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GEORGE

THEMBALETHU PRECINCT PLAN

OCTOBER 2015

CNdV africa

THEMBALETHU PRECINCT PLAN

Urban Upgrade Report

prepared for

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ABBREVIATIONS / ACRONYMS

BEE	Black Economic Empowerment
BBBEE	Broad Based Black Economic Empowerment
CARA	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)
CBAs	Critical Biodiversity Areas
CBD	Central Business District
DEADP	Department of Environmental Affairs and Development Planning
DFA	Development Facilitation Act, 1995 (Act 67 of 1995)
DMA	District Management Area
DoHS	Department of Human Settlements
DTI	Department of Trade and Industry
Du/ha	Dwelling unit per hectare
DWA	Department of Water Affairs
EMF	Environmental Management Framework
EPWP	Extended Public Works Program
FAO	United Nations Food and Agriculture Organisation
GDPR	Gross Domestic Product Region
GGP	Gross Geographic Product
GHG	Green House Gasses
GLA	Gross Leasable Area
GRP	Gross Regional Product, i.e. for district or local Municipality
GVA	Gross Value Added
Ha	Hectare
HSP	Human Settlement Plan
I&AP	Interested and Affected Parties
IDP	Integrated Development Plan
IEMP	Integrated Environmental Management Plan
IRT	Integrated Rapid Transport
IT	Information and Technology
LED	Local Economic Development
LTA	Land Transport Authority
LUMS	Land Use Management Schemes
LUPO	Land Use Planning Ordinance, 1985 (Ordinance 15 of 1985)
MEDS	Micro-Economic Development Strategy
MPCCs	Multi-Purpose Community Centres
MSA	Municipal Systems Act, 2000 (Act 32 of 2000)
NDP	National Development Plan
NDPG	Neighbourhood Development Partnership Grant
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NGO	Non-Governmental Organisations
NMT	Non-motorised Transport
NMB	Nelson Mandela Boulevard
NSDP	National Spatial Development Perspective
OECD	Organisation for Economic Cooperation and Development
PGWC	Provincial Government Western Cape
PLTF	Provincial Land Transport Framework
POS	Public Open Space
PS	Pump Station
WC-PSDF	Western Cape Provincial Spatial Development Framework
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SDP	Spatial Development Plan
SEA	Strategic Environmental Assessment
SIP	Strategic Infrastructure Plan
SMME	Small, Medium and Micro Enterprises
SoER	State of the Environment Report
SPCs	Spatial Planning Categories
SWOT	Strengths, Weaknesses, Opportunities and Threats
SHRA	Social Housing Regulatory Authority
VIPL	Ventilated Improved Pit Latrines
WSDP	Water Services Development Plan
WWTW	Waste Water Treatment Works

1. INTRODUCTION

1.1 STRUCTURE OF THIS REPORT

The purpose of this report is to provide an understanding of the state of Thembalethu Urban Upgrade Precinct, located in the George Local Municipality, see Figures 1.1.1 and 1.1.2, and the various issues facing it. The aim is to prepare an Urban Upgrade Plan to address the spatial issues in this Precinct. This report addresses select national, provincial, district and local municipal policies and issues relating to the bio-physical and built environment, economy and the people.

The report is structured in the following manner:

Section 1 describes the purpose and need for a Precinct Plan.

Section 2 describes a number of national provincial, district and local guidelines, policy documents and concepts, all of which have a bearing on the Urban Upgrade Plan.

Section 3 describes the current state of the Precinct under the following subsections:

- Natural Systems;
- Socio-economic conditions; and
- Built environment.

Section 4 will follow and is intended to describe the feedback that is envisaged to be obtained from the planned public participation.

1.2 WHAT IS AN URBAN UPGRADE PLAN AND WHY IS IT NEEDED?

The terms of reference (ToR) noted that the following items need to be addressed in the Urban Upgrade Precinct Plan for Thembalethu.

1.2.1 The plan must consider the draft Thembalethu SDP as a reference;

1.2.2 Demarcate spatial areas of intervention (social, economic, infrastructure and bio-physical aspects);

1.2.3 Define the current status of the respective demarcated areas under discussion;

1.2.4 Describe and motivate interventions needed and describe the envisaged results of these interventions;

1.2.5 Visually present information, not only town planning diagrams and maps, but also urban design drawings or critical place and or urban precincts (a maximum of 5) should be identified;

1.2.6 The Thembalethu Development Plan highlights a number of policies and objectives. These should be articulated in very specific plans for each demarcated area:

- Housing;
- Business and industry;
- Leisure and tourism;
- Agriculture;
- Natural environment;
- Community facilities;
- Gateways; and,
- Infrastructure.

1.2.7 The plan should not be limited to the above, but must include additional critical aspects applicable to a specific precinct area of Thembalethu that may be identified;

1.2.8 The intention of the precinct plan approach should give recognition to the various strengths and weaknesses of the respective areas in Thembalethu. The plan must prioritise the critical urban upgrading initiatives needed for each area and reflect a cost estimate for the prioritised interventions;

1.2.9 The plan should detail the type, location, size and configuration of the proposed precinct. The precinct plan should indicate the relevant interventions of each matter listed under 1.2.6 above and detail how relevant matters have been addressed;

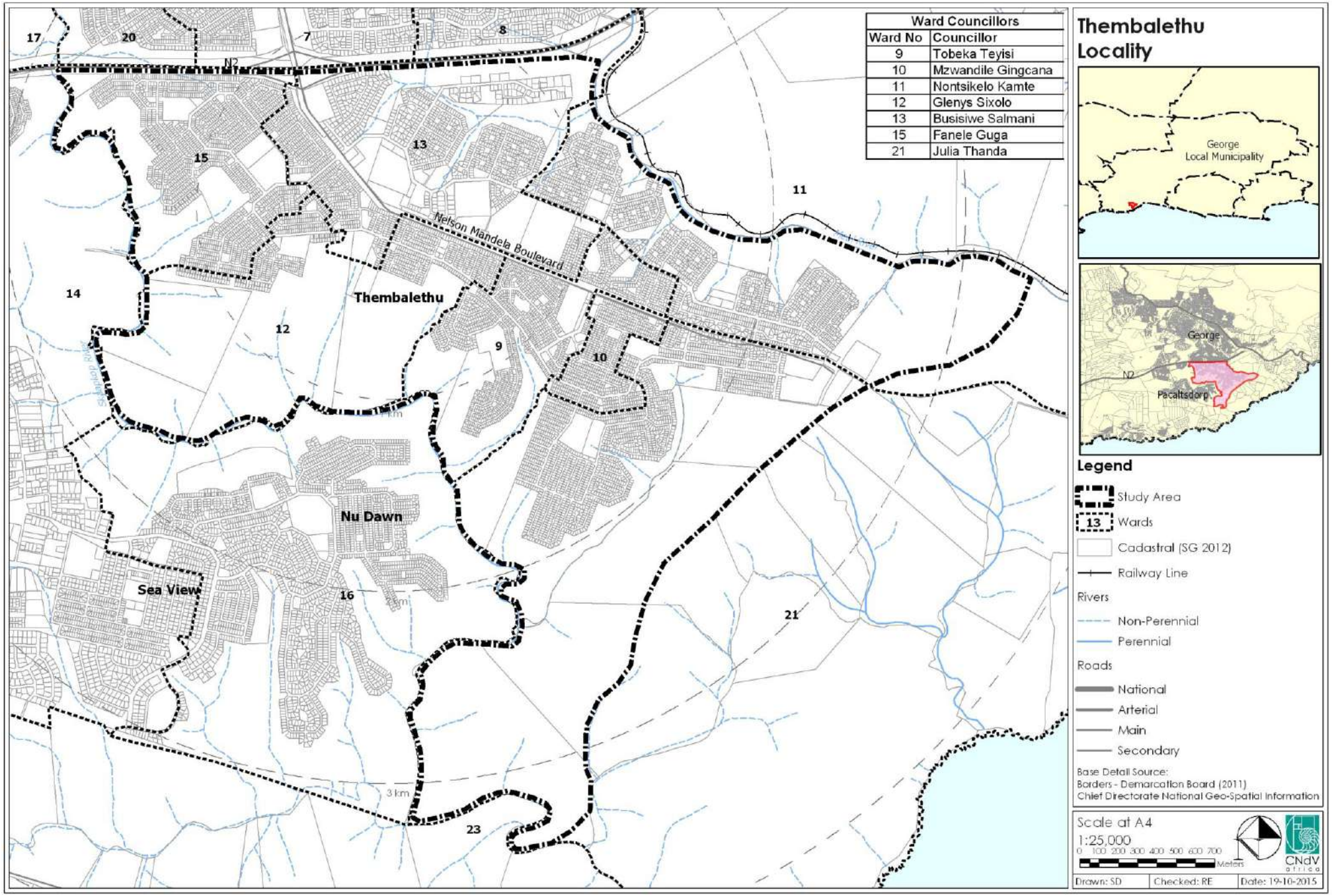


Figure 1.1.1 Thembalethu Locality Plan

1.2.10 The Urban Upgrade Plan should identity opportunities to coordinate and integrate infrastructure;

1.2.11 The Plan should aid in identifying alternative uses of land by identifying economic, social and environmental opportunities and constraints to improve the profitability and sustainability of the precinct;

1.2.12 The Urban Upgrade Plan should aid in identifying strategies and actions that protect and promote productive activities including the range of landscape values supported by the particular precinct;

1.2.13 Opportunities and constraints to promote the ecologically sustainable development of the natural resources within the precinct must be identified; and,

1.2.14 The environmental and natural resource values of the area must be protected by protecting or promoting activities that employ best practise management, maintain or enhance ecosystem services, and/or implement regional natural resource management plans.

1.3 RELATIONSHIP WITH OTHER PLANS

The Urban Upgrade Precinct Plan is a Precinct level detailed plan that emanated from the Spatial Development Framework (SDF).

The SDF links the development objectives taken from the Integrated Development Plan (IDP) and the Budget of the municipality. Therefore, the SDF becomes the spatial presentation of the IDP objectives that guide projects funded through the budget of the local municipality. This link between the SDF, IDP and Budget is shown in Figure 1.3.1.

The George Municipal SDF is further linked to other spatial policies at different levels of detail depending on their level of jurisdiction. The National Development Plan, Vision 2030 (NDP) and the National Spatial Development Perspective (NSDP) provides the broad national development goals, objectives and strategies. This informs the Western Cape Provincial SDF (WC-PSDF).

