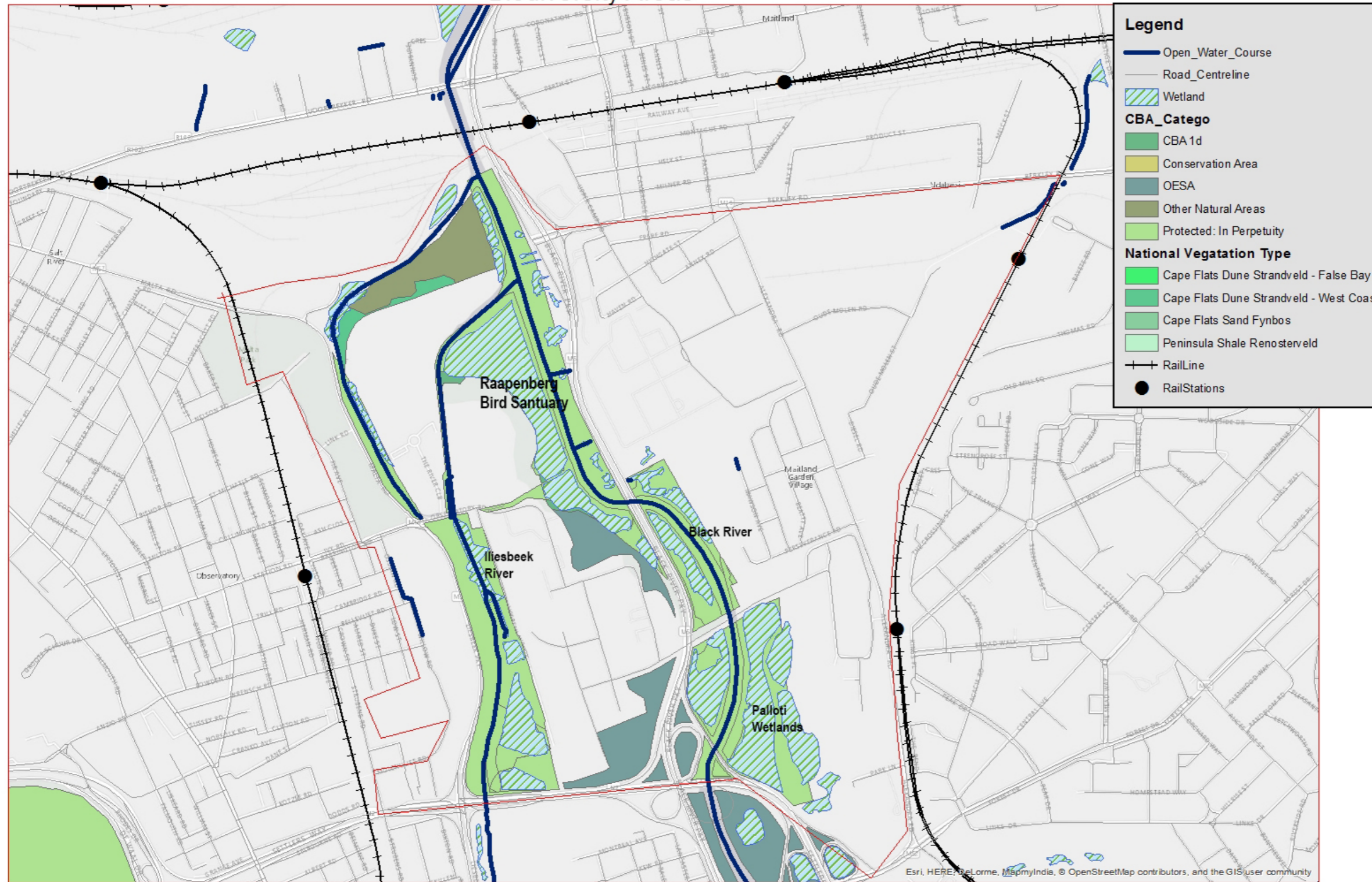
Figure 16 TRUP Rivers, Wetlands and Waterbodies.

Source, Blatch (2016).

3.6.3. Biodiversity

Despite the polluted watercourses flowing through the site, there are pockets of high biodiversity value within the site (PGWC, 2016). Despite largely transformed nature of the TRUP study area. The site contains valuable pockets of terrestrial and aquatic biodiversity. The Raapenberg bird Sanctuary Pallotti wetlands, discussed above; play a critical role in the biodiversity of the site. Raapenberg Bird Sanctuary is a 10 hectare protected area in Cape Town as shown in figure 17 it is located on the Liesbeek river. The sanctuary is an important breeding site for wide range of water bird species and an important site for humans. TRUP Local area include protected areas as well as critical biodiversity areas. Critical Biodiversity Areas are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan(SANBI, 2017). The biodiversity found in the study area, is highly fragmented due to urbanisation over time, pollution of rivers, transformation of river course from their natural state (PGWC, 2016). Alien invasive plant species have damaged the river system and its biodiversity. Some river restoration programs such as for example Working for Water, are in place, which will help improve the condition of the river and its ecological functioning.

Biodiversity Areas



1:10 000

Figure 17 Biodiversity Area. Source: Author, (2017) GIS data CoCT 2016

3.6.4 Green network and public open spaces system analysis

Cape Town's natural assets and biological diversity are part of what makes the city a unique and desirable place in which to live, work and play. Metropolitan Open Spaces System (MOSS) is about creating a better-linked network of open space across the metropolitan area. The Two Rivers urban Park is an important metropolitan park, because it included large areas of open spaces system and sports facilities. The study is rich in flora and fauna biodiversity and has a potential to offer multifunctional/ recreational areas. TRUP site forms part of the Cape Town MOSS, it is parts of the Coast to Coast Greenway, which stretches and link open spaces from False Bay to Table Bay (CoCT b,2003). Therefore, it is important that the green open space systems within the site are protected from development pressures and enhanced to ensure that a good quality of urban ecosystems flourish and to maintain the continuation of green open space system. In this case, green spaces refer to natural and soft open spaces that could be active and passive spaces.

The TRUP site has a potential to perform as an active and positive recreational space. The CCT(CoCT,2012 a) states that the recreational functionality and functional integrity and connectivity of ecosystems must be improved, and an interlinking network of linear parks with foot and cycle paths should be established to facilitate easy movement of fauna and flora. Urban development must respect the presence, role and function of natural assets, and should make the most of the possible benefits residents and visitors can derive from them.



Figure 4.2: Conceptual representation of Cape Town's natural assets

figure3.17 Sources CoCT MSDF,2012



figure 3.18 Green open space in relation to the site.

Sources: CoCT b, 2003

3.6.5 Climate

Cape Town region has a Mediterranean climate, which means that it experiences warm dry summer and cold wet winter conditions. The study areas receives its rainfall in winter, with the bulk of the approximately 500-800mm annual rainfall between May and September (Helme, 2016). Summers are typically hot, dry and windy, whilst autumn and spring are temperate, with calmer winds. The study area is flat, and thus itsexposed to winds throughout the year. In winter, strong gale force north west and southwesterly winds which are associated with cold fronts are a strong feature in the area. The winter gale winds may result in temperature dropping to below 6 degrees. Whilst in summer, southeasterly trade winds are dominant. The South-Easterly wind reaching speeds in excess of 50km/h, resulting in high levels of human discomfort in areas associated with loose sandy soil, such as the study area (Helme, 2016).

3.7 Services

3.7.1 Transport, Access and movement networks

Several infrastructure linkages surround TRUP Local area. Freeways M5 and N2 surround the site: On the west side, Liesbeek Parkway and Albert Road west of the site are considered lower order arterials. The current road network limits access into the site. Freeways (in figure 18) perform as infrastructural barriers, as physical edges of the site. These barrier and edges shown in figure therefore limit, and compromise the permeability of the site making it harder for pedestrian access and they limit vehicular access. Although The TRUP site is well serviced by rail with seven train stations, namely Salt River, Observatory, Koeberg station, Maitland, Ndabeni, as well as Pinelands (in figure 19). It is still not penetrable. There are limited access point into the site. There are numerous bus stations along the southern corridor as well as the Vootrekor corridor. However, the rail line in figure 19 that surrounds the study areas and the black river also acts as a buffer to the site. Despite strategic location due to its centrality, the Two Rivers Urban Parks site it not well integrated with the surrounding areas and road access into the site are limited

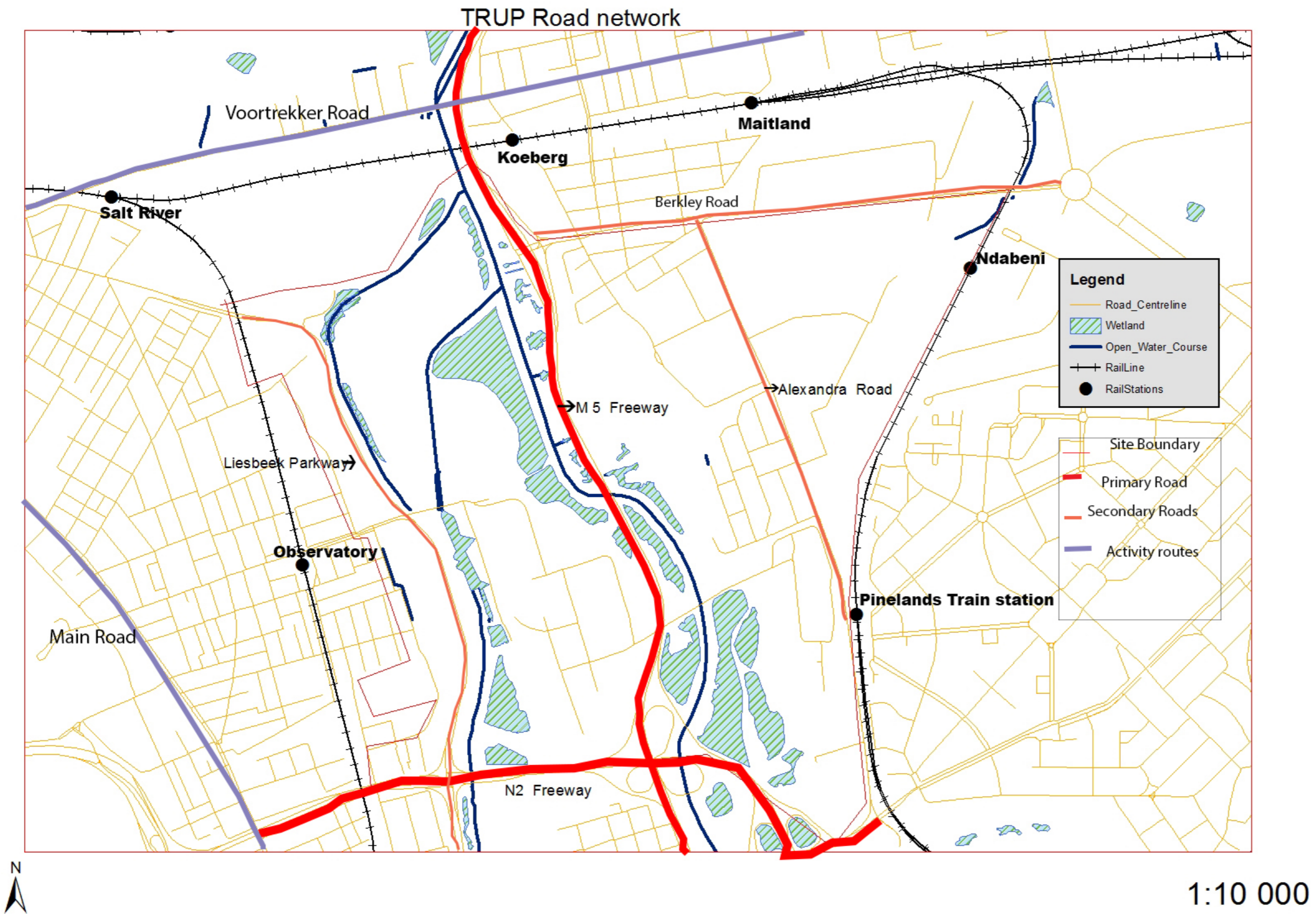


Figure 18 TRUP Road network. Source author GIS (CoCT, 2016)

