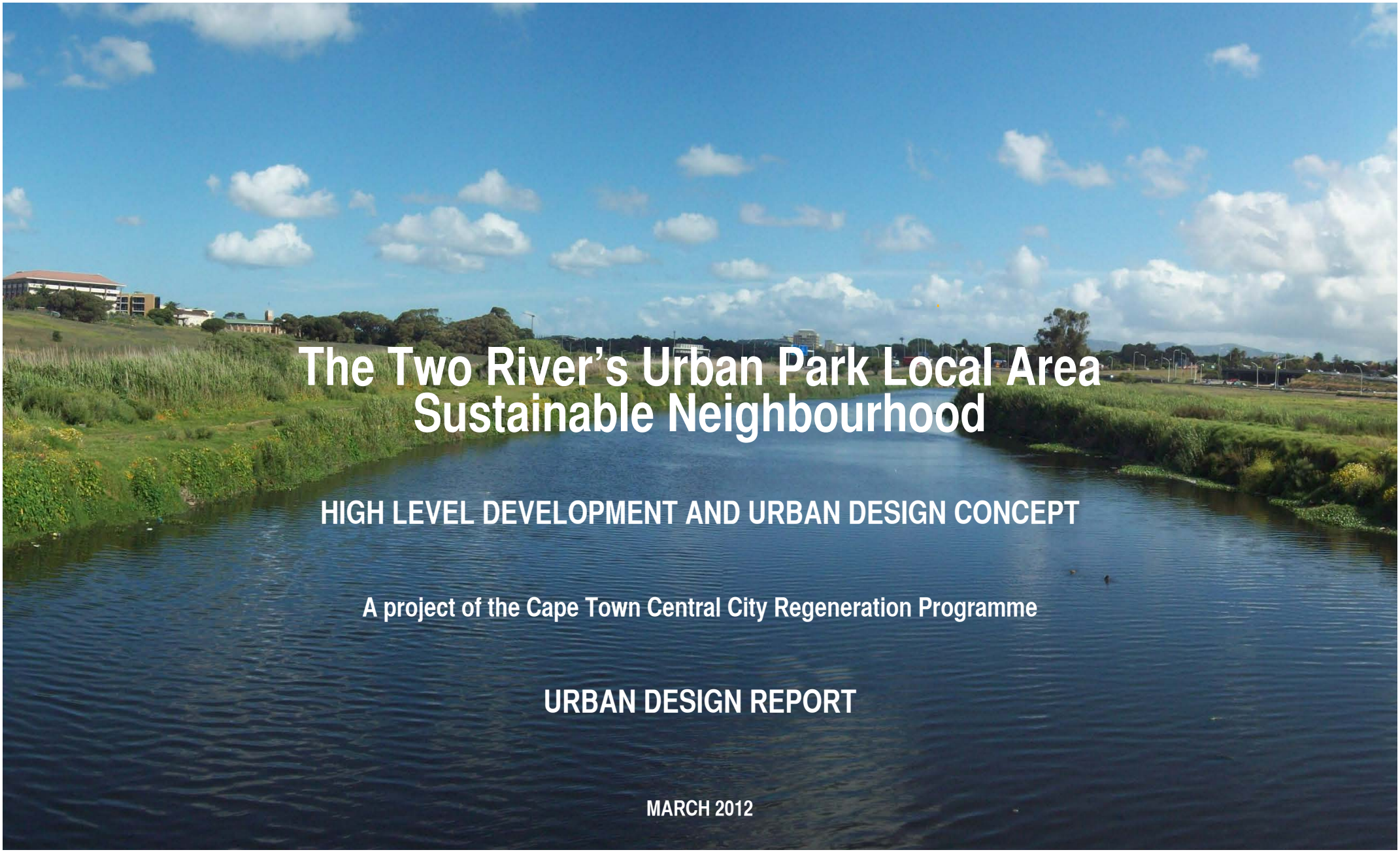

The Two River's Urban Park Local Area Sustainable Neighbourhood

HIGH LEVEL DEVELOPMENT AND URBAN DESIGN CONCEPT

A project of the Cape Town Central City Regeneration Programme

URBAN DESIGN REPORT

MARCH 2012

DEPARTMENT of TRANSPORT & PUBLIC WORKS
Provincial Government of the Western Cape

CITY THINK SPACE

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Prepared for
Provincial Government of the Western Cape:
Department of Transport and Public Works

By
City Think Space

MARCH 2012

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CITY THINK SPACE

Figure 1: View of Devil's peak from Alexandra Institute

PREAMBLE

THE PURPOSE OF THIS DOCUMENT

This report presents the development challenges and a new set of ideas for the transformation and potential redevelopment of the broader neighbourhood of the Two Rivers Urban Park. It outlines the planning background to proposals and frameworks developed for the Two River's Urban Park area over the past 16 years and provide an overview of the primary constraints that have blocked development to date. The report presents a high level vision and urban design concept for the TRUP local area that builds on it's strategic location and inherent development potential, turning the identified development constraints into an opportunity to facilitate the creation of South Africa's first sustainable neighbourhood.

This document is intended to serve a number of purposes and is addressed to the following target audiences:

- Politicians and decision makers within the Province and the City of Cape Town to secure high level support for the innovative development ideas proposed;
- Provincial and city officials to communicate the key ideas and to work jointly to find viable ways to achieve the development vision
- Various stakeholders such as Transnet, the University of Cape Town, the SAAO, and the TRUP Association to communicate key ideas and proposals

This urban design report is part of a suite of documents that provides a comprehensive overview of these challenges and ideas. A detailed infrastructure capacity baseline study has been completed, with its findings informing the urban design proposals contained here with. A feasibility report being prepared concurrently with this report contains an outline of the processes and further work required to move the project forward.

EXECUTIVE SUMMARY

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.

Not only will this 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.

This inspirational programme intends to pioneer a new approach towards the development, management and custodianship of public land. The Western Cape Provincial Government intends to replicate this programme elsewhere in the Province and in the rest of South Africa.

The vision of the CTCCRP is a city that comes alive as a diverse, globally connected and socially inclusive space that encourages an entrepreneurial culture, provides a welcoming and inspiring place for integrated communities, and attracts major investors. This will develop Cape Town beyond the current amalgam of tourism, leisure, port activity and commercial company headquarters. The programme will demonstrate sustainability in relation to the beauty of green and blue spaces, the water and energy resources required for growth, the diversity and value of locally produced food, and the resources which citizens and businesses recycle.

Several Provincially owned properties that are located within the Two River's Urban Park (TRUP) Local Area are being explored along with several other Central City properties that the Western Cape Provincial Government (WCPG) has earmarked for development as part of the Regeneration Programme. The two precincts viewed to have some meaningful potential for redevelopment within the TRUP local area are Oude Molen and the Alexandra Institute.

This report outlines a vision and a new sustainable development concept for the TRUP Local area. It includes a high level assessment of it's development potential in relation to it's strategic location in the City which is set against the capacity and access challenges that have constrained development in this area to date. Existing planning and feasibility exercises have focussed narrowly on the development parcels within the TRUP boundary and it has become evident that the opportunities of the site for both development and the establishment of a park cannot be solved from within these study area boundaries alone.

Thus an urban design concept is put forward for the wider TRUP local area. This proposes that the solution to these challenges lies in thinking about the transformation of the wider area into a high density, mixed-use, sustainable, low car- NMT- public transport orientated neighbourhood that will demonstrate an alternative approach to local area planning, provide real solutions for housing the poor and be a catalyst for regeneration.

The WCPG recognises that this level of planning is a Local Government competency. The concept is therefore proposed as the basis for future inter-governmental discussions, and if supported would need to be expanded into a formal Development Framework for the TRUP Local Area that potentially could form part of a Package of Plans process. It is important to note that the proposals put forward in this document support and compliment previous approved planning proposals for the Two River's Urban Park.

Within the overall concept, high level urban design fixes are provided in this report for the Oude Molen and Alexandra Precincts. In terms of a Package of Plans process, these could be refined to comprise Precinct Plans that will guide the redevelopment of these individual properties and ensure that they support the overall vision for the long term redevelopment of the neighbourhood. High-level land use planning parameters applicable in terms of zoning, environmental and heritage legislation are provided to inform further detailed work on these two precincts.

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Figure 2: Devil's peak view from TRUP local area

1 INTRODUCTION

1.1. CAPE TOWN CENTRAL CITY REGENERATION PROGRAMME

As part of its Cape Town Central City Regeneration Programme (CTCCRP), the Provincial Government of the Western Cape (PGWC) intends to develop certain of its properties to make more efficient and better use of its existing resources, to generate revenues and savings for the Provincial Government from the development and use of these properties, and to maximise the contribution of these properties to the social, economic and environmental sustainability of the central city. In short, it aims to use its property assets to contribute to the realisation of a bold and forward-looking vision that promotes transformation, regeneration and development in the central city.

In order to provide guidance and direction to the overall programme, a strategic framework document entitled 'Cape Town Central City Provincial Government Regeneration Initiative' was prepared at its onset that sets out the over-arching vision, aims and strategic objectives for this initiative and its approach to partnership with relevant stakeholders. This document received approval by the Provincial Cabinet on the first of September 2010 and provides the framework for all further detailed work in relation to the individual properties being considered for redevelopment as part of the CTCCRP. The broad aims of the CTCCRP relate to leveraging investment and expertise, generating economic activity, creating new jobs and productive opportunities for all - especially for the poor, creating conditions for social cohesion and well-being, as well as enabling environmental sustainability and energy efficiency.

The PGWC intends to contribute to the transformation of the central city by working jointly with development partners to achieve synergistic and well co-ordinated development within some of its strategic landholdings in the central city.

To this end, this report provides background information and sets out the appropriate high-level development parameters to inform decision makers, facilitate discussion and guide prospective development partners on the redevelopment of the TRUP local area and the future re-use of the Provincial properties adjacent to TRUP. The report sets out what is possible and appropriate within the area by firstly providing an overview of the town planning and development status for TRUP as well as an overview of the known infrastructural capacity challenges associated with the area. It provides a vision for its redevelopment into a sustainable neighbourhood with the inclusion of a high-level urban design concept for the TRUP local area and more detailed guidance on the Oude Molen and Alexandra Precincts.

Although the provincial properties adjacent to TRUP forms part of a broader portfolio of PGWC properties where the intention is to unlock commercial value and create a revenue stream for the Province's Asset Reserve Fund- this project is viewed as being unique in that the value to be

gained in demonstrating a more socially and environmentally responsible approach to development is considered to be greater than the monetary value that could be extracted if more orthodox development models are adopted.

The proposals put forward in this document are progressive with a focus on demonstrating that sustainable development ideals are achievable. If realised, the development of the TRUP local area would be a ground breaking achievement for Cape Town.

The vision for central Cape Town as described in the Cape Town Central City Regeneration Programme Strategic Framework, is a diverse, globally connected and socially inclusive space that encourages an entrepreneurial culture, provides a welcoming and inspiring place for socially mixed communities, attracts investors who need 24/7 communications infrastructure and human skills (especially high literacy levels), and is a place of opportunity, especially for informal traders and young people.

The key over arching principles guiding the development of the PGWC properties that will contribute towards the realisation of this vision, are outlined here:

Productivity

- Increased public and private sector investment made possible by an agreed long-term vision, planning environment and decision-making process, with the property development sector playing a leading role
- Targeting (by organised networks of key actors) of strategic sectors with the greatest investment and job creation potential (such as the creative industries, waste recycling, street markets, construction, infrastructure maintenance, greening, tourism, harbour-related activities)
- Promotion of skills development to build the human capabilities required as opportunities are created
- Access to low-cost, high-speed information and communication capability and technology thus increasing productivity

Connectivity

- People will be able to access places of work, social well-being and leisure conveniently and at least cost to themselves and the environment
- Extensive networks of city gardens and pathways into natural parks and seafronts will be built creating a walkable and safe city
- Promote spatial integration and connectivity
- Prioritise pedestrian safety and convenience and create new opportunities for pedestrian movement

Innovation

- Living and working conditions which enable resourcefulness, innovation and access to resources by the widest range and number of people and organisations (including the public sector, community groups, NGOs, and the private sector)
- Spontaneous and deliberate networks of innovation that span institutional and disciplinary boundaries will be enabled, encouraged and purposefully built

Cohesion

- Social cohesion and a dynamic popular culture of diversity, collaboration and creative ‘competition’ will be encouraged
- Accessible services and shared public spaces of social and economic opportunity will be supported
- Creation of affordable housing and business premises in appropriate well-located areas
- Recognition of past heritage and memory for building an integrated future that respects and celebrates Cape Town’s diverse identities and histories

Sustainability

- Intensification of development to support more compact, transit-orientated, mixed-use developments, especially along main public transport routes and new IRT routes
- Networked urban infrastructures will be configured to maximise the use of renewable energy, minimise water use and recycle all solid and liquid wastes
- Gradual shift from a car-dominated to a people-centred way of life, with new developments concentrated around integrated public transport nodes and non-motorised transport facilities that make it possible to move seamlessly from one transport mode to another via a single ticketing system
- ‘Green buildings’ will be built to meet the highest possible green star ratings
- Access to locally produced affordable food
- Celebration of nature within the city through the positive treatment of the interface between urban and natural areas
- Using intrinsic site resources - climate, landform, landscape and ecology - to minimise energy use and contribute to the quality and individuality of the place

Quality and safety of public environment

- Improve the quality and safety of the public environment to make the central city a safe, comfortable and attractive place to be
- Safety of citizens from crime and violence - commuters, consumers, pedestrians, workers and businesses, both formal and informal, all users of the city centre
- Security of businesses and property from crime and violence
- Enhance the destination value of the central city and its cultural, business and tourism assets
- Promote the distinctive attributes of the area and build on the character of the place

1.2. THE STUDY AREA

The Western Cape Government owns several properties within the 2003 TRUP Contextual Framework boundary, namely Oude Molen (Valkenberg East), the Alexandra Institute, the Valkenberg Hospital (Valkenberg West) and the Observatory site. The first two of these have been identified as having some redevelopment potential and are the focus of the WCPG's development interest.

Previous planning and feasibility exercises have focused narrowly on the development parcels within the TRUP boundary and it has become evident that the opportunities of the site for both development and the establishment of a park cannot be solved from within the narrow boundary of the TRUP. The development proposals put forward in this document thus refer to a broader neighbourhood referred to as the TRUP Local Area, as indicated in Map 1.

The City of Cape Town owns a number of properties that are situated outside the TRUP Contextual Framework (2003) boundary, but these hold significant redevelopment potential and are therefore included in the urban design concept for a wider neighbourhood termed the TRUP Local Area.

The urban design concepts in this report make proposals in relation to this TRUP Local Area, while high-level urban design fixes have been set for the Oude Molen and Alexandra Institute precincts.

THE STRUCTURE OF THIS DOCUMENT

The regeneration aims of the CTCCRP has just been introduced in this section with an outline of the over arching development principles that the programme promotes. The geographic focus of the proposals contained in the report has also been defined.

Section two provides background to the project, highlighting the strategic role of the study area and the point that development proposals have reached.

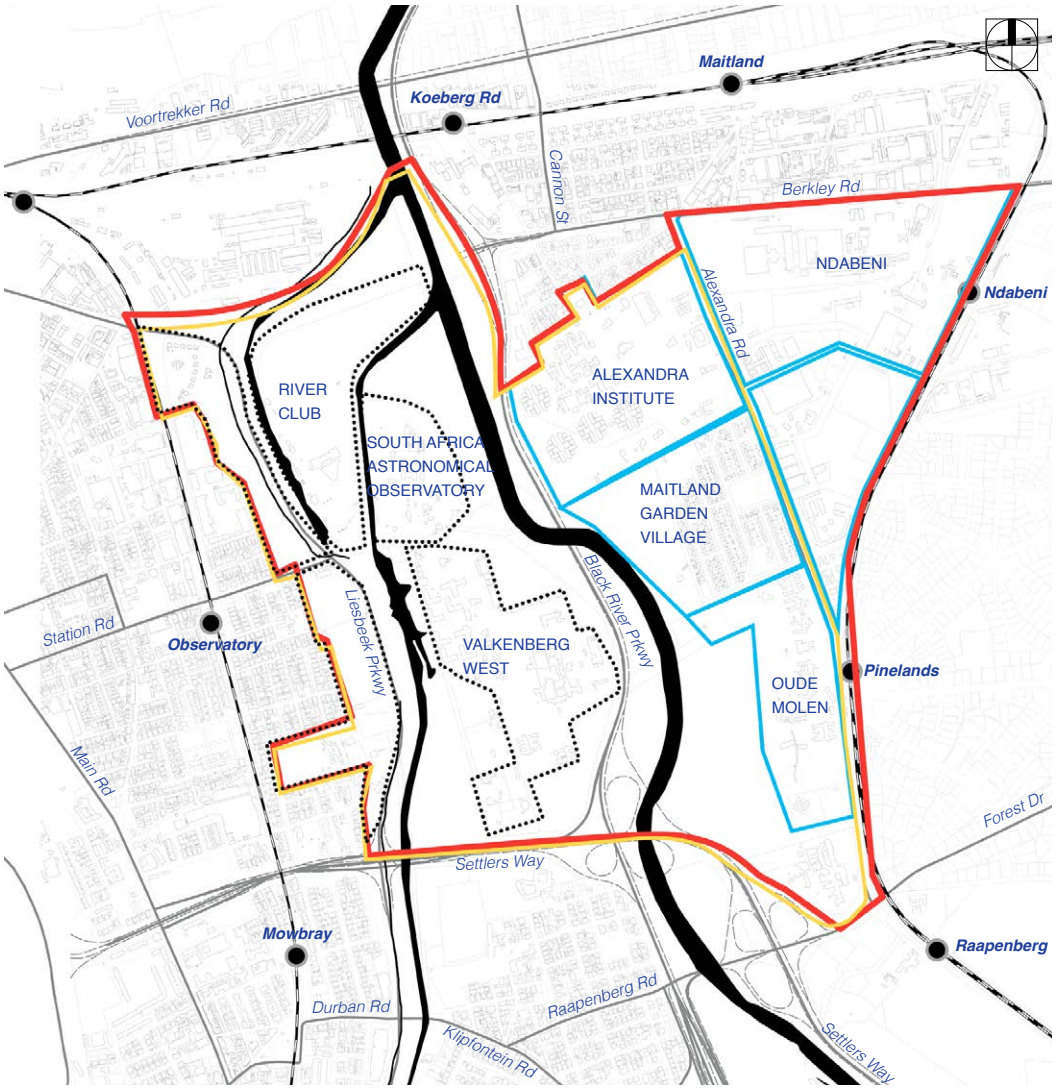
Section three provides a high level overview of the key town planning processes that have taken place to date, highlights current land ownership within the area and provides a short synopsis of the infrastructure capacity issues that have been identified to date.

Section four puts forward a development vision for the TRUP local area with reference to its strategic location and development potential. Ideas with precedent examples that illustrate what is envisioned in the area are also included to demonstrate what is possible.

Section five sets out the high level urban design concept and indicative development yields for the TRUP Local Area as well as reflecting briefly on the infrastructure implications and potential green technology solutions required to support this development.

Sections six and seven set out the urban design fixes and potential development bulk for the Oude Molen and Alexandra Institute precincts respectively. This provides an indication of the quantum, form and development use mix that would allow these precincts to achieve the overall development concept.

Section eight summarises the conclusions of the report and outlines a way forward.



TRUP local area boundary
2003 Contextual framework study area boundary
Precinct boundaries
Study area

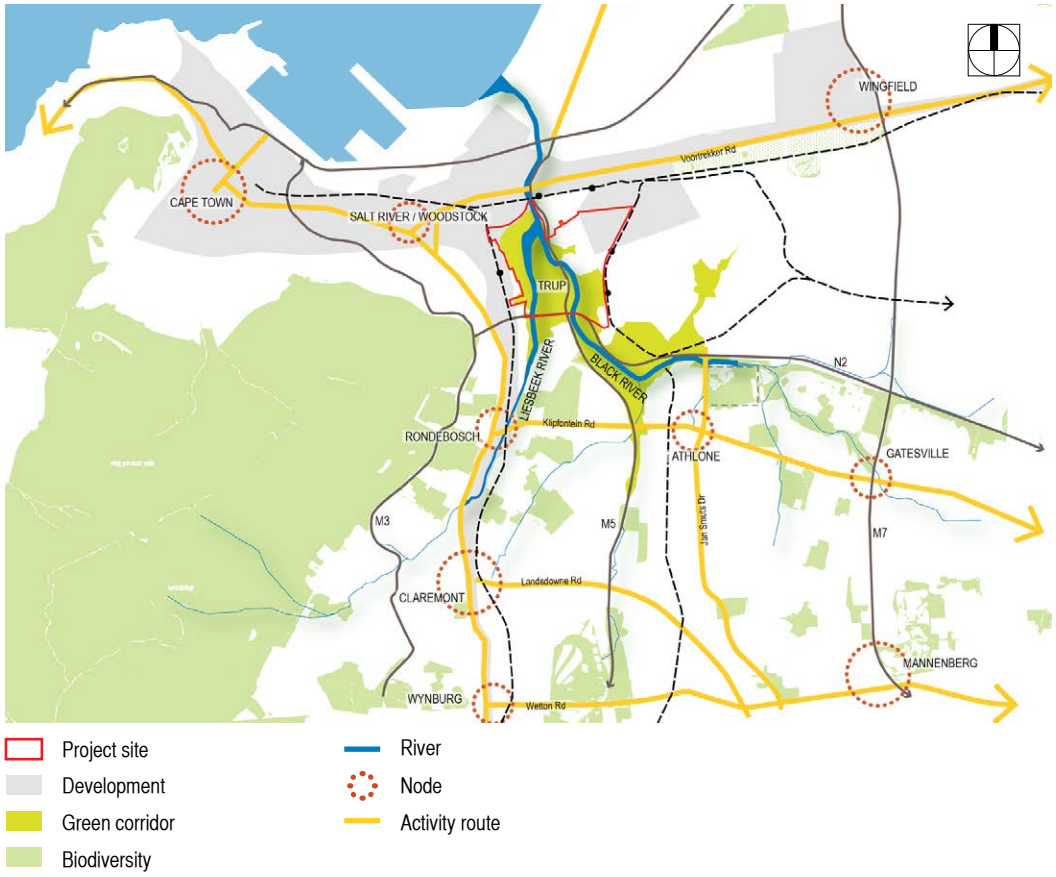
Map 1: Study area

2 BACKGROUND

2.1. THE STRATEGIC LOCATION OF THE TRUP LOCAL AREA

The TRUP local area is extremely well located within the city. It is 8 km from the Central City and close to the junction between two mature metropolitan activity corridors. It has the potential for extremely good access to public transport with seven railway stations surrounding it on three sides.

With the confluence of the Black and Liesbeek rivers within the TRUP local area and once the plans to upgrade and rehabilitate the associated green corridor have been implemented, the area could become a major metropolitan open space amenity of similar significance to Kirstenbosch or the Green Point park. It also forms part of a broader matrix or network of green spaces that are linked by the City's riverine system as depicted in Map 2.



Map 2: Location

2.2. THE DEVELOPMENT CHALLENGE

Despite its strategic location and substantial amenity potential, the TRUP Local Area is not well integrated into the surrounding area. Previous planning and development proposals to improve access to the area have been judged to be unsustainable in relation to the costs of overcoming its infrastructure and road capacity challenges. At the same time planned river and wetland rehabilitation programmes, with the establishment of a new urban park have been hampered by a lack of funding and a larger critical mass of support to drive these important initiatives.

A pre-feasibility study was undertaken by the City of Cape Town in 1999 to determine the feasibility of development proposals based on the (previously called) Black River Urban Park Spatial Development Framework (1999). The study tested a development yield of 321 485m^2, including parking against infrastructure capacity. It evaluated the cost-benefits of the development yield against the costs of providing the required infrastructure. The outcome of this study was that the magnitude of development proposed could not yield sufficient income to cover the costs of the required infrastructure capacity upgrades.

The most significant costs related to the upgrading of road and intersection capacity in the surrounding road network that would be prohibitively expensive and very difficult, if not impossible, to implement given their location.

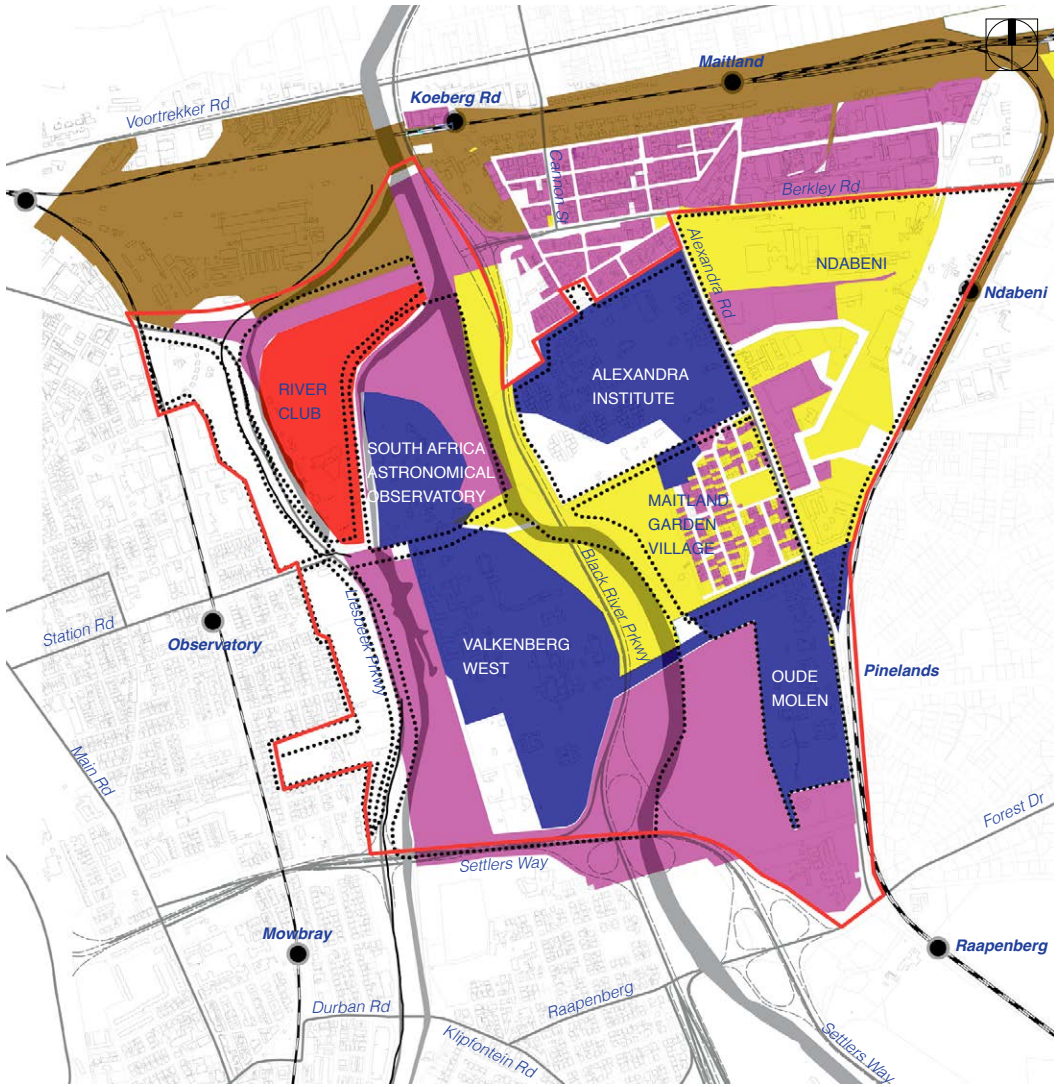
Figure 3: Devil's peak and Lion's head view from TRUP

3 OVERVIEW OF TOWN PLANNING & DEVELOPMENT STATUS

3.1. LAND OWNERSHIP

There are significant public land holdings within the TRUP Local Area. The Provincial Government, the City of Cape Town, SARCC and Transnet all own land and property within the broader TRUP Local Area. The Western Cape Government owns the Oude Molen, the Alexandra Institute, the Valkenberg Hospital, the Observatory sites and the site of the Biovac Institute. Transnet owns the River Club site. The City of Cape Town owns the substantial Maitland Abattoir site as well as a number of nearby land parcels. South African Rail Commuter Corporation (SARCC) owns land at and around the seven stations surrounding the TRUP Local Area. Map 3 indicates the extent and location of these land parcels.

Figure 4: Maitland Garden Village



Map 3: Current ownership

3.2. TOWN PLANNING INFORMANTS AND PROCESSES TO DATE

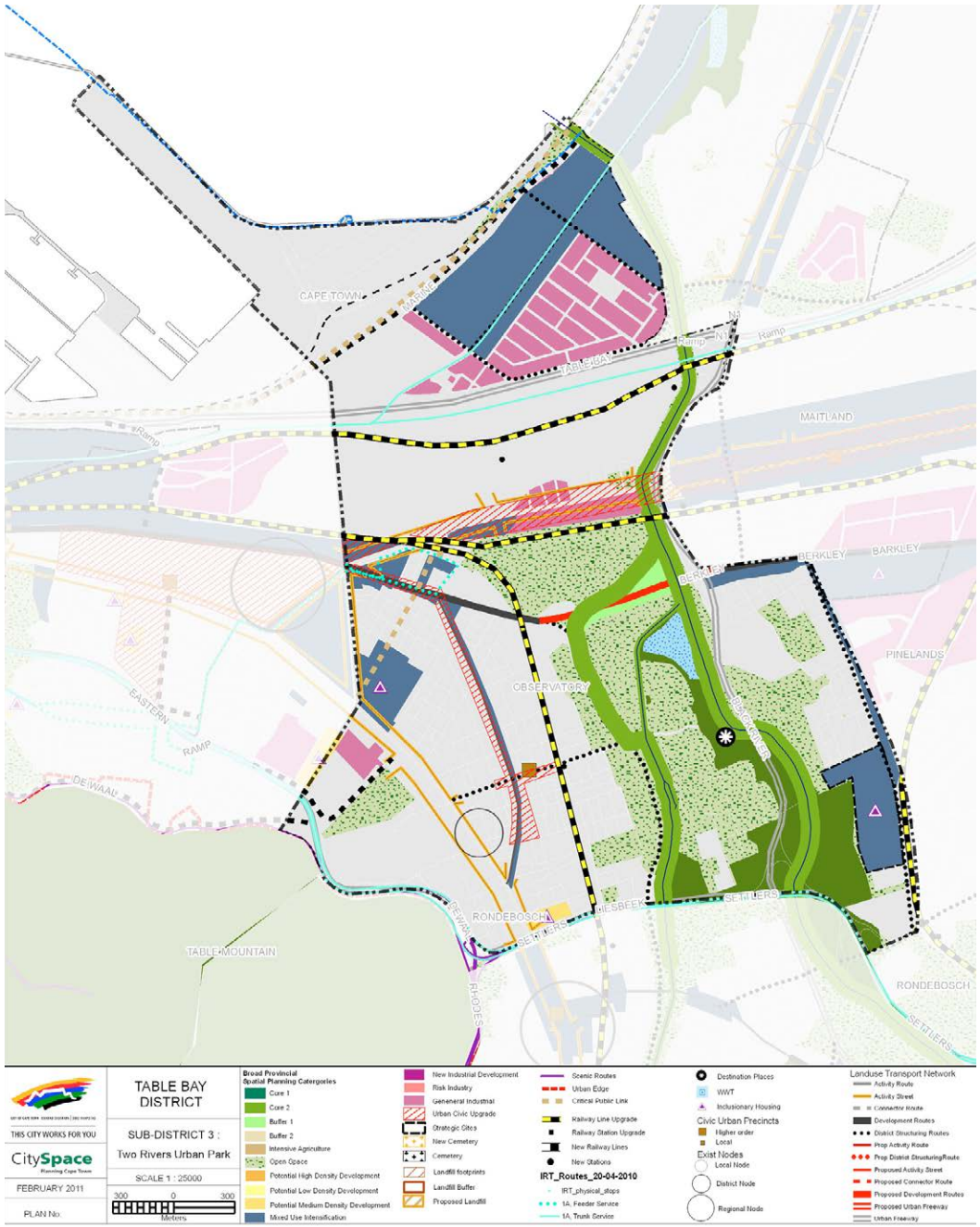
3.2.1 BROAD POLICY GUIDANCE

Broader spatial planning policies and frameworks applicable to the TRUP and surrounding area have informed the development of the concept for the TRUP Local Area. The Draft Cape Town SDF (2011) 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. The following policies in the Draft CTSDF (2011) inform the approach to the development of strategically located and/or environmental sensitive areas:

- Sustainably manage urban development impacts on natural systems
- Improve access to a quality metropolitan open space system (MOSS)
- Protect and enhance the rural environment

At a district level, the Draft Table Bay District Plan (2011) is relevant to the TRUP local area. The District plan, depicted in Map 4 and 5, considers the Two Rivers Urban Park area as a significant environmental and heritage asset and it identifies the TRUP area as a special destination place. The effective implementation of the Two Rivers Urban Park management plan(s) is highlighted as a management priority.