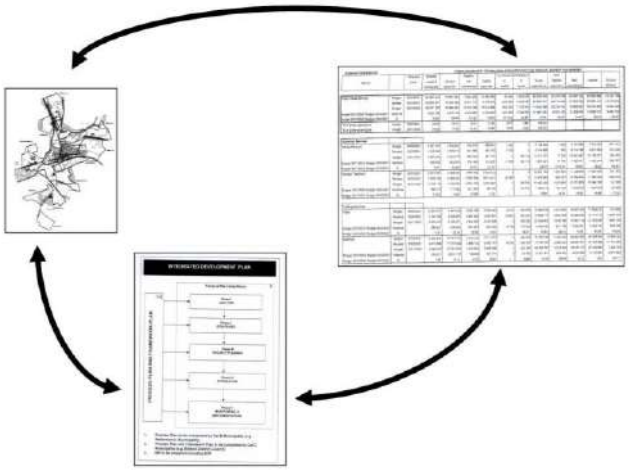


Figure 1.3.1 Link between SDF/IDP/Budget

The WC-PSDF will in turn inform the revision of the Eden District Municipal SDF. The Eden District Municipal SDF then informs the preparation of the George Municipal SDF. It should be noted that the hierarchy is not only top down but also bottom up, i.e. the lower level plans also inform the higher level plans through the updating process as a result of more local level detailed information.

The lower the level of the plan the more detailed the plan becomes and vice versa. This is illustrated in Figure 1.3.2.

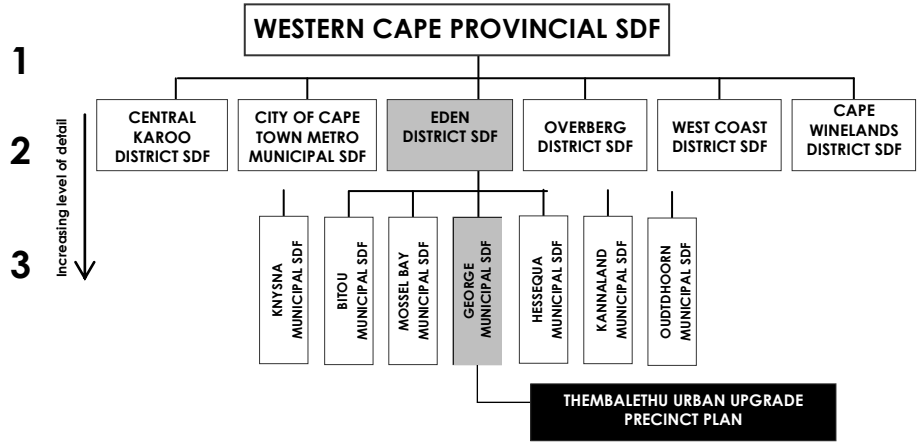


Figure 1.3.2 Layers of SDF and Level of Detail

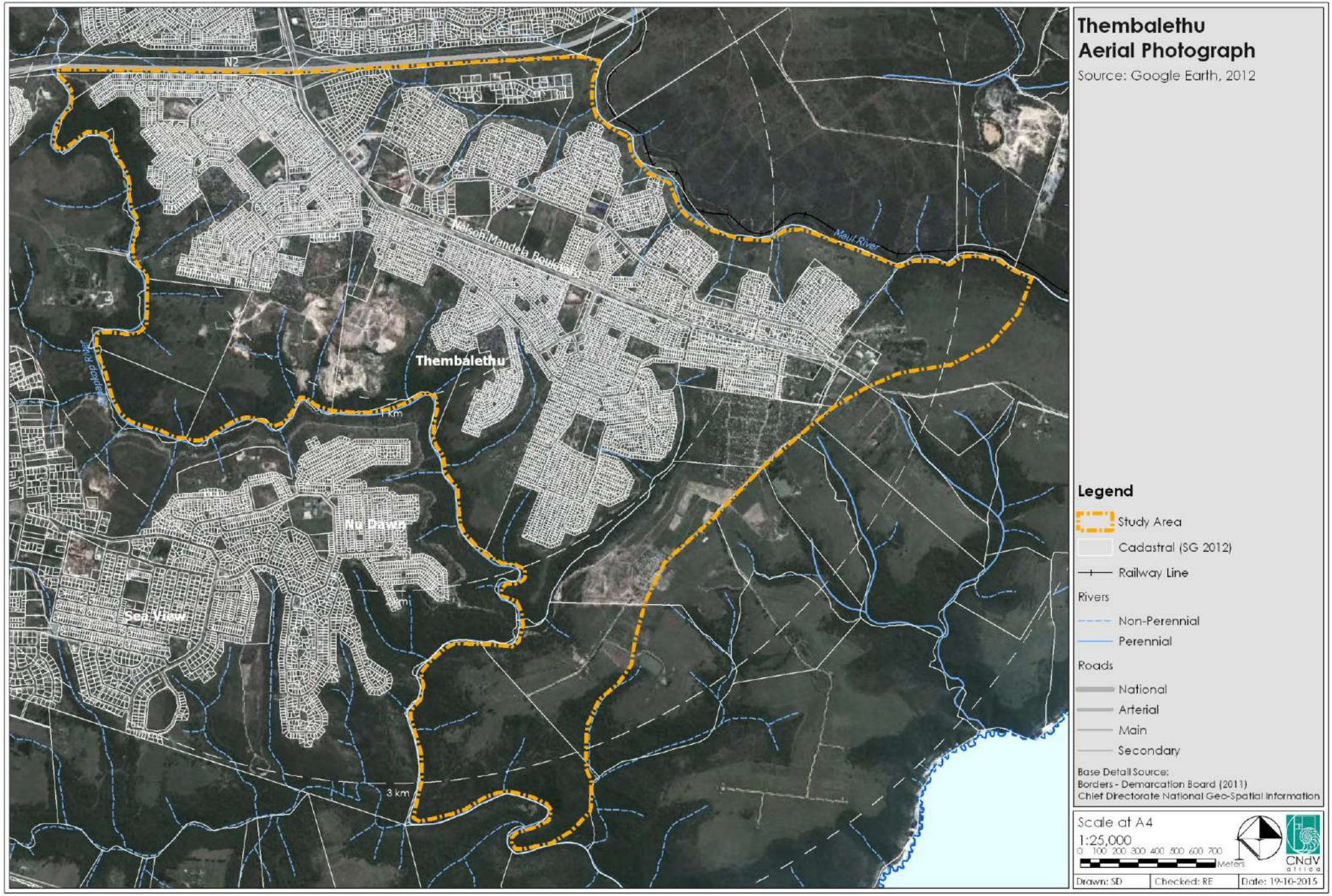


Figure 1.1.2 Thembalethu Aerial Photograph

A Precinct Plan is prepared at a more detailed level, i.e. geographical region, in a municipality to provide specific guidelines and principles for development at that scale.

A Precinct Plan will be informed by the impact of the natural environment, e.g. rivers and sensitive areas, the built environment including housing, infrastructure, etc. and socio-economic aspects relating to economy, human development indicators etc. The Precinct Plan should be informed by and in turn inform the responsibilities and activities of **all** municipal line departments for the specific geographical region, see Figure 1.3.3.

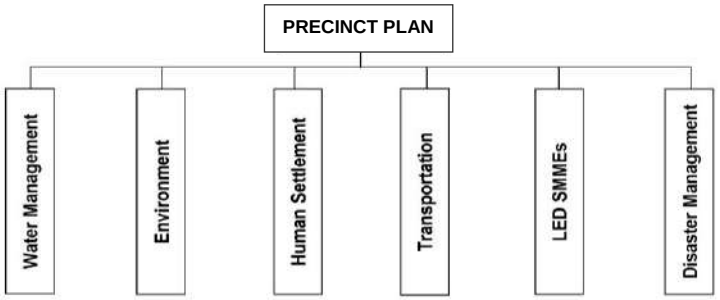


Figure 1.3.3 Precinct Plan relationship to sector plans

1.4 METHODOLOGY

The consultants' brief is to prepare an Urban Upgrade Precinct Plan for Thembalethu located in the George Local Municipality.

1.4.1 Methodology

The following methodology, similar to that of an SDF (Department of Rural Development and Land Reform [DRDLR], 2010), is used in this project:

Phase 1: Inception;

Phase 2: Data Collection and Analysis;

Phase 3: Precinct Plan Drafting;

Phase 4: First Review;

Phase 5: Incorporation of Amendments;

Phase 6: Public Notification;

Phase 7: Consideration of Submissions;

Phase 8: Final submission of the Urban Upgrade Precinct Plan; and,

Phase 9: Implementation (not part of the Terms of Reference for this project).

The abovementioned phases are described as follows:

- **Phase 1: Start up**

Produce a Project Plan and an Inception Report.

- **Phase 2: Data collection and Analysis**

Produce a status quo report that documents a "Spatial Analysis and Synthesis" of the Precinct. This will involve analyses of the applicable policy informants; existing sectoral plans; natural; socio-economic; and built environments; and will include the issues and vision from the previous phase.

Conduct a public consultative process through which issues and a vision are obtained from the local council, internal departments, the public, other municipalities and government departments.

- **Phase 3: Precinct Plan Drafting**

Draft a detailed plan and include an indication of land uses and densities, existing and proposed built form (including historical and heritage sites), urban design proposals, movement, public space, services, public amenities and infrastructure. A list of key interventions and projects including design interventions should also be part of this stage.

- **Phase 4: First Review**

Internal review by the Municipality to obtain inputs / comments on the proposed conceptual proposals.

- **Phase 5: Incorporation of Amendments / Requirements**

Amend Precinct Plan as per comments received during Phase 4.

- **Phase 6: Public Notification**

Public Notification for public comment over a period of 30 days.

- **Phase 7: Consideration of Submissions**

Amend the Urban Upgrade Precinct Plan as per comments received during Phase 6.

- **Phase 8: Finalise Report**

Submit the final Urban Upgrade Precinct Plan as per the comments received during Phase 7 and submit for approval.