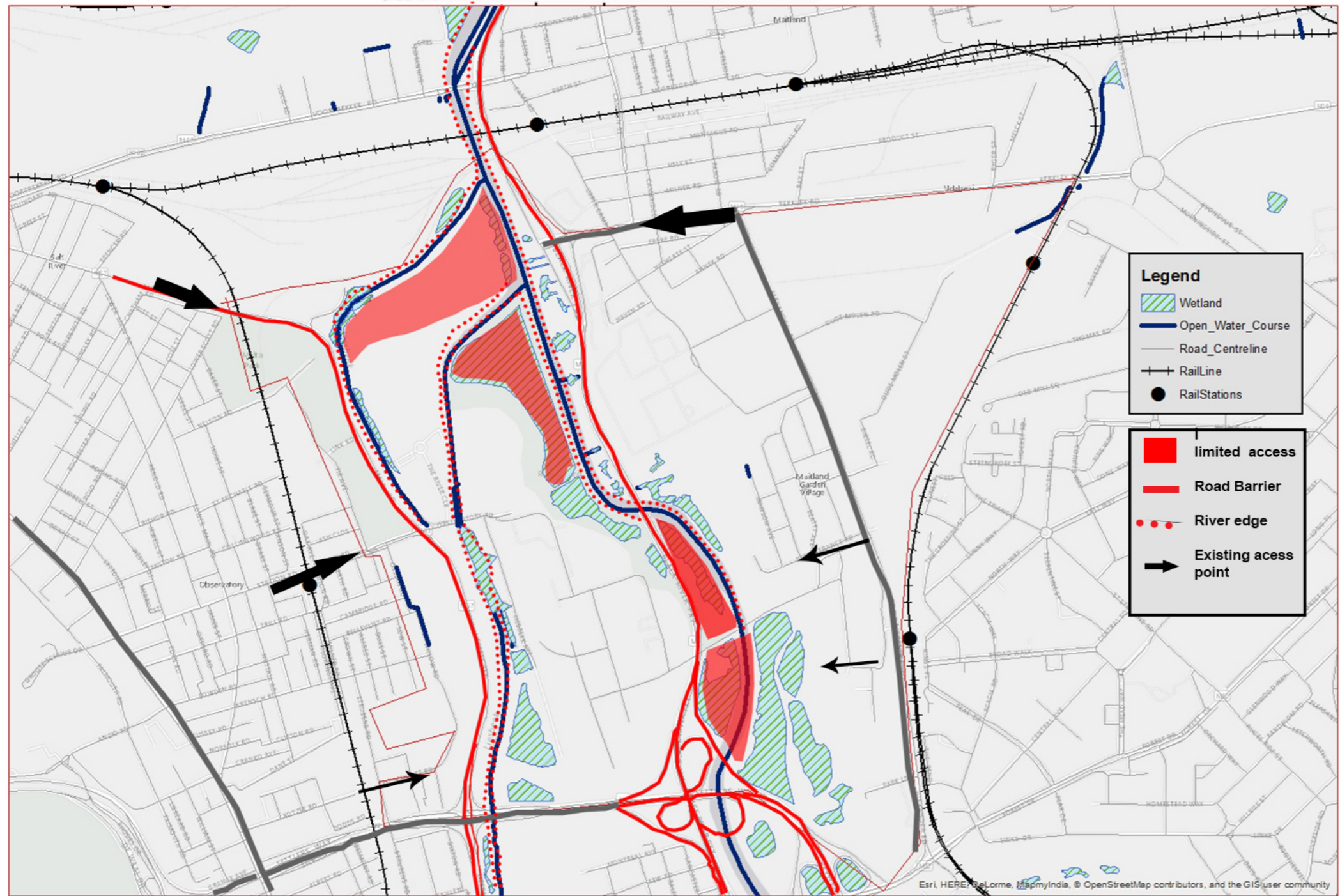


Figure 19 Barrier to Access.

Source authors, 2017, (GIS data CoCT, 2016)

3.8 Land ownership

Figure 20 below show the various stakeholders and Role player own land within the site. Figure 3.21 below shows the current land ownership. There are significant public land holdings within the TRUP site local area. The Western Cape Provincial Government, City of Cape Town, The South African Rail Commuter Corporation (SARCC) and Transnet all own land and property within the broader TRUP local area. The Western Cape Government owns Oude Molen, the Alexandra institute, the Valkenberg Hospital, the observatory sites and some sites in the Biovac Institute. The River club site is owned by Transnet. The City of Cape Town owns the substantial Maitland Abattoirs as well as nearby land parcels. The South African Rail Commuter Corporation(SARCC) owns land that surrounds the TRUP locale area.

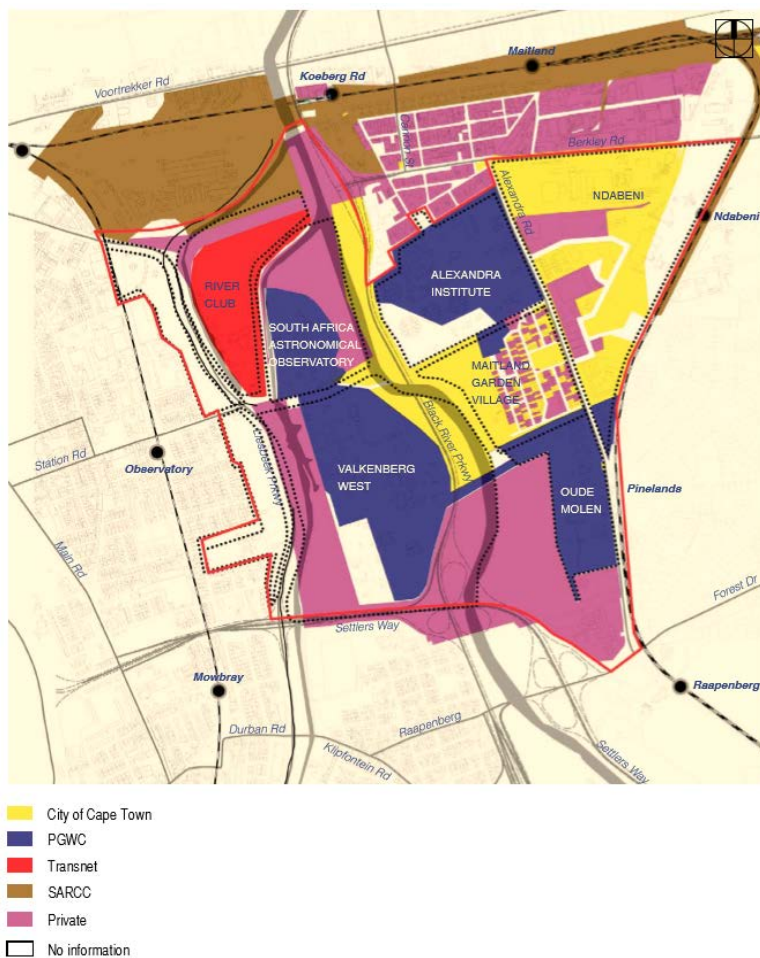


Figure 20 land Ownership
Source City Think Space (2012)

3.9. Current Land use within TRUP local area.

TRUP local area has several land uses. Figure 3.22 below demonstrates different land use within the site, these include: biodiversity areas, residential area. Public services include health, commercial as well as industrial areas. Biodiversity (in terms of the green open space and the river) is the dominant land use and it is the main structuring element of the site. Most of the residential development are in Maitland Garden village.

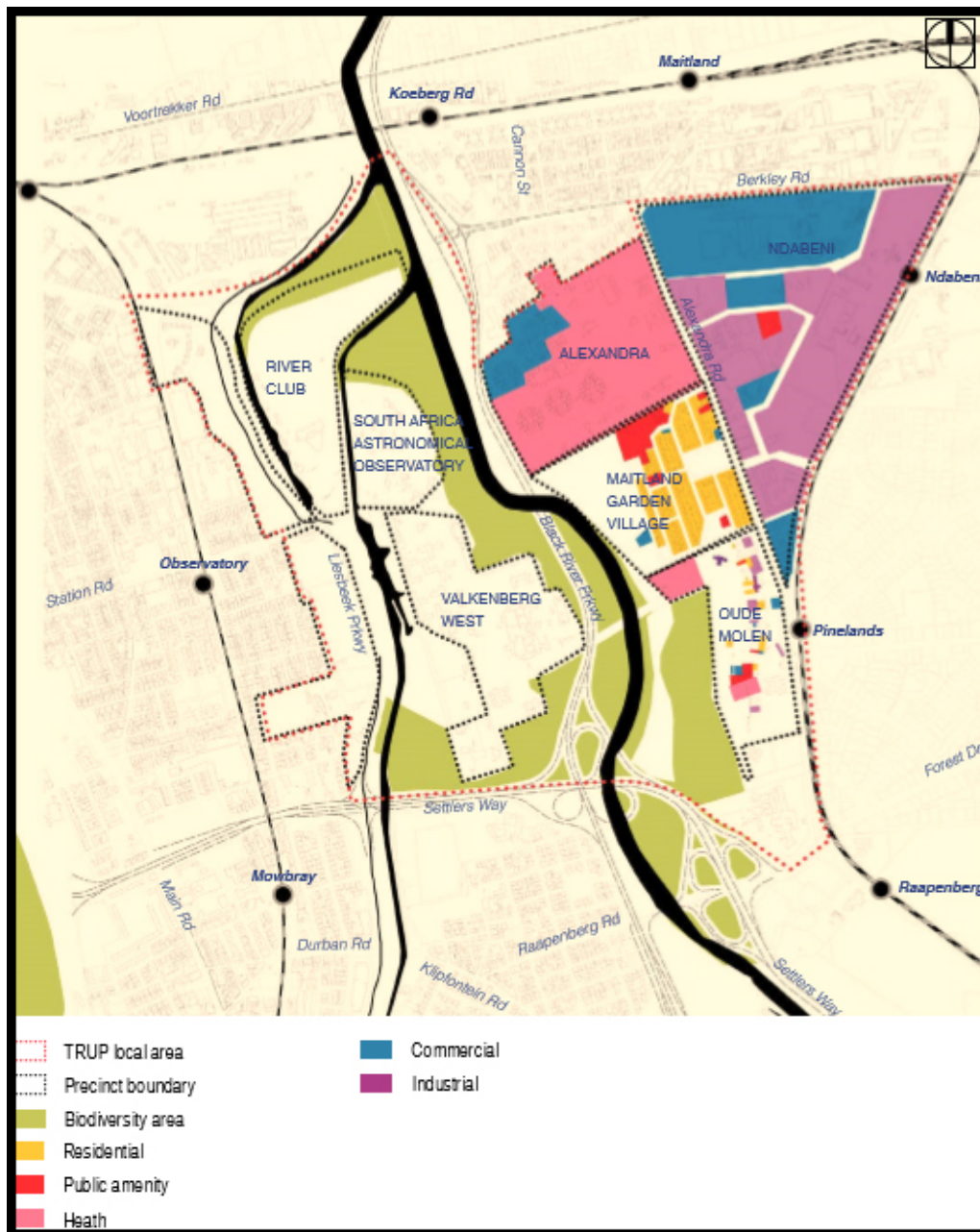


Figure 21 Land Use in the TRUP site

Source City Think space, (2012)