Map 4: TRUP in relation to key proposals of district plans



Map 5: District Plan (CoCT)

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 Zone
- Coastal and Dune Zone (coastal risk area)
- Conservation and biodiversity zone
- Cultural and recreational resources zone

The boundaries and parameters of these district plan proposals will need to inform further detailed development of the urban design concept for the TRUP local area. In particular, the exact boundaries of the green layer will require further refinement.

In essence, the District Plan proposes the protection of the Two Rivers Urban Park as well as the intensification, including major land use change for the Oude Molen precinct to the east of the park. It specifically highlights Oude Molen as a strategic site and the importance for activities to be in line with broader sustainable development requirements.

A number of Catchment, Stromwater and River Management policies and strategies are also important in this context and relevant to the TRUP area and these include the City's:

- Management of Urban Stormwater Impacts Policy (2009)
- City of Cape Town's Floodplain and River Corridor Management Policy (2009)
- Catchment, Stormwater and River Management Strategy (2002-2007)

3.2.2 PLANNING FRAMEWORKS PREPARED FOR TRUP

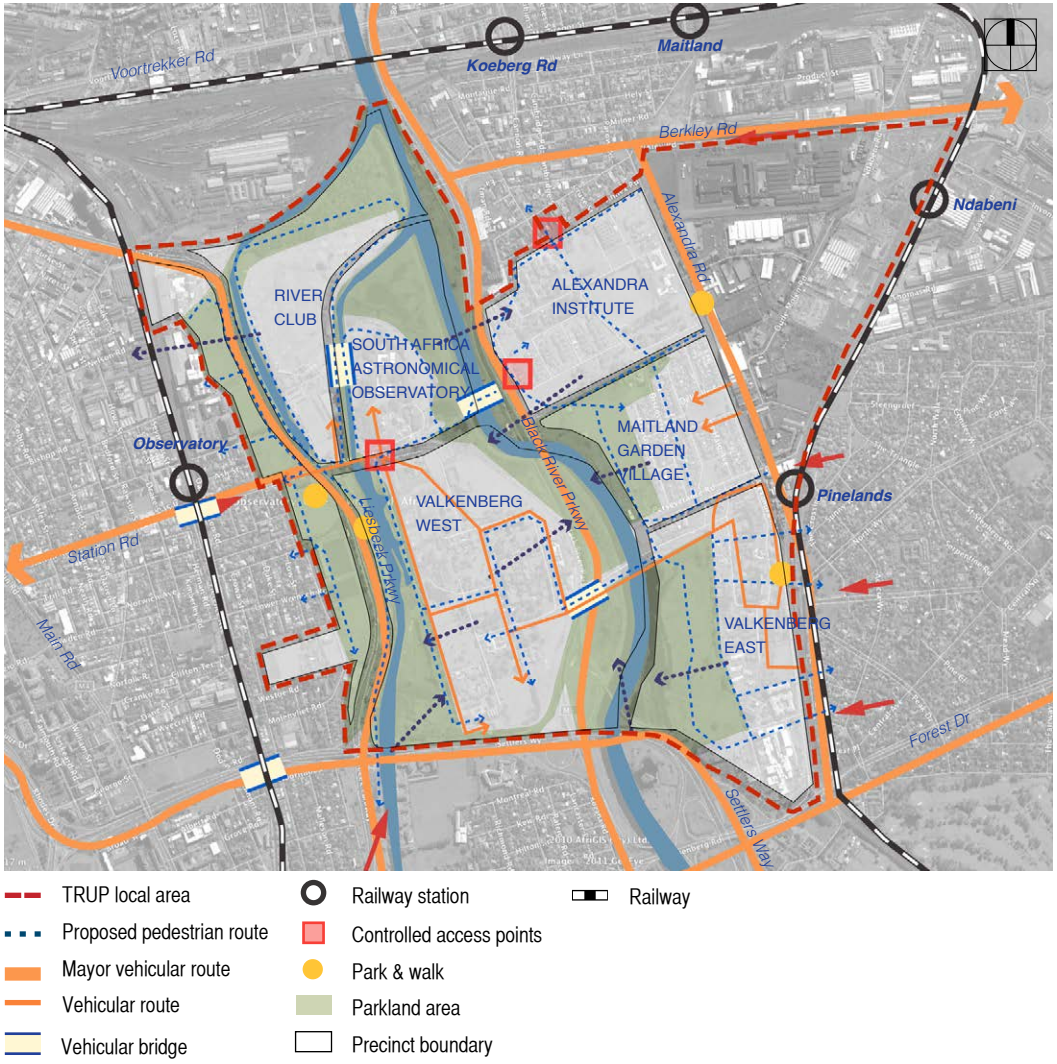
A number of planning processes have been undertaken for the Two Rivers Urban Park and immediate surrounding area as well as for the Oude Molen precinct. The Two Rivers Urban Park Contextual Framework and Phase 1 Environmental Management Plan (August 2003) is the current approved city policy for the area, and is depicted in Map 6.

The process of preparing this framework, which was previously called the Black River Urban Park Spatial Development Framework, was initiated in 1998. Annexure 9.1 provides an overview of the progression of frameworks as well as all other previous frameworks and public participation exercises.

The Two Rivers Urban Park Contextual Framework and Phase 1 Environmental Management Plan (August 2003), includes a Baseline Heritage Study, Traffic Impact Assessment and Avifauna & flora study. A Draft Landscape Framework (September 2006) formed part of the 2nd Phase of the Environmental Management Plan whilst a Business Plan was finalized in October 2007 by the City of Cape Town. This Business Plan is however currently being updated.

The TRUP Contextual Framework aims to:

- Provide a framework for the conservation, rehabilitation and management of the ecologically sensitive areas, open spaces and culturally significant sites within the TRUP Contextual Framework Study Area, as well as



Map 6: Synthesis of the Contextual Framework (2003)

- Provide guidance to authorities, landowners and prospective developers to ensure appropriate and integrated development of the precincts immediately adjacent to the park. The Phase 1 Management Plan focuses on the management of the City-owned land, i.e. the park and wetlands and includes recommendations for improving water quality, avifauna diversity and biodiversity. It includes high-level guidelines to assess development proposals as well as a list of relevant legislation and regulations.

The Business Plan identifies the need for an Association to be established as well as specific operational and capital projects to be implemented, mostly within the park area. The projects are linked to budgets and time frames.

At a different scale, essentially three planning processes have been undertaken for the Oude Molen Precinct to date:

- A Conceptual Development Framework (2000) which was not approved as the rezoning process was halted;
- A Strategic Development Approach for Oude Molen (2005) (approved by MEC); and
- A Draft Scenario Evaluation Report: Oude Molen Sustainable Neighbourhood (2007), including an Environmental Scoping Report

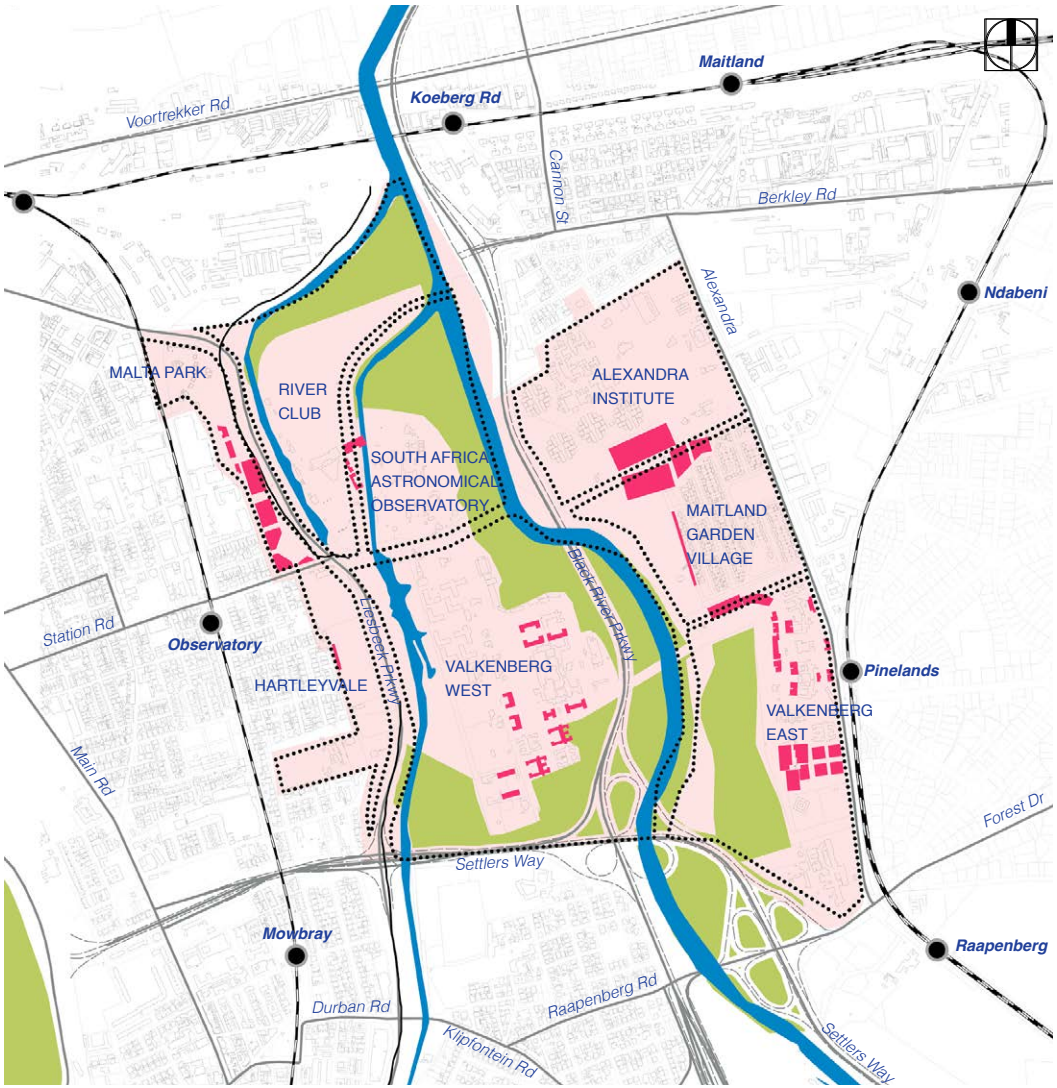
A significant amount of Heritage studies have been undertaken which includes historical research and covers part or all of the TRUP Contextual Framework study area. Annexure 9.2 provides a list of previous heritage related work done to date.

3.2.3 THE 1999 BLACK RIVER URBAN PARK PRE-FEASIBILITY STUDY

The 1999 Black River Pre-Feasibility Study very broadly identified the development potential of vacant and under utilised land parcels within the TRUP area. This study determined a high level development yield, depicted in Map 7, for the site based on a mixed use development comprising approximately 321 485 m2, including parking total developable bulk made up of 50% residential at an average net density of R 110 du/ha, 45% commercial and 5% education and sport. This development mix generated the need for 5 703 parking bays.

The development bulk and associated traffic generation were tested against existing infrastructure and road access capacities respectively. A major gap was identified between this infrastructure capacity and development potential with an estimated cost of R79 400 000 for additional infrastructure capacity and road improvements. At this point the development within the precinct was deemed unviable and initiatives to facilitate development were put on hold.

The updated infrastructure baseline study conducted in 2011 confirmed that these infrastructure capacity challenges were still relevant, in spite of some upgrades to services since 1999.



Map 7: Interpretative map of 1999 Pre-Feasibility study

3.3. OVERVIEW OF THE INFRASTRUCTURE CAPACITY CHALLENGES

It is important to note that the viability of development and the associated infrastructure costings were based on a number of assumptions. Costs were based on conventional infrastructure technologies and the transport infrastructure against conventional transport demand calculations and parking standards.

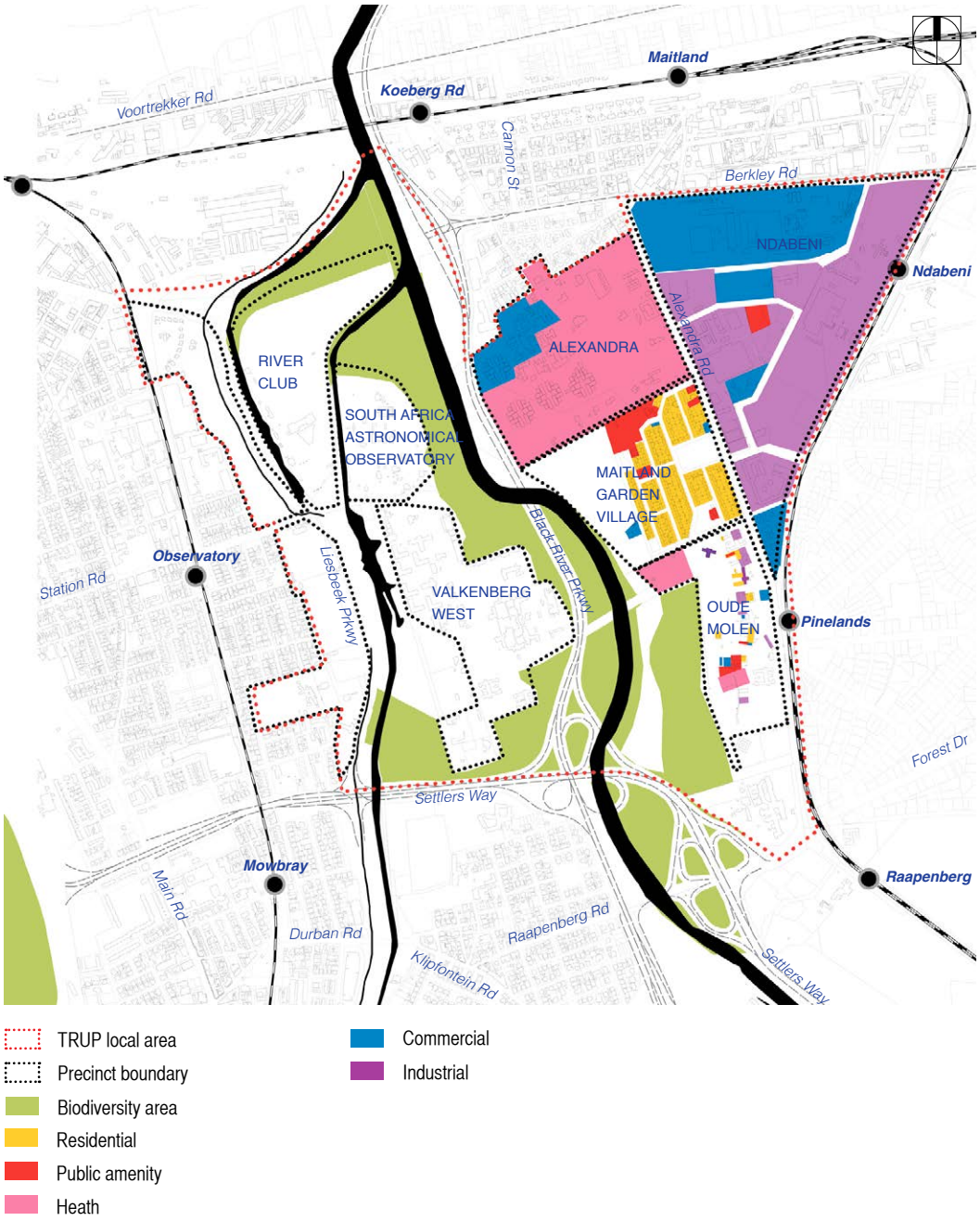
Arcus Gibb was commissioned to review the infrastructure baseline assessment of the TRUP area in 2011. This is a substantial and detailed report that evaluated the sewerage, water supply, electrical, telecommunications, road and rail capacities serving the area. The key findings were as follows:

- Water and telecommunications supplies have some capacity to support additional development.
- 100 l/s is still available within the main along Alexandra Road serving the area. Only 30-45% of the current stormwater infrastructure can accommodate a 1 in 2 year and 1 in 5 year storm event.
- Sewerage capacity is extremely limited only because of the pipe just downstream of the recent upgrade between Berkley Road and the M5. An upgrade to the bypass pipeline to the Mitchell's Plain works, which caters for excess wastewater at the Athlone facility, is underway and will be completed by 2014.
- Major road infrastructure capacity problems were identified, primarily the capacity of the Berkley Road and Raapenberg Road intersections providing access onto Alexandra Road and the provision of additional lanes on Alexandra Road.
- Additional water pressure will be required to service buildings over 4 floors high
- The capacity of the Paarden Eiland Water Booster Pump Station is becoming limited and should be upgraded in the near future.
- There is spare capacity in the rail system and all other public transport modes

In 2012, Arcus Gibb evaluated the infrastructure capacity implications of the development concept put forward in this report. The key findings were that, using conventional infrastructure, the capacity shortfalls would be substantial. In most instances, the same or more severe than at the time of the 1999 Black River Park Pre-Feasibility Study.

Notably, with respect to transport capacity, in spite of the current upgrades to the M5, the existing road capacity in the surrounding road network is at capacity and cannot sustain a large increase in traffic.

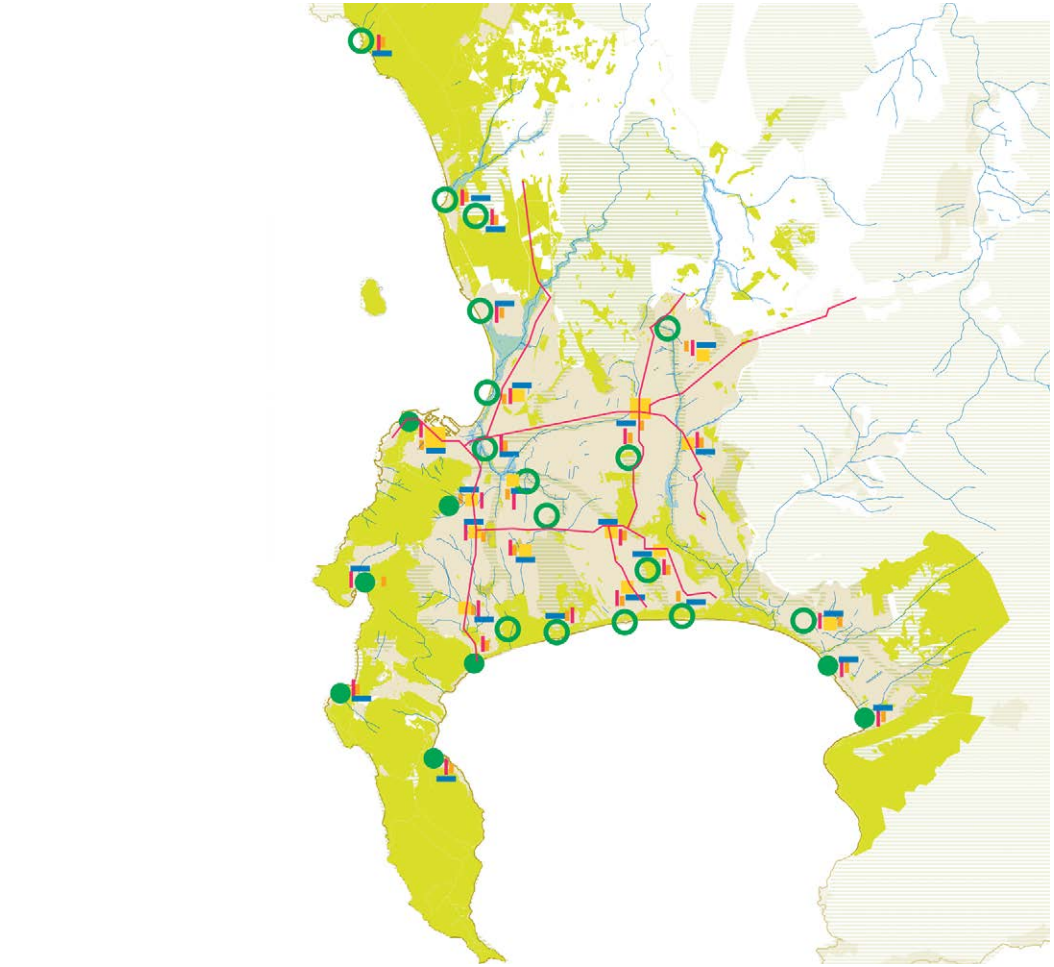
Current land uses within the TRUP local area are depicted in Map 8.



Map 8: Current land use

4 VISION FOR A SUSTAINABLE NEIGHBOURHOOD

A broader vision document titled “A vision for the Provincial Properties within the Two Rivers Urban Park” has been prepared and is evolving through stakeholder engagement to provide an over arching vision for the future redevelopment of the Black River Corridor highlighting the role that the Provincial properties and local site can play towards the sustainable regeneration of our City. This report should be read in conjunction with the broader vision document as it contextualises the proposed urban design proposals put forward here and how it relates to a strategic plan for Cape Town that consists of a series of catalytic projects across Cape Town that are integrated via the Green Matrix as illustrated below in Map 9.



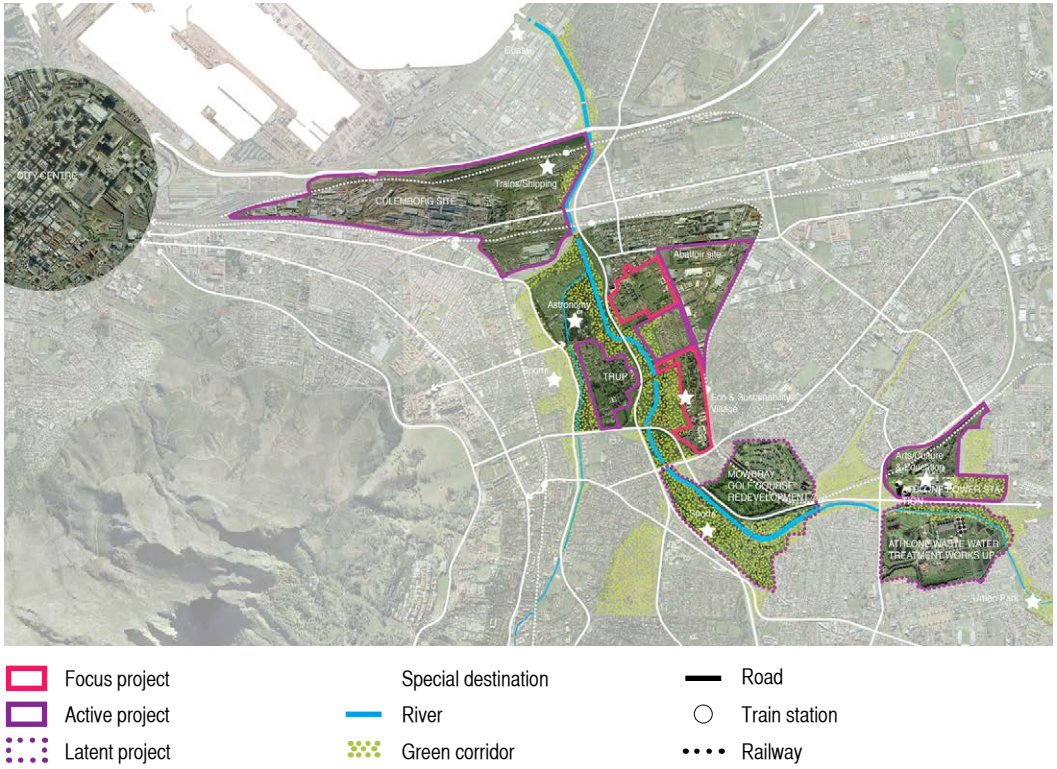
Map 9: Cape Town’s Catalytic Projects Map

4.1. THE STRATEGIC ROLE AND POTENTIAL OF THE TRUP LOCAL AREA

The TRUP Local Area is centrally located within the heart of the City centre being in close proximity to Cape Town’s CBD and the junction between two high order metropolitan activity corridors in the City. It is also surrounded by seven railway stations and adjacent to a proposed IRT route, making it easy and accessible to reach from public transport. Map 10 depicts the strategic role of TRUP.

It is surrounded by a diverse range of land uses including residential, commercial and industrial uses while it is located on the confluence of the Black and Liesbeek rivers, which forms part of a significant river system in the City. The TRUP has the potential to function as a high order park of metropolitan significance due to its location, existing natural cultural and heritage resources.

The potential of the site is reinforced by the associated projects and initiatives that are currently underway or being proposed in its immediate area. These include the redevelopment of the City owned Athlone Power station and the Transnet owned Culemborg area, the MyCiti bus system, substantial upgrading to Valkenberg Hospital and the Wetland rehabilitation initiative; these initiatives are depicted in Map 10 and Map 13.



Map 10: Strategic role of TRUP

4.2. THE DEVELOPMENT POTENTIAL OF THE AREA

The heart of a new neighbourhood in the TRUP Local Area lies in the river system and Two Rivers Urban Park itself. This green heart and its biodiversity and potential amenity lend the area a unique character and quality that should be supported by intensive mixed use development. Views of the parkland as well as dramatic mountain views constitute a major asset to the area. The many heritage buildings and precincts, including the Mill and Observatory add a layer of character and interest to the urban park as a public amenity.

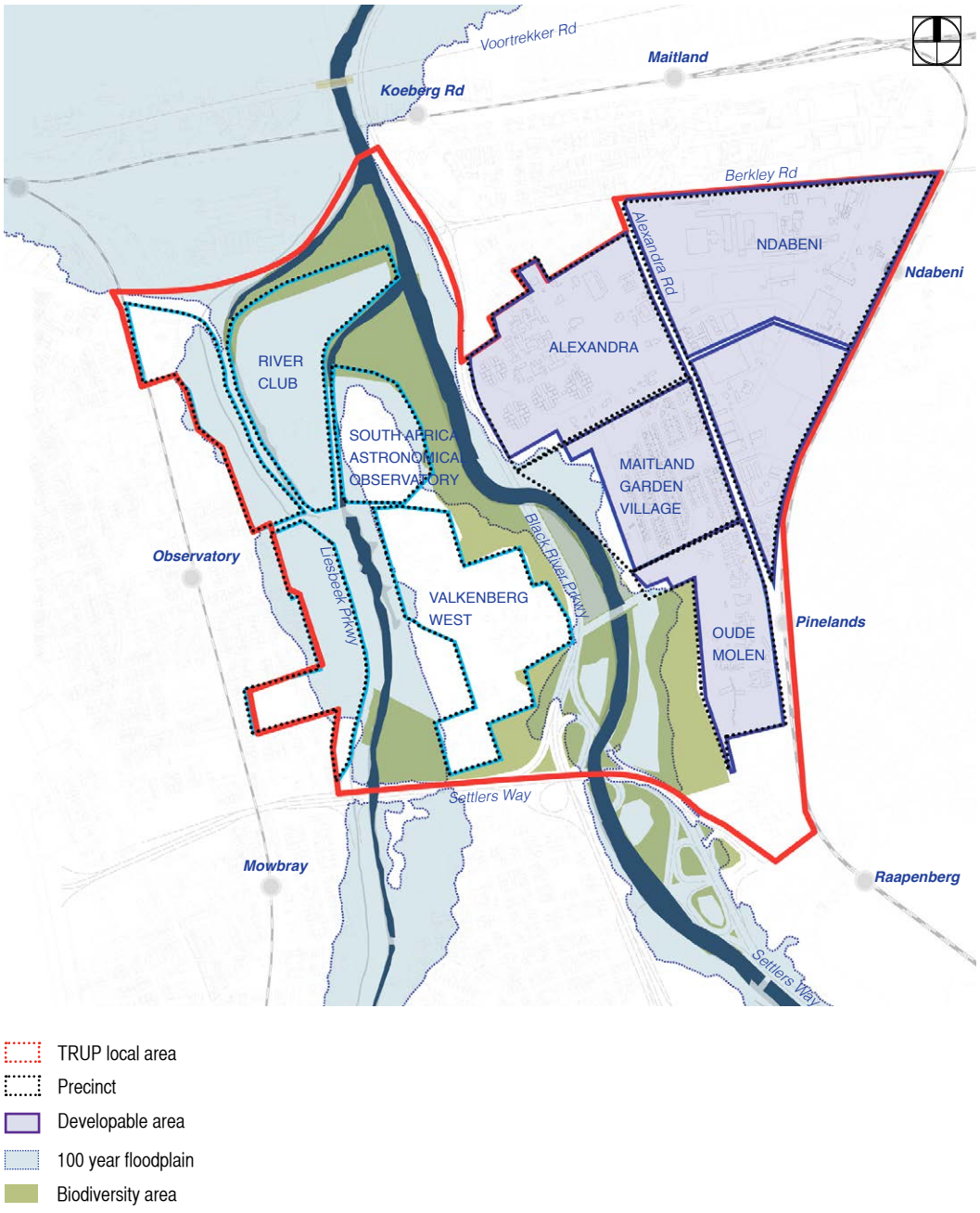
The urban development potential of the area lies in undeveloped land within the Oude Molen, Alexandra Institute as well as Maitland Garden Village, brown field redevelopment potential within these areas as well as the City's Maitland Abattoir site and intensification opportunities within the adjacent Maitland industrial area.

Once development constraints such as the wetland areas and the 1:100 floodplain are excluded, the land areas making up these development and redevelopment areas amount to just over 110 ha.