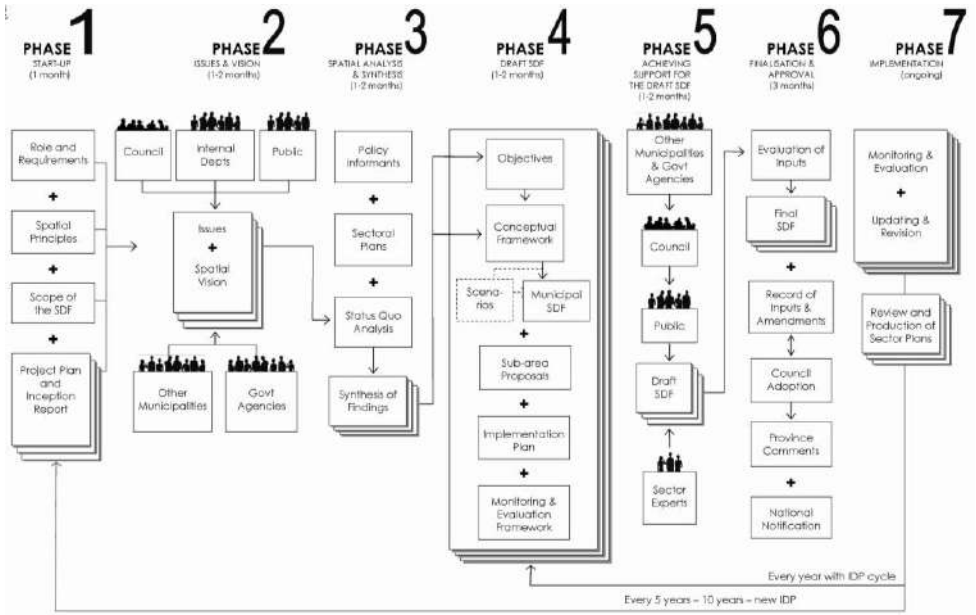


Figure 1.4.1 **Methodology followed for the Preparation of an SDF** (DRDLR, 2010)

1.4.2 Critical Milestones and Deliverables

The following deliverables will be produced:

- Inception Report (Phase 1);
- Situational / Status Quo Analysis (Phase 2)
  - includes a report on the Public Participation Processes conducted in the Precinct;
- Draft Precinct Plan (Phase 3)
  - Will focus on the desired spatial pattern / conceptual spatial framework;
- Final Precinct Plan Report (Phase 8)
  - This report will include implementation proposals and the final submission will incorporate the Status Quo, Draft Urban Upgrade Precinct Plan and the final Urban Upgrade Precinct Plan as a single document.

2. GOVERNANCE AND LEGISLATION - IMPLICATIONS

There are a number of Acts, policies and guidelines to be considered in the preparation of the Urban Upgrade Precinct Plan. The following section spells out some of the more important documents in this regard.

2.1 NATIONAL POLICY

2.1.1 DFA Principles

The Development Facilitation Act, 1995 (DFA, Act 67 of 1995) provides an important set of overarching guidelines in the principles contained in Chapter 1 of the DFA, see Figure 2.1.1.

- Promote efficient and integrated land development:
  - Integrate social, economic, institutional and physical aspects of land development;
  - Integrate land development in rural and urban areas;
  - Promote availability of residential and employment opportunities in close proximity to each other;
  - Optimise the use of existing resources;
  - Promote a diverse combination of land uses;
  - Discourage the phenomenon of urban sprawl and contribute to development of more compact towns and cities;
  - Contribute to the correction of historically distorted spatial patterns of settlement in the Republic; and,
  - Encourage environmentally sustainable land development.

Figure 2.1.1 DFA : Chapter 1 - Land Development Principles

Key themes contained in these principles include:

- Socio-economic integration;
- Rural and urban integration;
- The promotion of high levels of access that could minimise the need for the use of the private motor vehicle; and,
- Limiting urban sprawl so as to increase urban efficiencies relating to business thresholds and minimise the impact of urban growth on agricultural land, areas of scenic beauty and areas of high biodiversity potential.

Implications for the Precinct

- The outward growth of Thembalethu should be restricted since there is vacant land within the Precinct that can be used for development.

2.1.2 Neighbourhood Development Partnership Grant (NDPG) Requirements

The Neighbourhood Development Partnership Grant (NDPG) aims to "stimulate and accelerate investment in poor and underserved neighbourhoods." (National Treasury, 2007).

This stimulation is driven through technical assistance and capital grant financing for municipal projects that are linked a distinctive private sector element or intended to create such a link.

The NDPG seeks to address the lack of development (primarily economic) in townships, informal areas and low income settlements.

The following focus areas of challenges are identified:

2.1.2.1 Socio-Economic Challenges

The typical challenges on the socio-economic front, relating to townships, are:

- Large concentrations of poor households in both urban and rural locations;
- High levels of unemployment;
- Poorly performing residential property markets;
- Slower household income growth;
- Limited income retention;
- Undiversified and marginal local economies;

- Limited private sector investment; and,
- Considerable fiscal burden.

2.1.2.2 Planning and Investment Challenges

The challenges to co-ordinated public sector planning and investment and its ability to creatively attract private and community investment include:
- Exclusion by design which limits investment leverage;
- Absence of township, and township nodal development plans and limited municipal capacity to develop integrated projects;
- Limited funding for capital works for public facilities and places;
- Low levels of private sector investment;
- Limited municipal capacity to assemble and align multiple funding sources;
- Risk of mismatch between capital investment made and maintenance and operational budgets of municipalities; and,
- Focus on inner city metropolitan areas and established business centres.

2.1.2.3 Interventions that the NDPG Supports

NDPG supports the following types of interventions:
- Township area - to turn dormitory townships into fully functional neighourhoods;
- Strategic economic development projects;
- Land use restructuring;
- Stimulating property markets;
- Purchasing power retention;
- Public sector investment as catalyst;
- Leveraging non-governmental investment;
- Ensuring municipal support; and,
- Kick-starting township regeneration.

Given the above the target areas are:
- Township areas;
- New, post 1994 (generally), RDP housing and low-income housing estates developed using the same principles prevalent prior to 1994;
- Areas and town centres that are populated mainly by Black people and low-income; and,
- Informal settlements.

2.1.2.4 Types of projects and eligibility

The focus is generally public infrastructure projects that will attract private and community investment to help achieve township regeneration.

These projects include:
- Nodal and/or precinct projects;
- Linkage projects (internal and/or external); and,
- Environmental Improvement projects.

Examples of these projects are:
- Public transport interchanges and linkages;
- Libraries as hubs of information, education and e-government;
- Tourism precincts;
- Heritage, cultural, social, and traditional amenities and/or precincts;
- Sports precincts (providing it can be demonstrated to fulfil a critical community and economic role in the township);
- Educational precincts;
- Revitalisation of existing nodes/ centres/ precincts/ high streets/ economic activity centres;
- Multi-Purpose Community Centres (MPCCs), including town halls and youth centres;
- Informal trading facilities; and,
- Any element that may be required in order to secure private sector investment, providing it can form part of the project, and can be demonstrated to be instrumental in securing that investment into the project area.

Implications for the Precinct

- Currently NPDG has mainly been granted for funding projects within metropolitan municipalities, However Thembalethu appears to be suitably positioned to motivate for funding with the Department of National Treasury.
- Assisting Thembalethu to stimulate economic development could be a focus for the NPDG in this area.
- The upgrading of transport infrastructure, especially in order to support the GIPTN project in Thembalethu is another potential benefit of the NDPG.

2.2 MUNICIPAL POLICY

2.2.1 George Local Municipal Spatial Development Framework (Draft May 2013)

The George Municipal Spatial Development Framework (SDF) was prepared in May 2013.

The SDF is based on five (5) spatial development objectives, namely:

- Restructuring and integrating the dysfunctional urban fabric, together with a public transport system and urban renewal interventions;
- Strengthening the economic vitality by enhancing the regional and local space economy, strategic developments to diversify and strengthen the economy, consolidating and reinforcing nodes of economic activity, and infrastructure services provision;
- Creating quality living environments through sustainable urban growth management, managing a hierarchy of city activity nodes, the use of strategic vacant land to take up new development demand, the densification of urban areas, and the provision of housing and public facilities;
- Safeguarding the environmental integrity and assets by establishing a city-wide open space system and environmental corridors, maintaining the functionality of Critical Biodiversity Areas (CBAs) and applying the principles of the Spatial Planning Categories (SPCs);
- Mitigating against impacts of climate change, managing visual landscapes and corridors as well as heritage resources; and,
- Enhance the rural character and livelihood by protecting the productive landscape, managing the subdivision of land and by enhancing the rural livelihood and promoting integrated rural development.

Figure 2.2.1.1 indicates the SDF prepared for the George Municipality.

Implications for the Precinct

- Thembalethu is identified as an Urban Renewal Area. The identified projects are noted in Section 2.2.2.3.
- The spatial integration of Thembalethu with the rest of George is a municipal priority even though it is located south of the N2 Freeway. The N2 Freeway is considered to be a barrier between the poorer southern areas and the better resources northern areas.
- The Precinct is located west of the emerging Kraaibosch/Blue Mountain Commercial Node.
- Future residential areas are proposed within the Precinct in a westerly and southerly direction. All of these pockets of land identified for future development are located inside the identified Urban Edge.
- The Municipality should consider redirecting growth towards the densification of vacant developable land within the inner parts and not the outer parts of the Precinct as noted above.
- The SDF proposes the following residential densities for the Precinct:
  - An overall density of 25 du/ha; and,
  - Densities of 40 du/ha at the commercial nodes and along Nelson Mandela Boulevard.

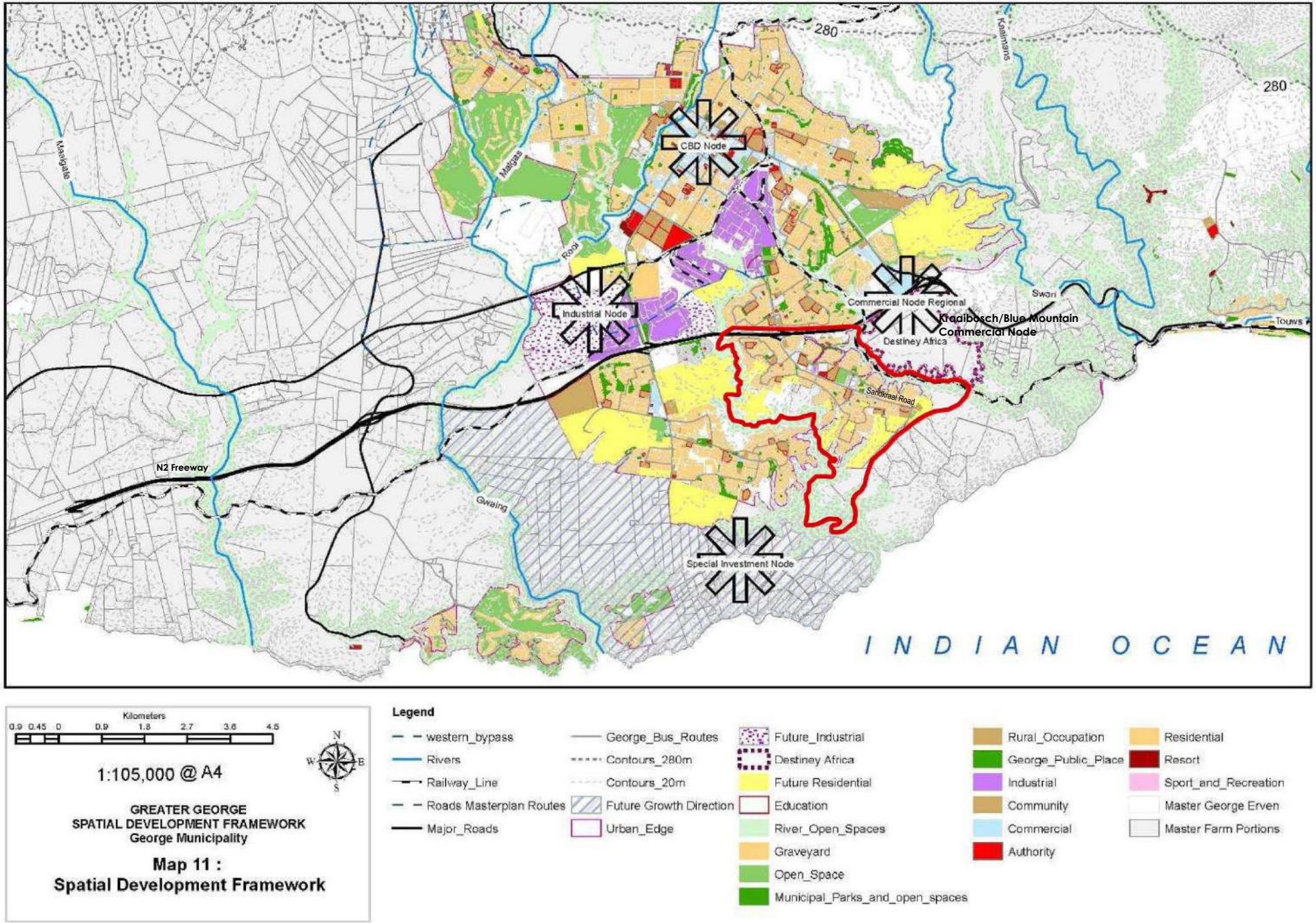


Figure 2.2.1.1 **George Municipal SDF** (Source: George Municipality, March 2013 Draft)