3.10. Public services

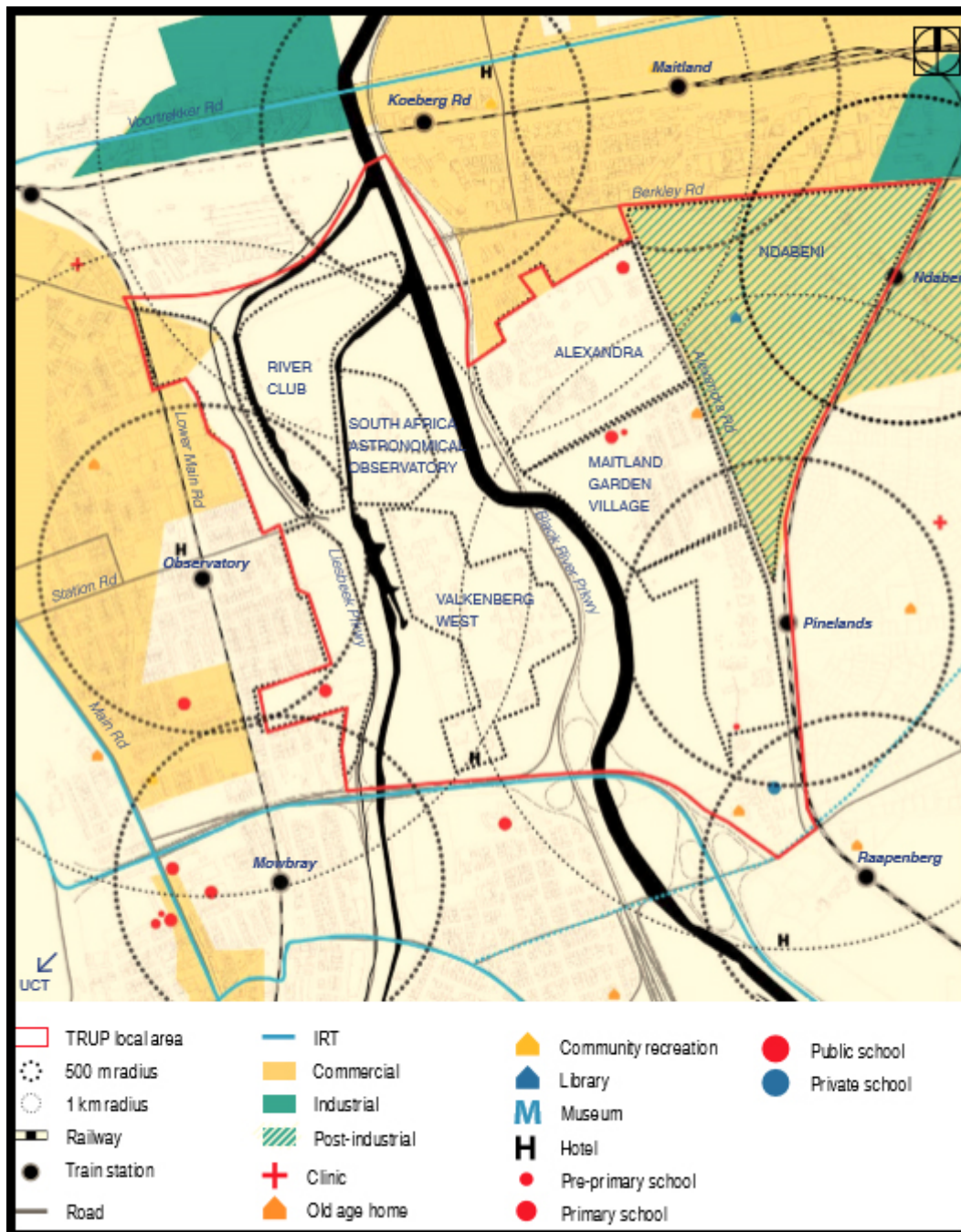
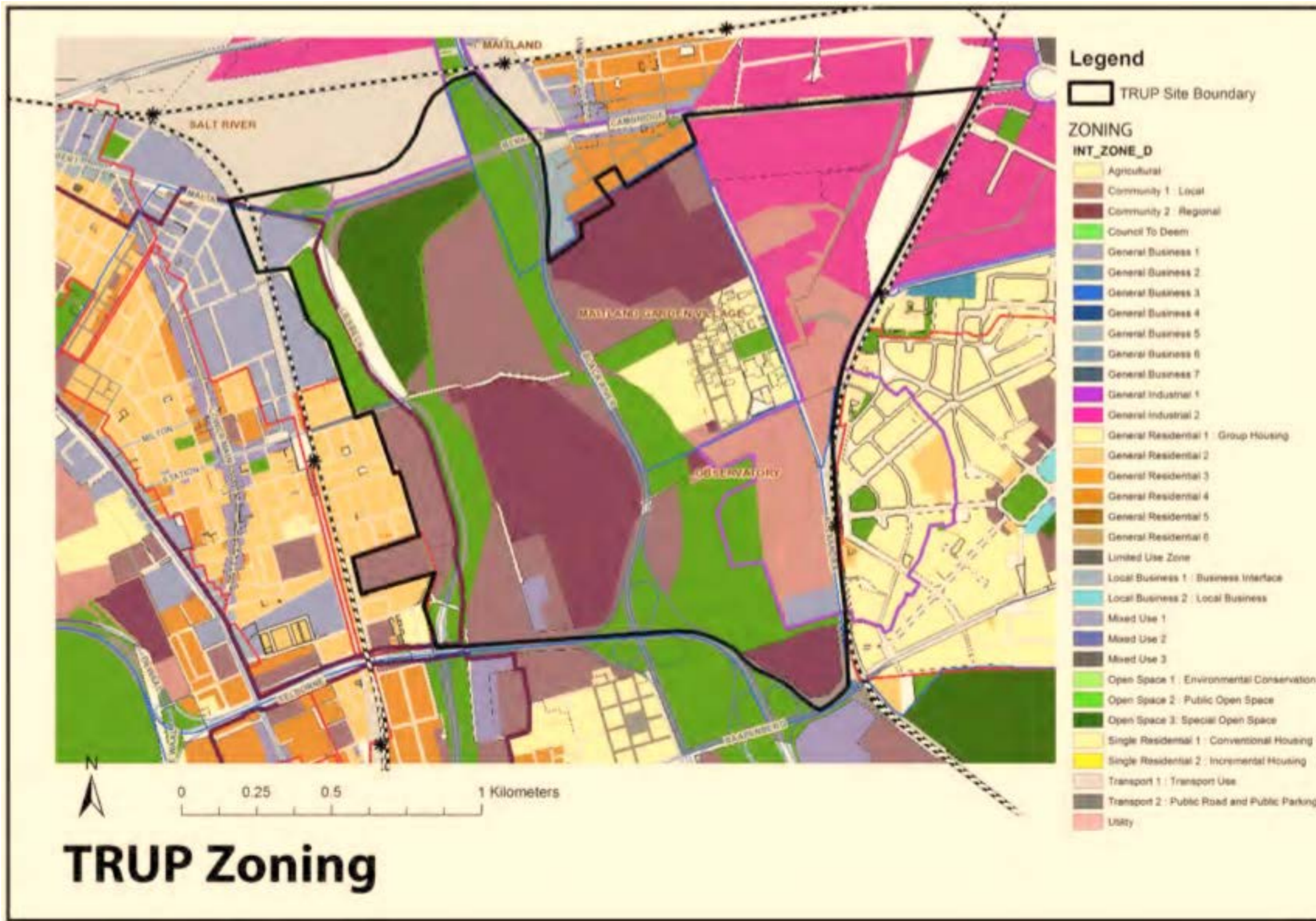


Figure 22 public services

The TRUP (Two rivers urban park) local area is located close to some commercial activities, as well as a school, clinic and libraries within a 500m radius. The study area is located close to train stations. Figure 3.23 indicate that TRUP is well located, closer to economic opportunities.



3.11. Zoning

Figure 23 TRUP Zoning. Source (Blatch, 2016).

3.12 Vacant and underutilised land

Figure 24 indicate some of the available spaces within the site, most of these open spaces are under threat from development. Well located available land within the city is in high demand by developers for mostly housing and commercial activities. For example, there is a proposal for the River Club site in the park. The river club in Observatory is set to undergo R4 billion Rand re-development over the next four years. The development aim to include residential, retail and commercial components including hotel gym, shopping center conference centre, offices and schools (Dentlinger,2016).The proposal plan for this development is indicated in figure 3.28 below. This areas is subject to flooding during wither months.



Figure 3.27

Sources (Dentlinger,2016)

Figure 24 identifies vacant urban land within the site. It is clear from the map that there are a number of disused spaces. Some vacant urban spaces might have a potential for urban farming, e.g., small community gardens or small scale urban farming. For example, underutilised spaces along flood plain near Oude Molen Eco Village and pockets of unused spaces in Maitland Garden Village. Disrepair old heritage buildings that function as crime spots in Oude Molen also have the potential to be turned to be turned to productive landscape. Most of the vacant land parcels identified in figure 24 below are owned by the Western Cape Government as well as the City. Underutilised spaces in public buildings such as schools and hospitals could also be converted/transformed turned into more productive landscapes.

Identification of open underutilised spaces in TRUP site



Figure 24 vacant spaces with potential for UA. Source author.

3.14. PART 3: POLICY ANALYSIS

This section aim to explore the legislative and policy context that inform the development of the Two Rivers Urban Park, with the focus on urban agricultural policy and food garden policy. This section will start by outlining the current legislative and policy context.

3.14.1 Current legislatives and policy

The Integrated Development Plan (IDP) is a five -year plan required in terms of the Municipal Systems Act (MSA) No 31 of 2000. The Municipal systems Act state that an IDP is the principle strategic planning instrument which guides and inform all planning, development and decision in the City of Cape Town Municipality. The IDP, in terms of the MSA, must contain a spatial element in the form of a Spatial Development Framework (SDF). Municipal SDF is a long term (20+years) planning and guiding tool the municipalities. The Cape Spatial Development Framework (CTSDF) is used to manage the spatial growth and development of Cape Town. It provides the overarching framework for the City's new policy driven land use management system. All decisions made by the city have to align and be informed by the IDP. The CTSDf also informs structure plans which are deemed to be District Spatial Development Framework (DSDF). For this study purpose I will look at the Table Bay District Plan. Local Spatial Development Framework (LSDF) also need to be informed by CTSDf. Interm of food policy and urban agriculture, the city of Cape Town adopted an urban agriculture Policy in 2007 and established an Urban agricultural unit. In 2013 the city adopted an food garden policy that aligns with the Municipal systems Act 32 of 2000.