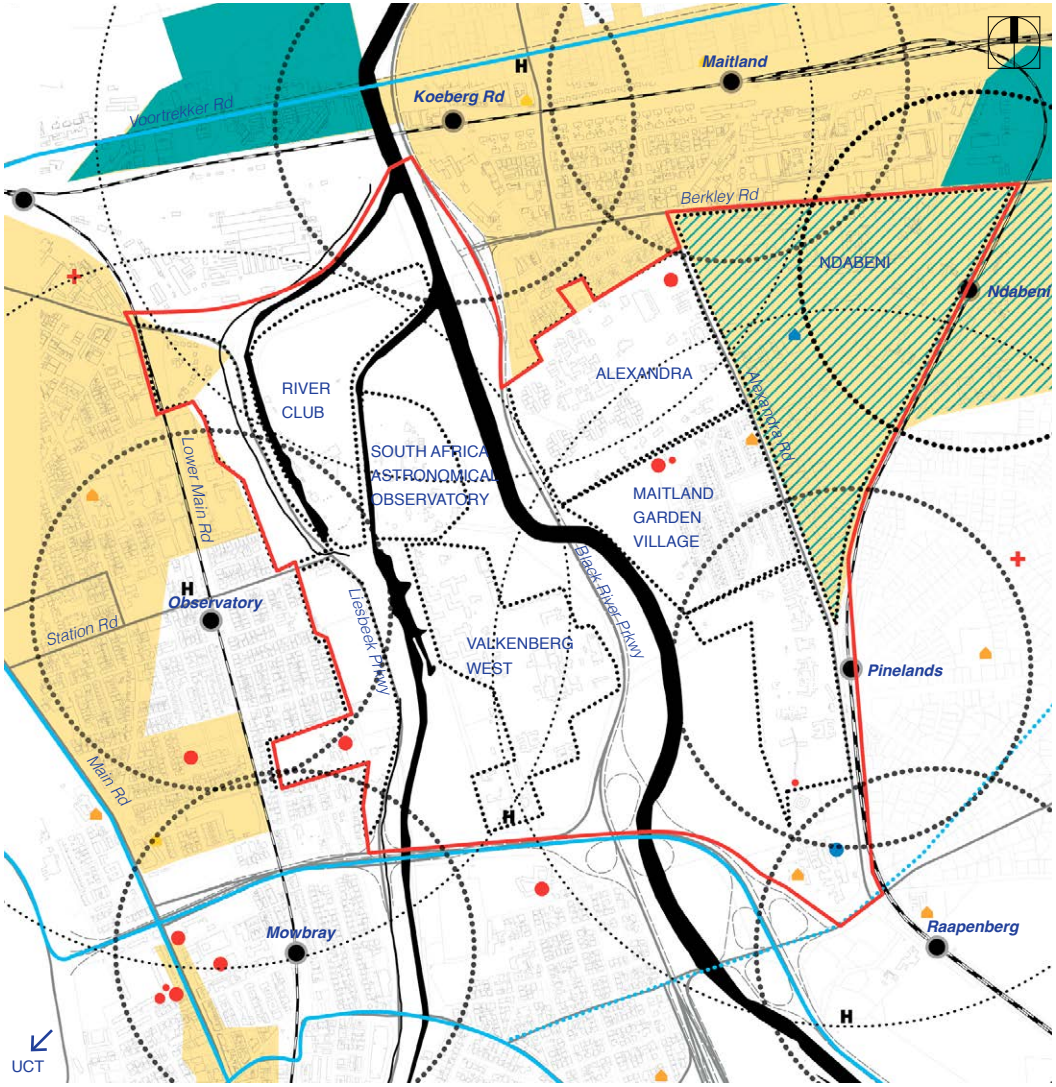
Challenges to development include the state of the river and the pollution of the river along with tensions and competing demands relating Oude Molen precinct.

The TRUP Local Area is surrounded by a number of metropolitan education and health facilities, schools and other community services, retail opportunities, industrial areas (providing work opportunities however it suffers challenges in relation to accessibility to these).

While the TRUP Local Area is well located within the metropolitan area and is within 1km of seven stations and the activity corridors of Main Road and Voortrekker Road, the river, freeways and Valkenberg security perimeter present major barriers to these. These development opportunities and challenges are illustrated on Maps 11 and 12.



Map 11: Areas for possible development



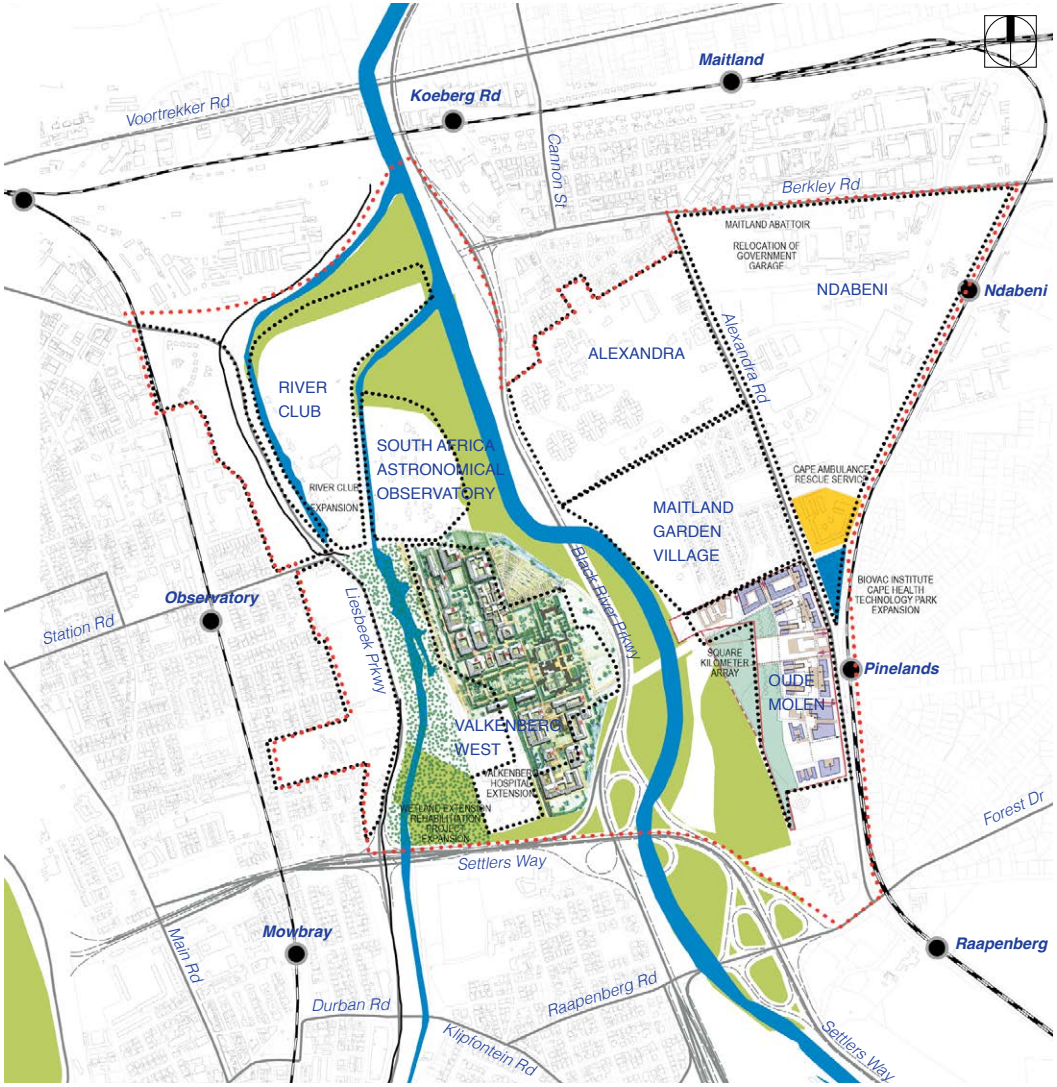
TRUP local area
500 m radius
1 km radius
Railway
Train station
Road

IRT
Commercial
Industrial
Post-industrial
Clinic
Old age home

Community recreation
Library
Museum
Hotel
Pre-primary school
Primary school

Public school
Private school

Map 12: Access to work opportunities and amenities
[Public and private amenities, economic and industrial areas]



TRUP local area
Biodiversity
Wetland
River
Train station
Railway

Map 13: Current initiatives

4.3. VISION FOR A SUSTAINABLE NEIGHBOURHOOD

Development in the under utilised land surrounding TRUP has been constrained to date by its limited infrastructure and access capacity. A new way of looking at the problem is required to enable development and provide the impetus to implement the urban park proposals set out in the TRUP Contextual Framework. A radically different form and process of settlement making is needed. The TRUP Local Area presents a unique and very exciting opportunity to establish Africa's first new sustainable neighbourhood at scale. It could be a place that can test, showcase and develop green technologies, provide an environment for innovation in design and production that could be the flagship of the 2014 World Design Capital in Cape Town.

Innovations might include the use of sustainable modes of transport, green building and environmentally sensitive infrastructure technologies and high density/ mixed-use development types, examples of which are depicted in figures 5 - 8. This approach would allow the area to function as a sustainable neighbourhood that is less dependent on conventional methods to service its infrastructure and access requirements and open up options to develop the vacant and under utilized land that is adjacent to TRUP.

The exploration of sustainable approaches to settlement making for the TRUP area is visionary and innovative in that a truly sustainable large- scale development in Cape Town has not been implemented before. Various small-scale "green" projects have been implemented in Cape Town, but they have not utilized a full palette of sustainable elements collectively or applied them at scale.

The other consideration driving the vision has been to integrate the vacant land parcels more intimately with its natural river setting and facilitate the revitalisation of TRUP as a high quality park of regional significance. It is a strategically located natural resource in the heart of the City that is currently polluted, neglected, inaccessible and under utilised. However due to its size and abundance of cultural, heritage and natural assets, the TRUP has the potential to function as a memorable and well used Park for the broader City that is characterised by it river frontage.

A range of precedent examples have been explored in the process of developing this vision and are included here to illustrate the qualities sought in the various sustainable themes that could be explored in the TRUP Local Area;

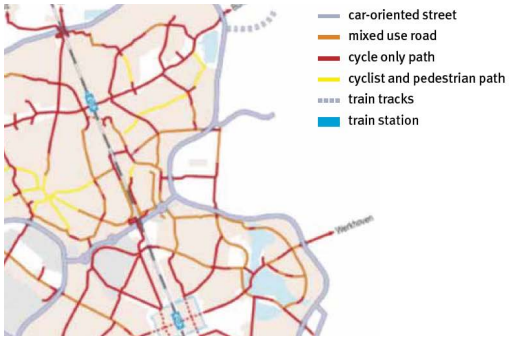


Figure 5: Mobility network in Houton, NL

Figure 6: High quality NMT lanes in Amsterdam, NL

Figure 7: Integrated accessible NMT & public transport options, NL

Figure 8: International car sharing scheme

Sustainable Modes of Transport:

- A focus on the use of non-motorised forms of transport as the primary form of access within the area as has been demonstrated in Houten, Netherlands. Cars are limited to the periphery of the neighbourhood, while internal roads are made exclusively for pedestrians and bicycles
- A focus on the use of public transport facilities to reach the area or to access other parts of the City
- Limited access and provision for private vehicles, providing only shared parking facilities
- Implementing a car sharing initiatives, where residents sign a compact binding them to use rental vehicles parked throughout the neighbourhood; the initiative has shown success internationally in reducing car ownership up to 10% where implemented.

Figure 9: Amsterdam, NL
A compact, mixed use and vibrant city

Figure 10: Royal Maitland Development, CT, ZA
A high-density residential development

Figure 13: BedZED, London, UK
An innovative project realising a range of sustainable technologies and practices including the use of wind cowls that facilitate natural ventilation and heat recovery

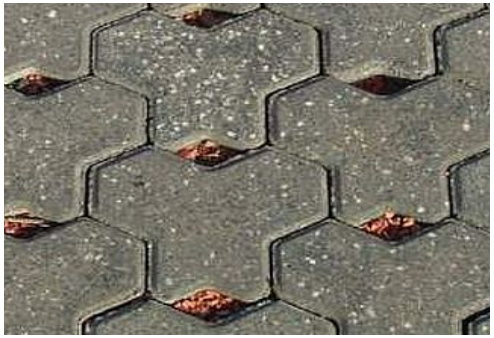


Figure 14: Sustainable urban drainage system

Figure 11: Vauban, Freiburg, DE
A dense sustainable district bordering onto open nature at the foothills of the Black Forest

Figure 12: New District Six development CT, ZA
Compact urban forms in a mixed use environment

Figure 15: Vauban, Freiburg, DE
A landmark sustainable district which uses a range of sustainable technologies for heating, cooling, food production and movement

Figure 16: Community food garden, CT, ZA
A number of urban agricultural initiatives exist on the Oude Molen site

Diverse High density, Mixed use Environment:

- The promotion of tightly clustered multi-storey buildings as found in Amsterdam, or more dense developments in the City like District 6, Royal Maitland Village which fully optimise its land area by building vertically
- The development of a range of uses (vertically & horizontally) within a building block to create a 'Live- Work- Play' environment

Green Building Practices & Environmentally Sensitive Infrastructure Technologies:

- The use of a range of green building and environmentally sensitive infrastructure such as passive ventilation and heat recovery, solar panels, rain water storage tanks, permeable paving materials, stormwater swales, natural and locally sourced building materials, bio-gas digestors, worm farms etc.

Figure 17: Piggyback yard, Los Angeles, USA
An innovative project rehabilitates the river and re-engages public access to the Los Angeles River

Figure 18: Piggyback yard, Los Angeles, USA
The project proposes public access to a range of outdoor activities, experiences and environments, within the heart of the city

Figure 19: Promenade Samuel-de Champlain, Quebec, CA
A promenade experience that is inherently linked to its river setting

Figure 20: Promenade Samuel-de Champlain, Quebec, CA
The project includes a range of access options and recreational facilities with high quality landscaping to create a memorable and special destination point

High Quality Green Destination in Cape Town:

The development of a high quality public park that optimizes and celebrates its river setting

- The incorporation of a range of activities and uses within the park and along its edges to ensure active usage of the park, such sports facilities, cycling tracks, bird look out sites, urban agriculture
- Ensuring that all new development along the park edge actively relates and sets up synergistic relationships with it as proposed in the Piggyback Yard Development in Los Angeles, USA.

Figure 21: Vision for the Piggyback Yard, Los Angeles, USA

5 URBAN DESIGN CONCEPT AND DEVELOPMENT POTENTIAL

5.1. HIGH LEVEL URBAN DESIGN CONCEPT

The most important shift in thinking underpinning the concept presented here has been to think beyond the individual sites and to consider a wider neighbourhood that incorporates

- The land holdings west of Alexandra Road and the Black River between the Oude Molen and the Alexandra properties
- The land parcel (triangle) east of Alexandra Road and the railway line between Pinelands station and Berkley Road.

This wider local area is located between 6 railway stations (Pinelands, Observatory, Ndabeni, Maitland Koeberg Road, and Mowbray stations) offering unparalled access to rail, easy access to three high order activity/ mobility routes (Voortrekker, Southern suburbs Main Road and Durban/ Klipfontein Road) and close links to several established NMT lanes (Liesbeeck Parkway).

At this scale, there is sufficient critical mass to create South Africa's first low car, pedestrian focused, mixed use and public transport orientated environment.

A defining element of the concept is a strong emphasis on a "low car settlement" ideal with Non Motorised Transport (walking and cycling) and public transport as the primary mode of access within and to it. Conventional vehicular access and parking for private vehicles would be limited by implementing shared parking within the area while connectivity and linkages to railway and bus stations would be prioritised. The urban design concept is structured by a network of pedestrian dominated access routes that link the Local Area to the existing rail and bus stations on its perimeter. The main internal NMT routes running through the site connect Observatory station with Ndabeni station in an east- west direction and Koeberg Road station to Pinelands station in a north-south direction.

Alexandra road will continue to function as a high order vehicular route but will be reconfigured to better serve NMT activities, with wide, attractive sidewalks and a stronger sense of pedestrian priority. The built form and land uses edging this would also promote activity and attract pedestrians. These routes will be well landscaped (hard and soft) with good pedestrian lighting and have active interface conditions to ensure that they are safe, comfortable and walkable environments. They will be accentuated and activated by a series of public squares and spaces that are located at key destination points in the neighbourhood which include the stations, existing special places like the Observatory, River Club and Valkenberg and entry points to the TRUP. The neighbourhood and TRUP will also be integrated across the river corridor by a series of pedestrian bridges and routes that will not only facilitate connectivity across the river but encourage the TRUP to be used actively on all its edges as a high order recreational space.

The envisaged form of development is high density, mixed use and sustainable in nature. Two development approaches are anticipated which will require different stakeholders, mechanisms and time frames to facilitate its transformation. The first relates to the new development areas available within the Local Area, which includes the Oude Molen (WCPG), Alexandra (WCPG) and Abattoir (CoCT) precincts and the vacant areas within parts of the Maitland Garden Village. In these areas, large scale redevelopment driven by the public sector will occur that builds on the rich heritage, cultural and environmental assets present on these various precincts. The remaining portions of the Local Area, which mainly relates to the Ndabeni industrial area will be characterized by private infill development occurring in an incremental manner, as and when individual property owners choose to redevelop their land holdings. Although the frequency at which redevelopment occurs across the neighbourhood will vary- the final form and character will be consistent within the broader vision for the TRUP Local Area. The optimal functioning of the entire TRUP Local Area will require that most of the public network including the proposed NMT linkages and public space improvements is developed upfront.

Mixed-use development across the Local Area with an emphasis on affordable housing is envisioned. While the concept of 'live-work-play is advocated to make it more self- reliant, it is critical that the excellent access to economic opportunities in its surrounds are optimised and not duplicated. An intensification of development is envisioned around the stations (bus & rail) in the Local Area as well as along primary access routes with a particular focus on Alexandra Road. Commercial and retail activity on the ground floor of buildings is encouraged in these locations to ensure that they are active, vibrant and safe environments.

Lastly the urban design concept for the TRUP Local Area proposes that all future development within its perimeter has an intimate, symbiotic and closely connected relationship to its natural river corridor setting. A series of connections from Alexandra Road to TRUP are proposed to increase its visibility and ensure long-term public access to the park. A range of uses including sports fields, parks and urban agriculture will be incorporated at various points along the TRUP interface in order to facilitate more active use of the park and ensure that sensitive transitions between natural and built areas are created. Map 14 depicts the key elements of the high level urban design concept.

Map 14: TRUP Urban design concept

5.2. CONTEXTUALISING THE TRUP LOCAL AREA

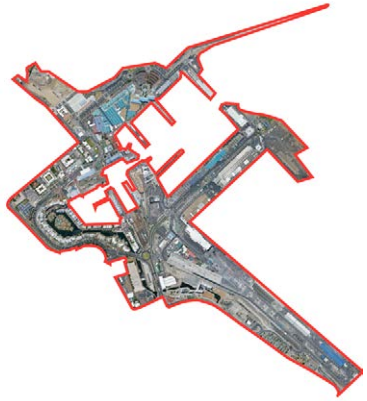
A series of development footprints that are of a similar size to the TRUP Local Area have been provided for comparative purposes within Table 1. Comparisons between the TRUP Local Area and other significant developments in Cape Town, including Cape Town's CBD, Century City and the V& A Waterfront illustrate that its size and extent is substantial. The TRUP Local Area has the potential to be a significant, ground breaking project for South Africa and that it has the potential to address a number of pressing issues - particularly well located housing for the poor.

While the development of a radical sustainable community of this scale in the heart of the City will also make a significant advance towards influencing the transformation of Cape Town into a more sustainable and ecologically sensitive City.

Figure 22: Aerial view of TRUP

TRUP

CAPE TOWN CITY CENTRE



V&A WATERFRONT

CENTURY CITY

SCALE COMPARISON

Development Precinct	*Land area (Ha)*	*Floor space developed (m^2)*	*Floor space approved (m^2)*	*Floor factor*
TRUP (average)	*116*	*1 251 693*	*-*	*1.1*
CITY CENTRE	*-*	*-*	*-*	*3.7 (Most prevalent)*
WATERFRONT	*88*	*347 640*	*603 859*	*0.69*
CENTURY CITY	*204*	*463 040*	*1 340 140*	*0.66*

Table 1: Scale comparison

5.3. BULK AND LAND-USE OPTIONS

A range of scenario's have been developed to define the most appropriate land use and bulk ranges for the neighbourhood. This exercise is particularly relevant as it has established what the threshold or limits to development are when the use of sustainable and less consumptive development practices are considered and the positive impacts they would make to the limited infrastructure capacity available within the neighbourhood.

The bulk and land use options defined in the preferred scenario are premised on limited private vehicular access with the use of NMT and public transport as the primary form of access to and within the Local Area as well as the use of alternative technologies for electrical supply, waste water/ sewerage treatment, waste treatment and water harvesting. It is important to note that considerable savings will be made within this scenario, as costly new road infrastructure will not be necessary to construct. The savings made here can be directed towards the implementation of multi-storey housing blocks and public space improvements.

The preferred scenario is unpacked in Table 2 - 5 and Map 15; breakdowns for the other options that were explored are provided in Annexure 9.6.

ALEXANDRA PRECINCT	*Area (m^2)*	*Area (ha)*
Alexandra Precinct area	*269,033.4*	*26.9*
Floodplain/ biodiversity area to be excluded	*6,507.8*	*0.7*
Total developable area Alexandra Precinct	*262,525.5*	*26.3*
MAITLAND GARDEN VILLAGE PRECINCT	*Area (m^2)*	*Area (ha)*
Total existing Matiland Garden Village area	*109,300.1*	*10.9*
Additional land adjacent to Maitland Garden Village	*89,807.9*	*9.0*
Floodplain/ biodiversity area to be excluded	*44,328.5*	*4.4*
Total remaining additional adjacent land	*45,479.4*	*4.5*
Grand total area of Matiland Garden Village Precinct	*154,779.5*	*15.5*
OUDE MOLEN PRECINCT	*Area (m^2)*	*Area (ha)*
Oude Molen Precinct area	*146,984.4*	*14.7*
Floodplain area at Oude Molen Precinct	*4,951.5*	*0.5*
Total developable area Oude Molen Precinct	*142,033.0*	*14.2*
MAITLAND/ NDABENI TRIANGLE PRECINT	*Area (m^2)*	*Area (ha)*
Total Maitland/ Ndabei Triangle Precinct area (including roads within the precinct)	*507,877.1*	*50.8*
SITE AREA (excluding roads between precincts)	*1,123,002.9*	*112.3*
TOTAL SITE AREA (including roads between precincts)	*1,166,435.5*	*116.6*

Table 2: Precincts Areas and land available for development

Map 15: Proposed development

SUMMARY OF PREFERRED DEVELOPMENT OPTION

Total population	*24024*	
Total residential units	*6 322*	
Average unit area (m^2)	*120*	
Total residential floor space	*758 650*	*61%*
Total Commercial floor space	*419 917*	*34%*
Built public facilities floor space	*73 126*	*6%*
Total floor space (m^2)	*1 251 693*	*100%*
Total available site area (m^2)	*1 110 648*	
Average floor factor	*1,6*	
Residential built footprint	*216 757,0*	
Commercial built footprint	*119 976,2*	
Public facilities built footprint	*73 126*	
Total built footprint (m^2)	*409 860*	
Average Coverage (%)	*37%*	

Table 3: Summary of preferred development option

TRUP NEIGHBOURHOOD SUMMARY OF FLOOR SPACE ALLOCATION WITHIN THE PRECINCTS

Precinct	*Area allocated for development (m^2)*	*Floor space area (m^2)*
Alexandra Precinct	*274 727,3*	*347 736,7*
Maitland Precinct	*38 629,5*	*57 064,8*
Oude Molen Precinct	*139 786,9*	*189 529,3*
Ndabeni/ Maitland	*494 936,8*	*657 362,0*
Total	*948 080,5*	*1 251 692,7*

Table 4: Breakdown of floors pace allocation per precinct

DETAILS OF PREFERRED DEVELOPMENT OPTION

Number of residential units	*6 322*	
Total residential GLA (m^2)	*660 025*	
Total commercial GLA (m^2)	*386 323*	
Total GLA of public and community facilities (m^2)	*63 619*	
Suggested breakdown of commercial uses:		
Studio/ workshop/ home industry/ light industry (m^2)	*309 058*	*80%*
Office (m^2)	*69 538*	*18%*
Restaurant, café, bar (m^2)	*7 726*	*2%*
Public and community facilities to be accommodated:		
Facility	*Number*	*Combined GLA*
Crèche	*3*	*522*
Primary School	*2*	*13 920*
High School	*1*	*7 830*
Clinic	*1*	*1 740*
Community centre	*3*	*3 915*
Place of worship	*11*	*4 785*
Library	*8*	*10 450*
Post office	*2*	*950*
Market (indoor/ outdoor spaces)	*8*	*19 507*
Combined Public GLA (m^2)		*63 619*

Table 5: Detailed of preferred development option

5.4. INFRASTRUCTURE IMPLICATIONS OF THE CONCEPT

Together with the Sustainability Institute of the University of Stellenbosch, an investigation of a range of green technologies and infrastructure solutions was undertaken and this showed that using these technologies the development could be achieved with significantly less capital investment in infrastructure and in the long term, dramatically lower operating overheads. More detail on these options is outlined in Section 5.5 below.

From a traffic perspective, a number of radical proposals have been made which depart substantially from the conventional car based development model. These include dramatically reduced parking ratios, the promotion of car sharing schemes and so on.

In early 2012 an infrastructure capacity proposal was developed on the basis of the proposed development bulk and measured against the status quo evaluation undertaken in 2011. This outlines how the infrastructure capacity shortfalls can be addressed through innovation and the use of 'green' technologies and practices.

For each infrastructural sector sustainable infrastructure targets were set to explore how development could be supported within these constraints:

- A zero net increase in traffic through reduced parking ratios, mixed land use facilitating live-work, car sharing schemes, improved public transport (rail and MyCiti bus services)
- Reduce water demand by 40% through accurate water metering, water reuse, rainwater harvesting, ground water supply and reduced pressure.
- Ensure no increase in sewerage outflow from the development by treating all residential sewerage flows on site, supported by reduced water demand.
- Comply with the City's Stormwater policies and not increasing site runoff by implementing a Sustainable Urban Drainage system including rainwater tanks, permeable paving, bio-retention cells and infiltration trenches and swales.
- Reduce the demand for additional electricity supply by following a range of energy efficiency strategies including piped hot water, gas for cooking, use of LED fittings, intelligent lighting, high insulation and energy efficient building design and photovoltaic cells. With these in place the new development bulk will still, however, require an additional supply of 14MVA. Currently there is only 5MVA spare capacity available at the Koeberg Road Substation and therefore, a new substation will have to be built.

5.5. POTENTIAL SUSTAINABILITY INITIATIVES

5.5.1 TRANSPORT

With the existing road network close to capacity, a conventional development on the Oude Molen site would require significant upgrading to accommodate more private cars. The site is located in close proximity to train stations and major roads, and there is currently spare capacity on all public transport modes. With this in mind, it is proposed that a "low car" model be implemented with the aim of achieving a net zero increase in private car traffic, based on the following measures:

- Pedestrian and cycling infrastructure connecting the site to public transport nodes (including safe bicycle storage and showers)
- A mix of jobs, shops, recreational facilities and public transport nodes located within walkable distances of residences
- Limitations on private car access to the site (e.g. pedestrianised zones and speed limits)
- Parking shared between residential and non-residential users
- Short term on-street parking available for a fee
- <1 parking bay available for rent per residential unit to discourage private car ownership
- Car share / hire facilities on site to provide "transport insurance" for those without private cars
- Subsidised public transport for residents and employees
- Additional rail rolling stock and new MyCiti routes to service the site

5.5.2 WATER AND SEWAGE

Given the site's water constraints, the buildings will be provided with a suite of water services that will allow for savings of 40% – 80% of municipal water when compared to conventional developments. These include:

- Piped grey water to replace municipal water for toilet flushing
- Capture and use of rainwater to replace municipal water for certain applications
- On-site treatment of effluent water for use in sub-surface irrigation
- Water efficient taps, shower heads and sanitary fittings
- Shared laundry facilities with water-efficient and energy-efficient appliances
- Showers instead of baths
- Pressure management to prevent leakages

- Water wise landscaping
- Smart water meters

5.5.3 STORM WATER

In addition to the reductions in run-off permitted by rainwater harvesting, a Sustainable Urban Drainage System (SUDS) will reduce the infrastructure required to manage stormwater by improving ground penetration via the following means:

- Use of permeable pavers on paved surfaces (e.g. parking and pathways)
- Bio-retention cells alongside roads
- Infiltration trenches and swales
- Developing above the 1 in 50 and 1 in 100 year flood lines so that flood zones are retained as open space within the public park

5.5.4 ENERGY

In order to delay the construction of additional electrical substations to service the site, a portion of the site's energy will be supplied in the form of electricity from solar photovoltaic panels integrated into the design of the buildings, and biogas for cooking from the wastewater treatment plant. The following energy efficiency measures will also be employed:

- Units supplied with piped hot water from communal solar water heaters / heat pumps
- Insulation of floors, walls, ceilings and piping in accordance with SANS 10400-XA energy efficiency standards
- Passive design (solar orientation, solar shading and natural ventilation)
- Units supplied with gas hobs, energy efficient fridges and plug points for convection microwave ovens.
- Energy-efficient light fittings throughout
- Automated lighting of common areas
- Pre-paid electricity meters

5.5.5 SOLID WASTE

With Cape Town's landfills under pressure, the site will minimise net waste leaving its boundaries via the following practices:

- Three bins will be provided in all units to allow for the separation of recyclables, organic wastes and landfill wastes
- Organic kitchen waste will be composted on-site and used as a soil conditioner for landscaping and agriculture
- Recyclable packaging materials will be separated on site and collected via private contractors

6 OUDE MOLEN PRECINCT (VALKENBERG EAST)

6.1. URBAN DESIGN FIXES

The urban design concept advocates a flexible and generous approach to development within both the TRUP Local Area and Oude Molen Precinct. Only the critical elements or 'minimum fixes' required to guide appropriate development forms and ensure continuity or consistency of approach across the neighbourhood are prescribed.

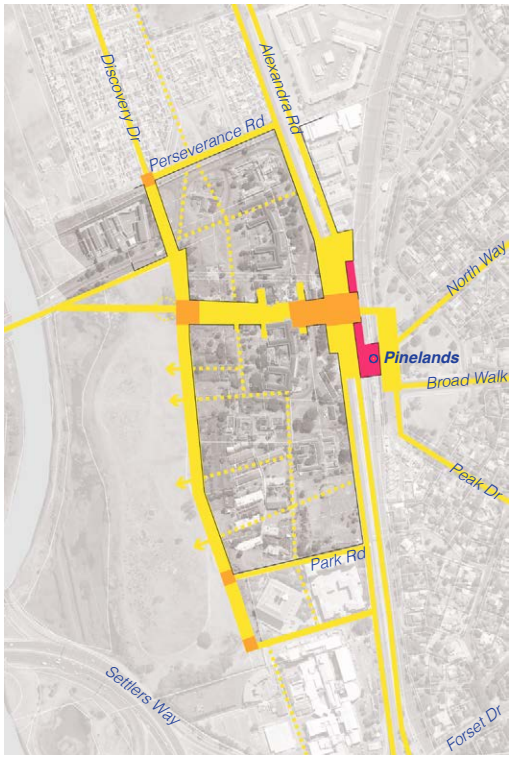
These minimum fixes are identified as follows:

Public Space & Street Network (Map 16):

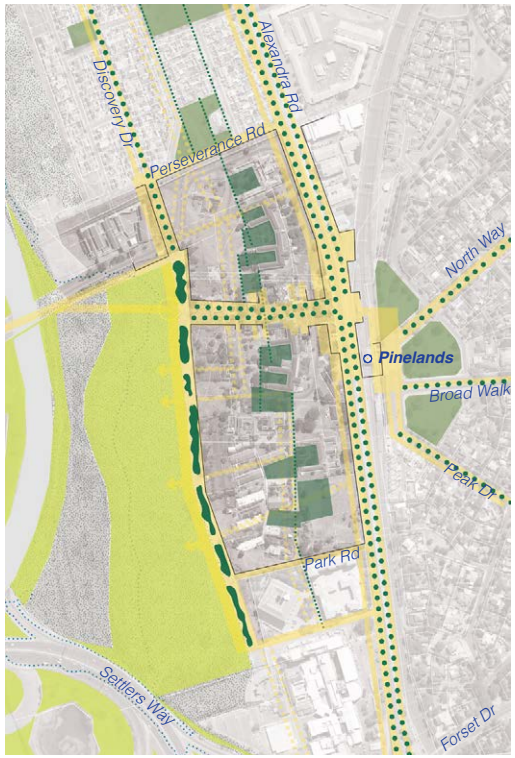
- A primary public space adjacent to Pinelands station and on Alexandra Road is required, which will function as a gateway, multifunctional space that accommodates a range of uses.
- A series of internal multipurpose courts must be provided that function as shared parking spaces, pocket parks/ kick- about spaces and urban agriculture.
- A series of transitional urban spaces are indicated at the termination of access routes into the TRUP. These spaces will assist with demarcating gateways into the park and sensitive biodiversity areas and the need for a change in development responses.