2.2.2 George Municipal Integrated Development Plan (Review 2013/2014)

The George Integrated Development Plan notes the following as its Vision:

"George strives to be the best medium sized city in the country using all available resources sustainably to the benefit of the community in a growing and a thriving city."

The vision is supported by the following mission:

"To provide affordable high quality services through effective governance, administration and fiscal discipline facilitating an environment that is conducive to economic growth and opportunities for all residents whilst ensuring the protection of our natural resources in a sustainable manner to provide a quality living environment for all."

Table 2.2.2.1 indicates the infrastructure projects and budgets for Thembalethu Precinct for the period 2012 – 2017.

No.	Description	Ward	2013/14 Rm	2014/15 Rm	2015/16 Rm	2016/17 Rm	Total
			Electricity				
1	Electricity distribution	9-13, 15	0.50	0.50	0.50	-	1.50
	Sub-total						**1.50**
			Housing				
2	Construction of an old age home	13			2.50	5.00	7.50
3	Construct a palisade fence, Masizakhe Crèche	11		0.22			0.22
4	Complete paving at the Masizakhe service centre	11	0.28				0.28
5	Rectification of houses	9-13, 15, 21	10.50				10.50
6	Provide toilets and wash facilities through serviced sites	9-10, 12-13	4.80				4.80
7	Prepare temporary relocation area for UISP	9-13, 15	7.00				7.00
	Sub-total						**30.3**
			Facilities				
8	Furnish the Thembalethu community hall	12	0.31	0.15			0.46
9	Upgrade new infrastructure, Thembalethu Club House	9, 11-13, 15	0.85	0.85			1.70
10	Upgrade new infrastructure, Touwsrantein sports facility	15	0.50				0.50
	Sub-total						**2.66**
			Parks and Recreation				
11	Upgrade the park, Thembalethu	9-13, 15		0.10			0.10
	Sub-total						**0.10**
	TOTAL						**34.56**

Table 2.2.2.1 IDP projects for the period 2012-2017 (Source: IDP 2013/2014)

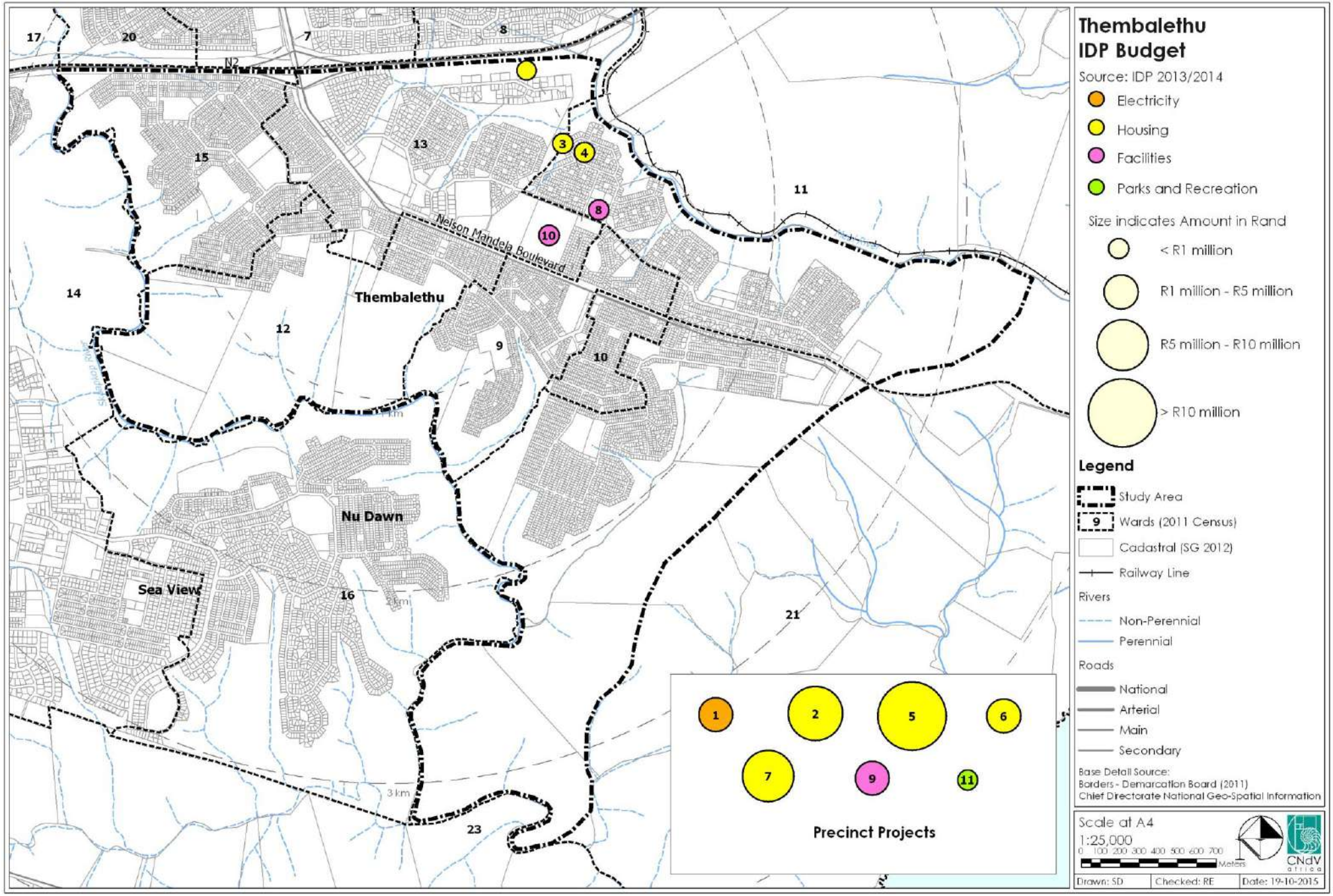


Figure 2.2.2.1 George Municipal IDP 2013/2014

2.2.3 Thembalethu Local Spatial Development Plan (June 2009)

The Thembalethu Spatial Development Plan was prepared in 2009.

The identified urban growth areas for the Precinct are indicated on Figure 2.2.3.1.

The report proposed the following objectives for Thembalethu:

- Ensure compliance with policy UR25 of the Western Cape Provincial Spatial Development Framework (WC-PSDF) to create a density of at least 25 units/ha and to establish a market for commercial densification and public transport;
- Achieve densification within the Urban Edge, to utilise land that is currently occupied by informal dwellers and to provide formal housing;
- Increase residential densities and create safer, friendlier residential spaces;
- Create residential development on Nelson Mandela Boulevard that will set an example for other higher density developments;
- Create complementary multi-sector areas that are accessible by foot;
- Integrate communities with different backgrounds and income;
- Establish Nelson Mandela Boulevard as an "Activity Street" and create economic opportunities and job creation;
- Formalise the current business activity and create shopping and employment opportunities;
- Provide office space for professional services in the proposed commercial node and thereby strengthening the cohesion between different land uses in the Central Business District (CBD);
- Provide the community with shopping facilities within easy access and walking distance from their homes;
- Create employment and provide highly sought after light industrial land;
- Provide the community with additional recreational and personal development opportunities and create employment and income;
- Ensure that the history of the area is preserved;
- Improve the visual and environmental quality of Thembalethu;
- Create a vibrant sense of place and attract tourists to the area;
- Provide more punctual, safe and faster public transport; and,
- Achieve a safe and more accessible pedestrian movement.

Implications for the Precinct

- Housing:
  - Increase the residential density to 30 du/ha.
  - Upgrade the informal houses to formalised housing in the identified urban infill sites.
  - Redevelop sites fronting onto Nelson Mandela Boulevard to 40 du/ha;
  - Redevelop Erven 2259 and 2213 to achieve 40 du/ha (2 – 3 storey innovative residential development).
  - Promote mixed use development along Nelson Mandela Boulevard and in the commercial nodes.
  - Redevelop the old LTA site as a social housing site and provide other social housing sites.

- Business and Industry:
  - Locate commercial and retail, mixed use and high density residential development along Nelson Mandela Boulevard.
  - Establish the CBD at the Nelson Mandela Boulevard / Tabata Street intersection.
  - A lower order commercial node is proposed at the Nelson Mandela Boulevard / 27th Street intersection.
  - Establish a commercial node at the Nelson Mandela Boulevard / Southern Ring Road intersection.
  - Office development should be provided between the N2 turn-off and Ngcakani Street.
  - Place new neighbourhood shopping facilities at accessible intersections and along the identified bus routes.

- Light Industry:
  - Develop portions of the rehabilitated clay mine for light industry.

- Leisure and Tourism:
  - Establish and expand the Church house as the cultural centre and a tourism attraction.
  - Protect the Church house and the surrounding trees as a place of historical significance.