3.14.2. TRUP contextual framework (2003) recognised that TRUP local area should be:

Use

- Multifunctional active & possible recreation, conservation, production
- Residential, institutional and supporting commercial within park, especially on edges.
- Positive edge conditions, heritage, celebrating / creating sense of place.

Movement

- Pedestrian (NMT) network within and linked to areas beyond key enabling facto

3.14.3. Cape Town Development Frame work (2012)

Cape Town SDF (2012) is the long-term citywide spatial plan covering the whole of the Cape Town Metropole. It indicates that the Two Rivers urban Park should be protected whilst the surrounding precincts have been indicated as suitable for urban development.

3.14.4. CapeTown draft Spatial development framework 2017

The 2017 draft CTSDF recognises that natural features of the city which include; the biodiversity, agricultural, coastal and topographic assets of the City have historically defined the growth parameters of the city. These assets will continue to play a structuring role that shapes the urban and rural / natural form and quality of life enjoyed by citizens and assists mitigating climate change aspects; food security for the city and region; and supports the growing tourism economy (CoCT,2017: 15). The 2017 Draft CTSDF 2017 also recognises that Urban development must respect the presence, role and function of natural assets, and develop in a complimentary manner making the most of the possible benefits residents and visitors can derive from them.

Diagram 2.2 conceptually identifies the natural assets that merit protection in the longer term, and/or where the impacts of development need to be carefully managed.

At a metropolitan level, these biophysical assets include the following:

- Biodiversity conservation areas, ecological support areas, and other natural vegetation. These include terrestrial, as well as freshwater aquatic habitats, such as the city's extensive network of rivers and wetlands;
- Coastal areas and beaches are important economic and recreational assets for the city. The dynamic nature of coastal processes necessitates the preservation of certain coastal areas to avoid risks to people and the built environment;
- Agricultural Areas of Significance (AAS); and
- Other sites and landscapes with scenic, recreation or place-making qualities.



Diagram 2.2: Biophysical Assets

Destination places in an MSDF context refers to a landmark or a location that forms a significant point or area of attraction that contribute to the unique identity of Cape Town.

The Draft CTSDF 2017 indicate that the biodiversity areas and agricultural areas within the Two Rivers Urban Park should be protected.

The 2017 sdf proposed that the urban edge should be moved, this put agricultural productive areas under enormous pressure from development.

Table Bay district plan 2012

At a district level, the Table Bay District Plan (2012) is relevant to the TRUP local area. The table bay district plan is one of the 8 district plans within Cape Town Metropolitan area. The Table Bay District plan shown in figure, 3.30 considers the Two Rivers Urban Park area as a destination place as well as an important open space. And a significant environmental and heritage asset. (CTP,2012). The District Plan identifies various Environmental Impact Management Zones (EIMZ) and provides detailed guidance in terms of accommodating different types of activities within the respective zones. The Two Rivers Urban Park area falls within the following EIMZ's:

- Hydrological zones
- Coastal and dune Zone
- Conservation and biodiversity zone

3.14.5. Urban agriculture policy (2007)

The city of Cape Town is the first city in South Africa to produce an urban agriculture policy. The main goal of the 2007 Urban agriculture policy was to alleviate poverty and improve household food security as well as nutritional status of people. The policy also guides activities where a group of people come together to produce food collectively. This includes individuals or groups of people that are involved in urban agriculture activities such as vegetable gardening (CoCT, 2013).

3.14.6. Food garden policy (2013)

The Food Gardens Policy has effectively eclipsed the Urban Agriculture Policy (CoCT, 2013). The implications of this are that the Food Gardens Policy focuses largely on poverty alleviation programmes and the wider food system work that was being done by the Urban Agriculture Unit has fallen away

According to a 2014 City of Cape Town report, the City supports 201 community gardens with 1,849 beneficiaries. The vast majority are vegetable gardens, with just five receiving support for livestock activities. These projects are widely dispersed across the city, with at least one project in 68 of the city's wards. They are overwhelmingly concentrated in areas of low income and high unemployment.

These projects have received compost or manure, sawdust, seed packs, hosepipes, rakes, spades, forks and wheelbarrows (Battersby et al 2014).

3.14.7. The Western Cape Department of Agriculture

actively encourages citizens to start household and community food gardens in an effort to support food security in the province.

the western cape Department of agriculture indicates that Communal gardens make it possible for communities to feed themselves as well as selling the excess fresh produce that they produce. This also encourages entrepreneurial skills and broader financial independence while ensuring access to nutritious food. They also recognise that it cheaper to grow and sell food locally, because vegetables are cheaper and transport costs and other overheads like rental is reduced or completely excluded (PGWC,216).

According to programme officers at the Western Province Department of Agriculture, the Province supports over 100 community gardens in low-income areas with 756

beneficiaries. An estimated 93% of the projects produce vegetables, with a small number engaged in raising pigs and chickens and producing mushrooms and honey (Battersby et al 2014). Barttersby, 2017 indicated that there is huge gap and lack of urban agriculture policy mandate from national government.

3.15 Opportunities and constraints

This section highlights the spatial opportunities that will enable UA in the TRUP site and constraints that might deter as well as policy opportunity and contains from the two previous sections.

Table 1 spatial opportunities and constraints

Opportunities	Constraints
TRUP is a large open space that is well located and close to the City centre public facilities and	Invasive species are degrading river health and ecological functioning of the river.
The site has an opportunity to perform as multifunctional recreational spaces.	The black river is Highly polluted, and it is not suitable for human contact
The site is well serviced by public transport(rail, bus and minibus taxi), it is therefore is well accessible from a metropolitan perspectives	The site is not well integrated with the surrounding neighbourhood, it is difficult to access, this constrain have the potential to be changed and improved.
The site is rich in Biodiversity, with the Raapenberg Bird Sanctuary and the Vincent Palloti wetlands being the main areas	Well- located available land is consistently under threats from development pressure.
The river corridor is an opportunity, however it need to be enhanced and restored. The river corridor has the potential	Wetlands and river facilities are inaccessible from the public.

<p>to be utilised for a variety of recreational activities, as well as serving ecological functions of the river and has an important link in the metropolitan open space system and green network</p>	<p>The park is not permeable, there are limited vehicular access points as well as pedestrian access. Highways and the black act as a buffer.</p>
<p>Urban agriculture is currently being practiced within the Park in Oude Molen Eco- village. The productive area could be extended within the park for natural productive use of the flood plain. Urban farming could also be explored next to the Valkenburg Hospital</p>	<p>Many of the open spaces within the park are disused/ underutilised.</p>
<p>The Park have a potential to be a heritage and environmental educational hub</p>	<p>Some buildings with heritage status are in a state of disrepair and are often sites of crime events, e.g some buildings in Oude Molen Eco- village.</p>
<p>Even though the park is not considered prime agricultural land, the soils in the park are structure less soil, structure less soil have a potential for urban farming</p>	<p>There are crime and safety concern in the park due to less space activation or surveillance.</p>
<p>The park has an opportunities to integrate the adjacent neighbourhoods and bring people from low-income areas as well high-income areas together in one spaces.</p>	<p>Well located open spaces that are environmentally sensitive are often under pressure from urban development</p> <p>Even though the study areas is well services access to public transport by pedestrians is still fragmented.</p>

Table 2 policy opportunities and constraints

Opportunities	Constraints
<p>Table bay district plan recognises the important of green open space, and potentila role the park has for small scale urban faming</p>	<p>Removal of the urban edge in the draft 2017 sdf</p> <p>2017 Draft Spatial development framework new direction could be a threat to potential urban agriculture land.</p>
<p>The city of cape topwn took the firts step and adopted an urbna agriculture policy (2007) as well as urban food gardening policy (2013)</p>	<p>There is huge gap and lack of urban agriculture policy mandate from national government</p>
	<p>the lack of or an absence of a food governance mandate in cape town means that no institution is tasked with the monitoring of the food systems</p>
	<p>Zoning</p>



Chapter 4: food sensitive planning

4.1 Introduction

Call for new ways of thinking about and responding to the ecological and environmental issues confronting us as we head into the 21st century.

In our fast changing times, where political, religious, and economic structures are failing to meet the need for a more equitable and caring world, new and radical approaches are called for. The challenges before us are unprecedented, both within our country, and globally.

The planning profession is searching for new ethics and understanding, an ethics that espouse attitudes and behavior for individuals and societies, which are consonant with humanity's place within the biosphere; an ethics, which recognizes and sensitively responds to the complex and ever-changing relationships between humanity and nature and between people. The profession is articulating new visions and attitudes in its search for new kinds of planning.

Traditionally ecology and society have been approached separately – it is increasingly clear that we need to include the presence of humans and human experience. Today principles of sustainability, inclusion and equity are at the centre of planning concerns.

Driven by the theory learnt in chapter two, which provided an understanding into the important role that spatial planning can make to enhance, enable urban agriculture and bring about change in Cape Town's and the global Food systems in general. Together with the constraints and opportunities found in the contextual analysis that may deter or able food production, access to healthy food sources, and activate of disused spaces in the TRUP site. The purpose of this chapter is to show the contribution that urban planning can make to enable urban farming, which have a potential to activate and celebrate open spaces and create nourishing spaces that also invites locals and tourists in TRUP site, Cape Town. To –reimagine the TRUP site and recompose relationships with earth, food, and reconnect people to the soil. This chapter contains two dimensions, spatial and a-spatial interventions. The first part is the spatial interventions that aim to apply food sensitive planning principles in the TRUP site and use the site to show the possibilities and benefits of enabling spaces for food production. The a-spatial interventions, which are policies, are not specifically for TRUP site but also relate to Cape Town as whole.

To achieve a healthy, caring, resilient and socially just city, the following proposed interventions aim to:

- Restore and enhance the celebration ecological systems in Two Rivers Urban Park
- Activate underutilized open spaces within TRUP site as urban farming spaces.
- Cultivate productive, caring spaces and develop better-shared urban spaces.
- Encourage communities, civil society, private and public to grow their own food and source food from a sustainable food sources.
- Promote urban agriculture and raise awareness about sustainable food systems through educational and health programs.
- Achieve fair and equitable access to the appropriate food sources and services that people need.
- Re-imagine the two river urban park as a multifunctional urban park that provide better opportunities for stronger community interaction, invites locals and tourist to celebrate rich biodiversity and found in Two River Urban Park.

4.2 Interventions

The most important aspect about spatial planning is the ability to envision the future and recommend both policy and spatial interventions that help guide the implementation to improve socio-economic and environmental challenges that have spatial impact. The profession of City and Regional Planning is concerned with managing the relationship between society and the environment, to the ends of fostering positive human development, improving the quality of life of all people, particularly the poor and disadvantaged, and promoting environmental, social justice and sustainability. It is evident from the theory reviewed and learnt in chapter two, that climate change effects and significant pressures from urbanisation threaten cities globally. Pressures from urbanisation make access to urban open spaces an urgent concern (Dewar and Louw, 2017), and limit people's access to healthy sources food due to rising food prices. As cities expand and population rate increase, prime urban agriculture land is often converted into residential land to build residential units in order to

accommodate the growing urban population and for commercial activities. Matuschke (2009) state that urban agriculture production will be further challenged by the expanding cities “substantial thirst”. The City of Cape Town is no exception, it is highly urbanising and prime agriculture land and green open space are under threat not only from development but also from climate change related impacts. While at the same time, the challenge of urban food insecurity is increasing (CoCT, 2016).