Green Network (Map 17):

- Alexandra Road forms the primary access route through the site and should be landscaped with high quality materials to reflect this function. Planting to be structured and urban in character.
- The east- west route linking Pinelands railway station to the existing bridge across the Black River must be provided that forms a gateway into the precinct. It should be landscaped with high quality materials to reflect its role and function while landscape elements to denote the entrance to both the park and the precinct should be incorporated.
- A series of internal multipurpose courts must be provided that function as shared parking spaces, pocket parks/ kick- about spaces and urban agriculture.
- Landscaping that forms a sensitive transition between the precinct and the Park is to be incorporated. Planting should be more organic in character.
- Indigenous and waterwise planting to be used throughout and should respect its biodiversity rich context.



Map 16: Oude Molen - Public space & street network



Map 17: Oude Molen - Green network

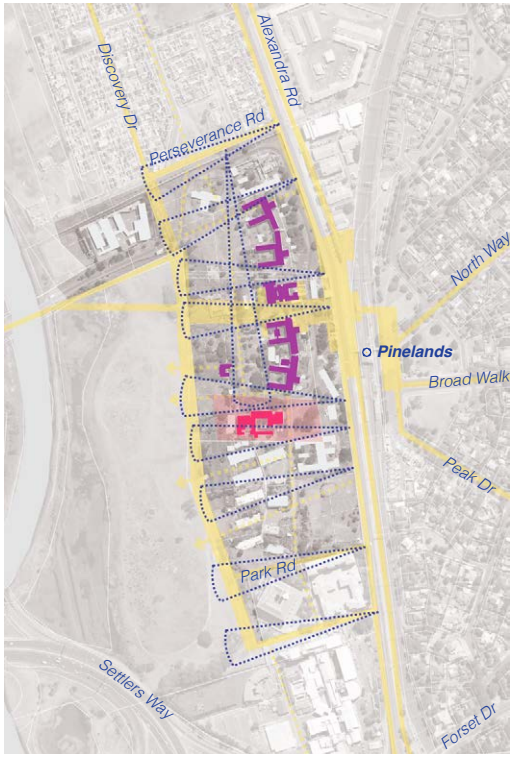
Heritage (Map 18):

- A number of buildings with cultural and architectural significance have been identified on the precinct that must be preserved and protected.
- All new development must positively respond to the heritage assets including buildings, cultural landscapes and tree planting on the site and ensure that a sensitive transition and or juxtaposition between new and old is created.
- The most significant heritage building in the Precinct is the old school and stable building which is a listed building. Its grading is yet to be determined. New development should be set back from the complex with the sight lines and view corridors as indicated being appropriately acknowledged.

Height (Map 19):

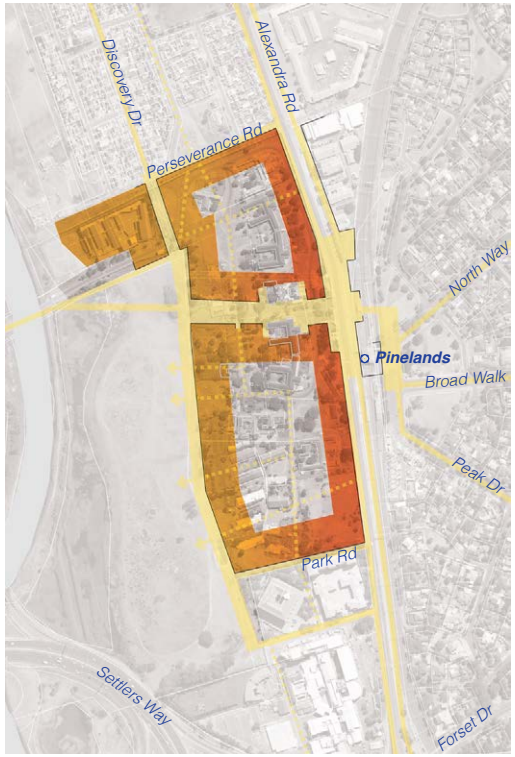
A focus is given to directing how the Precinct relates to its surrounds therefore height prescriptions are provided for its edge conditions. Greater flexibility is encouraged within the center of the Precinct itself.

- Buildings of greatest height (max 7- 5 storey's) should be concentrated along Alexandra Road and around Pinelands station to optimize on its central and convenient access to public transport.
- Buildings fronting onto the TRUP should between 2 & 3 storey's to ensure that passive surveillance of the park is encouraged.
- View corridors to the green river corridor as indicated should be created where buildings are set back to ensure that sight lines to the green space are secured.



[1]City of Cape Town Municipality, (1999). *Black River Urban Park Spatial development Framework*. Cape Town: City of Cape Town. Annexure C

Map 18: Oude Molen - Heritage



Map 19: Oude Molen - Building height

Linkages & Access (Map 20):

A hierarchy of access routes across the precinct are required that prioritise NMT access.

- Alexandra Road is to function as the primary access route into the site. It should be reconfigured to accommodate NMT and IRT functions along its length.
- Private vehicular access to the precinct should only be possible from Alexandra Road and Perseverance Road where cars will be directed to limited shared parking courts or shared underground/ elevated parking garages.
- A direct east- west public connection is required across the site that links Pinelands railway station to the existing bridge across the Black River must be provided
- A continuous north- south public route is required that runs on the edge of the park and the precinct and which connects directly through the Maitland Gardens Village must be provided.
- Streets are to be designed as shared spaces, preferably as a single surface that allows for sustainable stormwater collection. The use of tree planting and permeable surface materials are advocated on all internal access routes.
- No on- street parking is to be accommodated within the precinct

Edges & Interfaces (Map 21):

Four main edge and interface conditions have been identified within the Precinct that relate to the following,

Primary access route- Alexandra Road/ Pinelands station:

- Minimum building setback from erf boundary
- Active ground floor (as indicated on diagram)
- Visually permeable fencing- no solid boundary walls

Secondary access link- east/ west connection between station & river corridor:

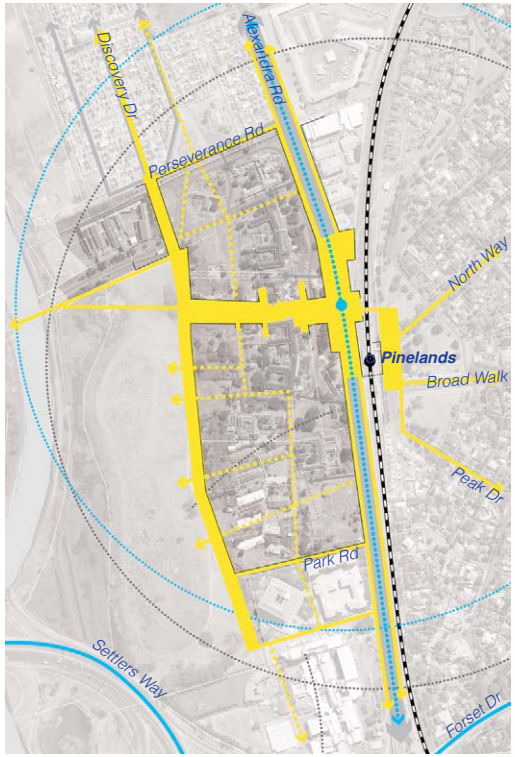
- Minimum building setback from erf boundary
- Active ground floor (as indicated on diagram)
- Visually permeable fencing- no solid boundary walls

River corridor edge:

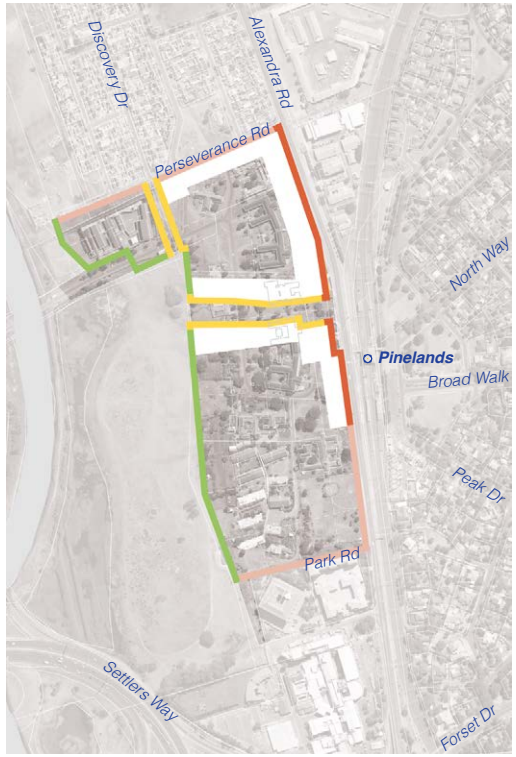
- 5m building setback from erf boundary to create a green transition to TRUP. This space to be landscaped with indigenous planting and or urban agriculture
- Ground floor units to positively respond to TRUP with windows and doors orientated onto park
- Terraces and balconies on upper stories overlooking the park to be promoted
- Minimal boundary fencing promoted with only visually permeable fencing to be used- no solid boundary walls
- No visible parking allowed- to be internalized within perimeter building courts

Other external Precinct edges:

- Visually permeable fencing- no solid boundary walls



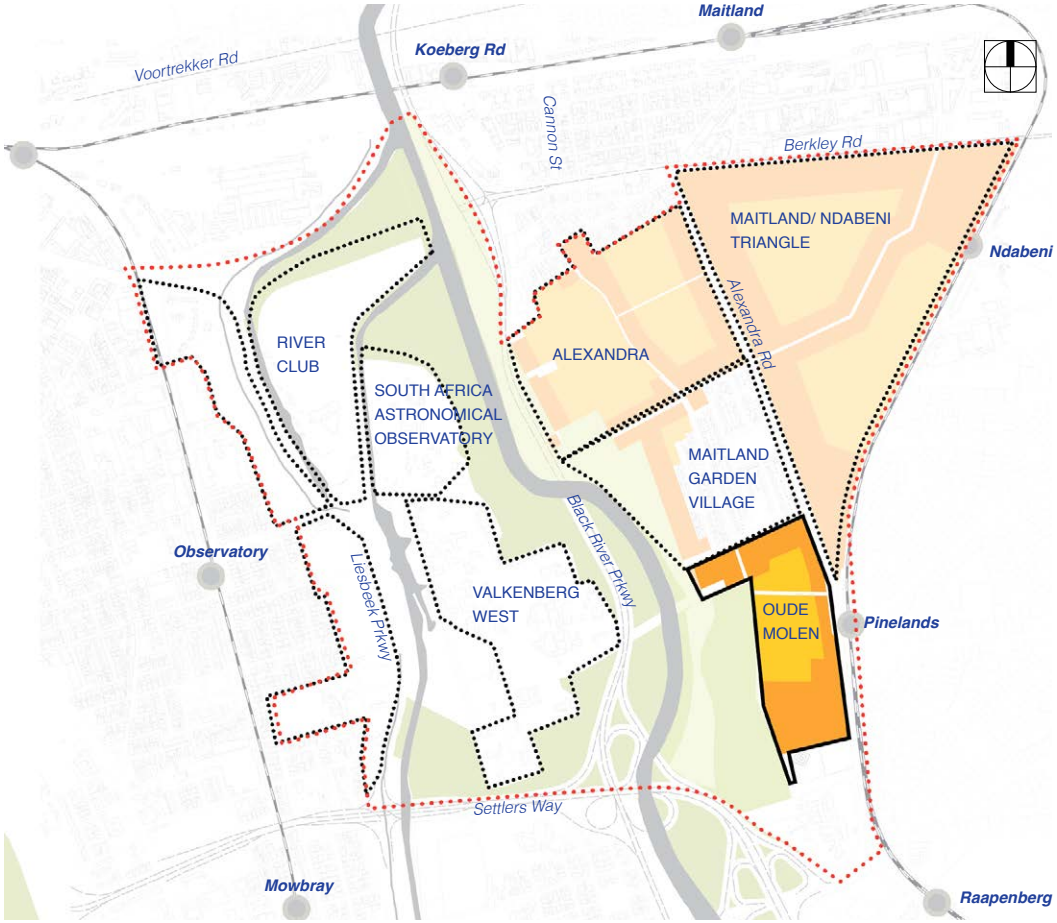
Map 20: Oude Molen - Linkages & access



Map 21: Oude Molen - Edges & interfaces

6.2. DEVELOPMENT POTENTIAL

The development potential of the Oude Molen Precinct has been summarized in the following Table 6 by providing detail on its total site area, the possible available area for future development, appropriate land uses and densities and possible bulk land yields. The development is illustrated in Map 22.



Map 22: Proposed development of Oude Molen Precinct

DEVELOPMENT POTENTIAL of OUDE MOLEN PRECINCT		
Historic structures to be retained	*Footprint (m²)*	*Floor space (m²)*
Proposed heritage grading: 3B	*6 263,5*	*11 064,7*
Historic structures+patterns of intrinsic significance	*4 190,3*	*8 380,7*
Total heritage buildings to be retained	*10 453,8*	*19 445,3*
Existing built form of no heritage significance (may be retained or removed)		
Existing built form	*12 053,0*	*12 053,0*
Proposed development		
Total site area allocated for high density development	*87 224,5*	
Total site area allocated for medium density development	*52 562,4*	
Proposed average storey height for new development	*no. of floors*	
High density development	*5*	
Medium density development	*3*	
Total Oude Molen Precinct Development	*Footprint (m²)*	*Floor space (m²)*
High density development	*27 042,0*	*135 210,0*
Medium density development (incl. retained historic)		*54 319,3*
Historic floor space retained (falling within medium density)		*19 445,3*
Total remaining medium density development to be added	*11 624,7*	*34 874,0*
Total development to be added		*170 084,0*
New development footprint (m²)	*38 666,7*	
Total existing retained development footprint (m²)	*10 453,8*	
Combined development footprint: Oude Molen Precinct	*49 120,5*	
Coverage (%)	*33%*	
Proposed land use mix for Oude Molen	*Land use mix*	*Floor space (m²)*
Total floor space (m²)	*100%*	*189 529,3*
Residential	*61%*	*114 873,5*
Commercial	*34%*	*63 583,1*
Public facilities	*6%*	*11 072,7*

Table 6: Development potential of Oude Molen Precinct

6.3. TOWN PLANNING LEGISLATIVE IMPLICATIONS

Detail on the Legislative Context and major town planning process are detailed in Annexure 9.3 which provides a high level summary of the heritage, zoning and environmental implications for the development of the Oude Molen Precinct. To support the rezoning applications and other statutory approvals processes for the Oude Molen Precinct a package of plans process is likely to apply with the imminent approval of the new Cape Town Zoning Scheme. In terms of this process a precinct plan for the Oude Molen Precinct would be required. This would relate to a broader Contextual Framework and the guidelines set out in a Development Framework for the overall TRUP Local Area. This level of planning may also require specialist studies.

7 ALEXANDRA PRECINCT

7.1. URBAN DESIGN FIXES

The urban design concept advocates a flexible and generous approach to development within both the TRUP Local Area and Alexandra Precinct. Only the critical elements or 'minimum fixes' required to guide appropriate development forms and ensure continuity or consistency of approach across the Local Area are prescribed.

These minimum fixes are identified as follows:

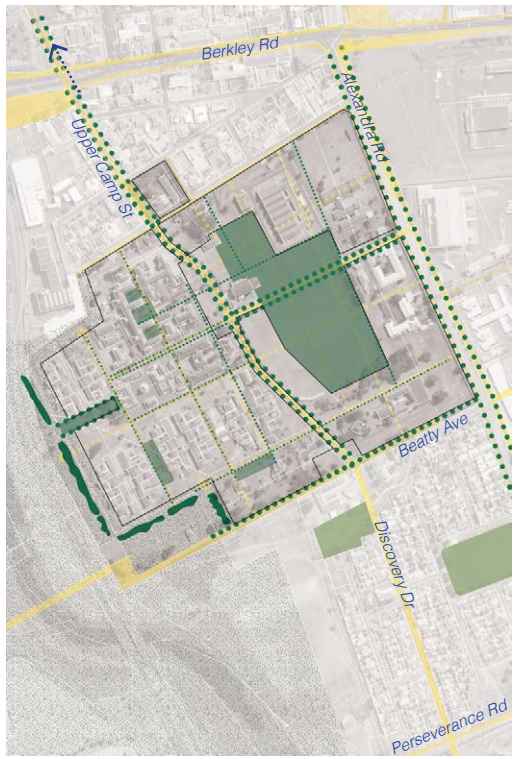
Public Space & Street Network (Map 23):

- A primary public space adjacent to on Alexandra Road, adjacent to Oude Molen Road is required, which will function as a multifunctional gateway space into the precinct that accommodates a range of uses.
- A series of internal multipurpose courts must be provided that function as shared parking spaces, pocket parks/ kick- about spaces and urban agriculture.
- A forecourt space on the internal access route adjacent to the cluster of existing heritage buildings is required to denote the importance of these buildings
- A series of transitional urban spaces are indicated at the termination of access routes into the TRUP. These spaces will assist with demarcating gateways into the park and sensitive biodiversity areas and the need for a change in development responses.

Green Network (Map 24):

- Alexandra Road forms the primary access route through the site and should be landscaped with high quality materials to reflect this function. Planting to be structured and urban in character.
- The east- west route linking Pinelands railway station to the existing bridge across the Black River must be provided that forms a gateway into the precinct. It should be landscaped with high quality materials to reflect its role and function while landscape elements to denote the entrance to both the park and the precinct should be incorporated.
- A series of internal multipurpose courts must be provided that function as shared parking spaces, pocket parks/ kick- about spaces and urban agriculture.
- Landscaping that forms a sensitive transition between the precinct and the Park is to be incorporated. Planting should be more organic in character.
- Indigenous and waterwise planting to be used throughout and should respect its biodiversity sensitive context

Map 23: Alexandra - Public space & street network



Map 24: Alexandra - Green network

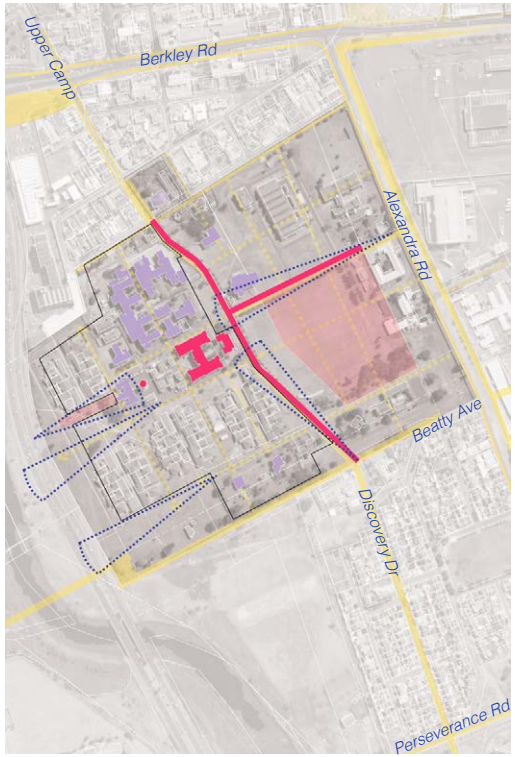
Heritage (Map 25):

- A number of buildings with cultural and architectural significance have been identified on the precinct, which are clustered to the north-west corner of the precinct. They must be preserved and protected
- All new development must positively respond to the heritage assets including buildings, cultural landscapes and tree planting on the site and ensure that a sensitive transition and or juxtaposition between new and old is created.
- The most significant heritage building in the Precinct is the Old Mill, which is a listed building. New development should be set back from the Old Mill complex with the sight lines and view corridors as indicated being appropriately acknowledged.

Height (Map 26):

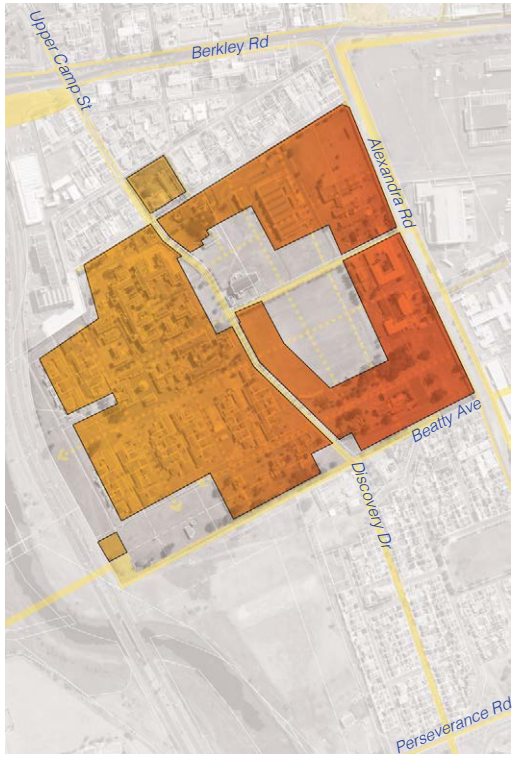
A focus is given to directing how the Precinct relates to its surrounds therefore height prescriptions are provided for its edge conditions. Greater flexibility is encouraged within the center of the Precinct itself.

- Buildings of greatest height (max 7- 5 storey's) should be concentrated along Alexandra Road adjacent to Oude Molen Road to optimize on its central and convenient access to public transport.
- Buildings fronting onto the TRUP should between 2 & 3 storey's to ensure that passive surveillance of the park is encouraged.
- Buildings between the heritage building cluster and the TRUP should not exceed 2 in order to allow the heritage assets of the site to be viewed from the park.
- View corridors to the green river corridor as indicated should be created where buildings are set back to ensure that sight lines to the green space are secured.



[1]City of Cape Town Municipality, (1999). *Black River Urban Park Spatial development Framework*. Cape Town: City of Cape Town. Annexure C

Map 25: Alexandra - Heritage



Map 26: Alexandra - Building height

Linkages & Access (Map 27):
A hierarchy of access routes across the precinct are required that prioritise Non Motorised Transport (NMT) access.

- Alexandra Road is to function as the primary access route into the site. It should be reconfigured to accommodate NMT and IRT functions along its length.
- Private vehicular access to the precinct should only be possible from Alexandra Road and Annex Road where cars will be directed to limited shared parking courts or shared underground/ elevated parking garages.
- A direct east- west public connection is required across the site from Alexandra Road on axis with Oude Molen Road towards a new proposed pedestrian bridge that connects the precinct to the River Club, Observatory and Observatory railway station.
- A continuous north- south public route is required that connects with Beatty Avenue in Maitland Gardens Village on its southern edged and which runs along Upper Campus Road to connect with the Koeberg Road railway station.
- Streets are to be designed as shared spaces, preferably as a single surface that allows for sustainable stormwater collection. The use of tree planting and permeable surface materials are advocated on all internal access routes.
- No on- street parking is to be accommodated within the precinct

Edges & Interfaces (Map 28):
Four main edge and interface conditions have been identified within the Precinct that relate to the following,
Primary access route- Alexandra Road/ Oude Molen Road:

- Minimum building setback from erf boundary
- Active ground floor (as indicated on diagram)
- Visually permeable fencing- no solid boundary walls

Secondary access link- east/ west connection between Alexandra Road & the river corridor:

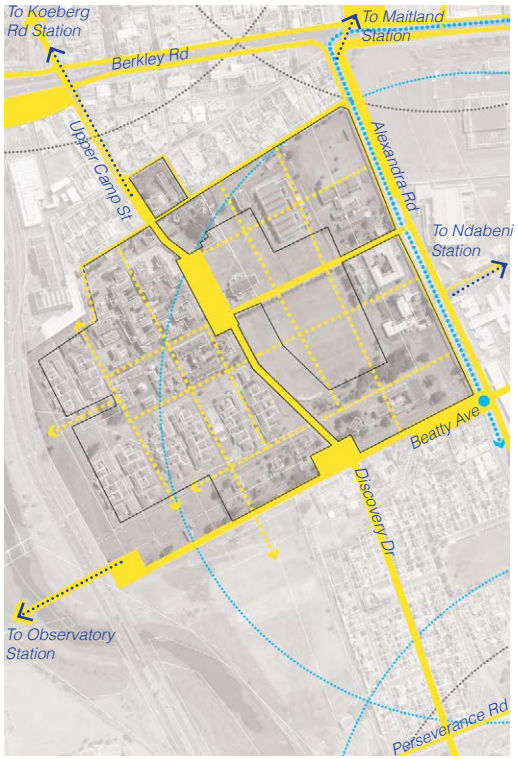
- Minimum building setback from erf boundary
- Active ground floor (as indicated on diagram)
- Visually permeable fencing- no solid boundary walls

River corridor edge:

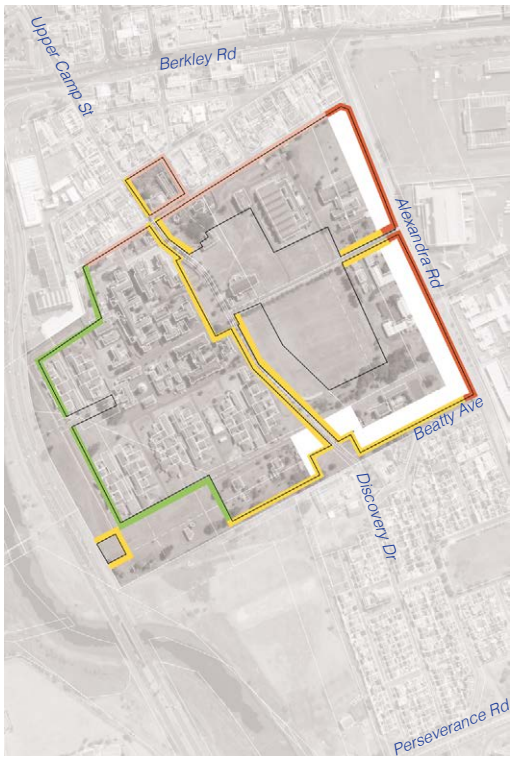
- 5m building setback from erf boundary to create a green transition to TRUP. This space to be landscaped with indigenous planting and or urban agriculture
- Ground floor units to positively respond to TRUP with windows and doors orientated onto park
- Terraces and balconies on upper stories overlooking the park to be promoted
- Minimal boundary fencing promoted with only visually permeable fencing to be used- no solid boundary walls
- No visible parking allowed- to be internalized within perimeter building courts

Other external Precinct edges:

- Visually permeable fencing- no solid boundary walls



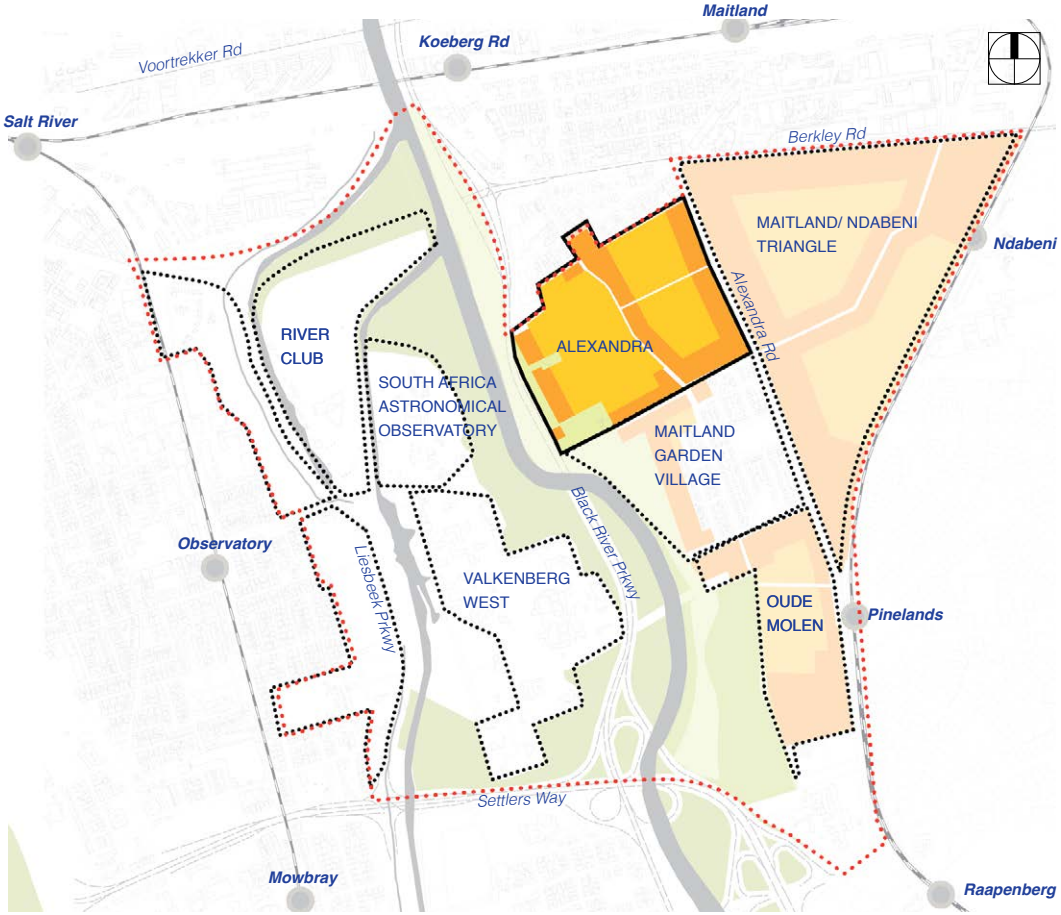
Map 27: Alexandra - Linkages & Access



Map 28: Alexandra - Edges & interfaces

7.2. DEVELOPMENT POTENTIAL

The development potential of the Alexandra Institute Precinct has been summarized in the Table 7. This provides detail on the total site area, the possible available area for future development, appropriate land uses and densities and possible bulk land yields. The development is illustrated in Map 29.



Map 29: Proposed development of Alexandra Precinct

DEVELOPMENT POTENTIAL of ALEXANDRA PRECINCT		
Historic structures to be retained	*Footprint (m²)*	*Floor space (m²)*
Historic structures+patterns of contextual significance	*5 062,1*	*9 217,5*
Historic structures+patterns of intrinsic significance	*2 459,2*	*4 918,5*
Possible heritage significance	*751,3*	*751,3*
Total heritage buildings to be retained	*8 272,6*	*14 887,3*
Existing built form of no heritage significance (to be retained or removed)		
Existing built form	*38 701,9*	*47 488,1*
Proposed development		
Total site area allocated for high density development	*123 524,3*	
Total site area allocated for medium density development	*151 203,0*	
Proposed average storey height for new development	*No. of floors*	
High density development	*5*	
Medium density development	*3*	
Total Alexandra Precinct Development	*Footprint (m²)*	*Floor space (m²)*
High density development	*38 295,9*	*191 479,7*
Medium density development (including retained historic)		*156 257,0*
Historic floor space retained (falling within medium density)		*14 887,3*
Total remaining medium density development to be added	*47 123,2*	*141 369,7*
Total development to be added		*332 849,4*
Total new development footprint (m²)	*85 419,2*	
Total existing retained development footprint (m²)	*8 272,6*	
Combined development precinct	*93 691,8*	
Total site area of Alexandra Precinct	*269 033,4*	
Total coverage (%)	*35%*	
Proposed land use mix for Alexandra Institute	*Land use mix*	*Floor space (m²)*
Total floor space area (m²)	*100%*	*347 736,7*
Total Residential area	*61%*	*210 762,8*
Total Commercial area	*34%*	*116 658,4*
Total Public facilities area	*6%*	*20 315,4*

Table 7: Development potential of Alexandra Precinct

7.3. TOWN PLANNING LEGISLATIVE IMPLICATIONS

Detail on the Legislative Context and major town planning process are detailed in Annexure 9.3 which provides a high level summary of the heritage, zoning and environmental implications for the development of the Alexandra Precinct. To support the rezoning applications and other statutory approvals processes for the Alexandra Institute Precinct a package of plans process is likely to apply with the imminent approval of the new Cape Town Zoning Scheme. In terms of this process a precinct plan for the Alexandra Institute Precinct would be required. This would relate to a broader Contextual Framework and the guidelines set out in a Development Framework for the overall TRUP Local Area. This level of planning may also require specialist studies.