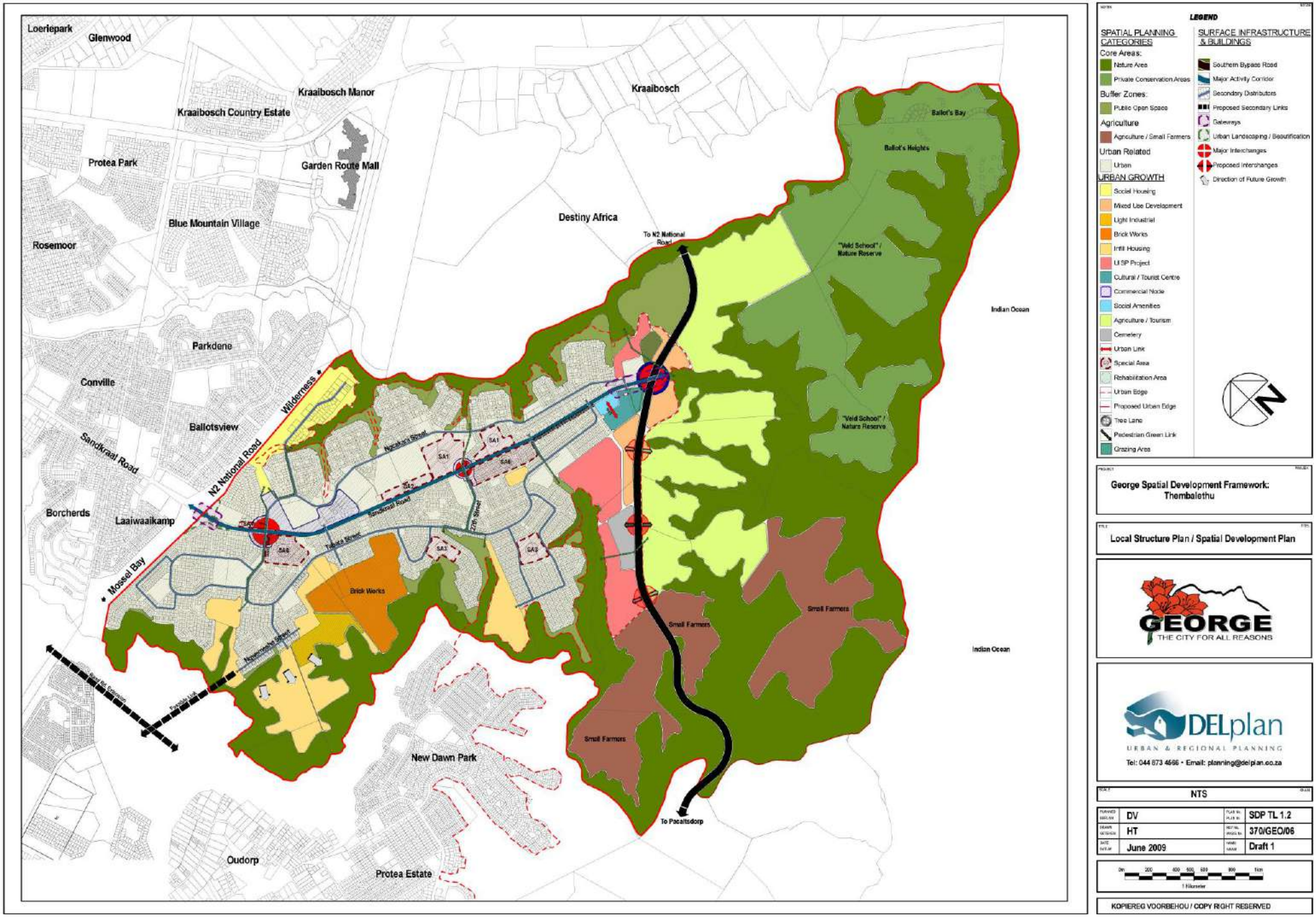


Figure 2.2.3.1 **Thembalethu Local SDF** (Source: DELplan, June 2009)

Implications for the Precinct

- Clean up rivers, streets and areas that are used for illegal dumping and provide recycle bins and garbage bins at areas used for dumping.
- Establish bed and breakfasts (B&Bs) and taverns along Nelson Mandela Boulevard.

- Infrastructure:
  - Upgrade the existing roads and create a sense of place.

- Mobility:
  - Implement the Nelson Mandela Boulevard upgrade and establish the proposed bus routes.
  - Upgrade sidewalks along Nelson Mandela Boulevard and the proposed bus route.
  - Provide pedestrian crossings at busy intersections in Nelson Mandela Boulevard, especially at the proposed commercial nodes.
  - Provide bus stops at locations determined by the George Mobility Strategy.

- Agriculture:
  - Identify a suitable site for urban agriculture purposes.
  - Small farmers should shift their focus from subsistence farming to commercial farming.
  - Designate a property for communal cattle grazing purposes.
  - Provide land to commercial farmers north of the small farmers' area.

- Natural Environment:
  - Integrate the core areas, public open space, public spaces and public walkways.
  - Rehabilitate sections of the brick works land that is exhausted from mining purposes.
  - Retain the "Veldskool" as an environmental education facility.
  - Plant trees along all streets, especially along major routes.

Implications for the Precinct

- Community Facilities:
  - Extend the cemetery to include 10ha of land.
  - Provide community facilities, including a clinic and post office, at a central location.
  - Develop erven 3274, 4055 and 4056 for schools.
  - The sports grounds should be shared by the schools.

- Gateways:
  - Develop the southern gateway to be aesthetically pleasing.
  - Relocate the informal area occupying the road reserve at the northern end of Nelson Mandela Boulevard close to the N2 off ramp.
  - Develop the northern gateway (interface with N2) to be aesthetically pleasing.
  - Provide areas and structure for urban art at the gateways and other central communal areas at the northern and southern gateway.

2.2.4 Urban Design and Architecture Guidelines (May 2011)

The Urban Design and Architectural Guidelines report was prepared in May 2011. The report noted the following inventions for Thembalethu:

- The Urban Design represents a road system which has some degree of hierarchy, but lacks legibility. The road network has numerous dead-ends and cul-de-sacs.
- There is a lack of landmark structures (buildings, towers etc.) that could provide a certain level of spatial clarity. Almost all buildings are single storey.
- There is an absence of communal facilities and services. Residents therefore often need to travel to other areas for shopping, health care, education and employment.
- The precinct lacks vegetation and (greened) recreational space.
- The architecture in the precinct is very modest. Affordability appears to be the main factor governing expression, form and materials of buildings.
- There is no noticeable built heritage in this precinct.

The guidelines state that they are formatted as a questionnaire for ease of use and cover five categories:

- Sense of place;
- Natural context;
- Planned context;
- Design and construction; and,
- Heritage.

Significant civic and public buildings must to be designed by architects registered with a recognized professional organisation.

Gated communities must comply with these guidelines that should take precedence over architectural guidelines developed specifically for that development.

Implications for the Precinct

- Major planning applications located within the Precinct, defined as schemes of ten units or more (residential developments) and schemes with a total floor area of equal to or greater than 500m² (non residential buildings) should comply with these Urban Design and Architectural Guidelines.

3. THE CURRENT STATE OF THE PRECINCT

3.1 NATURAL SYSTEMS

3.1.1 Topography, Slopes and Aspect

The Precinct study area is generally a built up area with no natural topographical features.

The focus of the Urban Upgrade Plan is mainly on the existing urban areas of Thembalethu. Therefore, the topography of the surrounding area will not be affected by this plan.

The slopes and aspect in the area is indicated on Figure 3.1.1.1 and 3.1.1.2. The north-facing aspect indicates locations that are ideal for development as developments at these locations will have the best solar exposure.

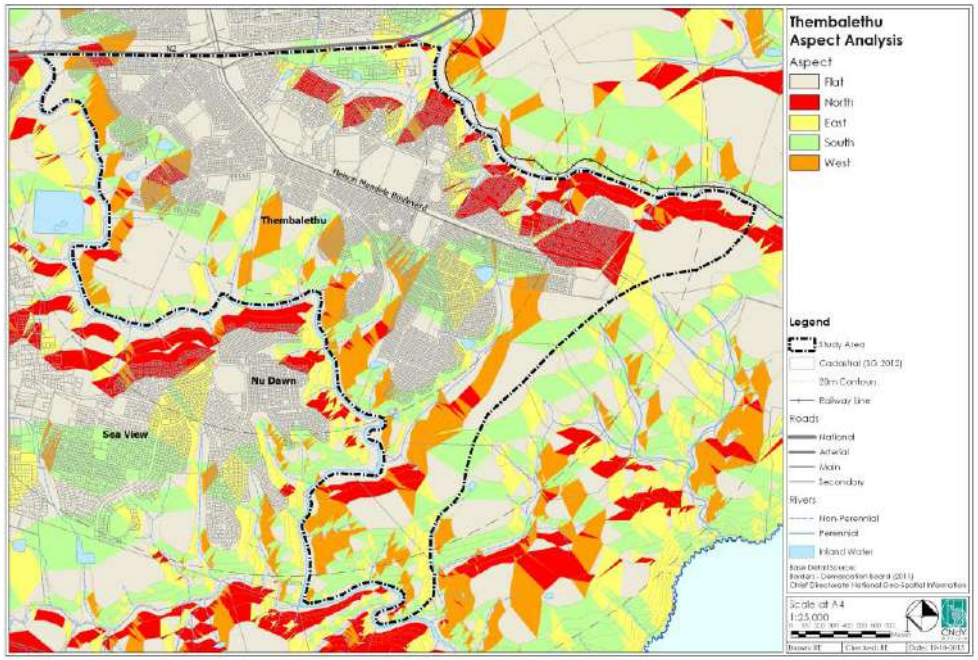


Figure 3.1.1.2 Aspect

Implications for the Precinct

- A large number of north facing slopes are located in the northern parts of the precinct. These are favourable locations for residential extensions given their higher exposure to sunlight as appose to south facing slopes. Slopes of more than 1:4 are however also found here and careful planning should be done on the more level areas.