The City of Cape Town is one of the cities in South Africa that are extremely vulnerable to the adverse effects of climate change. The City’s climate condition is changing; water restrictions, cut-offs and shortages have/ will become the “new normal” in the City of Cape Town as stated by City of Cape Town Mayor in press conference (2017). In consequence of dry temperatures and less rainfall, the City of Cape Town is currently confronted with serious water crises. The City is experiencing severe drought. As stated by Wolski, Hewitson & Jack (2017), Cape Town’s drought and associated water shortage has officially escalated to the level of a disaster. This year (2017) the City experienced drier rainy period than normal. It is evident that dams, which supply the City of Cape Town, will be drier in the next coming summer months. Impacts of climate change affects agricultural productivity, food security and livelihoods. To this end economically stressed population groups, usually from low lying areas of the Cape Flats in Cape Town Metropolitan Area (CMA) are the ones who are affected the most by climate change impacts. Now they will be affected most by the upcoming water cutoffs that they city is implementing. While the affluent population will adopt new livelihood strategies, they will be able to buy bottled water when the municipal water-cut- offs while the urban poor may not be able to buy bottled water. At the same time, the urban poor are the ones who are mostly food insecure (Battersby, 2014). Water and food are essential for a healthy life and they are most basic needs. Although it is enshrined in the South African constitution, that everyone has the right to access to food, water and shelter, some of the City’s residents do not have access to these basic needs.

As discussed in the previous chapter in this study, the legacy of Apartheid spatial planning still persist in Cape Town and continues to play a role in the current urban poverty and high inequality (Jara, 2010). “Cape Town’s urban poor mainly people of colour are socially isolated and excluded from services, opportunities, earn low income and they have poor nutrition and high rate of HIV/AIDS infection, experience social breakdown and a general lack of infrastructure that is essential for their social development” (Jara, 2010:67). As noted by Jara (2010) these factors mentioned above cripples the urban poor’s ability to escape poverty. They

become trap in the cycle of poverty. The urban poor are not motivated to grow their own food, because they do not have access land and space. Even though the City of Cape Town's economy is getting stronger and it is prospering, social injustice persist. Class segregation is getting stronger and it often people of colour who are marginalized.

Therefore, if Cape Town is to thrive economically, socially and environmentally, spatial planning need to overcome these challenges and reimagine the way in which Cape Town could become a healthy, caring, resilient connected and desirable City to live in. Valuable agricultural land, green open urban spaces and vacant spaces that have a potential for urban farming need to be protected from development pressure. The use of vacant land for urban farming can be both temporally or permanently. This means that, urban farming could be practiced in spaces that are currently disused but might have a potential to be used for inclusive housing or other land use in the future. Then when that space have been rezoned, the urban farming system that occurred in that space could shift to another space. The productive use of vacant spaces will reduce dumping and activate areas, which in turn prevent crime.

It is clear from the contextual analysis in previous chapter that the TRUP site have a number of underutilized open spaces that could be better used to overcome the painful legacy of the apartheid spatial planning. Due to the size and its central location, the Two River Urban Park arguably has metropolitan significance. The Vacant spaces within the park hold a great potential for not only urban farming, but also as spaces of integration and bringing people together. These spaces have potential to become nourishing and encouraging spaces on multiple levels, literally for food, for livelihoods, for social cohesion, for the commons and for improving ecology. There is binary between social and ecological occupation, enabling urban farming in TRUP site will disrupt this divide and encourage democratic spaces of engagement, and allow people to celebrate a and engage with the natural system within the TRUP site.

Only if these spaces can be transformed and reimaged into multifunctional urban farming spaces and green infrastructure, that at the same time delivers environmental, social and more economic benefits. This green infrastructure could be used as multifunctional parks and open urban spaces. As argued by Louw and Dewar (2017) open spaces if appropriately provided, impacts directly and positively on human welfare. Such as physical health,

psychological health, sociability, ritual and ceremony, as well as aesthetic satisfaction. The TRUP site have the potential to be integrated into the metropolitan green web or productive open space system (MOSS) which promote linkages, continuities of productive spaces as well as open spaces systems city wide.

It is important to note that this chapter is more than just identifying vacant and underutilized open spaces that could be transformed into urban farming. It is more than just growing of food. The literature reviewed in chapter two highlighted that urban farming alone cannot solve the issue of food insecurity and this study agrees with this statement. There are multiple facets that can contribute to help improve food security; this study recognizes that urban farming is one of the important components that will help improve people's access to healthy and affordable food choices. Urban farming brings with it so many benefits if it is appropriately managed and supported by relevant stakeholders. This chapter is about using urban farming for multiple benefits and wellbeing; as a tool to enhance people's access to healthy food choices, a tool that can reconnect people to soil and water, cultivate care in the surrounding areas. Urban farming can be used as an active green open space that will activate the site and deter any crime events within the park and surrounding areas as well as strengthen social cohesion

The vision board in figure 4.1 above show pictures of what is envisioned for the Two Rivers Urban Park. The pictures are borrowed from local precedents as well as precedents from the global North.

30-year vision for the TRUP site: Active, Productive and learning spaces.

The primary vision for the Two Rivers Urban Park (TRUP) is in line with the City of Cape Town Metropolitan Spatial development framework (MSDF) and Western Cape Provincial Spatial Development Framework (PSDF), which aims at overcoming the legacy of apartheid spatial planning and promotes social justice.

Situated at the confluence of the Two rivers (Black and Liesbeek Rivers), in 30 year from now, the TRUP site is envisioned to be a mixed-use and productive urban park, that is socially inclusive and easily accessible to people from diverse socioeconomic backgrounds. An urban park that is penetrable to adjacent areas as well as the broader metropolitan area. The TRUP is envisioned to be a nourishing, encouraging and a space of celebration, that have a thriving ecological systems and flourishing productive spaces, which promote sustainable urban farming as well as recreational activities. A metropolitan node or destination place, that invites local residents as well tourist from all over the world, and different age groups, to connect and share skills, knowledge and experiences. The Two Rivers Urban Park will become a metropolitan park that provides social and economic opportunities and facilitate stronger community interactions, ensuring better-shared public open spaces providing choice and equitable access to healthy sources of food. The park is envisioned as an urban space where everyone is encouraged to grow their own food and demands people to come together and celebrate cultural, heritage, water and the significant biodiversity found within the park. Well serviced by accessible and efficient public transport, the park envisioned to be a heritage and environmental educational hub that aim at educating and training people to increase their skills and raise awareness about urban food production and urban sustainability and environmental studies.

4.4 Spatial principles and values

This section articulates a set of principles and values that influence both spatial and policy interventions later on in this chapter. The core values which underpins the development of this proposal for Two Rivers Urban Park are sustainability and resilient, these value are described in chapter two. However, this proposal disrupt the limiting and restrictive views of traditional sustainability which aim at protecting and conserving natural sources, isolating humans from nature. This dissertation promotes care, safety and human nature relationship and inclusion.

Thus the principles for are strongly underpinned by the ethical and normative position of this study, which are social justice, sustainability, equity and inclusion.

4.4.1. Principles

Spatial justice:

Spatial justice refers to the fair and equitable distribution in space of social services and opportunities (Soja, 2009). These services include among others factors such as access health care, education, access to job opportunities and access to land by disadvantaged communities, equitable access to parks and ecological systems Spatial Justice facilities inclusion and integration of people from all backgrounds. In a city like Cape Town, where poverty and inequality persists, mainly due the apartheid spatial planning and policies that favored certain population groups; and where there are still issues of limited access to many urban spaces; and limited access to food sources by economically stressed residents. The principle of Spatial Justice will challenge the legacy of apartheid spatial planning. The Two Rivers Urban Park, could act as an example, in which spatial justice is achieved through fostering an equitable access to healthy food choices, education and access to recreational areas, Access to land and improved social cohesion in TRUP site.

Spatial equity

Equity and equality do not imply the same thing; In this case, equity is about what is wright, fair and just.

Sustainability and Resilience

Imagine a community that produce its own food, water and sustainable energy sources. This could be TRUP site.

Resilience refers to the capacity and ability of a community to withstand stress, survive, adapt, and bounce back from a crisis or disaster. According to (Hauge et al. n.d), a resilience approach to sustainability focuses on how to build capacity to deal with unexpected change. They argue that this approach moves beyond viewing people as external drivers of ecosystem dynamics and rather looks at how we are part of and interact with the biosphere- the sphere of air, water and land that surrounds the planet and in which all life exist. A resilience thinking approach tries to investigate how the interlinked systems of people and nature – or social-ecological systems – can best be managed to ensure a sustainable and resilient supply of the essential ecosystem services on which humanity depend. In order to bounce back from any external shocks such as climate change related impacts, development within TRUP site need to adopt more resilient approach.

4.5 Spatial concept - cultivating care and nourishing spaces.

This section articulates and spatially show the general concept for TRUP Study areas.

Some of the interventions in this chapter are

Drawing inspiration from the Belo Horizonte precedent, presented in chapter. This study, as one of the city that have successfully adopted an integrated food policy. The policy includes a range of different programs, which are managed by SMASAN — the 'Municipal Secretariat for Food and Nutrition Security. The programs fall under six work streams. Adopted from Hawkes and Halliday (2017) the work stream are listed below.

1. Subsidized food sales, e.g. four Popular Restaurants that serve nutritious meals at (or below) cost.
2. Food and nutrition assistance, e.g. the School Meals Programme; the Food Bank.
3. Supply and regulation of food markets, e.g. ABastaCer (low-cost food) stores that sell food staples at a price fixed by the municipality; straight from the Country, through which associations of small-scale producers sell directly to consumers.
4. Support for urban agriculture, e.g. school gardens, community plots, container growing.
5. Food and nutrition education,
6. Job and income creation

4.5.1. The general concept plan for the Two rivers Urban park Figure 25 concept plan for TRUP Site.



source : author , 2017

The general concept for TRUP Study area shown in figure 25 revolves around finding and turning underutilized vacant spaces that could be transformed into Continuous Productive Urban Landscapes (CPUL), that bring with many benefits including social, economic and environmental benefits. Productive landscapes in this case applies to urban farming spaces (vegetable gardens and or fruit produce). CPULs are a spatial concept based on creation of open landscapes that are productive in economic, sociological, and environmental terms with open spaces traversing continuously within the built environment, forming a network of existing inner-urban open green spaces, linking to the rural land urban spaces (Bohn et al., 2005).

Thus, this section aim to provide specific potential sites in TRUP study area where key pilot project, similar to the ones adopted in Belo Horizonte will be implemented. The sites that I have chosen shown in figure... are: vacant and underutilized spaces within Oude Molen Eco Village, Maitland Garden Village as well as Valkernberg West.

I chose Oude Molen Eco Village (site 1) and Maitland Garden Village (site 2) as the main spaces of production in the TRUP site. Because of their strategic position along riverine system. They hold a great potential to be used for sustainable urban farming, multifunctional active spaces and passive space. A detailed explanation for the proposed development of the sites will be articulated below.

Another component of the general concept is to enhance the natural and ecological functioning of the site and restore and rehabilitate degraded ecological systems in TRUP study area. The concept aim to enhance and facilitate fair and equitable access to public open spaces, recreational areas, healthy ecological services, local food sources, access to the commons, as well as learning spaces. Promotes the celebration of cultural, heritage and natural resources. The concept aim to strengthen permeability into the TRUP site, by improving and increasing the hierarchy of movement systems. Lastly, the concept encourages sustainable and integrated public transport systems, which comprise of- Non Mortised Transportation (NMT), Integrated Public Transport, and efficient rail systems.