8 CONCLUSIONS

It is evident that the transformation of the TRUP Local Area into a sustainable neighbourhood is an exciting initiative that would show case sustainable development and assist with realising the implementation of the Two River's Park itself. The successful realization of the TRUP Local Area is a big task that will require the collective support and action of many actors. John Kotter, a change management specialist, has developed a powerful tool that outlines the primary eight steps required to instigate change that will form a useful reference to guide the redevelopment of the TRUP Local Area.

These steps can be summarized as follows: 1. Create urgency > 2. Form a powerful coalition > 3. Create a vision for change > 4. Communicate the vision > 5. Remove obstacles > 6. Create short-term wins > 7. Build on the change > 8. Anchor the changes in 'corporate' culture

A concept of this scale and innovation will certainly require strong partnerships between spheres of government, and between government and civil society and the private sector. Details on these institutional and implementation strategies are contained in a separate feasibility document.

This document contributes to setting the stage for step three and four by introducing a future vision for the TRUP Local Area and communicating what the potential of the site is. It is critical that this vision becomes an equally shared and owned vision by all proponents in the coalition.

While to take the process forward, a number of parallel processes would need to be initiated to unlock or remove the obstacles to development. In the first instance, the two major landowners and statutory authorities, the City and Western Cape Government, would need to support the concept of a sustainable neighborhood for the TRUP Local Area. This would require agreement on the processes of stakeholder engagement required to test and develop the vision and concept, the necessary planning approvals processes as a well as agreements around land and development instruments.

As far as planning processes and approvals are concerned a Package of Plans approach is recommended. In terms of this approach, key aspects of the broader vision will need to be tested and confirmed in a Contextual Framework that deals with issues such as the urban design concept for the TRUP local area would need to be refined and developed, through a rigorous public engagement process into a Development Framework which would to inform the detailed planning of the precincts and to include the numerous specialist studies that are likely to be required – dealing with broader issues. It is very likely that the City's new Cape Town Zoning Scheme will have come into force by the time the town planning application is to be submitted in terms of LUPO, in which case, the new scheme will require a Package of Plans approach.

A project of this magnitude will also need to be implemented in phases through a series of pilot or quick-win projects to sustain the momentum required to see it through to completion. This will also allow some of the avant garde elements of the proposal to be demonstrated, tested and reviewed as the project develops over time.

These achievements should then be firmly embedded as the conventional way of planning and developing or culture within the TRUP Local Area to ensure that old approaches are not reverted to. This will ensure that the overall vision of a sustainable neighbour hood is secured- even if it takes a while to achieve.

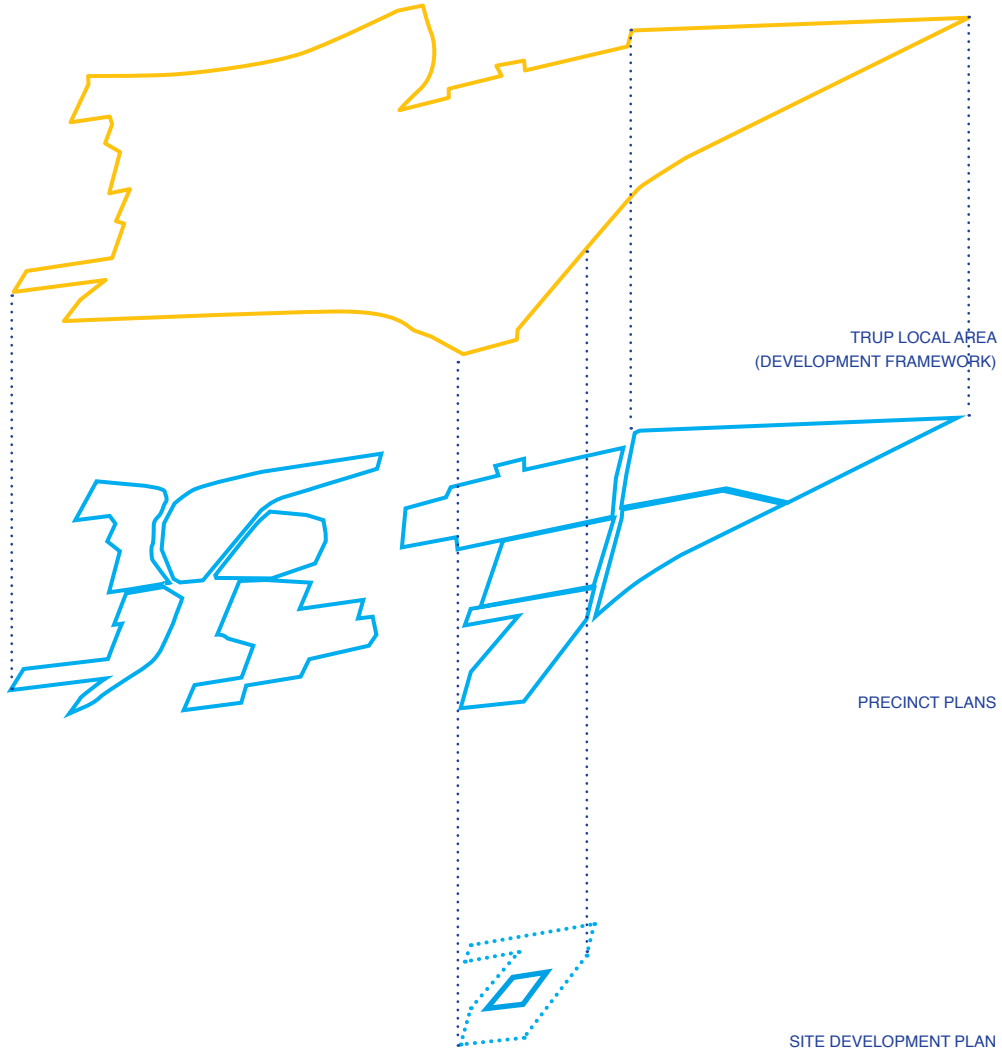


Figure 23: The package of plans process

9 ANNEXURES: OVERVIEW OF TOWN PLANNING INFORMANTS

9.1. ANNEXURE: OVERVIEW OF PREVIOUS PLANNING FRAMEWORKS

PLANNING FRAMEWORK	DATE	CURRENT STATUS	PUBLIC PARTECIATION PROCESS FOLLOWED	PORPUSE OF FRAMEWORK
TRUP AREA				
Black River Urban Park Spatial Development Framework City of Cape Town	1999	Replaced by TRUP SDF (Sep 2002)	Non-statutory public process	See TRUP Contextual Framework August 2003
Two Rivers Urban Park Spatial Development Framework and Phase 1 Management Plan City of Cape Town	September 2002		Non-statutory public process	See TRUP Contextual Framework August 2003
BRUP Pre-feasibility study	August 1999		Technical process	To test viability of draft SDF. Primary aim was to investigate its environmental, infrastructure services, transport and financial implications
Culemborg-Black River Contextual Framework SDF City of Cape Town	1996	Local Area Plan currently still valid.		Policy guide that defines the planning objectives and provides urban design principles for the area.

Table 8: TRUP Area - Overview of previous planning frameworks

PLANNING FRAMEWORK	DATE	CURRENT STATUS	PUBLIC PARTECIATION PROCESS FOLLOWED	PORPUSE OF FRAMEWORK
Two Rivers Urban Park Contextual Framework and Phase 1 Environmental Management Plan Final Report City of Cape Town	August 2006	CURRENT APPROVED POLICY DOCUMENT FOR TRUP Approved August 2003 The Table Bay SDP recognises it as a local area plan that remains relevant. Currently used to guide decision-making. Also used by the TRUP Steering Committee as framework /basis for commenting on any applications and proposals.	Non-statutory, inclusive public process. Move towards a partnership and community ownership and active collaboration in decision-making, design, planning and management.	Sets out the Vision for the Park. The TRUP Contextual Framework aims to: - Provide a framework for the conservation, rehabilitation and management of the ecologically sensitive areas, open spaces and culturally significant sites within the TRUP Contextual Framework Study Area, as well as - Provide guidance to authorities, land owners and prospective developers to ensure appropriate and integrated development of the precincts immediately adjacent to the park. The Phase 1 Management Plan focuses on the management of the City-owned land, i.e. the park and wetlands and includes recommendations for improving water quality, avifauna diversity and biodiversity. It includes high-level guidelines to assess development proposals as well as a list of relevant legislation and regulations.
• Annexure 1: Two Rivers Urban Park Baseline Heritage Study Prepared by Aikman Associates	May 2002	Approved with Contextual FW August 2003		
• Annexure 2: Two Rivers Urban Park Traffic Impact Assessment City of Cape Town	December 2001	Approved with Contextual FW August 2003		
• Annexure 3: Avifauna and plant species recorded in the Two Rivers Urban Park	Undated	Approved with Contextual FW August 2003		
• Annexure 4: Examples of constitutions		Approved with Contextual FW August 2003		
Draft Landscaping Framework as part of Phase 2 of the Environmental Management Plan	September 2006			Provides detailed overall design plan for City owned land (the parklands) within TRUP.Identifies projects, priorities linked to budgets and a maintenance and management plan for each precinct.
Business Plan for the Two Rivers Urban Park. 2008-2013 Prepared by the City of Cape Town for the TRUP Executive Committee	October 2007	Currently being updated by the City of Cape Town.	TRUP Executive Committee who will be the lead agent for implementing certain programmes and projects in terms of the TRUP Business Plan	Motivation for capital, operational and contracted services funds. Includes list of projects, and estimated budgets and timeframes.

PLANNING FRAMEWORK	DATE	CURRENT STATUS	PUBLIC PARTICIPATION PROCESS FOLLOWED	PROPOSE OF FRAMEWORK
PRECINCTS - OUDE MOLEN (VALKENBERG EAST)				
Conceptual Development Framework Prepared by MLH Appointed by PGWC Phase 1 Heritage Impact Assessment Undertaken by Nicholas Bauman and Sarah Winter (Valkenberg East: Draft scoping report, May 2003) Social Assessment Undertaken by Environmental Evaluation Unit Wetland/stormwater assessment prepared by The Freshwater Consulting Group Environmental Impact Assessment Undertaken by Doug Jeffrey	2000	Not approved . Process and specialists studies were discontinued.	Rezoning application not concluded (June 2001 to 2003) due to uncertainty about HIA and EIA requirements. EIA initiated in 2003. EIA application withdrawn in 2005.	
Towards a Realistic Strategic Development Approach for Oude Molen. Prepared by Professor Mark Swilling, Sustainability Institute, School of Public Management and Planning, University of Stellenbosch	October 2005	APPROVED BY THE MEC FOR PUBLIC WORKS	Non-statutory process, involving Oude Molen stakeholders	Process initially dealt with regularising tenant situation. A Status Quo report on Oude Molen. Overview of policy context. A Conceptual Development Framework for Oude Molen that defines it as a model example of a sustainable neighbourhood development/village. A recommended process for managing the site up to implementation. A process recommendation up to implementation.
Draft Scenario Evaluation Report. Oude Molen Sustainable Neighbourhood	July 2007	Preferred scenario ("medium density, mixed use, mixed income" scenario) endorsed by Provincial Cabinet. Date??	Non-statutory process, involving intensive Oude Molen stakeholder involvement	To get an in-principle agreement from PGWC for the preferred scenario and release mechanism for Oude Mole in order to submit rezoning application and EIA for ROD.Provides an overview of legislative, policy and planning context.Presents 8 different scenarios, social process and considerations for identifying these and preferred scenario.Evaluation of scenarios using sustainability principles.Urban design interpretation of the preferred scenario. It also provides the ordering principles for the spatial development framework and urban design objectives andprinciples. Includes a Conceptual Sustainable Development Framework for Oude Molen.Sustainable infrastructure design.Future ownership model and preferred release mechanism. Way forward and actions steps.
Environmental Impact Assessment. Final Scoping Report. Proposed sustainable settlement at Oude Molen Village, Observatory	2008	No authorisation. EIA put on hold due to • Further specialist studies being required. • Insufficient funding.	EIA scoping process initiated in October 2007. Included I&A parties, authorities and specialists as per statutory regulations.	Presented 5 alternatives.

Table 9: Oude Molen Precinct - Overview of previous planning frameworks

9.2. ANNEXURE: PREVIOUS HERITAGE RELATED STUDIES UNDERTAKEN

Bredekamp, H C (1980) Die grondtransaksies van 1672 tussen die Hollanders en die SkiereilanseKhoikhoi. Kronos 2: 1-10

Burman, J (19….) Safe to the sea. Human & Rousseau, Cape Town

Burman, J (1984) Early railways at the Cape, pp 28, 37. Human & Rousseau, Cape Town

Deacon, H (2003) Oude Molen – historical research report. (16 pp)

Dumbrell, K (1996,2000) Preliminary historical investigation into the Oude Molen site, with particular reference to the old mill house.

Elphick, R (1977) Kraal and Castle. Khoikhoi and the founding of White South Africa, pp 90-137. Yale University Press, New Haven & London

Fransen, H & Cook, MA (1980) The old buildings of the Cape, pp 87-91. Balkema, Cape Town

Marx, J (2006) Panoramic sketch of the country surrounding the Royal Observatory, Cape of Good Hope, 1834. Quarterly Bulletin of the National Library of SA, vol 60 (3) pp 69-91.

Marx, J (2007) Corn mills in the Liesbeek Valley, Cape Town. From VOC to British Colony to industrial conglomerates. A brief review (1652-2002).Transactions, T.I.M.S. 12th International Symposium on Molinology, pp 491-498.

Neville, D.E. (1996) Phase 1 Archaeological investigation of the history of the farm Oude Molen, Mowbray. Prepared for His People Christian Ministries, Cape Town.

Sleigh, D (2004) Die buiteposte, p 129 ff. Protea, Pretoria.

Transportation Planning Branch, Cape Town Administration (2001) Two Rivers Urban Park. Traffic Impact assessment. Annexure 2.

Walton, J (1974) Water-mills, windmills and horse-mills of South Africa, pp 132-147 Van Schaik, Pretoria.

9.3. ANNEXURE: LEGISLATIVE CONTEXT

The legislation applicable to the TRUP area and specifically to the Oude Molen and Alexandra Institute precincts, include Town Planning, Heritage and Environmental legislation.

The National Heritage Resources Act (25 of 1999) is applicable as there are a significant number of heritage resources on the two provincial properties.

The National Environmental Management Act (107 of 1998) and the NEMA EIA Regulations (2010) is applicable given the environmental sensitive nature of the TRUP area.

The National Water, 1998 (Act 36 of 1998) that is applicable to water resources, including rivers and wetlands. As stated in the draft Table Bay District Plan (2011), authorisation of the avtivities in the Hydrological Environmental Management Zone, which includes TRUP, must be in compliance with the National Water Act.

The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) will become applicable should urban agricultural activities be proposed for the park or adjacent precincts. As stated in the draft Table Bay District Plan (2011), agricultural activities close to water bodies must comply with the conditions as set out in the Act.

The Land Use Planning Ordinance, 1985 (Ordinance No 15 of 1985) outlines the procedures and requirements for the approval of Structure Plans as well as for rezoning, departure and subdivision applications. There are presently no approved structure plans pertaining to the TRUP neighbourhood or local area. The local spatial planning policies and frameworks dealing with the area have been approved by the City of Cape Town as policy frameworks.

The Cape Town SDF (2011) is the long-term citywide spatial plan covering the whole of the Cape Town Metropole. It was approved, in terms of the Municipal Systems Act (Act 32 of 2000, section 34), by the City of Cape Town in June 2011. It has also been submitted to the Western Cape Provincial Government for approval as a Section 4 (6) Structure Plan, in terms of the Land Use Planning Ordinance (No 15 of 1985). The vision and high-level proposals contained in this report are consistent with the CT SDF (2011). However, the proposals are not entirely in line with the Guide Plan for the Cape Metropolitan Area, Vol 1: Peninsula (1988) which remains applicable until such time as the CT SDF has been approved as a 4(6) Structure Plan. It is however anticipated that the CT SDF will be approved, as a 4(6) Structure Plan, before any of the other required statutory applications will need to be initiated and/or submitted. If not, an application to amend this Guide Plan will also be required.

At a district level, the Draft Table Bay District Plan (2011) is in the process of being finalized prior to being submitted for Council approval.

The Cape Town Zoning Scheme is currently applicable to the TRUP local area. It is anticipated that the new integrated Cape Town Zoning Scheme will be approved and come into effect during 2012. The new Zoning Scheme proposes new use zones for the provincial properties within TRUP and it also proposes an extended Heritage Overlay Zone. The TRUP area falls within the proposed extended Heritage Overlay Zone and will therefore be subject to further requirements in addition to the national legislation.

The Oude Molen precinct currently has an Undetermined Use Zone in terms of the existing Cape Town Zoning Scheme. The Alexandra Institute is zoned for Community Facilities purposes. In order to allow for the land uses and the type of development proposed in the development concept, the precincts will have to be rezoned. Whilst dealing with high-level development concepts, it will be premature to recommend a future zoning for these precincts. It is rather proposed that a Package of Plans approach be followed and a Precinct Plan be prepared following on from a broader Development Framework, to inform the rezoning application and other statutory approvals processes for the Oude Molen and Alenxandra Institute Precincts. It is very likely that the City's new Cape Town Zoning Scheme will have come into force by the time the town planning application is to be submitted in terms of LUPO, in which case, the new scheme will require a Package of Plans approach.

In addition to the rezoning processes, the proposed future development of the precincts will also require environmental and heritage statutory processes. A full Environmental Impact Assessment as well as a Heritage Impact Assessment will be required. All three statutory processes should be integrated and the town planning and heritage processes should ideally be integrated with the overall environmental process. The public participation requirements for the HIA, Town Planning application and EIA can also be aligned. This will still allow for adequate opportunity for stakeholder and interested and affected parties to provide input.

Given the outcomes of or types of issues raised during the previous precinct planning processes, albeit incomplete processes, the following specialist studies will most likely have to be undertaken as part of the next phase; to inform the next level of planning and support applications for statutory approvals:

- Traffic Impact Assessment
- Visual Impact Assessment
- Socio-economic Impact Assessment
- Urban Agricultural Assessment
- Biodiversity Assessment

Specialist studies that may be required in terms of the National Water Act 36 of 1998, the Environmental Conservation Act 73 of 1989 and the Conservation of Agricultural Resources Act 43 of 1983.

The following tables 10 and 11 provide more detail with regard to the applicable legislation and required legislative processes. As stated, it is anticipated that the integrated Cape Town Zoning Scheme will be approved during 2012 and it is further anticipated that the new 'Community' use zones will apply to the Alexandra Institute precinct properties and the new "Utility' use zones will apply to the Oude Molen precinct. Should this new Zoning Scheme be in place and should the anticipated zoning apply to the precincts, the proposed development will still require a rezoning but in terms of the new Zoning Scheme.

			OVERVIEW OF REQUIRED LEGISLATIVE PROCESSES			PROCESS RISK MANAGEMENT	
APPLICABLE LEGISLATION	DECISION-MAKING AUTHORITY	APPLICABLE SECTION OF LEGISLATION	APPLICATIONS REQUIRED	SUPPORTING STUDIES THAT WILL HAVE TO BE SUBMITTED WITH THE APPLICATION	ESTIMATED TIMEFRAMES	POTENTIAL RISKS	RISK MITIGATION STEPS
Cape Town Zoning Scheme & Land Use Planning Ordinance (Ordinance 15 of 1985) (LUPO)	City of Cape Town Provincial Government: Western Cape, should there be any appeals to the decision i.t.o. LUPO	The site currently has a Community Facilities use zone in terms of the Cape Town Zoning SchemeT	In order to allow for the land uses and the type of development proposed in the development concept, the Valkenberg precint will have to be rezoned. The appropriate zoning will need to be determined in liaison with the City of Cape Town. The rezoning process will need to be integrated with the Environmental and Heritage statutory processes.	Heritage Impact Assessment Traffic Impact Assessment Visual Impact Assessment	±1 year without objections ±2-3 years with objections and appeals	Objections and possibly appeals against a decision to rezone.	- Pre-application liaison with the municipality. - Liaison with objectors during the process to address issues raised by objectors. - Rezone only portion of the property although this may impact on the permissible coverage and require a Town Planning Departure.
National Heritage Resources Act, 1999 Act 25, 1999	Heritage Western Cape	Section (34) Alteration of building older than 60 years Section (38) Proposed development exceeds 5000m2	A full Heritage Impact Assessment It is recommended that a phased Heritage Impact Assessment be undertaken. The phased approach will allow for the heritage indicators to be established and approved upfront (Phase 1). The detailed development proposals can then be assessed against these heritage indicators (Phase 2). The heritage impact assessment process will need to be integrated with the Environmental Impact Assessment and rezoning processes.		±3 months ±3 months		
The National Environmental Management Act (107 of 1998), per Government Notice 28753 of 21 April 2006 as amended NEMA EIA Regulations (2010) as amended	Department of Environmental Affairs, Planning and Development	NEMA requirements will apply to TRUP as it is situated within an environmentally sensitive area and it exceeds 1ha.	A full Environmental Scoping Report A Basic Assessment The environmental, heritage and rezoning processes will need to be integrated.	In addition to the Heritage Impact Assessment, Traffic Impact Assessment and Visual Impact Assessment, the following specialist studies will also need to be undertaken and will be incorporated into the overall environmental impact assessment process:- Socio-economic Impact Assessment - Urban Agricultural Assessment - Biodiversity Assessment - Other specialist studies required in terms of the - National Water Act 36 of 1998, the - Environmental Conservation Act 73 of 1989 and the - Conservation of Agricultural Resources Act 43 of 1983 A public participation process as stipulated in the NEMA regulations.	±1 year without objections ±2-3 years with objections and appeals	The proposed development may require an application to another National Department, e.g. Department of Water Affairs. Should this be necessary, the application must be submitted to all relevant authorities and multiple applications to different state departments for authorization. However, NEMA makes provision for a single integrated process and authorization. Application must be made upfront for an integrated process.	It is advisable to discuss the environmental issues, requirements and authorizations with the DEA&DP as early in the next phase of the process as possible.

Table 10: Alexandra Institute Precinct - Overview of applicable legislation and required legislative processes

			OVERVIEW OF REQUIRED LEGISLATIVE PROCESSES			PROCESS RISK MANAGEMENT	
APPLICABLE LEGISLATION	DECISION-MAKING AUTHORITY	APPLICABLE SECTION OF LEGISLATION	APPLICATIONS REQUIRED	SUPPORTING STUDIES THAT WILL HAVE TO BE SUBMITTED WITH THE APPLICATION	ESTIMATED TIMEFRAMES	POTENTIAL RISKS	RISK MITIGATION STEPS
Cape Town Zoning Scheme & Land Use Planning Ordinance (Ordinance 15 of 1985) (LUPO)	City of Cape Town Provincial Government: Western Cape, should there be any appeals to the decision i.t.o. LUPO	The site currently has an Undetermined Use Zone in terms of the Cape Town Zoning Scheme	In order to allow for the land uses and the type of development proposed in the development concept, the Oude Molen precint will have to be rezoned. The appropriate zoning will need to be determined in liaison with the City of Cape Town. The rezoning process will need to be integrated with the environmental and heritage statutory processes.	Heritage Impact Assessment Traffic Impact Assessment Visual Impact Assessment	±1 year without objections ±2-3 years with objections and appeals	Objections and possibly appeals against a decision to rezone.	- Pre-application liaison with the municipality. - Liaison with objectors during the process to address issues raised by objectors. - Rezone only portion of the property although this may impact on the permissible coverage and require a Town Planning Departure.
National Heritage Resources Act, 1999 Act 25, 1999	Heritage Western Cape	Section (34) Alteration of building older than 60 years Section (38) Proposed development exceeds 5000m2	A full Heritage Impact Assessment It is recommended that a phased Heritage Impact Assessment be undertaken. The phased approach will allow for the heritage indicators to be established and approved upfront. The detailed development proposals can then be assessed against these heritage indicators. The heritage impact assessment process will need to be aligned with the Environmental and rezoning processes. Assessment and rezoning processes.		±3 months ±3 months		
The National Environmental Management Act (107 of 1998), per Government Notice 28753 of 21 April 2006 as amended NEMA EIA Regulations (2010) as amended	Department of Environmental Affairs, Planning and Development	NEMA requirements will apply to TRUP as it is situated within an environmentally sensitive area and it exceeds 1ha.	A full Environmental Scoping Report A Basic Assessment The environmental, heritage and rezoning processes will need to be integrated.	In addition to the Heritage Impact Assessment, Traffic Impact Assessment and Visual Impact Assessment, the following specialist studies will also need to be undertaken and will be incorporated into the overall environmental impact assessment process: - Socio-economic Impact Assessment - Urban Agricultural Assessment - Biodiversity Assessment - Other specialist studies required in terms of the - National Water Act 36 of 1998, the - Environmental Conservation Act 73 of 1989 and the - Conservation of Agricultural Resources Act 43 of 1983 A public participation process as stipulated in the NEMA regulations.	±1 year without objections ±2-3 years with objections and appeals	The proposed development may require an application to another National Department, e.g. Department of Water Affairs. Should this be necessary, the application must be submitted to all relevant authorities and multiple applications to different state departments for authorization. However, NEMA makes provision for a single integrated process and authorization. Application must be made upfront for an integrated process.	It is advisable to discuss the environmental issues, requirements and authorizations with the DEA&DP as early in the next phase of the process as possible.

Table 11: Oude Molen Precinct - Overview of applicable legislation and required legislative processes

The Title Deeds of the Oude Molen precinct and Alexandra Institute precinct properties were not reviewed as part of this brief. It will however be necessary for the Title Deeds to be reviewed and should the removal or amendment of any restrictive title deed conditions be required, in terms of The Removal of Restrictions Act, 1967 (Act 84 of 1967), this statutory process will also have to be integrated with the rezoning application processes.

9.4. ANNEXURE: STAKEHOLDER ENGAGEMENT PROCESSES

During the last 16 years of planning, a number of public participation processes were undertaken and a significant number of stakeholders have been involved, including land owners, tenants, individuals, neighboring communities and ratepayer associations, the Gaia Waldorf School, business, environment, heritage, health NGO's, CBOs and Provincial Government departments.

The broader TRUP process started with the formation of an Interim Steering Committee 16 years ago. Recently the TRUP Association was established specifically to implement the TRUP Business Plan prepared by the City of Cape Town and the long term view is that this Association will self-manage the park.

The Oude Molen site is occupied by a wide range of occupants ranging from businesses, industries, artists, professionals and service providers to tenants who live on the site, education facilities, institutional facilities, agricultural enterprises of various kinds and conservation initiatives and organisations of various kinds.

The public participation process related to the Oude Molen site was initially to stabilise and normalise the tenant situation. There were at the time many non-paying tenants and illegal occupants. A few forums were established and most of them are no longer operational, such as the Oude Molen Forum. However, more recently the Oude Molen Eco-village Tenant's Association was established to liaise with provincial government.

It is important to note that some key stakeholders and potential partners have not actively or equally participated in some of the processes or key stakeholder initiatives to date. The key stakeholders for the TRUP Contextual Framework area are considered to be the City of Cape Town (land owner of the park), the Provincial Government of the Western Cape, Transnet and the University of Cape Town (the land owners of the precincts immediately adjacent to the park) as well as the South African Astronomical Observatory.

The following Table 12 provides an overview of the previous stakeholder engagement processes whilst Table 13 provides a list and high-level analysis of specific stakeholders that were involved in the previous processes related to the TRUP Contextual Framework. Table 14 provides a list and high-level analysis of specific stakeholders that were involved in the previous Oude Molen precinct planning processes.

PREVIOUS PROJECT OR PROCESS	PROJECT / PROCESS LEADER /FACILITATOR	PROCESS FOLLOWED &PUBLIC PARTICIPATION PROCESS OVERVIEW	STAKEHOLDERS COMMITTEES, FORUMS AND OTHER BODIES
TWO RIVERS URBAN PARK CONTEXTUAL FRAMEWORK AREA			
BRUP SDF MARCH 1999	CITY OF CAPE TOWN	NON-STATUTORY INTERIM ADVISORY COMMITTEE	PROVINCIAL AND SECTOR REPRESENTATIVES. SAAO, NGOS & CBO'S AND PRIVATE LANDOWNERS.
TWO RIVERS URBAN PARK CONTEXTUAL FRAMEWORK AND PHASE 1 ENVIRONMENTAL MANAGEMENT PLAN 2003	CITY OF CAPE TOWN	NON-STATUTORY PUBLIC PARTICIPATION: PROCESS INITIATED IN 1998 PUBLIC MEETINGS AGREEMENT AT 2ND PUBLIC MEETING TO ELECT AN INTERIM ADVISORY. INTERESTED AND AFFECTED PARTIES WERE GIVEN AN OPPORTUNITY TO VOTE FOR REPRESENTATIVES. INTERIM ADVISORY COMMITTEE ESTABLISHED. SEVERAL MEETINGS WITH THE ADVISORY COMMITTEE DURING PREPARATION OF SDF AND THE PRE-FEASIBILITY STUDY. SOCIAL CONTRACT WAS DRAWN UP. ADVERTISED DRAFT DOCUMENTS (BOTH THE SDF AND THE INTERIM MANAGEMENT PLAN) FOR PUBLIC COMMENT. PUBLIC MEETING SHIFT IN APPROACH TOWARDS PUBLIC PARTICIPATION: WORKING TOWARDS A PARTNERSHIP AND COMMUNITY OWNERSHIP. ACTIVE COLLABORATION IN DECISION MAKING, DESIGN, PLANNING AND MANAGEMENT. TRUP STEERING COMMITTEE	INTERIM ADVISORY COMMITTEE CONSISTED OF: GROUP A: PG:WC DEPT OF HEALTH, FORMER CAPE TOWN CITY COUNCIL, FORMER CAPE METROPOLITAN COUNCIL AND SAAO GROUP B: ELECTED DELEGATES, REPRESENTING PRIVATE LAND OWNERS, SOCIAL SERVICES, GENERAL NGO'S, GENERAL CBO'S, ENVIRONMENTAL NGO'S AND BUSINESS TRUP EXECUTIVE COMMITTEE WAS ESTABLISHED IN 2005 FOLLOWING THE ADOPTION OF THE TRUP CONTEXTUAL FRAMEWORK AND PHASE 1 ENVIRONMENTAL MANAGEMENT PLAN BY THE CITY OF CAPE TOWN AS A POLICY FRAMEWORK FOR TRUP. THIS FORUM LATER BECAME THE TWO RIVERS URBAN PARK ASSOCIATION TRUPA AND IT ADOPTED A FORMAL CONSTITUTION. TRUPA CONSISTS OF: • THE CITY OF CAPE TOWN • THE WARD COUNCILLORS AND COUNCILLORS FROM ABUTTING WARDS • LAND OWNERS WITHIN THE PARK • ENVIRONMENTAL NGO'S • SOCIAL DEVELOPMENT CBO'S • OTHER ORGANISATIONS OR PERSONS AGREED TO BY THE EXCO • STRUCTURE OF TRUPA INCLUDES A TRUP EXECUTIVE COMMITTEE (EXCO) FUNCTIONS: PROMOTE AND ENSURE IMPLEMENTATION OF THE APPROVED BUSINESS PLAN ADVISORY FUNCTIONS BASED ON THE TRUP CONTEXTUAL FRAMEWORK MONITORING FUNCTIONS NOT A DECISION-MAKING BODY. IN PROCESS OF REGISTERING AS A NON-PROFIT ORGANISATION IN ORDER TO ATTRACT AND MANAGE ITS OWN FUNDING.
DRAFT LANDSCAPING FRAMEWORK AS PART OF PHASE 2 OF THE ENVIRONMENTAL MANAGEMENT PLAN	CITY OF CAPE TOWN	PARTICIPATION PROCESS THROUGH TRUPA	TRUPA
BUSINESS PLAN FOR THE TWO RIVERS URBAN PARK. 2008-2013 PREPARED BY THE CITY OF CAPE TOWN FOR THE TRUP EXECUTIVE COMMITTEE (LATER CALLED THE TRUP ASSOCIATION)		TRUP ASSOCIATON WHO WILL BE THE LEAD AGENT FOR IMPLEMENTING CERTAIN PROGRAMMES AND PROJECTS IN TERMS OF THE TRUP BUSINESS PLAN	TRUP ASSOCIATION SEEN AS THE LEAD AGENT FOR IMPLEMENTING CERTAIN PROGRAMMES AND PROJECTS ITO THE TRUP BUSINESS PLAN. LONG TERM VIEW OF TRUPA AS EXPRESSED IN THE BUSINESS PLAN; THAT IT WOULD BE ABLE TO SELF-MANAGE THE PARK AND ITS ACTIVITIES.