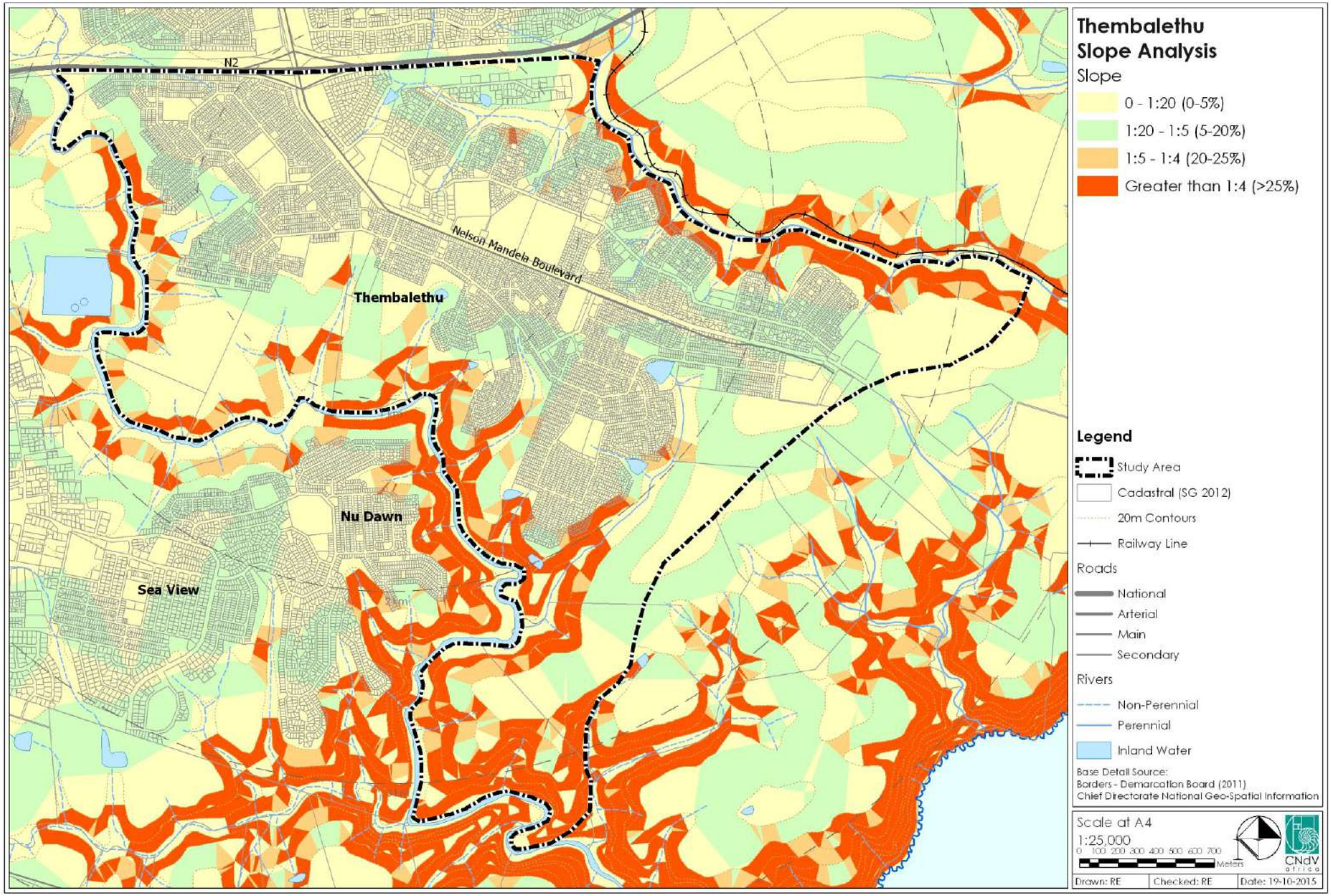


Figure 3.1.1.1 Slopes

3.1.2 Water Resources (Hydrology)

3.1.2.1 River Network

Figure 3.1.2.1 shows the distribution of rivers in and around the Precinct.

The Skaapkop and Meul Rivers form the western and eastern boundaries of the Precinct, respectively.

No significant rivers traverse the study area. A few non-perennial streams are found throughout the Precinct.

Figure 3.1.2.1 also indicates inland water bodies or retention areas that mostly fill up during the rainy months of the year.

Implications for the Precinct

- Special care should be taken for developments planned along the banks of the Skaapkop and Meul Rivers.
- The water courses and retention dams / areas should not be developed. Appropriate setbacks of 32m in the absence of appropriately determined setbacks, prohibiting urban development and agricultural practices, should be established along these water features.

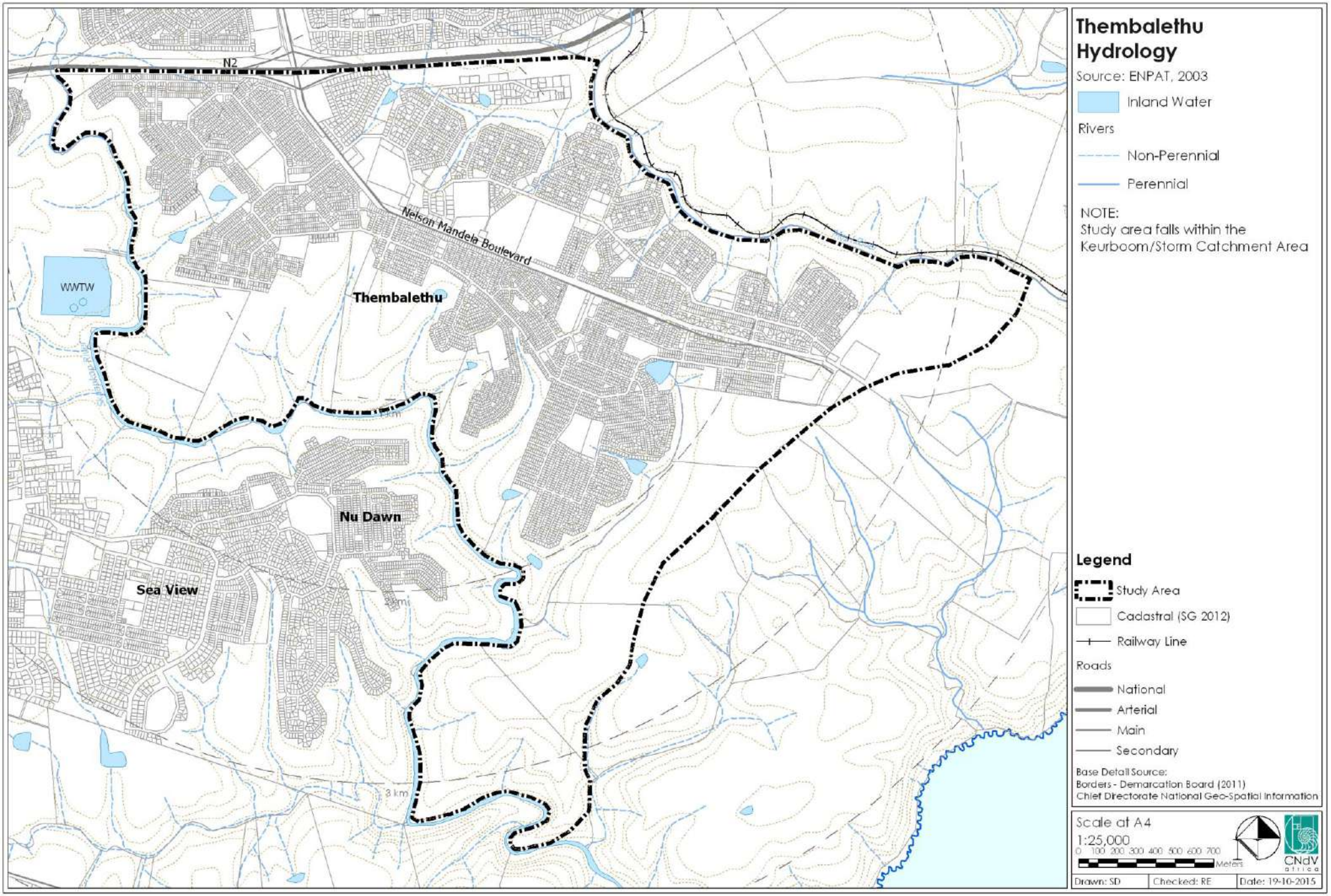


Figure 3.1.2.1 Hydrology: River and Wetland Systems

3.1.3 Critical Biodiversity Areas (CBA's)

Figure 3.1.3.1 shows the Critical Biodiversity Areas (CBAs) found within the Precinct.

CBAs include:

- areas that need to be protected in order to meet biodiversity thresholds;
- areas required to ensure the continued existence and functioning of species and ecosystem, including the delivery of ecosystem services; and,
- important locations for biodiversity features or rare species.

As part of the CBAs there are also Ecological Support Areas (ESAs) that provide important linkages for ecological processes.

ESAs are supporting areas required to prevent the degradation of CBAs and Protected Areas. ESAs may be ecological process areas that connect and sustain CBAs for a terrestrial feature.

Implications for the Precinct

The South African National Biodiversity Institute (SANBI) has indicated management objectives for these areas:

- CBAs should be maintained where natural;
- Those areas that are degraded should be rehabilitated to a natural or a near natural state; and,
- CBAs should also be managed to ensure their protection and to prevent further degradation.
- Appropriately protect and manage the CBAs and ESAs in the Thembalethu Precinct.
- CBAs should be designated as Core 1 areas as part of the spatial Planning Categories (SPCs).
- Ecological Support Areas (ESAs) should be designated as Core 2 areas in terms of the Spatial Planning Categories (SPCs).

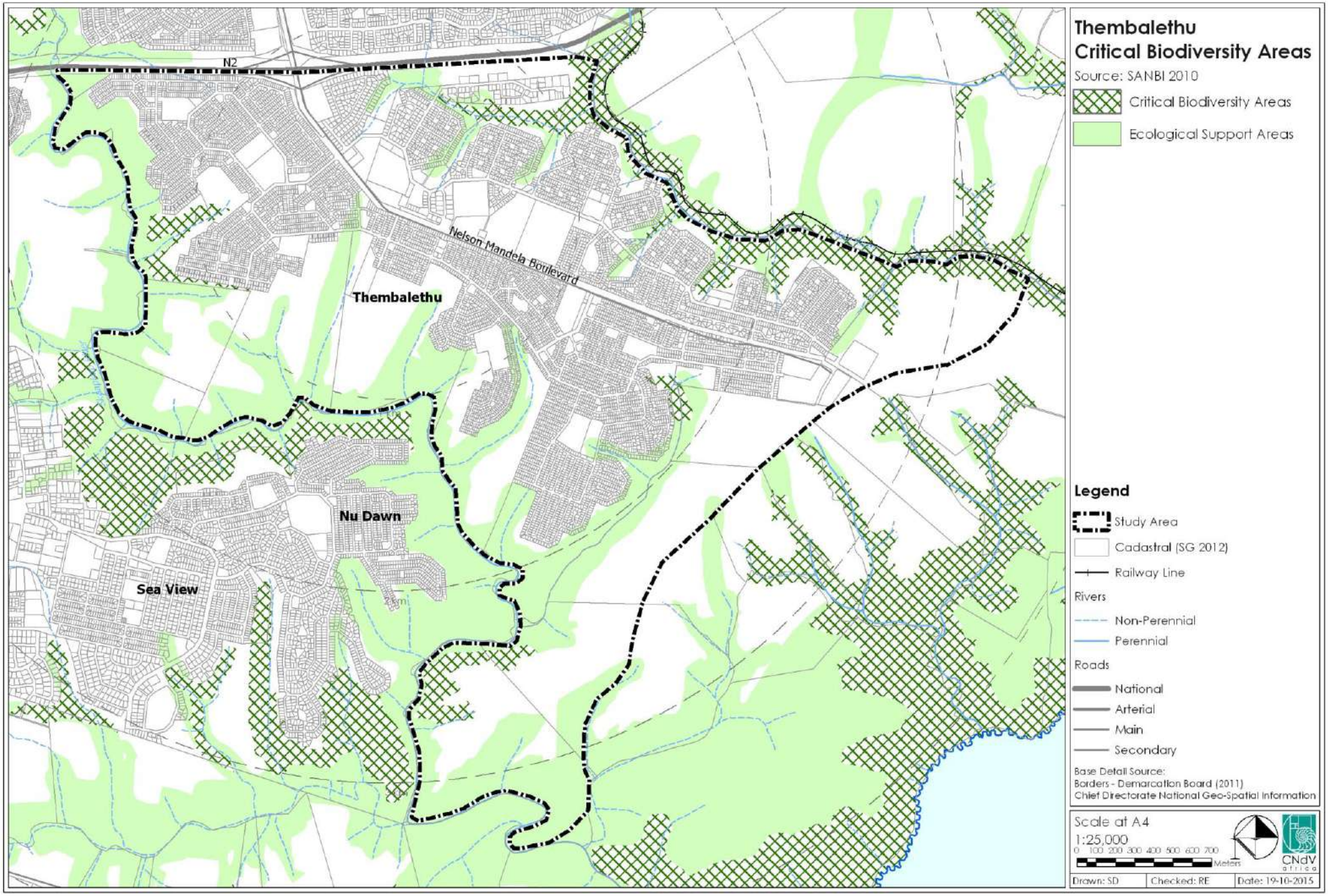


Figure 3.1.3.1 Critical Biodiversity Areas (CBAs) and Ecologically Support Areas (ESAs)