Source, author, 2017.

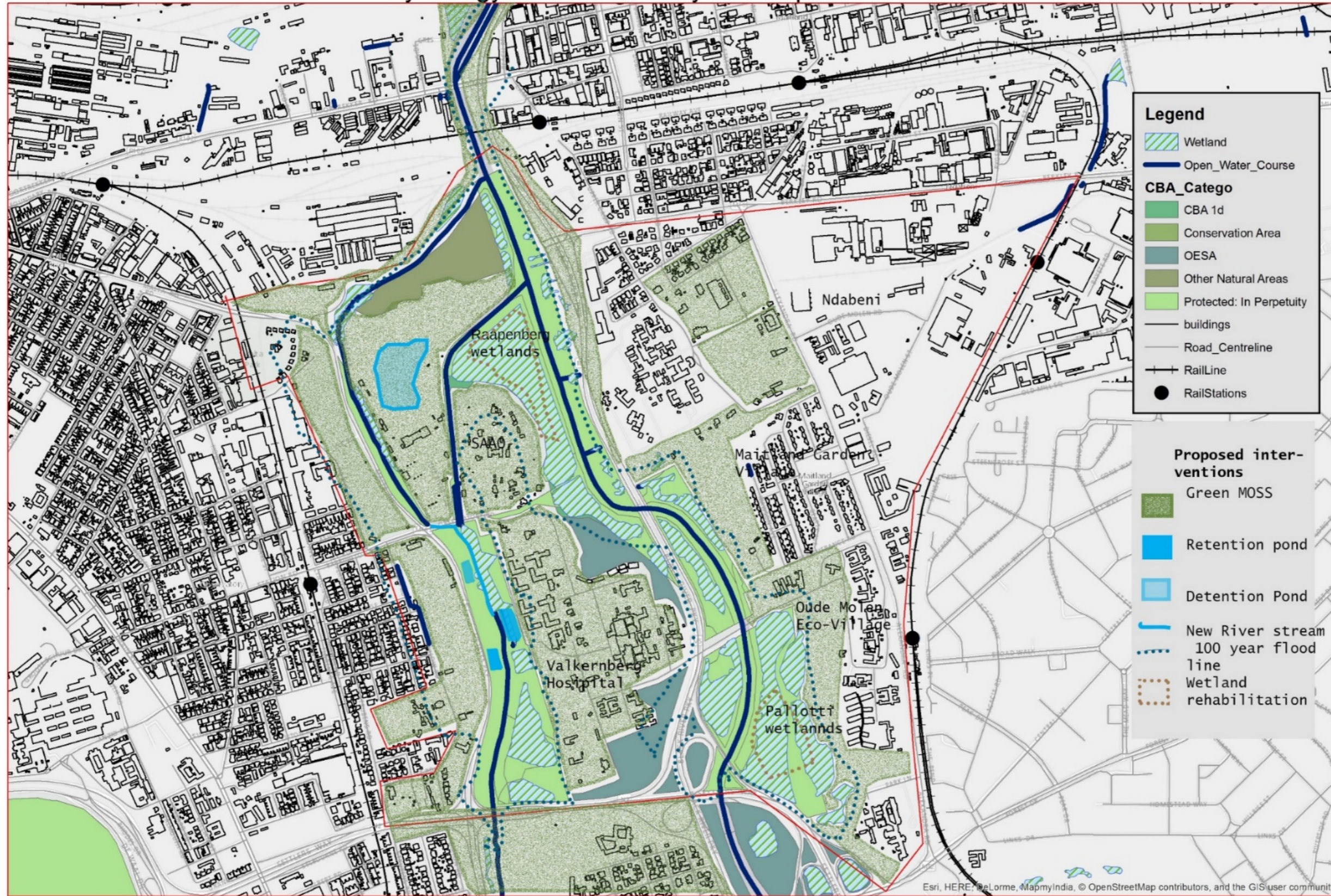
Key proposed strategic intervention in TRUP site.

This section highlight propose strategic projects which will facilitate access mobility, encourage urban faming, and learning in Two Rivers Urban Park. The propose interventions in TRUP site aim to improve socio ecological integration and build care. Proposed interventions are :

Main Objectives of the spatial intervention for the TRUP site:

- Improved access to healthy food, access to the commons, democratic spaces,
- Encourage urban farming and strong social integration
- Revitalise the river systems and wetlands
- Reconnect people with water and soil, for health and psychological reasons
- Promote a continuity of green public open spaces: maintaining a balance between soft and hard spaces.
- Improve health and nutrition by providing affordable fresh produce to those who cannot afford to nutritious food.

Hydrology and Biodiversity Concept



Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community



Figure 26 Hydrology and Biodiversity Concept

1:10 000

Hydrology and Biodiversity concept:

The main objective for the biodiversity and hydrology concept, is to protect and care for biodiversity, revitalize, enhance and restore degraded ecological systems so that in future the public could enjoy and enliven the natural resources in the site.

Strategies:

Figure 26 above show some of the intervention that need to be undertaken to revitalize and ensure that the aquatic system (wetland and rivers) as well protected the critical biodiversity within the TRUP site.

This dissertation recognizes that in order to improve the vitality, functionality, and vibrancy of the ecological system in the site, restoring the health of the degraded rivers and wetlands in TRUP site rehabilitation mechanism are need to be in place. The impacts of storm water should be managed accordingly. Water treatment mechanism such as detention and retention ponds in (figure 26) or constructed wetlands that will treat the storm water runoff form surrounding neighborhoods and captured solids such as litter and sediments before they enter the river streams need to implemented. Invasive alien vegetation within the aquatic system should be cleared completely. Natural riparian vegetation such as Cyprus should be planted and act as ecological buffer rom hard development. To ensure a continuation of the blue and green corridor the lower Liesbeeck need to be realigned with the old Liesbeeck stream to promote continuation of the blue corridor.

Critical biodiversity found in the site need be protected from harmful activities, the creation of green open spaces that would form part of the Metropolitan Open Space System(MOSS) is promoted. Green open space could be both passive and active spaces. Dewar and Louw (2017) write that positive open space should be a basic right of all people living within a community

Case.

An example of active space is the green point urban park



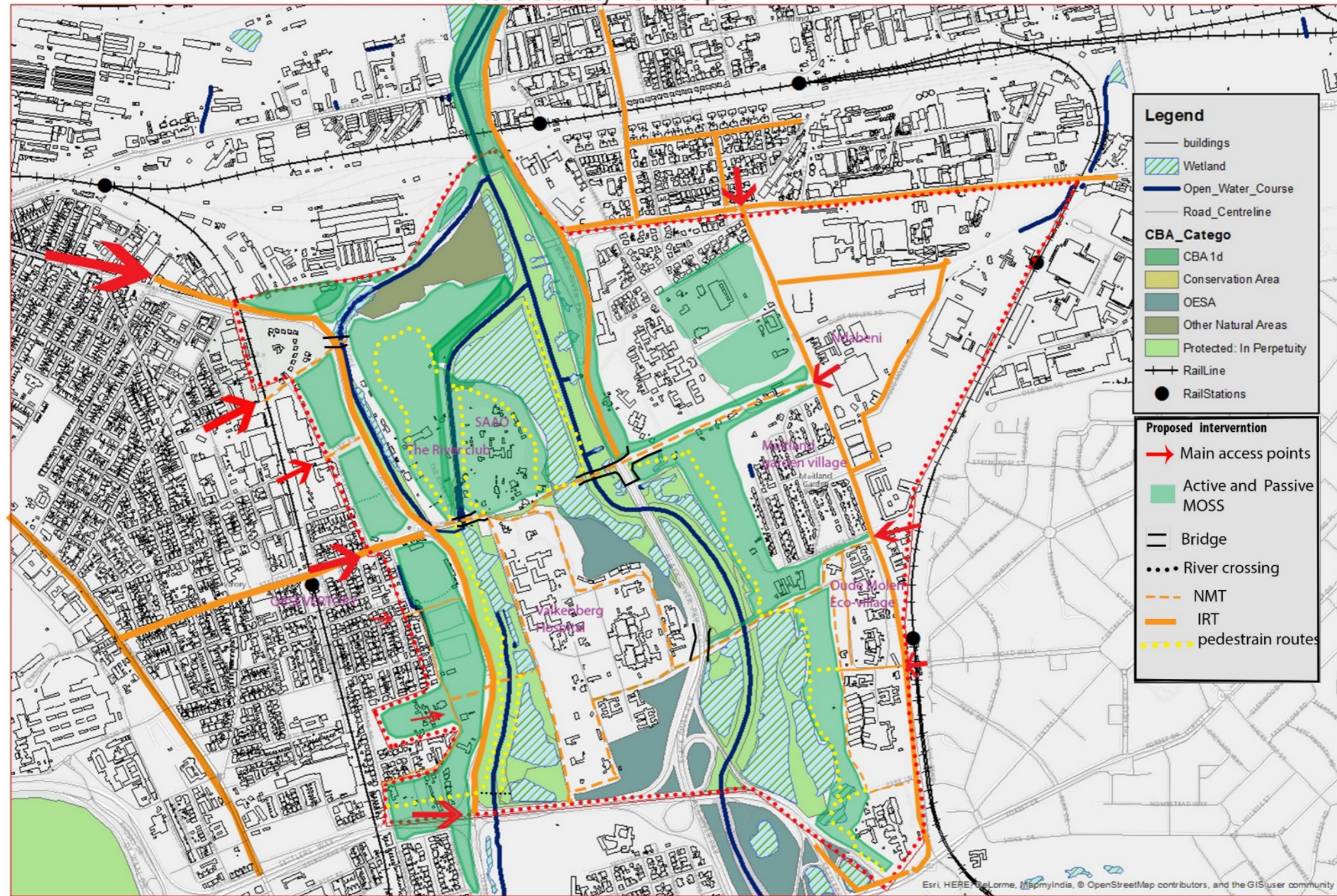
Source Dewar and Louw, 2017



Multifunctional space concept source Dewar and Louw, 2017.

This dissertation is aware of the work that have been done by various organizations to improve the quality of the ecological resources in TRUP site. The proposed ideas aim to extend on the already existing projects, to form stronger partnerships between public ,stat NGOs that are working towards the same goal.

Accessibility Concept



1:10 000

Figure 27 Access and movement Hierarchy

Accessibility and hierarchy of movement network Concept

Objective:

The main goal for concept is to promote equity of access to the TRUP site to improve access: to opportunities, social destinations, access to healthy ecological systems as well as potential food production spaces that are being proposed in the site and access to food hubs and learning destinations.