Table 12: Overview of previous stakeholder engagement processes

PREVIOUS PROJECT OR PROCESS	PROJECT / PROCESS LEADER /FACILITATOR	PROCESS FOLLOWED &PUBLIC PARTICIPATION PROCESS OVERVIEW	STAKEHOLDERS COMMITTEES, FORUMS AND OTHER BODIES
PRECINCTS – OUDE MOLEN (VALKENBERG EAST)			
TOWARDS A REALISTIC STRATEGIC DEVELOPMENT APPROACH FOR OUDE MOLEN 2005	PGWC CONSTULTANT	NON-STATUTORY APPROVED BY THE MEC FOR PUBLIC WORKS PUBLIC PARTICIPATION CONSULTATION WITH THE OUDE MOLEN VILLAGE ASSOCIATION (OMVA) VARIOUS STAKEHOLDER INTERACTIONS, INCLUDING BUSINESSES AND RESIDENTS OF OUDE MOLEN	OMVA OUDE MOLEN VILLAGE ASSOCIATION REPRESENTS A RELATIVELY SMALL GROUP OF CONCERNED RESIDENTS AND BUSINESS OWNERS
DRAFT SCENARIO EVALUATION REPORT. OUDE MOLEN SUSTAINABLE NEIGHBOURHOOD AND EIA PROCESS 2006 - 2008	PGWC CONSULTANT TEAM	INITIAL PHASE NON-STATUTORY, THEN EIA PROCESS INITIATED AND SCOPING DONE IN TERMS OF NEMA. DEC 2006 – MARCH 2007 ENGAGEMENT TO GENERATE SCENARIOS INITIALLY, A PROCESS OF ENGAGEMENT WITH IDENTIFIED KEY INDIVIDUALS AND PARTIES. LIAISION WITH THE OUDE MOLEN FORUM AND THEN JOINT NEGOTIATING COMMITTEE. VISION AND VARIOUS SCENARIOS GENERATED. STATUTORY PROCESS EIA PROCESS INITIATED IN OCTOBER 2007 BUT DISCONTINUED IN 2008 AFTER SCOPING PHASE THE PPP COMPRISED THE PLACING OF MEDIA NOTICES, DISTRIBUTION OF INFORMATION, PLACING OF SITE NOTICES, A PUBLIC FORUM (OPEN HOUSE) AND FOCUSSED MEETINGS. A DRAFT SCOPING REPORT WAS MADE AVAILABLE TO ALL REGISTERED I&APS IN LIBRARIES AND ADVERTISED AND ALSO DISTRIBUTED TO REGISTERED I&APS. FINAL SCOPING REPORT PREPARED IN APRIL 2008 AS A RESULT OF THE SCOPING PROCESS UNDERTAKEN, THE FOLLOWING SPECIALIST STUDIES HAVE BEEN IDENTIFIED: • TRANSPORT IMPACT ASSESSMENT • HERITAGE IMPACT ASSESSMENT • VISUAL IMPACT ASSESSMENT • SOCIO-ECONOMIC IMPACT ASSESSMENT • URBAN AGRICULTURAL SPECIALIST • BIODIVERSITY SPECIALIST INPUT EIA PUT ON HOLD DUE TO • FURTHER SPECIALIST STUDIES BEING REQUIRED • INSUFFICIENT FUNDING	SEPT 2006 THE OUDE MOLEN FORUM WAS ESTABLISHED WITH REPRESENTATIVES OF: • MAITLAND GARNDES VILLAGE • OUDE MOLEN VILLAGE • PINELANDS RESIDENTS & RATEPAYERS ASSOCIATION • WESTERN CAPE KHOISAN COUNCIL • TRADITIONAL LEADERS FORUM (AMAXHOSA AND AMAHLUBI GROUPS) • TRUP STEERING COMMITTEE (OBSERVERS) • CITY OF CAPE TOWN (OBSERVERS) THE ROLE OF THE OUDE MOLEN FORUM IS TO PROVIDE A LEGITIMATE GOVERNANCE SPACE FOR MANAGING OUDE MOLEN, AND FOR FACILITATING THE 12 TO 18 MONTH FORWARD PLANNING PROCESS THAT WILL NOW TAKE PLACE. OCT 2006 THE JOINT NEGOTIATING COMMITTEE WAS FORMED AND CONSTITUTED BY TWO ELECTED REPRESENTATIVES FROM EACH OF THE ABOVE STAKEHOLDERS

PREVIOUS PROJECT OR PROCESS	PROJECT / PROCESS LEADER /FACILITATOR	PROCESS FOLLOWED &PUBLIC PARTICIPATION PROCESS OVERVIEW	STAKEHOLDERS COMMITTEES, FORUMS AND OTHER BODIES
OUDE MOLEN ECO-VILLAGE		STEERING COMMITTEE ELECTED AT A PUBLIC MEETING 3 NOV 2011 TO COMMUNICATE WITH GOVERNMENT ON BEHALF OF ALL OM TENANTS, STAKEHOLDERS AND VILLAGERS. LATER ESTABLISHED AS THE OUDE MOLEN VILLAGE TENANT ASSOCIATION. THE ASSOCIATION IS A PUBLIC, NON-PROFIT ORGANIZATION ESTABLISHED FOR THE FOLLOWING OBJECTIVES: - TO LIAISE WITH GOVERNMENT AND RELEVANT STAKEHOLDERS DIRECTLY AND THROUGH PUBLIC PROCESSES. - TO REPRESENT THE INTERESTS OF OMEV TENANTS; - TO PROMOTE AND ADVANCE A HOLISTIC, FINANCIALLY VIABLE, MIXED USE OUTCOME FOR THE OMEV PROPERTY THAT SERVES AS A CATALYST FOR SOCIO-ECONOMIC AND ENVIRONMENTAL DEVELOPMENT BENEFITTING LOCAL COMMUNITIES AND THE REGION; - TO PROVIDE FUNDS, ASSETS AND OTHER RESOURCES TO APPROVED PUBLIC BENEFIT ORGANISATIONS.	STEERING COMMITTEE ESTABLISHED AS A RESULT OF PROVINCE ASKING FOR A SINGLE POINT OF CONTACT AT OUDE MOLEN TO OPEN LINES OF COMMUNICATION. STEERING COMMITTEE MANDATED TO: ESTABLISH TERMS OF REFERENCE AIMS & OBJECTIVES THE OMV TENANT ASSOCIATION WILL BE: A VOLUNTARY ASSOCIATION HAVE A CONSTITUTION BE REPRESENTATIVE OF THE OMV TENANTS HAVE A CHAIR AND OTHER OFFICE BEARERS MEET REGULARLY

STAKEHOLDERS INVOLVED IN PREVIOUS PLANNING PROCESSES			STATUS OF STAKEHOLDERS		STAKEHOLDERS' FOCUS:	
FORUM(S), IF SPECIFICALLY ESTABLISHED FOR THE	REPRESENTATIVES, INDIVIDUALS, INTEREST GROUPS & ORGANIZATIONS	CATEGORY OF STAKEHOLDER	MATERIALLY AFFECTED PARTIES	INTERESTED PARTIES	TRUP	LOCAL AREA & PRECINCTS
BLACK RIVER URBAN PARK PLANNING & DEVELOPMENT FRAMEWORK PROCESS TO APPROVAL OF TRUP CONTEXTUAL FRAMEWORK (JULY 1998 – AUGUST 2003)						
INTERIM ADVISORY COMMITTEE	DEPT OF PROPERTY MANAGEMENT, JAMES SLABBERT	GROUP A				
	DEPARTMENT OF HEALTH, ANDY CUNNINGHAM	PROVINCIAL GOVERNMENT	X		X	X
	BRIAN WATKYNS	METROPOLITAN GOVERNMENT	X		X	X
	OWEN KINAHAN	LOCAL GOVERNMENT	X		X	X
	BOB STOBIE	SAAO	X			X
		GROUP B (ELECTED BY PUBLIC)				
	DON BOYCE	BUSINESS		X		X
	ED TILANUS	ENVIRONMET		X		X
	KEVIN WINTER	NGO'S		X		X
	KATE SNADDON	CBO'S		X		X
	JAN VAN DIJKEN	PRIVATE LANDOWNERS		X		X
	LESLIE MACLOUD	SOCIAL SEVICES		X		X
	JULIA SMUTS	GENERAL		X		X
	NOTE: MEMBERS AND REPRESENTATIVES MAY HAVE CHANGED DURING THE PERIOD THAT IT WAS OPERATIONAL.					

STAKEHOLDERS INVOLVED IN PREVIOUS PLANNING PROCESSES			STATUS OF STAKEHOLDERS		STAKEHOLDERS' FOCUS:	
FORUM(S), IF SPECIFICALLY ESTABLISHED FOR THE	REPRESENTATIVES, INDIVIDUALS, INTEREST GROUPS & ORGANIZATIONS	CATEGORY OF STAKEHOLDER	MATERIALLY AFFECTED PARTIES	INTERESTED PARTIES	TRUP	LOCAL AREA & PRECINCTS
FORUM ESTABLISHED TO IMPLEMENT TRUP BUSINESS PLAN, 2008 - 2013						
TRUP ASSOCIATION	ROSE RAU (SECRETARY)	THE CITY OF CAPE TOWN	X		X	X
	ANNE CHARLES (DEPUTY CHAIR)	THE WARD COUNCILLORS AND COUNCILLORS FROM ABUTTING WARDS		X		
	LIZ MCDAID (CHAIRPERSON)	LAND OWNERS WITHIN THE PARK PRECINCT	X			
	TREVOR HUGHES (TREASURER)	ENVIRONMENTAL NGO'S		X		
		SOCIAL DEVELOPMENT CBO'S		X		
		OTHER ORGANISATIONS OR PERSONS AGREED TO BY THE EXCO		X		

Table 13: Stakeholders involved in previous processes related to TRUP Contextual Framework study area

OVERVIEW OF STAKEHOLDERS INVOLVED IN OUDE MOLEN/ VALKENBERG EAST PRECINCT RELATED PROCESSES						
STAKEHOLDERS INVOLVED IN PREVIOUS PLANNING PROCESSES			STATUS OF STAKEHOLDERS		STAKEHOLDERS' INTEREST IN RELATION TO:	
FORUMS ESTABLISHED FOR PURPOSES OF PLANNING PROCESS	STAKEHOLDERS AND/OR MEMBERS	CATEGORY	INTERESTED PARTIES	MATERIALLY AFFECTED PARTIES	TRUP	LOCAL AREA & PRECINCTS
PROCESS: STABILISING THE SOCIAL CONTEXT AND PLANNING FOR A SUSTAINABLE NEIGHBOURHOOD						
	THE ROBIN TRUST – PROVIDES FRAIL CARE AND TRAINING IN VARIOUS KINDS OF CARE FOR WOMEN FROM VERY POOR COMMUNITIES	LEASEHOLDER OUDE MOLEN	X			X
	THE ORGANIC FARM	LEASEHOLDER OUDE MOLEN	X			X
	GAIA WALDORF SCHOOL	LEASEHOLDER OUDE MOLEN	X			X
OMVA OUDE MOLEN VILLAGE ASSOCIATION	REPRESENTED A SMALL GROUP OF CONCERNED RESIDENTS AND BUSINESSES ON OUDE MOLEN		X			X
OUDE MOLEN FORUM (OFFICIALLY LAUNCHED ON 28 SEPTEMBER 2006)		REPRESENTED: MAITLAND GARDENS VILLAGE OUDE MOLEN VILLAGE PINELANDS RESIDENTS & RATEPAYERS ASSOCIATION WESTERN CAPE KHOISAN COUNCIL TRADITIONAL LEADERS FORUM (AMAXHOSA AND AMAHLUBI GROUPS) TRUP STEERING COMMITTEE (OBSERVERS) CITY OF CAPE TOWN (OBSERVERS)	X			X
THE JOINT NEGOTIATING COMMITTEE WAS FORMED AND CONSTITUTED BY TWO ELECTED REPRESENTATIVES FROM EACH OF THE ABOVE STAKEHOLDERS.			X			X

Table 14: Overview of stakeholders involved in previous processes for Oude Molen Precinct planning

PROCESS: SUSTAINABLE NEIGHBOURHOOD SCOPING EXERCISE AS PART OF THE EIA PROCESS:					
INTERESTED & AFFECTED PARTIES CONSULTED DURING SCOPING EXERCISE	CATEGORY OF STAKEHOLDER	INTERESTED PARTIES	MATERIALLY AFFECTED PARTIES	STAKEHOLDER'S FOCUS:	
				TRUP	PRECINCT
VALKENBERG HOSPITAL, DEPT OF HEALTH, PGWC	PGWC		X		X
PROV DEPT POLLUTION AND WASTE MANAGEMENT	PGWC		X		X
GAIA WALDORF SCHOOL	LEASEHOLDER OUDE MOLEN	X			X
THE ORGANIC FARM	LEASEHOLDER OUDE MOLEN	X			X
OUDE MOLEN FARM	LEASEHOLDER OUDE MOLEN	X			X
LIGHTHOUSE FARM	LEASEHOLDER OUDE MOLEN	X			X
MAITLAND GARDEN VILLAGE RATE PAYERS ASSOCIATION	MAITLAND GARDEN VILLAGE	X			X
SIMON VAN DER STEL FOUNDATION	NGO	X			X
COUNCILLORS	POLITICAL	X			X
DEPT OF HEALTH, PGWC	PGWC		X		X
ROBIN TRUST	SOCIAL SERVICES NGO'S	X			X
WESSA:WC (WILD LIFE SOCIETY OF SOUTHERN AFRICA)	ENVIRONMENTAL NGO'S	X		X	
CAPE ENVIRONMENTAL TRUST	NGO	X		X	
HABITAT COUNCIL	NGO	X		X	
ROSEBANK & MOWBRAY CIVIC ASSOCIATION	NEIGHBOURING COMMUNITIES/ RATEPAYERS ASSOCIATION	X			X
PINELANDS RATEPAYERS ASSOCIATION	NEIGHBOURING COMMUNITIES/ RATEPAYERS ASSOCIATION	X			X
PRIVATE BUSINESSES E.G. BP TO RIDING CLUBS (STELLENBOSCH) BUSINESS ASSOCIATIONS	BUSINESS	X			X
THE WILD FIG RESTAURANT	BUSINESS	X			X
PRIVATE INDIVIDUALS	PRIVATE INDIVIDUALS	X			X
GARDEN VILLAGE SCHOOL	SCHOOLS	X			X
CHURCHES	CHURCHES	X			X
WC KHOISAN COUNCIL	TRADITIONAL LEADERS	X			X
AMAHLUBI TRADITIONAL LEADERS FORUM	TRADITIONAL LEADERS HISTORICAL CLAIM TO LAND	X			X
WESTERN CAPE DIVERSE TRADITIONAL LEADERS FORUM	TRADITIONAL LEADERS HISTORICAL CLAIM TO LAND	X			X
FRIENDS OF THE LIESBEECK	CBO'S	X			X
CAPE BIRD CLUB	CBS'S	X		X	
RENEWABLE ENERGY INITIATIVE	NGO	X			X
CAPE TRUST	NGO	X		X	
SAHRA	SOUTH AFRICAN HERITAGE RESOURCES AGENCY		X		X

9.5. ANNEXURE: CONTEXTUAL STATUS QUO

ALEXANDRA INSTITUTE [A]

BUILDING #	FOOTPRINT AREA	# OF STOREYS	FLOOR SPACE	STATUS	LAND USE AND FACILITY DETAILS
A1	856,0	2,0	1 711,9	NO HERITAGE SIGNIFICANCE	OFFICE [EDUCATION DEPT.]
A2	445,7	2,0	891,4	HISTORIC STRUCTURES+PATTERNS OF CONTEXTUAL SIGNIFICANCE	OFFICE [EDUCATION DEPT.]
A3	2 868,1	2,0	5 736,3	HISTORIC STRUCTURES+PATTERNS OF CONTEXTUAL SIGNIFICANCE	OFFICE [EDUCATION DEPT.]
A4	4 851,0	2,0	9 702,0	NO HERITAGE SIGNIFICANCE	OFFICE [EDUCATION DEPT.]
A5.1	465,0	2,0	930,0	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A5.2	841,6	2,0	1 683,1	HISTORIC STRUCTURES+PATTERNS OF CONTEXTUAL SIGNIFICANCE	PUBLIC HOSPITAL
A6	561,5	1,0	561,5	NO HERITAGE SIGNIFICANCE	OUTPATIENT ACCOMMODATION
A7	416,8	1,0	416,8	HISTORIC STRUCTURES+PATTERNS OF CONTEXTUAL SIGNIFICANCE	OUTPATIENT ACCOMMODATION
A8	930,9	1,0	930,9	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A9	457,9	1,0	457,9	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A10	3 445,8	1,0	3 445,8	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A11	2 357,4	1,0	2 357,4	NO HERITAGE SIGNIFICANCE	SCHOOL
A12	4 502,2	1,0	4 502,2	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A13	1 261,0	1,0	1 261,0	NO HERITAGE SIGNIFICANCE	DAY CENTRE
A14	1 098,0	2,0	2 196,1	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A15	3 768,7	1,0	3 768,7	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A16	3 768,7	1,0	3 768,7	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A17	3 768,7	1,0	3 768,7	NO HERITAGE SIGNIFICANCE	OFFICE [EDUCATION DEPT.]
A18	2 397,6	2,0	4 795,2	HISTORIC STRUCTURES+PATTERNS OF INTRINSIC SIGNIFICANCE	PUBLIC HOSPITAL
A19	1 052,2	2,0	2 104,3	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A20.1	1 215,4	2,0	2 430,7	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A20.2	61,6	2,0	123,2	HISTORIC STRUCTURES+PATTERNS OF INTRINSIC SIGNIFICANCE	HISTORIC WINDMILL
A21	3 768,7	1,0	3 768,7	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A22	141,4	1,0	141,4	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A23	217,5	1,0	217,5	HISTORIC STRUCTURES+PATTERNS OF CONTEXTUAL SIGNIFICANCE	PUBLIC HOSPITAL
A24	272,5	1,0	272,5	HISTORIC STRUCTURES+PATTERNS OF CONTEXTUAL SIGNIFICANCE	PUBLIC HOSPITAL
A25	431,4	1,0	431,4	NO HERITAGE SIGNIFICANCE	PUBLIC HOSPITAL
A26	751,3	1,0	751,3	POSSIBLE HERITAGE SIGNIFICANCE	INCLUDE - INCLUSIVE/ SHELTERED HOUSING
	46 974,5		63 126,6		

Table 15: Alexandra Institute

MAITLAND GARDEN VILLAGE PROPOSAL [M] [EXCL. EXISTING RESIDENTIAL MAITLAND GARDEN VILLAGE]

BUILDING #	FOOTPRINT AREA	# OF STOREYS	FLOOR SPACE	STATUS	USE
M1	213,1	1,0	213,1	NO HERITAGE SIGNIFICANCE	COMMERCIAL - PENINSULAR GOLF DRIVING RANGE
M2	781,4	1,0	781,4	NO HERITAGE SIGNIFICANCE	SCHOOL
M3	355,9	1,0	355,9	NO HERITAGE SIGNIFICANCE	RESIDENTIAL
M4	194,7	1,0	194,7	NO HERITAGE SIGNIFICANCE	RESIDENTIAL
	1 545,1		1 545,1		

Table 16: Maitland Garden Village proposal

EXISTING MAITLAND GARDEN VILLAGE

# OF UNITS	UNIT AREA	# OF STOREYS	TOTAL FOOTPRINT	TOTAL FLOOR SPACE	USE
223,0	85,0	1,0	18 955,0	18 955,0	RESIDENTIAL
		1,0	2 458,7	2 458,7	PUBLIC FACILITES
			21 413,7	21 413,7	

Table 17: Maitland Garden Village existing

VALKENBERG EAST [V]

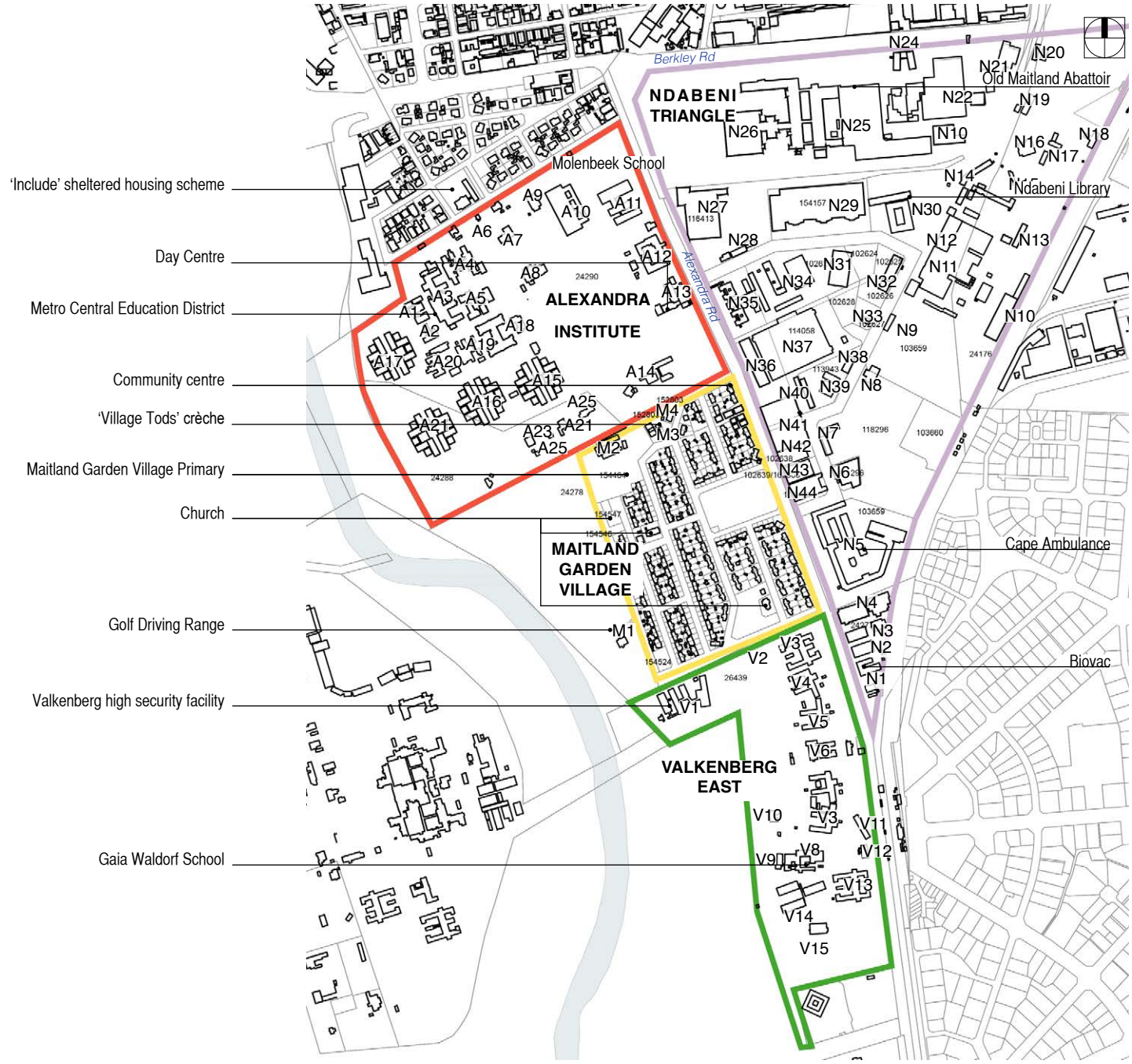
BUILDING #	FOOTPRINT AREA	# OF STOREYS	FLOOR SPACE	STATUS	USE
V1	2 470,0	1,0	2 470,0	NO HERITAGE SIGNIFICANCE	HIGH SECURITY MENTAL HEALTH INSTITUTION
V2	596,7	1,0	596,7	NO HERITAGE SIGNIFICANCE	COMMERCIAL - LIGHTHOUSE FARM LODGE BACKPACKERS
V3	1 699,4	1,0	1 699,4	NO HERITAGE SIGNIFICANCE	MIXED-USE: RESIDENTIAL/ MECHANIC AND PANEL BEATERS/ VACANT/ DILAPIDATED
V4	1 055,9	2,0	2 111,8	PROPOSED HERITAGE GRADING: 3B	MIXED-USE: ECO-THEATRE, RESIDENTIAL ABOVE/ WORKSHOP/ EMPTY
V5	1 040,6	2,0	2 081,1	PROPOSED HERITAGE GRADING: 3B	MIXED-USE: EMPTY/ RESIDENTIAL/ WORKSHOP
V6	1 196,8	1,0	1 196,8	PROPOSED HERITAGE GRADING: 3B	MIXED-USE: WORKSHOP/ RESIDENTIAL
V7	2 704,7	2,0	5 409,5	PROPOSED HERITAGE GRADING: 3B	MIXED-USE
V8	4 190,3	2,0	8 380,7	HISTORIC STRUCTURES+PATTERNS OF INTRINSIC SIGNIFICANCE	GAIA WALDORF SCHOOL (PLAYGROUP, KINDERGARTEN AND PRIMARY SCHOOL)
V9	269,6	1,0	269,6	NO HERITAGE SIGNIFICANCE	MIXED-USE: COMMERCIAL (MILLSTONE FARM STALL & CAFÉ), HORSERIDING CENTRE/ STABLES; NURSERY
V10	265,5	1,0	265,5	PROPOSED HERITAGE GRADING: 3B	MIXED-USE
V11	399,1	1,0	399,1	NO HERITAGE SIGNIFICANCE	WAREHOUSE/ STORE
V12	237,5	1,0	237,5	NO HERITAGE SIGNIFICANCE	EMPTY
V13	1 627,1	1,0	1 627,1	NO HERITAGE SIGNIFICANCE	EMPTY
V14	4 753,5	1,0	4 753,5	NO HERITAGE SIGNIFICANCE	ROBIN HOOD TRUST - PRIMARY HEALTH CARE (TRAINING COLLEGE)
V15	4 753,5	1,0	4 753,5	NO HERITAGE SIGNIFICANCE	WORKSHOP
	27 260,3		36 251,8		

Table 18: Valkenberg East

NDABENI TRIANGLE

BUILDING #	FOOTPRINT AREA	# OF STOREYS	FLOOR SPACE	STATUS	USE
N1	1 012,7	1,0	1 012,7	NO HERITAGE SIGNIFICANCE	OFFICE [BIOVAC INSTITUTE]
N2	708,8	3,0	2 126,5		OFFICE [BIOVAC INSTITUTE]
N3	1 036,8	1,0	1 036,8		OFFICE [BIOVAC INSTITUTE]
N4	2 423,4	3,0	7 270,2		OFFICE [BIOVAC INSTITUTE]
N5	6 385,0	1,0	6 385,0		INDUSTRY/ PARKING [CAPE AMBULANCE RESCUE SERVICE]
N6	1 657,3	2,0	3 314,7		WAREHOUSE
N7	683,4	1,0	683,4		WAREHOUSE
N8	548,8	1,0	548,8		WAREHOUSE
N9	251,6	1,0	251,6		WAREHOUSE, STORE
N10	2 365,4	1,0	2 365,4		WAREHOUSE
N11	17 961,3	1,0	17 961,3		WAREHOUSE
N12	1 478,7	2,0	2 957,3		WAREHOUSE
N13	2 057,9	1,0	2 057,9		WAREHOUSE
N14	2 185,8	1,0	2 185,8		WAREHOUSE
N15	2 336,4	1,0	2 336,4		WAREHOUSE
N16	640,8	1,0	640,8		WAREHOUSE
N17	465,4	1,0	465,4		WAREHOUSE
N18	363,2	1,0	363,2		WAREHOUSE
N19	377,0	1,0	377,0		OFFICE
N20	198,7	1,0	198,7		OFFICE
N21	2 938,2	1,0	2 938,2		OFFICE
N22	9 339,1	1,0	9 339,1		OFFICE
N23	1 430,9	1,0	1 430,9		OFFICE
N24	869,7	1,0	869,7		OFFICE
N25	11 334,9	1,0	11 334,9		OFFICE
N26	14 113,6	2,0	28 227,1		OFFICE
N27	14 113,6	2,0	28 227,1		WAREHOUSE
N28	618,3	1,0	618,3		WAREHOUSE
N29	9 953,9	2,0	19 907,9		OFFICE
N30	2 924,3	2,0	5 848,7		WAREHOUSE/ OFFICE
N31	1 997,7	1,0	1 997,7		LIBRARY (NDABENI PUBLIC LIBRARY)
N32	1 073,1	1,0	1 073,1		WAREHOUSE
N33	154,9	1,0	154,9		WAREHOUSE
N34	3 062,9	1,0	3 062,9		WAREHOUSE/INDUSTRY (COCT MAITLAND CLEANSING DEPOT)
N35	2 886,0	1,0	2 886,0		OFFICE
N36	1 739,9	1,0	1 739,9		WAREHOUSE
N37	12 094,5	1,0	12 094,5		WAREHOUSE
N38	344,8	1,0	344,8		OFFICE
N39	845,2	1,0	845,2		OFFICE
N40	641,0	1,0	641,0		OFFICE
N41	5 183,2	1,0	5 183,2		WAREHOUSE
N42	1 287,1	1,0	1 287,1		WAREHOUSE
N43	1 431,3	1,0	1 431,3		WAREHOUSE
N44	1 986,0	1,0	1 986,0		WAREHOUSE
	147 502,6		198 008,5		

Table 19: Ndabeni Triangle



Map 30: Status quo reference numbers

9.6. ANNEXURE: TRUP ALTERNATIVE DEVELOPMENT OPTIONS

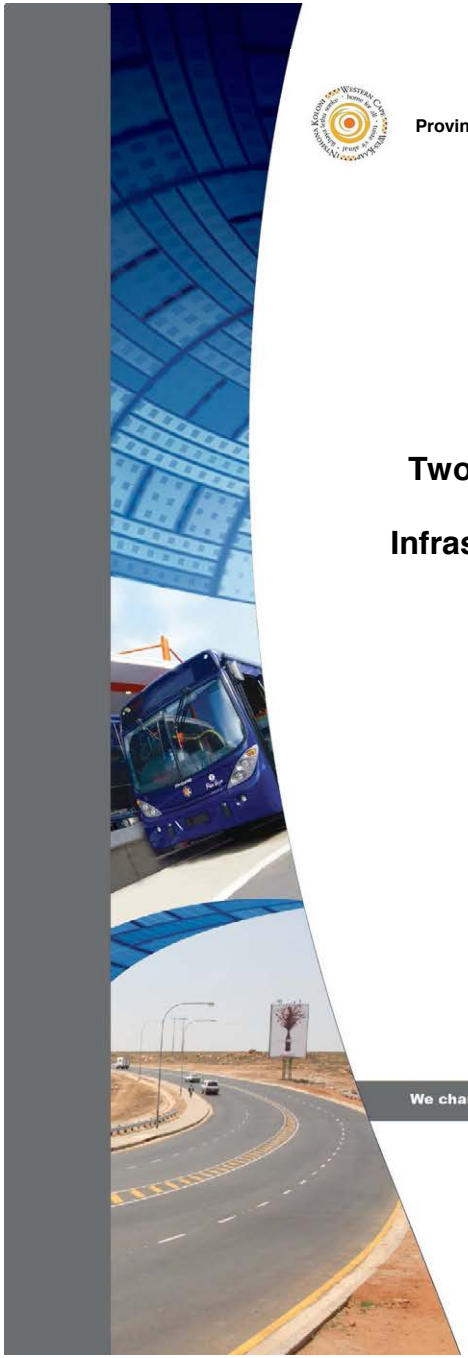
DETAILS OF OPTION 1 [VERY HIGH]		
Number of residential units	*7 617*	
Total residential GLA (m2)	*795 196,4*	
Total commercial GLA (m2)	*566 607,7*	
Total GLA of public and community facilities (m2)	*94 824,6*	
Total GLA (m2)	*1 456 628,8*	
Suggested breakdown of commercial uses (GLA):		
Studio/ workshop/ home industry/ light industry (m2)	*453 286,2*	*80%*
Office (m2)	*101 989,4*	*18%*
Restaurant, café, bar (m2)	*11 332,2*	*2%*
Public and community facilities to be accommodated:		
Facility	*Number*	*Floorspace*
Crèche	*3*	*600,0*
Primary School	*2*	*16 000,0*
High School	*1*	*9 000,0*
Clinic	*1*	*2 000,0*
Community centre	*3*	*4 341,6*
Place of worship	*14*	*7 236,0*
Library	*10*	*14 472,0*
Post office	*3*	*1 315,6*
Market (indoor/ outdoor spaces)	*19*	*54 028,7*
Combined Public GLA (m2)		*108 993,8*

Table 20: TRUP development option 1

DETAILS OF OPTION 2 [HIGH]		
Number of residential units	*7 080*	
Total residential GLA (m2)	*739 179,5*	
Total commercial GLA (m2)	*450 710,7*	
Total GLA of public and community facilities (m2)	*157 936,2*	
Total GLA (m2)	*1 347 826,4*	
Suggested breakdown of commercial uses (GLA):		
Studio/ workshop/ home industry/ light industry (m2)	*360 568,6*	*80%*
Office (m2)	*81 127,9*	*18%*
Restaurant, café, bar (m2)	*9 014,2*	*2%*
Public and community facilities to be accommodated:		
Facility	*Number*	*Floorspace*
Crèche	*3*	*600,0*
Primary School	*2*	*16 000,0*
High School	*1*	*9 000,0*
Clinic	*1*	*2 000,0*
Community centre	*3*	*4 341,6*
Place of worship	*13*	*6 726,3*
Library	*9*	*13 452,5*
Post office	*2*	*1 223,0*
Market (indoor/ outdoor spaces)	*18*	*50 222,7*
Combined Public GLA (m2)		*103 260,1*

Table 21: TRUP development option 2

10 ENGINEERING REPORT



Provincial Government of the Western Cape

Two Rivers Urban Park: High Level Bulk Infrastructure Assessment

March 2012
J29221B

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Two-Rivers Urban Park:
High Level Bulk Infrastructure Assessment

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1 INTRODUCTION

1.1 Background

Arcus GIBB Pty (Ltd) was appointed by the Provincial Government of the Western Cape (PGWC) to determine the feasibility of redeveloping the Two Rivers Urban Park area by performing a high level assessment of bulk infrastructure for a specific development scenario. The assessment involved comparing the existing developed area with the proposed redevelopment.