3.1.4 Mining

Figure 3.1.4.1 indicates the location of the brick works in the Precinct. This facility is nearing the end of its lifespan. The SDF (2009) highlights the importance of a strategy for the medium to long term future of the facility. The brick works is leading to environmental (pollution of rivers) and health (air pollution from the furnaces) problems in the area.

No other mining activities were observed in the Precinct.

Implications for the Precinct

- Provide guidance on appropriate uses for the brick works in the medium to long term future.
- Investigate ways to rehabilitate, at least, portions of the brick works that are no longer mined for other urban uses.

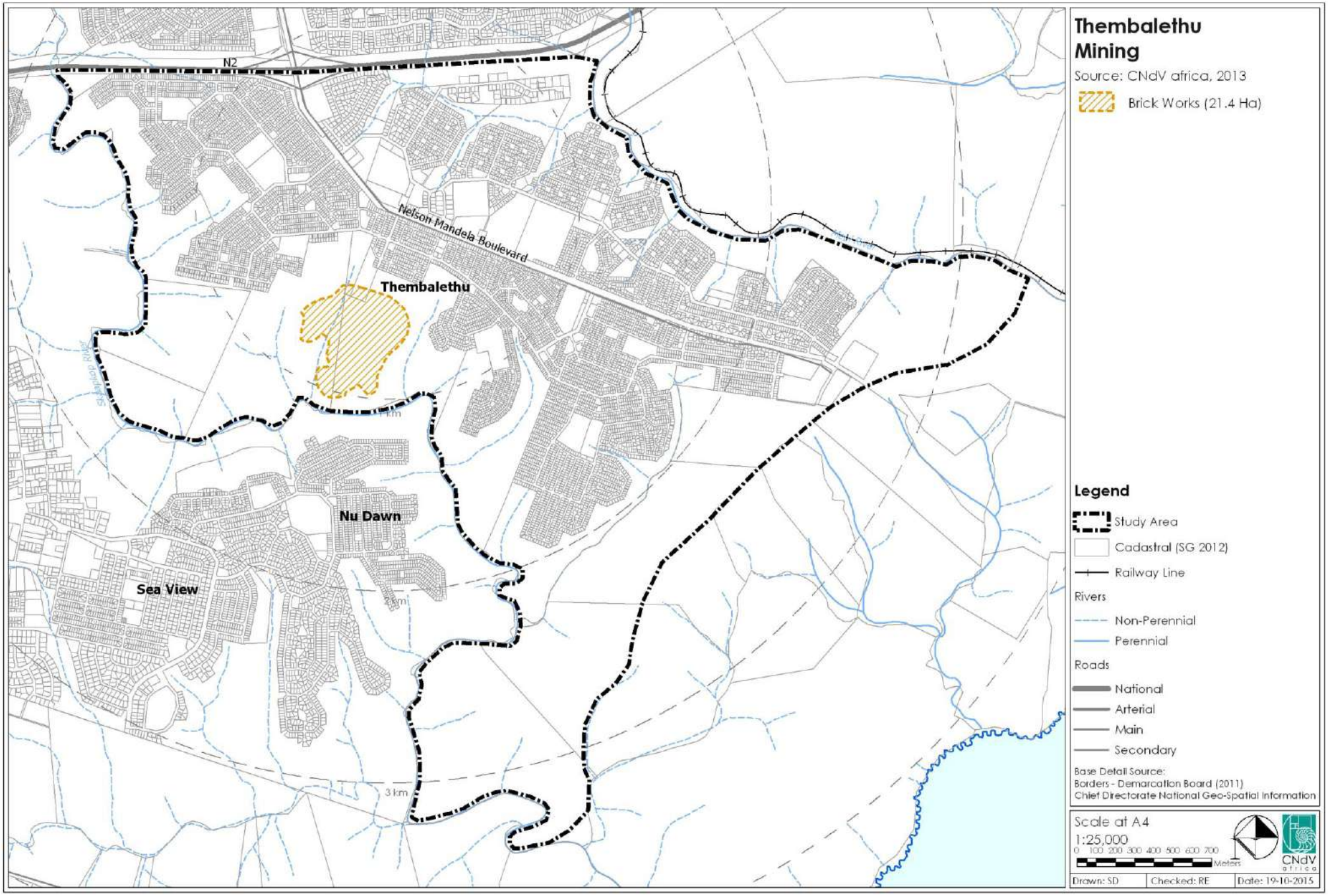


Figure 3.1.4.1 Mining

3.2 SOCIO-ECONOMIC CONDITIONS

3.2.1 DEMOGRAPHIC PROFILE

3.2.1.1 Overall Population

The current population of the Precinct is approximately 43 409 people (Census, 2011). This figure represents 22% of the municipal population. This information was extrapolated from the most recent Census 2011 data using a subdivision of Census small areas in relation to the Precinct boundary. In instances where small areas only cover a small part of the Precinct and also includes a large section outside the Precinct a ratio relating to the size of the total small area within the Precinct was applied to extract data.

3.2.1.2 Ethnic Groupings

Table 3.2.1.2 indicates the ethnic groups make-up of the population in the Precinct. From this table it is clear that the majority of the population are Black Africans (93%).

	Black	Coloured	Indian/ Asian	White	Other	Total
No.	40 317	2 606	66	85	348	43 422
%	92.8%	6%	0.2%	0.2%	0.8%	100%

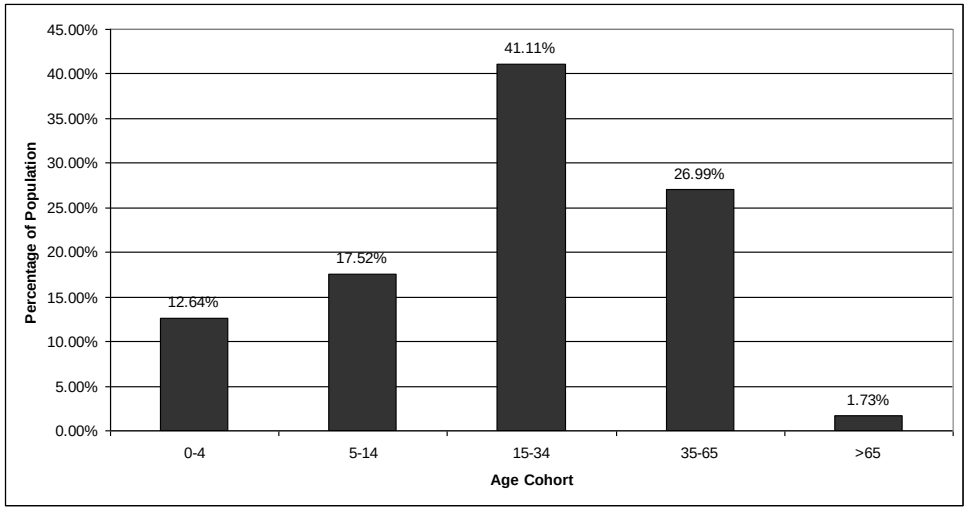
Table 3.2.1.2 Ethnic Groupings (Census 2011)

3.2.1.3 Growth Rate

The population for Thembalethu has increased by 31.6% or 3.16% per year, given the comparison of the Census records for 2001 and 2011. This amounts to 10 422 more people between 2001 and 2011. This could be attributed to increased child births and the in-migration of people seeking employment in George.

3.2.1.4 Age Structure

Graph 3.2.1.4 indicates the age structure of the population in the Precinct. This graph indicates that the majority (68.10%) of the population are between the ages of 15 and 65, thus there is a large potential labour force. Only a very small percentage of the population (1.73%) is older than 65 thus indicating that people retire in other parts of the country, or alternatively, die at a young age.



Graph 3.2.1.4 Age structure in the Precinct (Census 2011)

3.2.1.5 Gender

According to Census 2011 there are marginally more males (50.35%) than females (49.65%) in the Thembalethu Precinct.

Implications for the Precinct

- The population of the Precinct has increased significantly (31.6%) for the period 2001 to 2011.
- Black Africans make up the largest population group.
- There is a potentially large labour force in the area as the majority of the residents (68.10%) are aged between 15 and 65 years.

3.2.1.6 Health Facilities

Figure 3.2.1.6 indicates the location of health facilities in and around the Precinct. This map indicates that there is only one (1) clinic that serves about 43 409 person in the Precinct.

Table 3.2.1.6a shows the minimum standards for health care facilities as given by the National Department of Health.

National Department of Health : Facility Provision Standards (2007)					
Type of Facility	**Size of population**		**Estimated households**		**Min Site size (ha)**
	Min	**Max**	**Min.**	**Max**	
Small to medium clinic	5 000	20 000	1 250	5 000	0.2
Large clinic	30 000	50 000	7 500	12 500	0.5

(source: CSIR, 2011)

Notes:

1. For populations less than 5 000 mobile clinics will be utilised
2. For populations greater than 50 000, more than one large clinics will be needed

Table 3.2.1.6a Standards: Health care facilities (Source: National Department of Health, 2007)

Demand for new health facilities based on the current population and existing facilities						
Settlement	**Pop.**	**Type of Clinic**	**Requirements based on the population**			
			Overall need	**Existing**	**Need**	**Min. size (ha)**
Thembalethu	43 409	Small - medium	2	1	**1**	0.2
		Large	1	0	**1**	0.5

Table 3.2.1.6b Number of health facilities and land required

Table 3.2.1.6b indicates there is a need for health facilities given the population size of the Precinct in relation to the national standards.