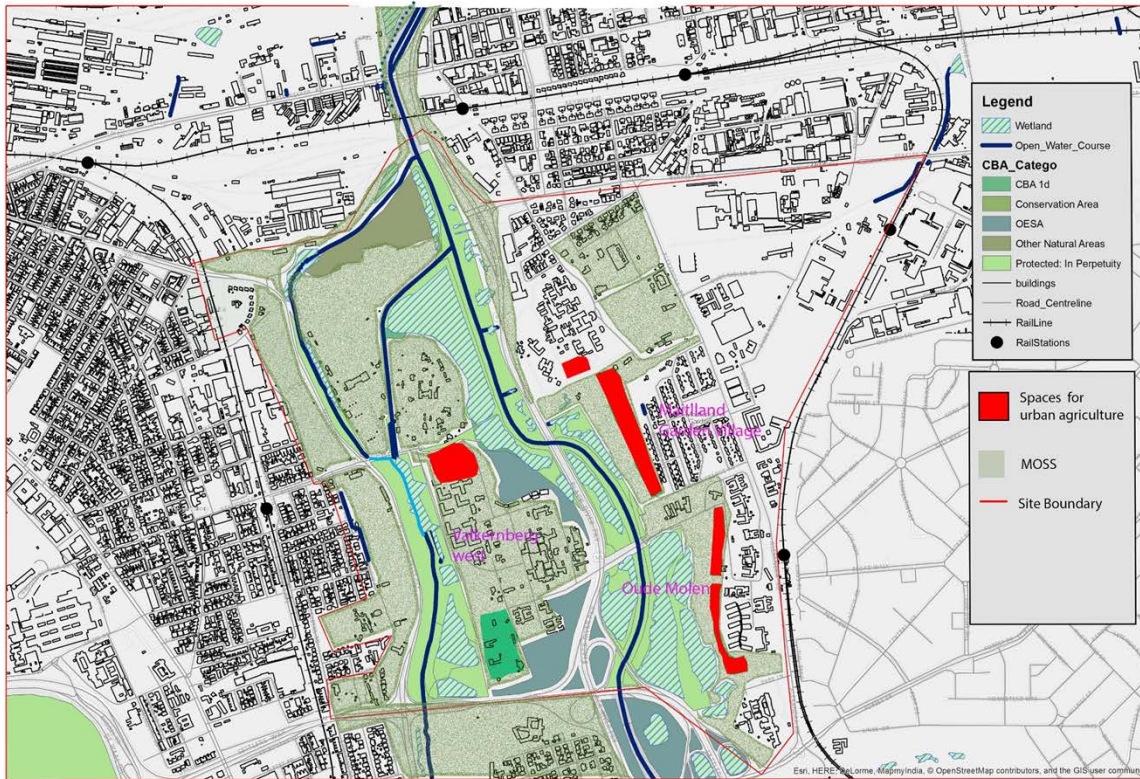
Strategies:

Figure 27 show key strategic intervention, which aim at breaking the barriers and edges to the site.

Dewar and Louw (2017) write that positive open space should be a basic right of all people living within a community. In order to achieve equitable access to service, open and to the commons, access to the site need to be enhanced. The hierarchy of movement system have to be improved. Figure 27 propose the extension of pedestrian, non-motorize and integrated public transport network into the site. This dissertation promotes sustainable forms of transport.

- Permeable urban park, that is easily accessible: with well-integrated public transport that connect people in out of the site.
- To limit individual car use and encourage non-motorized transport and sustainable integrated public transport system.

Figure 27 illustrate the Hierarchy of movement systems as well as, the proposed improved access points into the site. The proposed movement network will ensure easier access to the site and make the site more inviting and permeable to the surrounding neighborhoods as well as to the rest of the metropolitan area. Bridges and river crossing are also proposed. Rivers and river crossings will connect people to different precincts within the site and connect people closer to the green and blue corridor.



Maitland Garden Village



Oude Molen Eco village



Valkenberg Hospital

Figure 28 Spaces for Urban

The previous chapter identified general vacant and underutilized open space within the TRUP site. From the analysis of the vacant land within the site, three sites from three different precincts have been chosen for urban agriculture area. As shown in figure 28

Site 2: Oude Molen- Eco village

Site 1: Oude Molen Eco Village:

The Oude Molen Eco Village is situated in the Eastern side of TRUP study areas, on a site called Valkenberg East, near Pinelands. It is situated in large, park-like gardens bordered by sensitive wetlands lining the Black River. Some of the social services found in Oude Molen Eco Village Milestone restaurant, Gaia Waldorf School and the 4.5-hectare garden, which grows various kinds of vegetables and indigenous wild foods (Safalane, 2017). I chose the site as one of the areas, which have a potential for urban farming because there is already an established urban agriculture community in the site, there is already a Food Garden Village for children, youth and the community. The food garden village offer urban farming training to children, youth and interested farmers.

The aim of the intervention in this site is to extend and enhance the support for urban farming through the identification of new spaces for cultivation in the site. e.g community plots/ allotment garden. A food hub and education, heritage centre

Objectives:

- Sustainable urban farming area that is accessible and encourages social integration
- Local Food hub
- Active/ recreational area
- Fresh produce market that is easily accessible.
- Cultural/ heritage and environment educational and training center
- Extend the already exiting urban farming system within the site

Actions

- Get permission from the landowner to allow some of the land to be used for urban farming
- Create partnership with NGOs and civil society, academic and interested farmers
- Introduce Sustainable food system education and training for farmer and for anyone who is working in the food realm
- Create awareness about healthy food and

Site 2: Maitland Garden Village

Urban farming in this site will for part of Continuous of productive Supportive agriculture area. Maitland Garden Village is also strategically located closer to the river system.

Crime prevention through urban agriculture by activating space that

Site 3: open space in Valkenberg Hospital

Valkenberg Hospital is a psychiatric hospital. This hospital operates in the Cape Town Central Health District of the Metro Region. The type of farming that would be practiced in site small vegetable garden in institutional property.

This vegetable garden will also perform as space of healing a space that will allow the visitor or the patient to reconnect with soil and have access to healthy nutritious food.

Part 2

4.6 policy interventions

Informed by the findings and analysis in chapter 3, a number of key policy recommendations are made to help the City develop a more sustainable food system and food security strategy. It is clear from the analysis chapter that the City of Cape Town is not a resilient city that is able to bounce back from external shock. On the other hand, maybe it is not water and food resilient. In terms of food, the City needs to change its food system, the current food system is unsustainable, it does not facilitate equal access to food, and it is unhealthy and wasteful. The City has already taken the first step and adopted an urban agriculture policy, which already plays an important role in shaping local food systems. However, the Policy needs to be enhanced, updated and integrated with other policies such as health, social development, economic development and planning for improved results. In order for the City of Cape Town to achieve its objectives of being a city that offers opportunity, *safe, caring, inclusive* and a *well-run city*. The food challenge must be addressed first in order to make sustainable development a reality (Hawkes and Halliday, 2017). The City of Cape Town should then consider some of the proposed policy interventions and recommendations presented below in this section. Some of the recommendations are borrowed from best case study examples that have adopted successful and integrated urban food policies. This section proposes key policy recommendations that may contribute towards reducing the challenge of urban food insecurity, and help contribute to promoting equitable access to food. The key recommendations for the city is to develop a coherent, systematic food policy and food system strategy.

Food policy action

This section aim to recommend some policy intervention that may enable and help promote urban faming at the TRUP site, in Cape Town. City planners and land use managers should shift from the idea that the production of food is a rural activity and it should not planned for in cities. City of Cape Town food security can be improved through the inclusion of the food system into development planning mechanisms and processes.

Enhancing the existing urban agriculture policy

The City Of Cape Town is one of the few cities in the world that have developed an urban agriculture policy. It is the first city to do so in South Africa. As explored in chapter 3, the 2007 UA policy needs to be strengthened and improved. The City focuses on two aspect of urban agriculture: the first is to improve household food security and second approach is to enhance economic opportunities, job creation and income. It is mentioned in the previous chapter that the 2007 UA was revised in 2013 but, the urban food garden policy have not yet been approved. Within the 2013 urban food garden policy, it is mentioned that there is a food system strategy for the City Cape Town. So, the first action that needs to be undertaken is to update the 2007 AU policy and approve the urban food garden policy that was revised in 2013. Hawekes and Halliday, (2017) argue that UA Policy need to be regularly reviewed and renewed. The renewal of policy enables it to be adopted in light of learned experiences, new data or unexpected impacts, to improve efficiency (Hawekes and Halliday, 2017). As established in the previous chapter, Cape Town's 2007 UA policy is not well integrated with other policies. During this time is uncertainty and fast changing context the UA Policy need to be kept up to date and better integrated with other urban polices

and it definitely needs to be updated. The municipal department of Social Development which focuses on the social aspects of urban agriculture that are related to poverty alleviation and improving food security is working in isolation from the Urban Agriculture unit which focus more on the economic aspects of urban agriculture. To this end the policy is not included in any of the urban land use planning policies and environmental policies. To achieve sustainability goals and improve equal access to food Hayson (2010,) argues that alternative solution to urban agriculture and food supply within the City need to be identified. So this study propose an integrated approach in which UA policy can be incorporated into urban planning and land use policies. The study also propose an overarching food system strategy. creating an enabling and policy and institutional frameworks that support UA is an important step in promoting and growing awareness of the importance of food production for cape town residents to grow their own food. Below are some supportive policy recommendations that will help harness the scope and scale of urban agriculture.

Overcoming challenges/ deterrent for food sensitive urban planning in TRUP site .

Rezoning

The three sites that this dissertation found to have great potential for urban agriculture namely: vacant spaces in Oude Molen Eco Village, Maitland garden Village and open space in an institutional property in Valkernberg West are not zoned for urban agriculture. Figure 23 in contextual analysis chapter show that Oude Molen Eco Village and Maitland garden Village are zoned under the “ Council to Deem” zoning. Therefore, the current zoning for these sites need to be changed. The dissertation recommends the site selected as holding a potential for urban farming need to be rezoned to urban agricultural areas.

Identifying and removing barriers and creating supportive frameworks can open up opportunities for people who are interested in urban farming and economically stressed residents to partially meet their own food needs. (Hayson,2010) writes that Zoning schemes should promote multifunctional land use and also promotion of community participation in the management open space. Zoning and access to land is usually the biggest constrain for urban famers, so space for individual or community gardens should be incorporated in new housing projects.

Incorporate UA in environmental policies, which promote sustainable farming practices.

The development of innovative urban environmental policies, which promote sustainable and urban agriculture practices, will improve the environmental sustainability of food systems. To help encourage sustainable and water efficient urban farming, innovative practice such as rainwater harvesting for irrigation systems be encouraged. Water efficient irrigation system are less expensive and reduce the demand or consumption of the already scarce municipal water. Lastly, to ensure that urban farming is not harmful to the environment and to people's health, the use of organic fertiliser such as waste that would usually pile up on the over capitated land fill site should be encouraged. The use of natural fertilizer for urban agriculture will encourage the city to adopt a closed metabolism rather than closed one.

Integration of urban agriculture and public health policies.

As noted by Hayson (2010) integration of urban agriculture and health policies can be strengthened by training and educating farmer about the health risk associated with urban farmers. Urban agriculture can

Food policy council

Kent,(2010) define Food Policy Council_as a structure that brings together stakeholder from diverse food related areas to examine how the food system is working and propose ways to harness it. A food policy Council may consist of community-based coalitions, or state government that help promote resilient food systems. Food council builds connection across stakeholder and collaborate to improve health, food access, natural resource protection, economic development for communities (Community Food Strategy, 2017). In this light, City of Cape Town need to establish a “Cape Town Food Policy Council” which will include various stakeholder such as :NGOs, Academia, interested urban farmers, and state government. The council need to include stakeholders from various state departments including:

- Health
- Environmental affairs
- Spatial Planning and land use.