A status quo study entitled PGWC's *Integrated Infrastructure Capacity Assessment for the Two Rivers Urban Park* has recently been completed and has been used as the basis of this assessment.

1.2 Vision

The overall aim is to re-develop the area in a sustainable manner so that the net impact on the current environment is insignificant. From an engineering perspective, the goal is to have a zero net increase in civil services provision while catering for an approximate threefold increase in bulk area. To achieve such a goal, a combination of implementing sustainable engineering technology and a strategic approach must be taken.

1.3 Methodology

The high level assessment involved assessing the existing situation and comparing it to the proposed re-development in terms of the following civil services:

- Transportation
- Water
- Sewerage
- Stormwater
- Electrical

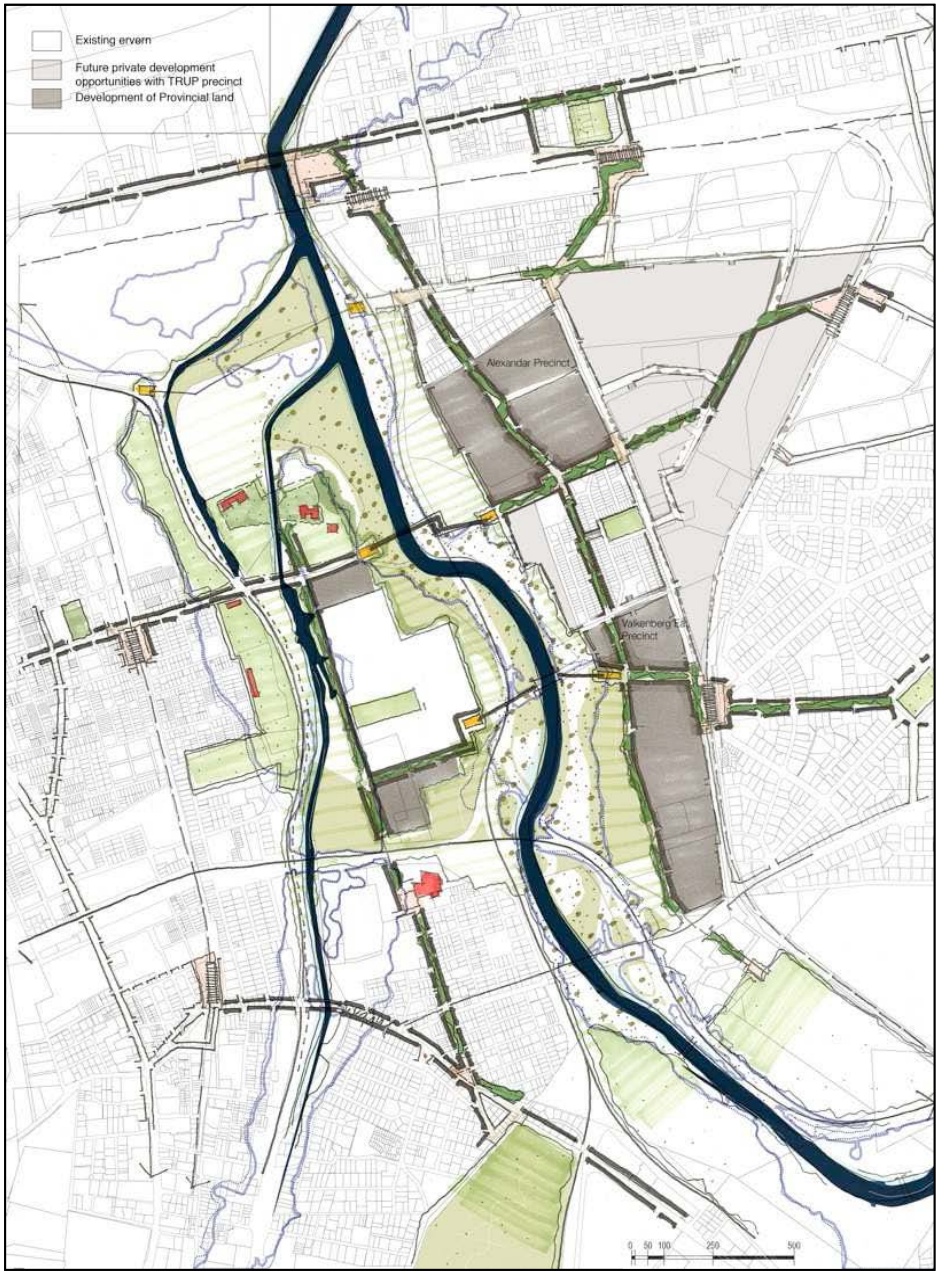
The assessment did not consider any other new developments within the area such as the upgrading of the Valkenberg Hospital.

The current land-use mix that has been assessed comprises a mixture of residential, industrial, educational, healthcare and various recreational facilities within an overall Gross Leasable Area (GLA) of approximately 308 848 m^2.

The proposed re-development that that has been assessed will comprise an increase in GLA to 1 102 467 m^2 and a land-use mix comprising a large component of mixed land-use (specifically, residential and home industry), public facilities and an office component. The current and proposed land-use mixes as well as a rudimentary development layout is shown in **Figure 1**.

P:\J29221 (CBD Buildings Audit)\j29221B\B (Two Rivers Urban Park)\Transport\Extension of TRUP study\Reports March 2012

Figure 1: Proposed Development Layout



Approximate Exitsing Land Use Mixture

Land Use	Land Use Detail	GLA (m^2)
Residential		19 719
Public Facilities	Hospital	36 025
	Day Care (Clinic)	2 196
	School	5 136
	Public Facilities	643
Commercial	Office	126 213
Mixed-use		27 308
Warehouse		91 608
TOTAL		**308 848**

Approximate Proposed Land Use Mixture

Land Use	Land Use Detail	GLA (m^2)
Residential		**655 429**
Public Facilities	Creche	522
	Primary School	13 920
	High School	7 830
	Clinic	1 740
	Community Centre	3 915
	Place of Worship	4 785
	Library	10 378
	Post Office	943
	Market (indoor/outdoor)	19 372
	SUBTOTAL	**63 405**
Commercial	Light or home industry/works	306 907
	Office	69 054
	Restaurant, cafe, bar	7 673
	SUBTOTAL	**383 633**
Open Spaces	Parklands	-
	Roads & hard open spaces	-
	SUBTOTAL	-
	GRAND TOTAL	**1 102 467**

2 TRANSPORT

2.1 Status Quo

2.1.1 Existing Road Network

The road network as categorised by the *Cape Metropolitan Council: Cape Metropolitan Road Network Map (March 2006)* within the proposed development is described below and shown in **Figure 2.1**.

- **M5 Freeway/Black River Parkway** is a four-lane divided carriageway and is classified as a Class 1 Freeway.
- **N2 Freeway** is a six-lane divided carriageway and is classified as Class 1 Freeway.
- **Berkley Road** is a two-lane/four-lane undivided carriageway and is classified as Class 1 Expressway.
- **Raapenberg Road** is a four-lane undivided carriageway where it bridges the N2 and is a two-lane undivided carriageway after it passes under the M5. It is classified as Class 3 Secondary Arterial.
- **Alexandra Road** is a two-lane undivided carriageway and is classified as Class 3 Secondary Arterial.

2.1.2 Background Traffic

Based on the status quo study, the current road network and intersections are close to capacity and above capacity in places during the peak periods. An estimation of the current trips generated was made to determine how many trips of various modes are currently being made. This was corroborated with vehicle counts from the status quo study.

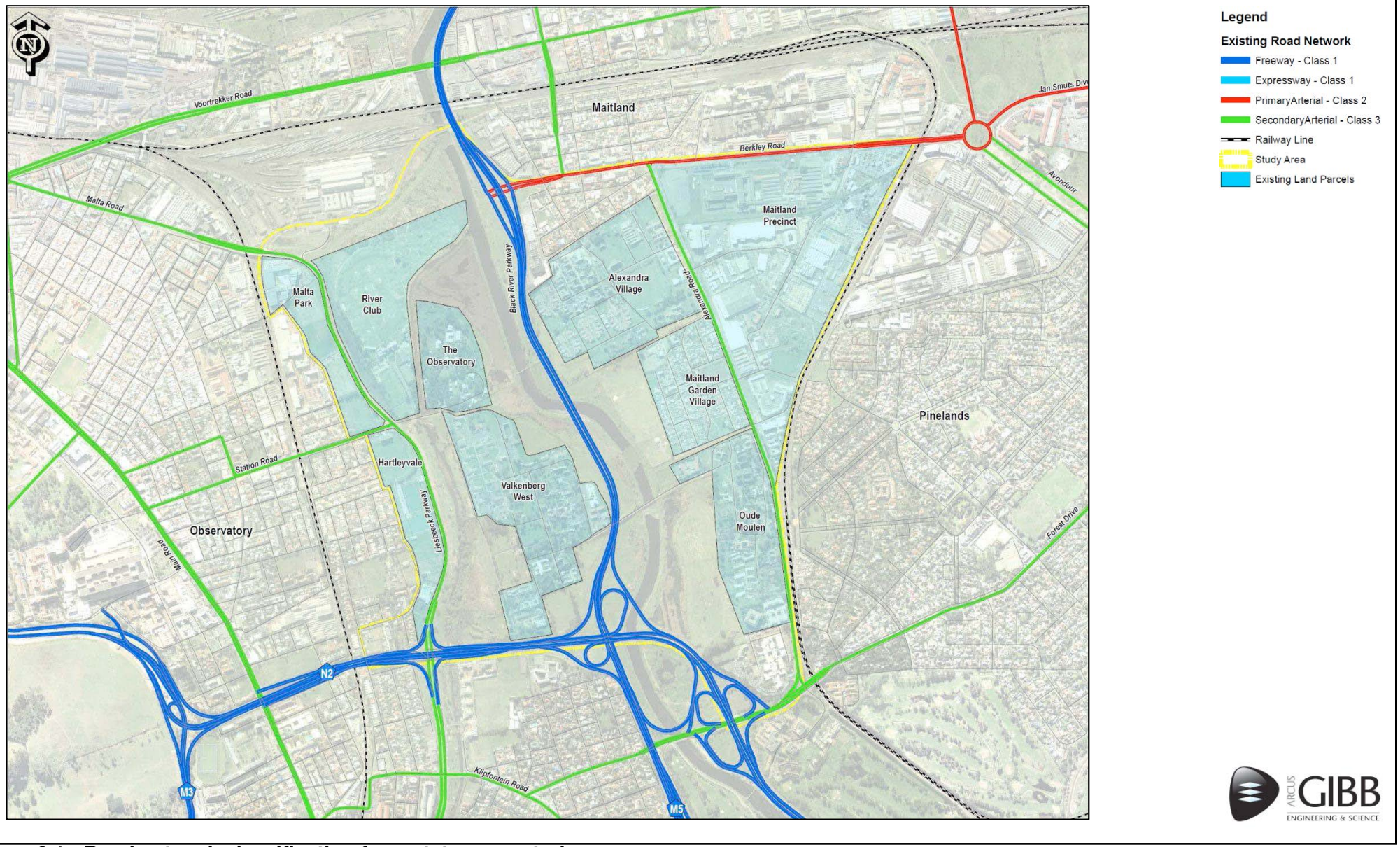


Figure 2.1: Road network classification from status quo study

2.1.3 Public Transport

According to the *2003 / 2004 Current Public Transport Record (CPTR)* the area is currently served by bus and mini-bus taxi routes along Berkley, Alexandra and Raapenberg Roads. There is potential for the area to be served by an Integrated Rapid Transport (IRT) route in future as IRT routes from the Southern Suburbs and Metropolitan South East regions develop. Based on information from the *CPTR* and the status quo study, minibus-taxi and bus modes are under-utilised.

Four railway stations are located along the periphery of the site, with a further 3 in close proximity. Information with regard to rail patronage and utilisation was sourced from the *Rail Census 2007*. The data indicates that rail usage in the area is well under capacity. This, however, appears to be in contrast with observations on site where trains are well utilised. The data from the census is presented in 3 hour peak periods, indicating that there is a high peak factor for rail i.e. the trains are over-capacity for short period and then well under capacity for the remaining time.

2.1.4 Non-Motorised Transport

The acceptable walking distance to public transport facilities according to the *Pedestrian and Bicycle Facility Guidelines* should be 500m. This is equivalent to a 5 minute walk at a moderate pace. This can be considered as a conservative standard as in areas where people are more dependent on public transport or do not live far from their place of work, a distance of 1km (a 10 minute walk) is often the norm.

Due to the site being surrounded by a high number of railway stations, the full extent of the site falls within a 10 minute walking distance from at least one railway station. Alexandra Road currently forms an important central route for pedestrian activity; however, there is only one surfaced sidewalk on the western side of the road, as shown in **Figure 2.2.**

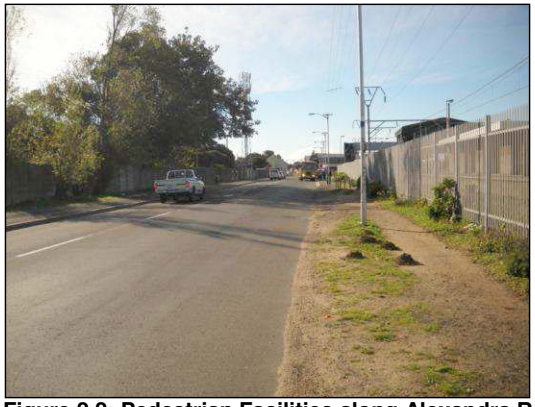


Figure 2.2: Pedestrian Facilities along Alexandra Road

2.2 Proposed Redevelopment

2.2.1 Trip Generation

The rates from the *South African Trip Generation Manual* were used and converted to person trips (using average vehicle occupancy of 1.5 persons) and distributed amongst various modes of transport. HHO's "*Guidelines for the Public Transport Component to Traffic Impact Assessments*" provides more recent person trip generation rates for retail, office and industrial land-uses and were used where applicable. Furthermore, where trip generation rates for particular land uses were not available for South African conditions, the Institute for Traffic Engineer's "*Trip Generation"* was used and converted to SI units where applicable.

The validity of using these rates are corroborated by research done by *Cevero and Arrington* in their study *"Vehicle Trip Reduction Impacts of Transit-Oriented Housing*", 2008 which indicates that Transit Orientated Developments (TOD) on average produce 50% fewer trips and up to 90% fewer trips in high density areas. The rates and reductions achieved are shown in **Table 2.1**.

Table 2.1: Estimated existing and proposed trips generated

Land Use for Rate	Conventional		Sustainable		Percent Reduction Achieved	
	AM Person Trip Generation Rate	PM Person Trip Generation Rate	AM Person Trip Generation Rate	PM Person Trip Generation Rate		
Middle Income / Flats	2.25	2.25	1.58	1.58	**30%**	**30%**
Home Industries	0.93	0.93	0.65	0.65	**30%**	**30%**
Suburban Office	2.60	2.60	1.82	1.82	**30%**	**30%**
Restaurants / Cafe	0.00	23.40	0.00	14.04		**40%**
Clinic	0.00	1.31	0.00	0.67		**49%**
Community Centre	0.00	0.00	0.00	0.00		
Place of Worship	0.00	0.15	0.00	0.08		**45%**
Library	0.00	6.39	0.00	3.20		**50%**
Post Office	0.00	0.00	0.00	0.00		
Market	1.26	6.28	0.62	3.14	**50%**	**50%**
Primary School	1.35	0.00	0.68	0.00	**50%**	
High School	1.20	0.00	0.60	0.00	**50%**	
Crèche	5.14	5.19	2.60	2.60	**49%**	**50%**

The modal split for the existing area is loosely based on the current modal split for Cape Town. Due to the redeveloped area being a TOD, a higher percentage of trips were allocated towards other modes of transport, with particularly high uses of walking, cycling and rail. The trips by various modes of transport for the existing area are shown in **Table 2.2**. The trips generated using a higher percentage of public transport and NMT are shown in **Table 2.3.**

Table 2.2: Estimated existing trips generated for 308 848m^2 of GLA

Peak Hour	Internal Person Trips	External Vehicular Trips			Rail Person Trips
	Walking & Cycling	Private Car	Minibus	Bus	
	23%	60%	4%	4%	9%
AM	1 920	3 954	35	11	847
PM	1 700	2 698	24	7	578

Table 2.3: Estimated proposed trips generated 1 102 467 m^2 of GLA

Peak Hour	Internal Person Trips	External Vehicular Trips			Rail Person Trips
	Walking & Cycling	Private Car	Minibus	Bus	
	34%	27%	6%	6%	27%
AM	8 094	4 161	130	39	6 242
PM	7 653	4 139	129	39	6 209

2.2.2 Parking Requirements

The *City of Cape Town's Draft Zoning Scheme* (2010) and studies done by R. Cevero and G. B. Arrington as well as R. Wilson was used to help determine the number of parking bays required for the proposed redevelopment. The parking requirements are shown in **Table 2.3**.

Table 2.3: Estimation of bays required using various rates

General Land Use	Land Use for Rate	Size	Unit type	PT 1/2 Rate	Bays	Sustainable	Bays
Residential	Middle Income / Flats	6 278	dwellings	1.25	7 848	0.50	3139
Commercial	Home Industries	306 907	100m^2 GLA	1.00	3 069	1.00	3069
	Suburban Office	69 054	100m^2 GLA	2.50	1 726	1.00	691
	Restaurants / Cafe	7 672	100m^2 GLA	4.00	307	2.00	153
Community	Clinic	18	consulting rooms	2.00	36	1.00	18
	Community Centre	900	seats	0.10	90	0.10	90
	Place of Worship	825	seats	0.10	83	0.10	83
	Library	10 377	100m^2 GLA	1.00	104	0.25	26
	Post Office	943	100m^2 GLA	1.00	9	0.50	5
	Market	19 371	100m^2 GLA	1.00	194	0.50	97
Educational	Primary School	60	staff	1.00	60	0.50	30
	High School	30	staff	1.00	30	0.75	23
	Crèche	120	children	0.033	4	0.033	4
				TOTAL	13 559	TOTAL	7 427

Key: PT 1 / PT 2

Blended rates of PT 1 and 2 – areas where public transport is to be promoted or is well established respectively – were used to determine what a traditional assessment would recommend for the various land-uses. These parking rates, however, do not adequately represent the area once it is redeveloped into a high density, mixed-use TOD. The trips generated by these land-uses were therefore further decreased in line with research done on similar areas, as shown in **Graph 2.1**. Based on the research done by *Cevero and Arrington* (2008), there is a clear indication that the number of parking bays supplied decreases as the distance to public transport facilities decreases.

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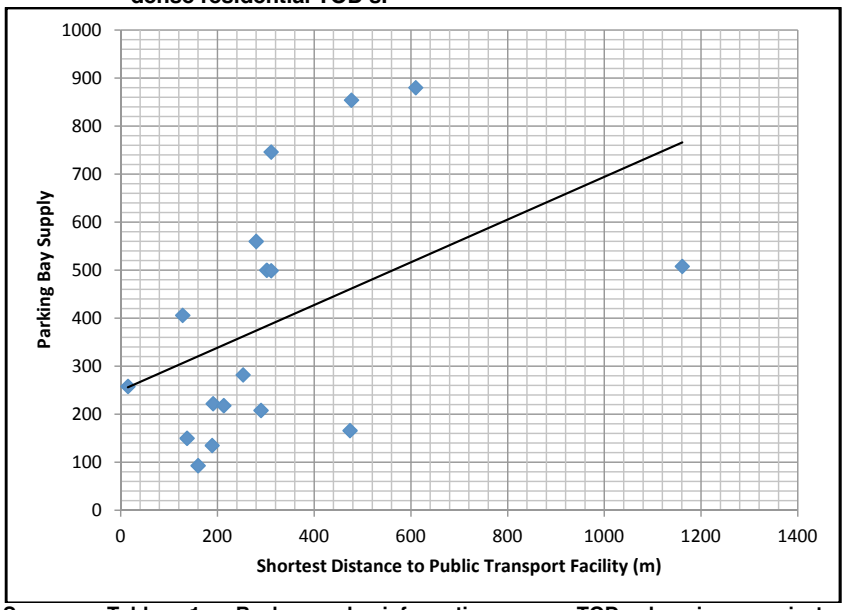
Graph 2.1: Graph showing the correlation between number of parking bays supplied and distance to the nearest public transport facility for dense residential TOD's.



Source: Table 1. Background information on TOD housing projects, Journal of Public Transportation, Vol. 11, No. 3, 2008

2.2.3 Innovative Measures

In addition to the reduced trip generation and reduction in parking requirement that results from the nature of the development and its proximity to public transport, there are innovative measures that can further reduce car dependency and the need for parking:

- Shared parking between land-uses i.e. between office and residential, where during working hours parking is for office use and thereafter for residential use
- Allowing tenants to pay lower rental costs by not providing a parking bay i.e. unbundling rental costs.
- Subsidise public transport users at offices, as opposed to subsidising parking
- Disincentivise off-street parking migrating to on-street, by regulating on-street parking in the form of paid parking.
- Reduce trips by introducing a car sharing scheme, where residents sign a compact before moving into an area, binding them to using the initiative.

2.2.4 Road Network Upgrades

The road upgrades that are required with respect to natural growth of the area are based on the findings in the report prepared by GIBB, "*Black River Urban Park: Pre-Feasibility Study*" 1999. These are:

- The provision of additional lanes along Alexandra Road
- An upgrade of the Berkley and Alexandra Roads intersection
- Minor upgrade of the Raapenberg and Alexandra Roads intersection

The upgrade of the M5 is underway and its interchange with the N1 highway has been completed.

For this development, however, these road upgrades will not be required and only extensive **NMT** and **public transport upgrades** are recommended, as the example shown in **Figure 2.3**. These will involve surfaced sidewalks and possible cycling facilities along Alexandra and Berkley Roads. Additional pedestrian links through to Voortrekker Road will also be required. Public transport facilities, such as railway stations and bus stops should be upgraded and additional capacity should be added to all public transport modes.

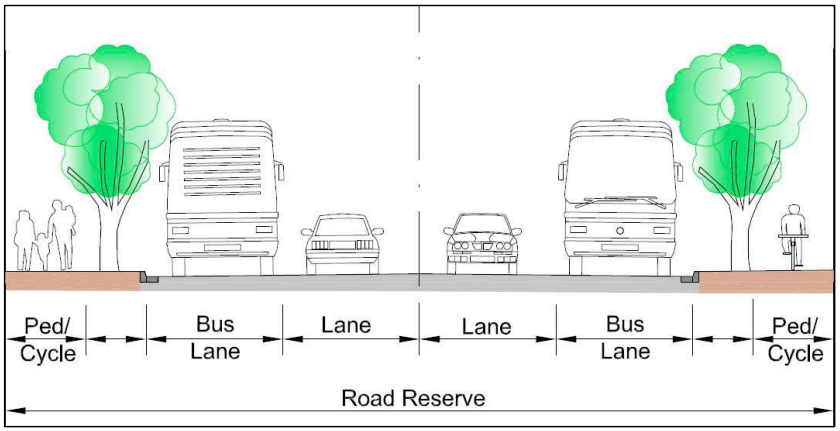


Figure 2.3: Typical layout of the provision of public transport and NMT facilities

3 WATER

3.1 Status Quo

The water supply to the development is sourced from the Molteno and Platteklip Reservoirs. There is an existing 300 mm diameter main in Alexandra Road where the existing reticulation network is from. The existing supply is calculated at approximately 40 l/s based on the floorspace and various assumptions in line with *SANS 10252* and "*The Red Book*". Using the existing capacity from the status quo study, the 300mm diameter main can supply another 100 l/s before an upgrade is required.

With regard to pressure, the current pressure available allows for water supply to a 4 storey building.

3.2 Proposed Redevelopment

The proposed re-development will require 230 l/s at conventional demand rates, 90 l/s more than the capacity of the existing water supply. The water main will therefore need to be upgraded to 500mm diameter for a distance of approximately 2 km. **Table 3.1** summarises the reduction in demand required to retain existing flows and maximum supply before upgrade.

Table 3.1: Reduction in demands required

Aim	Net Peak Demand (l/s)	Development Peak Demand (l/s)	Excess Demand (l/s)	Required Reduction in Demand
No Net Increase	40	230	190	80%
No Upgrade Required	140	230	90	40%

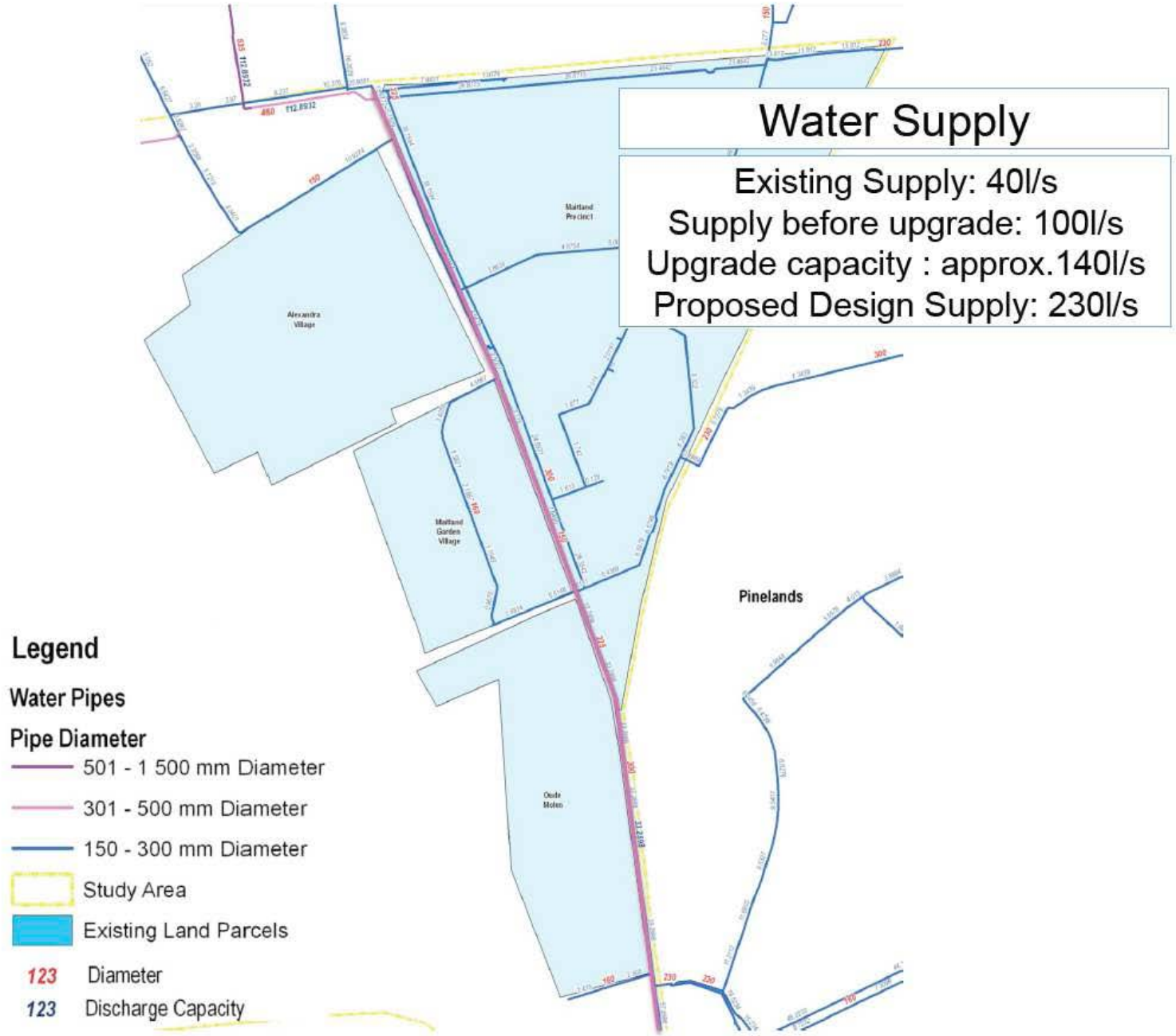
If the current water supply of 40 l/s to the area is not to be exceeded, the redeveloped land-uses will be required to reduce conventional water demand by 80%. However, due to the existing capacity available in the 300mm pipeline, only a 40% reduction in conventional water demand will be required.