The Cape Town Food Council will deal with food issues from a total food systems perspective and this will allow for interventions that cross specific functions. (Hayson, 2010) argues that food policy council are critical because they build a strong governance and public participation. (Hayson, 2010:220) “State that cities often make the mistake of addressing food security issues independently”. In most cases participation process, is often left for last, this study propose that collaborative partnership and participation process should be the primary enabling process for effective urban agriculture implementation in Cape Town. The creation of urban food councils would be a critical component of UA in the City, it will increase partnerships and integrate a variety of skill, knowledge and different perspectives into the process.

The council could formulate project similar to the one adopted in Belo Horizonte case study discussed in chapter 2. Projects such as sustainable food production education, food nutrition assistant e.g. school meals, connecting with clinic and hospitals. The food council committee could deliver these projects in different communities in the metropolitan area including the TRUP site. There is already a growing community of small scale famers In Oude Molen Ecovillage, so the council committee could build and extend on the already existing projects

Food sensitive planning

During this time of complex environmental and socio- economic uncertainty, the concept of Food Sensitive Planning and Urban Design (FSPUD), becomes an important concept framework that needs to be applied to TRUP to the site study area FSPUD strive for development that are sustainable, resilient, adoptable and responsive environments. Donovan, Larsen and McWhinnie (2011: 10) define Food Sensitive Planning and Urban Design (FSPUD) as an “approach to planning for the future that aspires to optimal circumstances for the production, distribution, equitable access to and enjoyment of Food”. The name plays on that of Water Sensitive Urban Design, (WUSD).

City planners and land use management should shift from the idea that the production of food is a rural activity and it should not planned for in cities. City planners rarely consider food and food system and the security of their supply. City of Cape Town food security can be improved through the inclusion of the food system into development planning. The City is already water and food insecure, it clearly time for the city planners to think about the security of Cape Town food supply. Spatial planning play an important role in influencing how society and how the built environment is shaped, therefore structure plans such as: Provincial, Metropolitan as well as the District and Local Spatial Development Frameworks need to ensure that they incorporate opportunities for production, sale and distribution of food in TRUP site, Cape Town. These plans need to make sure that Cape Town’s food systems are linked with accessible transport options to reduced travel distance from production to distribution markets. This will further reduce the carbon footprint. The deliberate consideration of the influence of the built environment and infrastructure on the access, location, transport and distribution of nutritious food to the public has the potential to make a significant contribution to shifting the underpinning dynamics that influence availability and access.

The Provincial department of the Western Cape, where Cape is located, has released a new food security strategic framework, which focusses on six pillars: including Food Sensitive Planning. The food strategic framework ensure that the Provincial Spatial Development Framework (PSDF) considers food security in order to influence municipal spatial development frameworks (WCPG,2016).

The strategic framework Include and adapt the principles of food sensitive planning and design into the model zoning scheme bylaw; develop food sensitive planning and design guidelines for provincial land use management; and, include food sensitivity principles into current municipal assessment criteria. (Provincial Government of the Western Cape, 2016). This study recognizes that this is a positive first step towards integrate and sustainable food system in Cape Town. Putting FSUD into practice will require the cooperation of communities and councils and, preferably, state government.

Further Recommendation

_food system strategy for TRUP site

To ensure that City of Cape Town moves towards a sustainable, resilient and healthy food systems, the city need to adopt a metropolitan food system strategy that will contribute to the wellbeing of all residents and economic prosperity of the metropolitan area. A strategy that will guide the city's long-term engagement with the Cape Town food system and food security. The city may formulate goals for food system strategy. The main of objectives of the food strategy for TRUP study area are driven by the spatial principles and of this dissertation which promote equitable access to services, food, nurturing space, learning and sustainability.

Here are some of the strategies that the City may include in the food system strategy:

Produce food closer to where it is consumed and markets.

This will help to reduce food-travelling distance, transportation cost and reduce carbon emission from transportation.

Encourage sustainable urban agriculture and farming.

Urban agriculture does not only brings fresh food closer to home but it also creates social places where neighbours meet; education places where people can learn gardening and farming skills; and even small business opportunities for urban farmers. Because of these

benefits, urban agriculture is widely recognized as a key strategy for healthy communities (Urban Food Strategies, 2017).

Develop a food planning education, strengthen skills, about sustainable food production in TRUP site.

Urban farming is rarely taught in schools. The erosion of agricultural studies in the Cape Town, plus the high dependence on supermarkets as a main source of food is therefore the reason why, many residents in Cape Town are removed from urban food production and removed from learning to produce their own food. Secondary and higher education need to include food system course through providing informal and formal knowledge sharing, training and education about the production of food and the healthy food systems this dissertation proposes food hubs in the TRUP. The food hubs in the TRUP site will perform as nurturing spaces, learning and training spaces.

Protect food productive places TRUP site.

The areas and ecosystems that form foundation for all the food we eat is under increasing development pressure from cities and industrial uses, among others. The lands, forests, rivers, lakes, and oceans that sustain the global food system need to not only be protected but also restored to ensure a source of community health and economic prosperity into the future.

Identify vacant land through a land audit

Land that have the potential to be used for urban agriculture should be protected

4.6 Conclusion

The purpose of this chapter was to show the role that urban planners can take in facilitating, enabling, supporting and promoting urban food production in Two Rivers Urban Park. This has been shown through two dimensions: spatial and a-spatial interventions. The interventions and recommendations drawn from this chapter will be carried through in the next chapter, which is the implementation chapter.

Chapter 5: Implementation Framework

The purpose of this chapter is to indicate how the interventions and proposals described in the previous chapter are to be carried out. This chapter pursue to identify key strategic projects that have been proposed in the previous chapter and make them implementable. It identifies various stakeholder who will be in charge of different projects and funding. Each projects is allocated a period. The key strategic project are presented in table 3 below.

Key projects

Objectives	Strategic interventions	Key stake holders	Funding	Time frame					
				5 yrs	10 yrs	15yrs	20yrs	25yrs	30
Strategy 1 Promote care and Protection for Natural Resources/ Ecological River corridor and biodiversity	<ol style="list-style-type: none"> Revitalize/ Rehabilitate and restore degraded Rivers and wetlands Invasive alien vegetation within the aquatic system should be cleared completely. Natural riparian vegetation such as Cyprus should be planted and act as ecological buffer. Storm water mitigation mechanism such as retention and detention pond should be Enhance the vibrancy and of ecological resources Strengthen the blue and green connectivity 	<p>Working for water. Friends of Liesbeek. SANBI Coct department of water affairs and sanitation. PWGC . Department of Environmental affairs and development planning. Community participation</p>	<p>PWGC CoCT</p>						
Strategy 2: increase Access: Ecological resources, healthy productive spaces, to the commons and fresh produce.	<ol style="list-style-type: none"> Enhance both vehicular and pedestrian access into the site. Increase different movement network(NMT enhance public transport movement) Well integrated public transport that connect people in and out of the site. To limit individual car use and encourage non-motorized transport and sustainable integrated public transport system. 	<p>PWGC. Department of transport and public works CoCT Trnsport and urban development authority PRASA</p>	<p>PWGC CoCT PRASA</p>						
Strategy 3 Turn vacant and underutilized spaces in TRUP into safe spaces, caring and nurturing space	<p>Identify and protect land suitable for urban agriculture in two rivers urban park.</p> <ul style="list-style-type: none"> Get permision form the landowner to allow some of the land to be used for urban farming society, academic and interested farmers Introduce Sustainable food system education and training for farmer and for anyone who is working in the food realm Create awareness about healthy food and 	<p>Coct. Department of economic development- agriculture unit</p> <p>Coct s</p>							
Strategy 4 Amending of the zoning scheme for TRUP site	Re zone the sites are identified for urban farming	Coct							
Strategy 5 Food s system strategy									

Strategy 6 Active food policy council	<ul style="list-style-type: none"> • Food hubs • Food education and training • Create awareness about healthy food and • Create partnership with NGOs and civil society and interested farmers. 	NGO Privet sector Coct PGWC Community leaders and farmers							
Strategy 7 Upgrade UA policy									

Chapter 6: Conclusion

The aim of this dissertation was to explore the role of planning in facilitating and creating spaces for sustainable urban agriculture, improving access to food and enhance livelihood strategies in Two Rivers Urban Park, Cape Town. To evaluate how enabling spaces in TRUP site for urban farming could enhance social cohesion, cultivate care and create nourishing and healing spaces. This was examined by first grounding the topic of urban agriculture and sustainability in academic research and debates in chapter 2 and secondly to review how the field of spatial planning engages, and respond to urban agricultural practices. The main findings that came out of this was that planning was that planning context was deterrent and Barrie to urban agriculture. The reasons to this was that urban agriculture was not viewed as an urban activity. It also become evident in this chapter planning for urban agriculture strengthen social cohesion. The planning profession only begun to engage with urban food system and policy in current years.

Chapter 3 underwent an in-depth contextual analysis of the Two River Urban Park site. This chapter presented some opportunities for potential sites, which could be used for urban food production and it also limiting constraints for urban food production. Some of the challenges to urban food production were spatial issues relating to access, access to land, access open spaces and access to food, access to services. Policy frameworks, which did not permit urban, agree culture with the study area. Driven by the normative position of this dissertation which are equity, social justice and sustainability, chapter 4 then formulated aspatial and spatial interventions which aimed at facilitating equitable access to food sources by creating plan and policies frameworks which facilitate and promote healthy food production.

This dissertation has shown that spatial planning plays a huge role in facilitating and supporting urban farming only if appropriate tools and measure are put forward to create enabling and supportive policies frameworks and plans.

This dissertation has focus on specific vision on how the TRUP site could be developed. Which is healthy, nourish, productive landscapes. In order to create a comprehensive Local area SDF for the TRUP site a range of expects in the field affordable, inclusive housing, finance, transport, ecology would also be need to be considered. However, this dissertation has shown that productive landscapes and food sensitive planning in TRUP site need to be the main priority of any development in TRUP site.

Chapter 7

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Application for Approval of Ethics in Research (EIR) Projects
Faculty of Engineering and the Built Environment, University of Cape Town

APPLICATION FORM

Please Note:

Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form **before** collecting or analysing data. The objective of submitting this application *prior* to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the **EBE Ethics in Research Handbook** (available from the UCT EBE, Research Ethics website) prior to completing this application form: <http://www.ebe.uct.ac.za/usr/ebe/research/ethics.pdf>

APPLICANT'S DETAILS	
Name of principal researcher, student or external applicant	
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Department	
Architecture, planning and Geomatics	
Preferred email address of applicant:	
MNYNOS004@myuct.ac.za	
If a Student	Your Degree: e.g., MSc, PhD, etc.,
	Masters of City and Regional Planning
	Name of Supervisor (if supervised):
	Tania Katzschner
If this is a research contract, indicate the source of funding/sponsorship	
N/A	
Project Title	
Productive landscapes: Turning vacant and underutilised spaces into urban farming, for social economic and environmental benefits.	

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

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

SIGNED BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	Nosiphe Mnyazi	Signed	23 Jun 2017

APPLICATION APPROVED BY	Full name	Date
Supervisor (where applicable)	Tania Katzschner	23.06.2017 <small>Click here to enter a date.</small>
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section 1, and for all Undergraduate research (Including Honours)	<small>Click here to enter text.</small>	<small>Click here to enter a date.</small>
Chair: Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above	G SITHOLE <small>Click here to enter text.</small>	31 JULY 2017 <small>Click here to enter a date.</small>