3.3 Required Upgrades

In order to cater for the demand, innovative measures must be taken in order to avoid expensive upgrades in water infrastructure. Such innovative measures exist and are listed below:

- Grey water reused to flush toilets (from hand basins, showers etc.)
- Efficient toilets that use a small cistern with a dual flush mechanism
- Water efficient shower heads
- ¾ sized baths
- Rain harvesting and used for hot water supply
- Groundwater use, as well as for communal pools (bio-pool)
- Accurate pre-paid water meters per unit
- Below-ground drip irrigation (avoid evaporation) and indigenous plants used

It these measures are not implemented successfully and water demand cannot be reduced by 40%, then the upgrade of the 300mm diameter main in Alexandra Road to a 500mm diameter main, as shown in **Figure 3**, would have to be implemented at a cost of approximately R3.5 million.


Water Supply
Existing Supply: 40l/s
Supply before upgrade: 100l/s
Upgrade capacity : approx.140l/s
Proposed Design Supply: 230l/s
Maitland Precinct
Alexandra Village
Maitland Garden Village
Pinelands
Oude Molen
Legend
Water Pipes
Pipe Diameter
501 - 1 500 mm Diameter
301 - 500 mm Diameter
150 - 300 mm Diameter
Study Area
Existing Land Parcels
123 Diameter
123 Discharge Capacity

4 SEWER

4.1 Status Quo

Sanitation flows are based on similar assumptions as water demand and use the same guidelines. The calculated existing peak flows are approximately 36 l/s and the recently upgraded sewer has a spare capacity of 60 l/s. However, there is no existing capacity in the bulk sewer downstream of the site. The current situation is summarised **Figure 4.1**.

4.2 Proposed Redevelopment

The proposed flows for the re-development are in the order of 220 l/s. A total spare capacity of 96 l/s is available; therefore 124 l/s must still be treated. If sustainable approaches are undertaken to reducing water demand, there will be a reduction to the proposed development wastewater flows, as the two are closely linked as shown in **Table 4.1**.

Table 4.1: Wastewater flows in relation to water demand

Capacities of Wastewater flows (l/s)		Reduction in Wastewater flows (l/s)			
No Upgrade Required	Downstream Upgrade Required	0%	40%	60%	80%
36	96	220	130	88	45

In order to achieve no upgrades to the downstream pipe, all additional wastewater will have to be treated on-site and the overall wastewater flow restricted to the current 36 l/s.

If the total projected wastewater flow of 220 l/s can be reduced by approximately 55% to 96 l/s, then only the downstream pipe will be required to be upgraded.

Any flow in excess of 96 l/s will require significant upgrading of both the adjacent and the downstream pipe.

It should, however, be noted that these reductions are due to water demand decreases only and that wastewater flows can still be reduced by other means, such as treatment on-site.

4.3 Required Upgrades

In order to achieve any additional reductions in wastewater flows, the following measures listed below should be implemented:

- Processing locally produced wastewater and using for irrigation
- Wastewater used in microbial cell to generate electricity and then processed for above use

If the net wastewater flows cannot be held to the existing flow of 36 l/s, the constraining pipe would have to be upgraded. The cost would be high due the location of the pipe and hence the pipe jacking procedure required. Due to the complexity of such an upgrade, an estimate cannot be given.

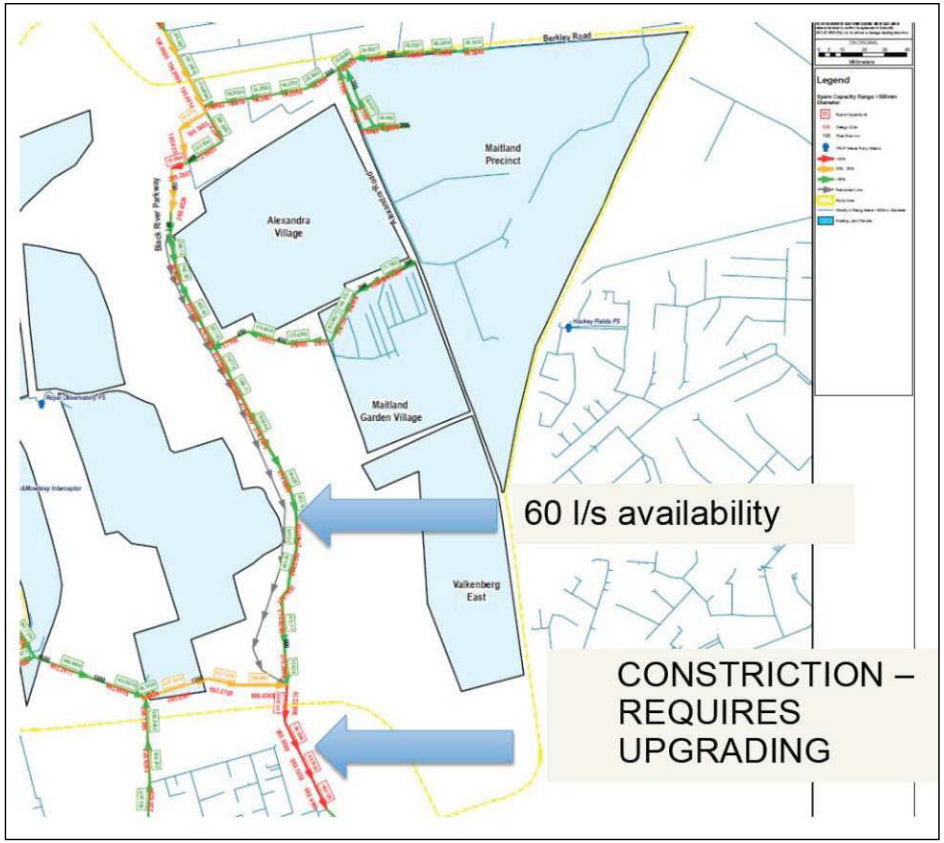


Figure 4.1: Current Sewer Layout and Capacity

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5 STORMWATER

5.1 Status Quo

The status quo study assessed the existing hydrological and hydraulic conditions for the immediate storm water network serving the study area. The assessment criteria are based on a risk rating indicating areas ranging from low to high risk, in terms of the existing system capacity. This in conjunction with the flood analysis for the Liesbeeck and Black Rivers (SRK Consulting Engineers, 2011), indicates that 1.09 km² (34.5 %) of the study area is sanitized by the 1 in 50 year flood levels and can accommodate approximately 12 % for the 1 in 50 year and 1 in 100 year return period storm events.

Furthermore, the status quo study also highlighted the absence of neither run-off water quality improvement components nor flow attenuation facilities within the existing drainage systems serving the study area. The status quo study performed by Gibb, also found that 30-45% of the existing stormwater drainage can accommodate a 1 in 2 year and 1 in 5 year storm events.

5.2 Proposed Redevelopment

Subsequent to the status quo assessment, a secondary analysis was conducted governed by the change in land use from the existing development scenario to the proposed future development. **Table 5.1** below summarizes the proposed land use for the future development scenario:

Table 5.1: Proposed land-use breakdown for development scenario

Development Land-use	Net Density (Du/Ha)	% of Total Site Area
Mixed use	100	30%
Residential-high density	150	2%
Residential-medium	90	18%
Residential-low	50	10%
Public facilities	-	10%
Parklands space	-	10%
Roads & hard open space	-	20%
	Total	**100%**

Therefore taking into consideration the proposed development scenario, which commands an approximate increase of 21% to impervious surfaces, the following results in comparison to the existing land use scenario was yielded:

- A 33 % increase in runoff volume for the 1 in ½ year return period storm event
- A 16 % increase in runoff volume for the 1 in 50 year return period storm event

5.3 Mitigation and Management

5.3.1 Conventional Systems

In terms of managing the increase in storm water runoff emanating from the proposed development, consideration was given to both conventional as well sustainable urban drainage management systems. Worst case scenario in terms of spatial requirements would be to construct a conventional storm water drainage system e.g. underground pipes, channels and detention ponds. Based on the conventional approach, a total area of 20 000 m² for detention space / storage is required to accommodate the increase in runoff volume, as shown in **Figure 5.1**.

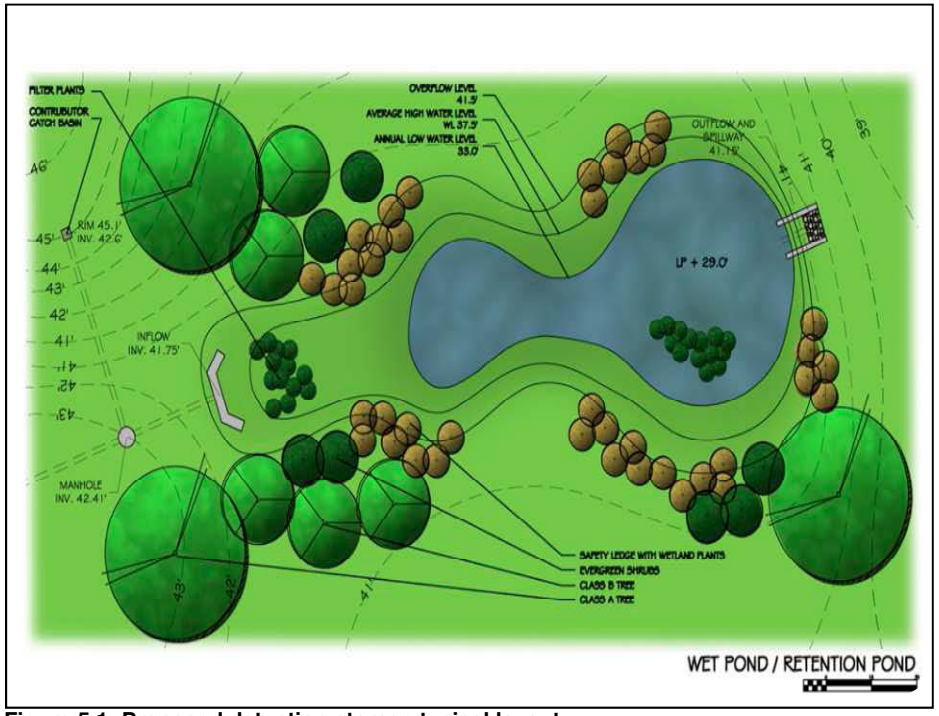

Figure 5.1: Proposed detention storage typical layout

5.3.2 Innovative Measures

Alternatively, to the conventional treatment mechanisms, the Sustainable Urban Drainage Systems (SUDS) shown in **Figure 5.2** are to be considered to reduce the average gross area required for storm water management:

Rainwater Tanks:

Rainwater tanks are to be incorporated into the overall storm water planning, to accommodate the runoff emanating from the 1 in ½ year return period storm event.

Bio-retention cells, infiltration cells & swales:

Bio-retention cells along roads and infiltration trenches and swales decreasing overall run-off in the area.

Permeable Pavers:

Permeable paving for parking areas and sidewalks, and possibly pedestrianised roads.

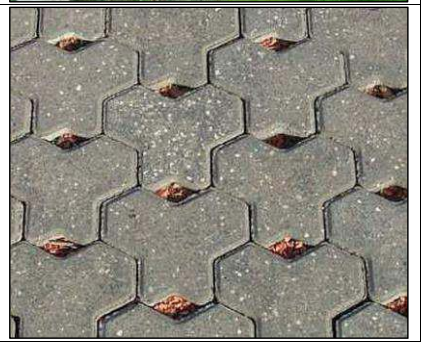

Figure 5.2: Examples of sustainable urban drainage systems

6 ELECTRICAL

6.1 Status Quo

The typical design load parameters as prescribed by the City of Cape Town were used to calculate the theoretical load for the current bulk and land uses identified in the study area. The electrical load is a function of the floor space and the design load parameter for a specific land use and can be expressed as follows:

Electrical Load = Floor space in m² x design load parameter in kVA/m²

The theoretical total load for the study area is estimated at 18 603 kVA. Because the usage patterns of the consumer classes for the specified land uses are different, a diversity factor can be applied to the total load to reflect the anticipated maximum demand at the Main Bulk Supply Substation. Assuming a diversity of 60%, the current average peak load that will reflect at the Main Supply Substation is 11 162 kVA, as shown in attached **Table 6.1.**

Table 6.1: Electrical load for study area

Area	Land Use Detail	Footprint (m^2)	Floorspace (m^2)	No. of Units	Residential Allowance (kVA/Unit)	Other Allowance (kVA/m^2)	Total Electrical Load (kVA)
Ndabeni Triangle	Office	71 147	104 403	-		0.08	8 352
	Warehouse	74 358	91 608	-		0.04	3 664
	School	1 998	1 998	-		0.04	80
Alexandra Institute	Hospital	29 985	36 025	-		0.08	2 882
	Day Care (Clinic)	1 098	2 197	-		0.08	176
	School	2 357	2 357	-		0.04	94
	Office	12 789	21 810	-		0.08	1 745
Valkenberg East:	Mixed-use	22 507	27 308	-		Actual Load	600
Garden Village	School	781	781	-		0.04	31
	Public Facilities	643	643			0.08	51
	Residential	19 719	19 719	232	4		928
	TOTAL	**237 382**	**308 848**	**232**			**18 604**
						Total Load @ 60% Diversity	**11 162**

The City of Cape Town's Koeberg Road Main Substation supplies the study area and the substation supply footprint is indicated as the purple area in **Figure 6.1**. The City of Cape Town indicated that there is 5000 kVA spare capacity available at Koeberg Road Main Substation.

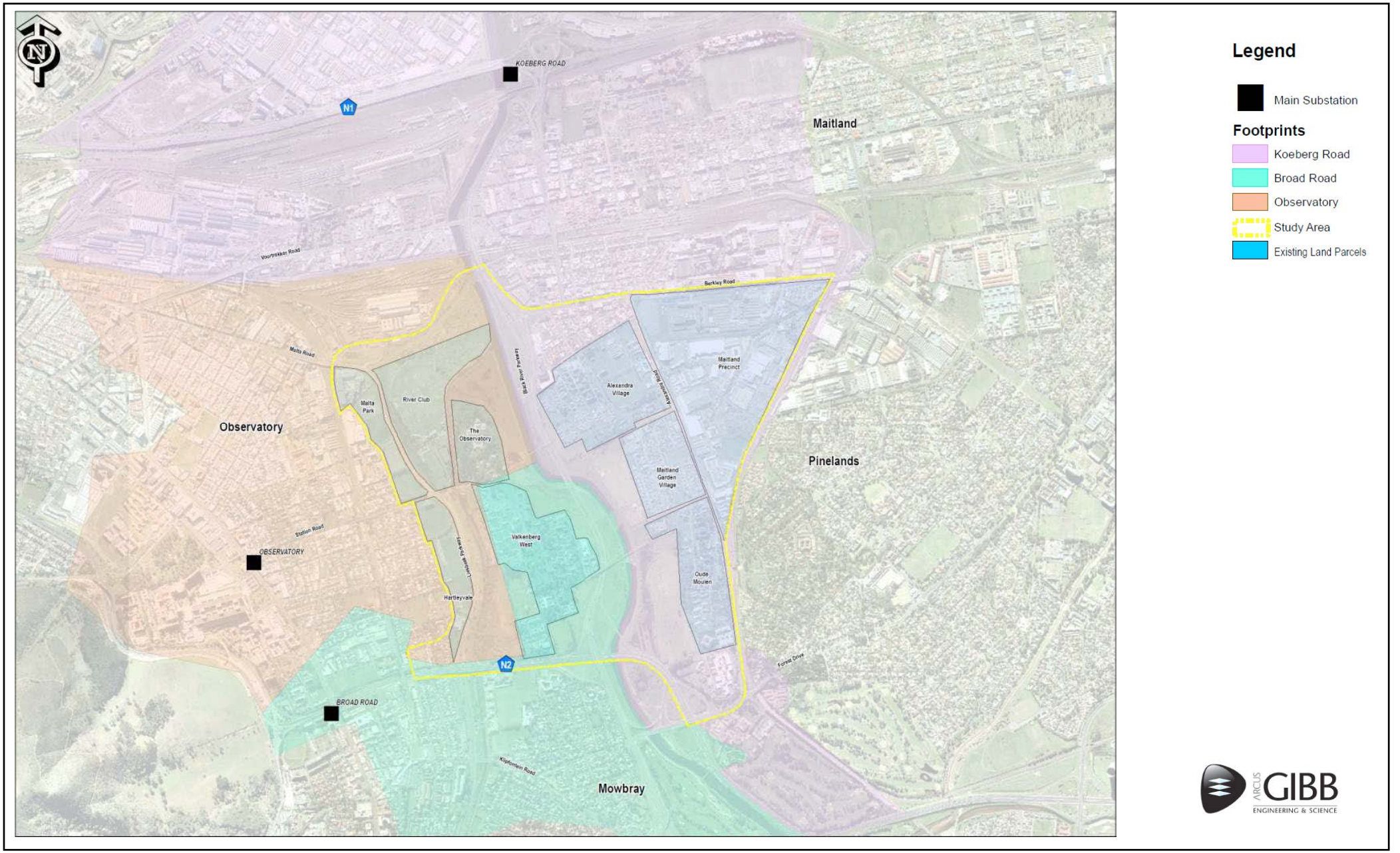

Figure 6.1: Electricity supply footprint areas and relevant substations

6.2 Proposed Redevelopment

The energy efficient demand figures as specified in *Table 3* of *SANS 204-1* was used to calculate the theoretical load for the proposed bulk and land uses. The theoretical total load for the proposed redevelopment is estimated at 41 830 kVA. Assuming a diversity of 60%, the anticipated average peak load that will reflect at the Main Supply Substation is 25 098 kVA and was calculated as shown in **Table 6.2.**

Table 6.2: Total Electrical Load

Land Use	Land Use Detail	Floorspace (m^2)	Footprint (m^2)	No. of Units	GLA (m^2)	Residential Allowance (kVA/unit)	Other Allowance (kVA/Unit)	Total Electrical Load (kVA)
Residential		**753 366**	**215 248**	**6 278**	**655 429**	3		18 834
Public Facilities	Crèche	600	600	3	522		0.075	39
	Primary School	16 000	16 000	2	13 920		0.075	1 044
	High School	9 000	9 000	1	7 830		0.075	587
	Clinic	2 000	2 000	1	1 740		0.085	148
	Community Centre	4 500	4 500	3	3 915		0.080	313
	Place of Worship	5 500	5 500	11	4 785		0.075	359
	Library	11 928	11 928	8	10 378		0.075	778
	Post Office	1 084	1 084	2	943		0.075	71
	Market (indoor/outdoor)	22 266	22 266	8	19 372		0.080	1 550
	SUBTOTAL	**72 879**	**72 879**		**63 405**			
Commercial	Light or home industry/workshop	333 594	95 313	-	306 907		0.040	12 276
	Office	75 059	21 445	-	69 054		0.075	5 179
	Restaurant, cafe, bar	8 340	2 383	-	7 673		0.085	652
	SUBTOTAL	**416 993**	**119 141**	**-**	**383 633**			
Open Spaces	Parklands	44 976.78	44 978	-	-			0
	Roads & hard open spaces	231 662.48	231 662	-	-			0
	SUBTOTAL	276 639.26	276 639	-	-			
GRAND TOTAL		**1 243 238**	**407 268**	**6 278**	**1 102 467**			**41 831**
							Total Load @ 60% Diversity	**25 098**

The redevelopment therefore requires approximately 14 000 kVA additional capacity over and above the status quo situation. Only 5000 kVA spare capacity is available on the City of Cape Town's bulk electrical network which means a new main substation must be constructed to supply the additional load required by the redevelopment.

6.3 Implementation

The City of Cape Town's Electrical Department indicated that it will construct the new substation as part of its capital expansion programme, but the developer must make a substation site of approximately 50m x 50m available for this. The lead time for the construction of the substation is 2 to 3 years from the date of development approval.

The estimated construction cost of the bulk infrastructure, main substation and high voltage cables from existing Koeberg Road switching station, is approximately R75 million. The developer will contribute towards the cost of the bulk infrastructure through the payment of development contributions.

7 CONCLUSIONS

Based on the findings of the status quo study and the high level assessment, it can be concluded that the current road network is close to capacity and over-capacity in certain places. Therefore, with the redevelopment of the area and the subsequent increase in bulk area, road upgrades would normally be required.

This is, however, prohibitively expensive and innovative measures must be used as well as significant usage and upgrading of the public transport resources to reduce the amount of vehicular trips and parking bays required. Based on the success of sustainable measures internationally and a more accurate assessment of the redeveloped area, the demands can be met and major road upgrades can be avoided.

The existing water demand is 40 l/s with a spare capacity of 100 l/s available. The development will require 230 l/s in total, resulting in a 90 l/s shortfall. Therefore a reduction of 40% in the water demand is required or an upgrade of R3.5 million to the supply pipeline is required.

There is no spare capacity available for additional wastewater despite a recent upgrade to the pipeline. This is due to the pipe just downstream of the upgrade being at capacity. Therefore all additional wastewater must either be retained on site or the pipe serving as a constraint must be upgraded. This upgrade is expected to be at a high cost due to the location of the pipe and hence the pipe jacking procedure required.

With the redevelopment of the area, a 21% increase in impervious area will occur, requiring 20 000 m^2 of detention space for storm water management using the conventional approaches. This area can be reduced by implementing various SUDS into all aspects of the development.

The site currently uses 11 162 kVA and is served by the Koeberg Road Substation which has a spare capacity of 5000 kVA. With the redevelopment of the area incorporating energy efficient measures, the area will require a total of 25 098 kVA and hence require an additional substation to be built. An upgrade of this nature is expected to amount to approximately R75 million and will be constructed by the City out of development contributions.

8 RECOMMENDATIONS

It can therefore be recommended that foremost, sustainable engineering technology and principles should be implemented to mitigate the impacts of the development.

Realistically, to accommodate a redevelopment of this scale, some bulk infrastructure will have to be upgraded where necessary. The upgrades that will be essential are:

- An upgrade of all pedestrian routes and linkages.
- Provision of additional public transport i.e. IRT route and additional rail rolling stock.
- A reduction of 40% in water usage will be required using water saving measures.
- All additional wastewater flows must be retained on-site using sustainable technology. If this cannot be achieved, the constraining pipe must be upgraded which will involve high costs. If the pipe is upgraded, a reduction of the wastewater flows of 55% will still be required.
- 20 000m^2 must be allocated for conventional storm water retention. This area should be reduced by implementing SUDS.
- A new substation must be built by the CoCT at a cost of R75 million in addition to energy saving interventions, to accommodate the increase in electricity usage. This will be paid for out development contributions.

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11 REFERENCES

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City of Cape Town (2010). *Zoning Scheme Regulations: Final Draft*. Cape Town: City of Cape Town.

City of Cape Town Administration, Environmental Management Branch (2003). *Two Rivers Urban Park Contextual Framework and Phase 1 Environmental Management Plan, Final Report*. Cape Town

Municipality of the City of Cape Town (1990). *Zoning Scheme: Regulations*. Cape Town: Official Gazette 4649.

12 GLOSSARY

12.1. URBAN DESIGN & SITE DEVELOPMENT TERMS

activity route: a continuous route with mixed uses on either side, direct access from side road and interrupted movement flows

active edges: buildings facades and edges which, though their design, serve to increase the vitality of the public realm, by adding life, interest, activity and opportunities for exchange

bulk: development bulk refers to the size of development in relation to the volume that it occupies on its site

building footprint: the total area of ground which is occupied by buildings on a site

live-work units: units within buildings which accommodate opportunities for living and working

landmarks: buildings, structures, natural features or spaces which stand out from their surroundings, create distinct visual impression and a unique sense of place; this can assist with orientating residents and visitors as they are easy markers of a specific distinctive and known place

mass: the combination of the three dimensions of length, height, and depth which give a building its overall shape; a building is often composed of many masses, hence the term massing, which is often used to describe the form or shape of structures

mixed use: a development comprising a mixture of land uses either in the same building or in separate buildings on either the same plot

natural ground level: the surface level of unmodified land in its"natural" state, before the land surface has been modified in any way or building has occurred

positive interfaces: buildings facades and edges which have a positive impact on the public realm

public realm: the public and semi-public spaces of the city, especially the street spaces of the city from building face to the opposite building face (including the façade, front yard, sidewalk and streets) and open space such as parks and squares

scale: the sense of proportion or apparent size of a building or building element as created by the placement and size of the building in its setting; scale usually applies to how the sense is perceived in relation to the size of a human being and refers to the apparent size, not actual size, since it is always viewed in relationship to another building or element

urban design contextual response: after assessment of the urban context, key features are distilled into an urban design contextual response

urban design guidelines: criteria established to guide development toward a desired level of quality through the design of the physical environment, and which are applied on a discretionary basis relative to the context of development

12.2. ZONING SCHEME TERMS

Zoning scheme glossary terms are adapted from:

Strategy & Planning, Department: Planning & Building Development Management; Land Use Management. (2010). *City Of Cape Town Zoning Scheme Regulations: A Component of The Policy-Driven Land Use Management System, Final Draft March 2010.* City Of Cape Town

base level: an imaginary plane drawn horizontally at the average ground level of the building or a vertical division of the building and is directly above the ceiling of any basement

building line: an imaginary line on a land unit, which defines a distance from a specified boundary, within which the erection of buildings or structures are completely or partially prohibited

cadastral line: an a line representing the official boundary of a land unit as recorded on a diagram or general plan approved by the Surveyor General and registered in the Deeds Office

common boundary: a boundary that is common with an adjoining land unit

consent use: a use that is permitted in terms of the provisions of a particular zone, only with the approval of Council

coverage: the total area of a land unit that may be covered by buildings, expressed as a percentage of the area of such land unit, and shall include all roofed areas; provided that the following portions of buildings shall be disregarded in the calculation of coverage:

(i) stoeps, entrance steps and landings

(ii) open balconies, retractable awnings

(iii) cornices, chimney breasts, pergolas, flower boxes, water pipes, drain pipes and minor decorative features not projecting more than 500mm from the wall of the building

(iv) eaves not projecting more than 1,0m from the wall of the building

(v) a basement provided that the finished level of the top of the basement roof slab does not project above the existing ground level

dwelling unit: a self-contained inter-leading group of rooms, with not more than one kitchen, used for the living accommodation and housing of one family, together with such outbuildings as are ordinarily used therewith, but does not include domestic staff quarters, or tourist accommodation or accommodation used as part of a hotel

erf: has the same meaning as land unit

floor factor: the factor (expressed as a proportion of 1) which is prescribed for the calculation of maximum floor space of a building or buildings permissible on a land unit. If the floor factor is known, the maximum permissible floor space can be calculated by multiplying the floor factor by the area of the land unit

floor space: the area of a floor which is covered by a slab, roof or projection; provided that:

(i) any area, including a basement, which is reserved solely for parking or loading of vehicles, shall be excluded;

(ii) external entrance steps and landings, any canopy, any stoep and any area required for external fire escapes shall be excluded;

(iii) a projection including a projection of eaves, and a projection which acts as a sunscreen or an architectural feature, which projection does not exceed 1,0m beyond the exterior wall or similar support, shall be excluded;

(iv) any uncovered internal courtyard, light well or other uncovered shaft which has an area in excess of $10m^2$ shall be excluded;

(v) any covered paved area outside and immediately adjoining a building at or below the ground floor level, where such paved area is part of a forecourt, yard, external courtyard, pedestrian walkway, parking area or vehicular access, and which is permanently open to the elements on at least the front or long side, shall be excluded;

(vi) any covered balcony, verandah or terrace which, apart from protective railings, I permanently open to the elements on at least the front or long side, and which does not exceed 2,5m in width, shall be excluded

(vii) subject to clause (viii), any stairs, stairwells and atriums that are covered by a roof shall be included

(viii) in the case of multi-level buildings, any stairwells, lift wells, light wells or other wells, and any atrium, shall only be counted once; and provided further that: floor space shall be measured from the outer face of the exterior walls or similar supports of such building, and where the building consists of more than one level, the total floor space shall be the sum of the floor space of all the levels, including that of

gross leasable area (GLA): the area of a building designed for, or capable of, occupancy and control by tenants, measured from the centre line of the joint partitions to the inside finished surface of the outside walls

habitable room: a bedroom, living room, lounge, dining room, study and any other room which is or is likely to be used for human habitation or recreation, but does not include a kitchen or bathroom or a room which is designed and used as a communal facility and access to which is available to all occupants of the building

home occupation: the practicing of an occupation or the conducting of an enterprise from a dwelling unit, second dwelling, or outbuilding by one or more occupants who reside on the property; provided that the dominant use of the property concerned shall remain for living accommodation of the occupants

land unit: a portion of land registered in the Deeds Registry, or shown on a valid plan of subdivision approved by Council or other competent authority, as an erf, stand, lot or plot.

land use: the name of the use rights listed in this zoning scheme and can be a collective description for one or a number of land use activities and ancillary uses

maximum floor space: the greatest total floor space which is allowed for building or buildings on a land unit, and is calculated by multiplying the floor factor by the area of the land unit or that portion of the land unit which is situated within a particular zone; provided that where the land unit is situated within two or more zones to which different floor factors apply, the maximum floor space for the whole land unit shall be the total of the maximum floor space for each zoned portion of the land unit

public open space: land which is designated as public open space, under the ownership of Council or other public authority, with or without access control, and which is set aside for the public as an open space for recreation or outdoor sport; including a park, playground, public or urban square, picnic area, public garden, nature area, and includes ancillary buildings, infrastructure and uses;

rezoning: the change of zoning in relation to a particular land unit or units or portion of a land unit in terms of Planning Law

road reserve: the designated area of land that contains a public street or private road (including the road and associated verge), which land may or may not be defined by cadastral boundaries

set-back: an imaginary line on a land unit, which defines a distance from a specified boundary, within which the erection of buildings or structures are completely or partially prohibited

street boundary: the boundary between a land unit and a public street or private road; provided that the boundary of a pedestrian way or service lane that cannot or will never be used by motor vehicles, shall be deemed to be a common boundary for the purpose of determining building lines, street centre line setback and site access requirements.

street centre line setback: an means the line delimiting the area measured from the centre line of a particular public street, within which no building or other structure, including a boundary fence, may be erected

total floor space: the sum of the floor space of all the levels of a particular building, including basements

13 ACRONYMS AND ABBREVIATIONS

CA	Canada
CT	Cape Town
CTCCRP	Cape Town Central City Regeneration Programme
CoCT	City of Cape Town Municipality
CTSDF	Cape Town Spatial Development Framework
DE	Germany
EIMZs	Environmental Impact Management Zones
IRT	Integrated Rapid Transit
NL	The Netherlands
NMT	Non-motorised transport
PGWC	Provincial Government of the Western Cape
SARCC	South African Rail Commuter Corporation
TRUP	Two Rivers Urban Park
UK	United Kingdom
USA	United States of America
ZA	South Africa