Figure 3.2.1.6 also shows access distances or "service areas" for the Thembalethu Clinic. It is generally regarded that a 1km walking distance is ideal. An analysis was done based on this and the current road network of the Precinct. The orange and red shaded areas indicate those areas where residents have to travel the greatest distances. In this regard the western most areas and southern most areas of the Precinct have the greatest need for access to a health care facility.

Implications for the Precinct

- Additional health care facilities are required in the Precinct, especially to service the eastern and southern areas of the Precinct.
- There is a need for either two (2) small-medium sized or one (1) large clinic.

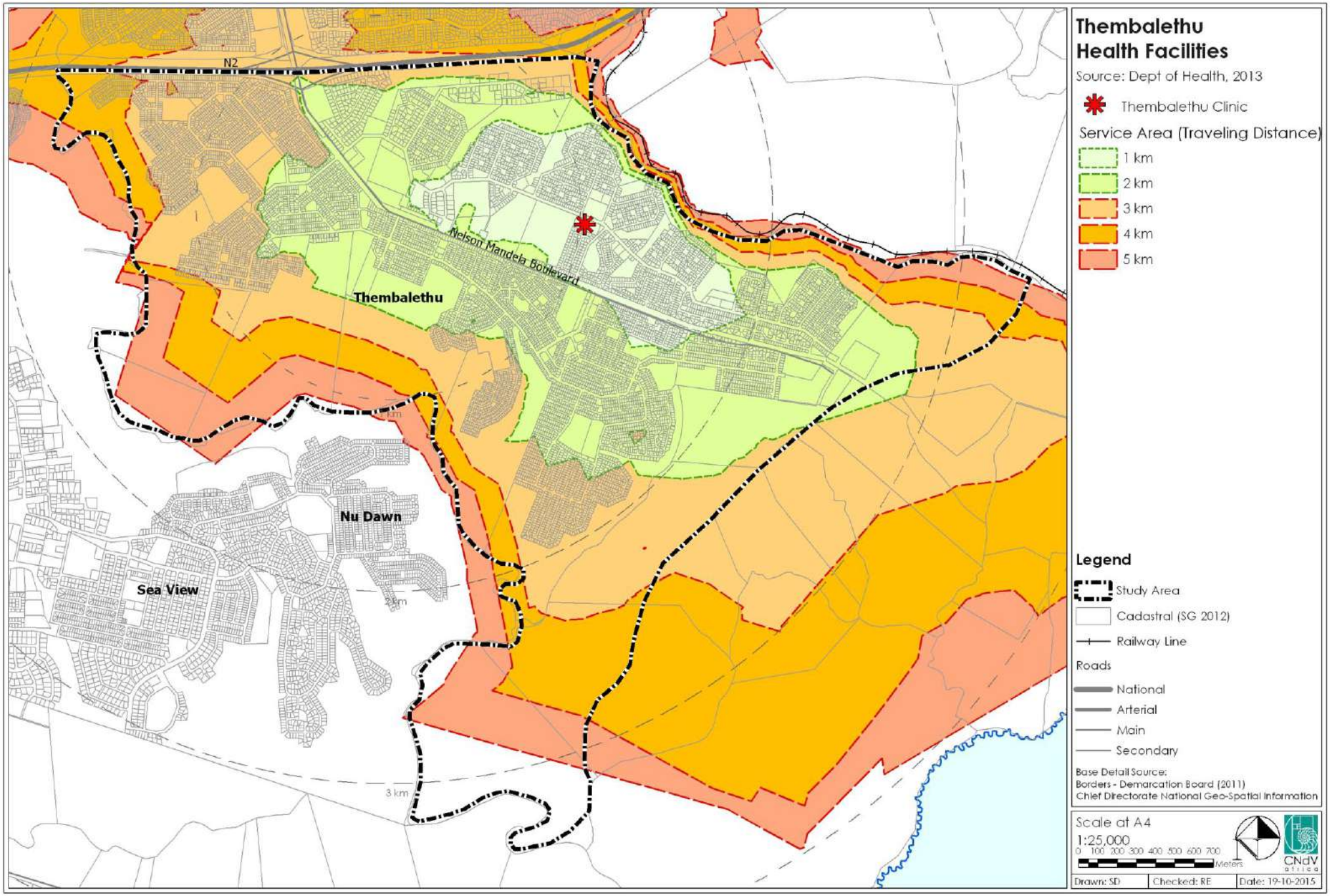


Figure 3.2.1.6 Health Facilities: Thembalethu

3.2.1.7 Education Facilities

Figures 3.2.1.7a and 3.2.1.7b indicates the location of education facilities in the Thembalethu Precinct. There are three (3) primary schools and two (2) secondary schools within the Precinct.

Table 3.2.1.7a shows the minimum standards for education facilities as given by the National Department of Education.

National Department of Education : School Provision Standards (2008)							
Type of School	Number of leaners			Catchment Pop.		Site size (ha)	
	Min	Max	Ave.	Max Pop	Max Hhlds	Min	Optimum
Large sized primary school	621	930	776	6 643	1 661	3.5	6.2
Large secondary school	601	1 000	801	12 500	3 125	4.0	5.5

(source: CSIR, 2011)

Notes:

1. 4 persons per household
2. Average size of 600 learners per school

Table 3.2.1.7a Standards: Education facilities (Source: National Department of Education, 2008)

Tables 3.2.1.7b indicates there is a need for additional schools given the population size of the settlement in relation to the national standards.

Demand for new schools based on the current population and existing schools						
Settlement	Pop.	Type of School	Requirements based on the population			
			Overall Need	Existing	Need	Min. size (ha)
Thembalethu	43 409	Primary	7	3	**4**	14
		Secondary	3	2	**1**	4

Table 3.2.1.7b Number of schools and land required per town

Table 3.2.1.7c indicates the level of education of members of the Thembalethu community as per Census 2011. Only 19.03% of individuals had a Grade 12 education and only 2.2% had a higher or secondary education.

Type of education	2011	%
No Schooling	1 847	4.88%
Some Primary	10 408	27.52%
Completed Primary	2 541	6.72%
Some Secondary	14 992	39.65%
Grade 12	7 195	19.03%
Higher/Tertiary	830	2.20%
TOTAL	**37 813**	**100%**

Table 3.2.1.7c Level of education (Census 2011)

Figures 3.2.1.7a and 3.2.1.7b also shows a network analysis which shows the need for additional educational facilities based on walking distances. The Council for Scientific and Industrial Research (CSIR, 2010) has developed standards for access distances or "service areas" for education facilities. As per these standards a 500m walking distance is prescribed as an ideal threshold. Based on this analysis 1km and 2km walking distances are too great. Therefore, based on this analysis there is a need for a primary school in the west and south of the Precinct. Secondary schools are required in the south and western areas.

Implications for the Precinct

- Additional schools, four (4) primary schools and one (1) secondary, are required in the Precinct.
- Improvements in the number of Grade 12 learners should be a priority.

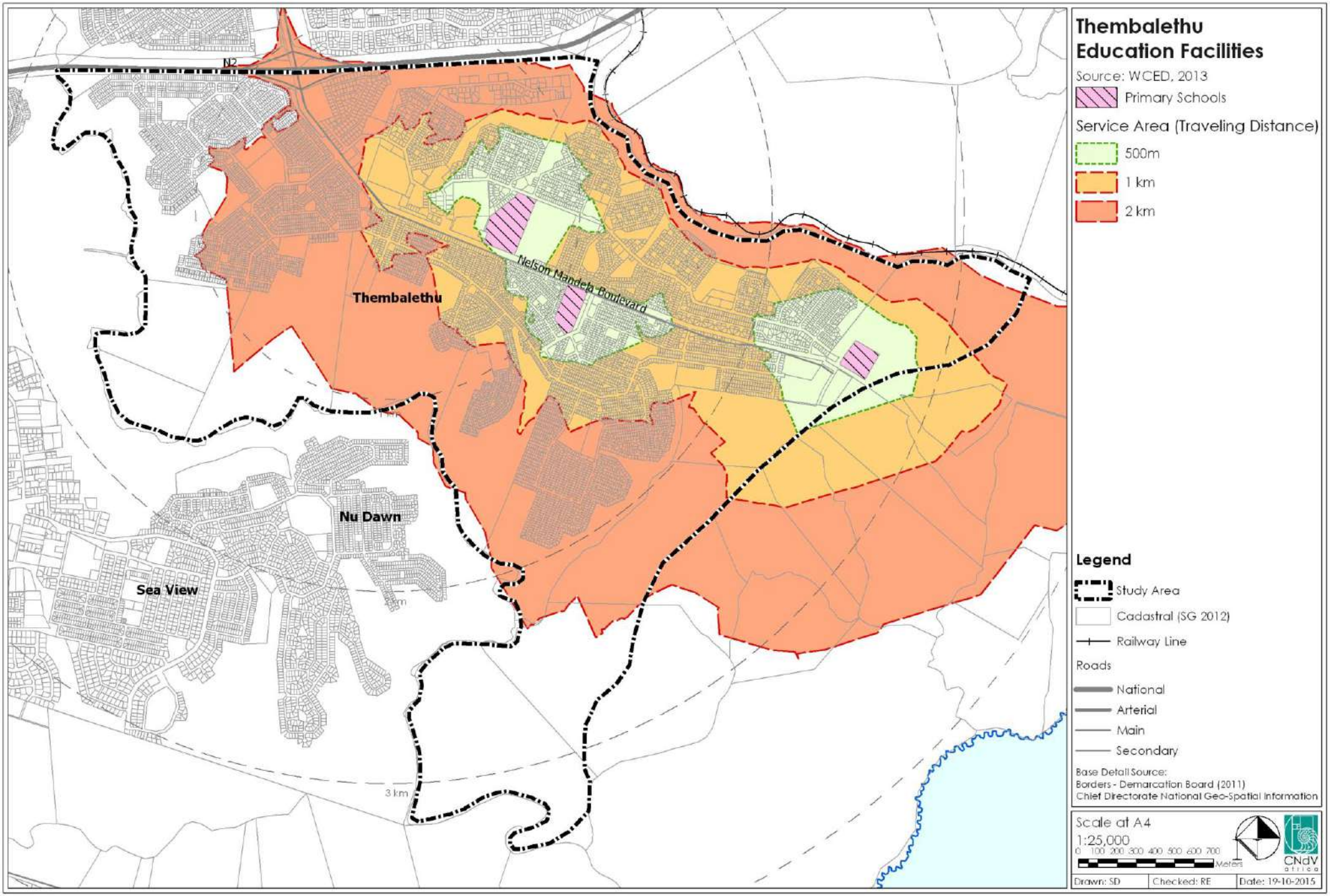


Figure 3.2.1.7a Primary Schools: Thembalethu

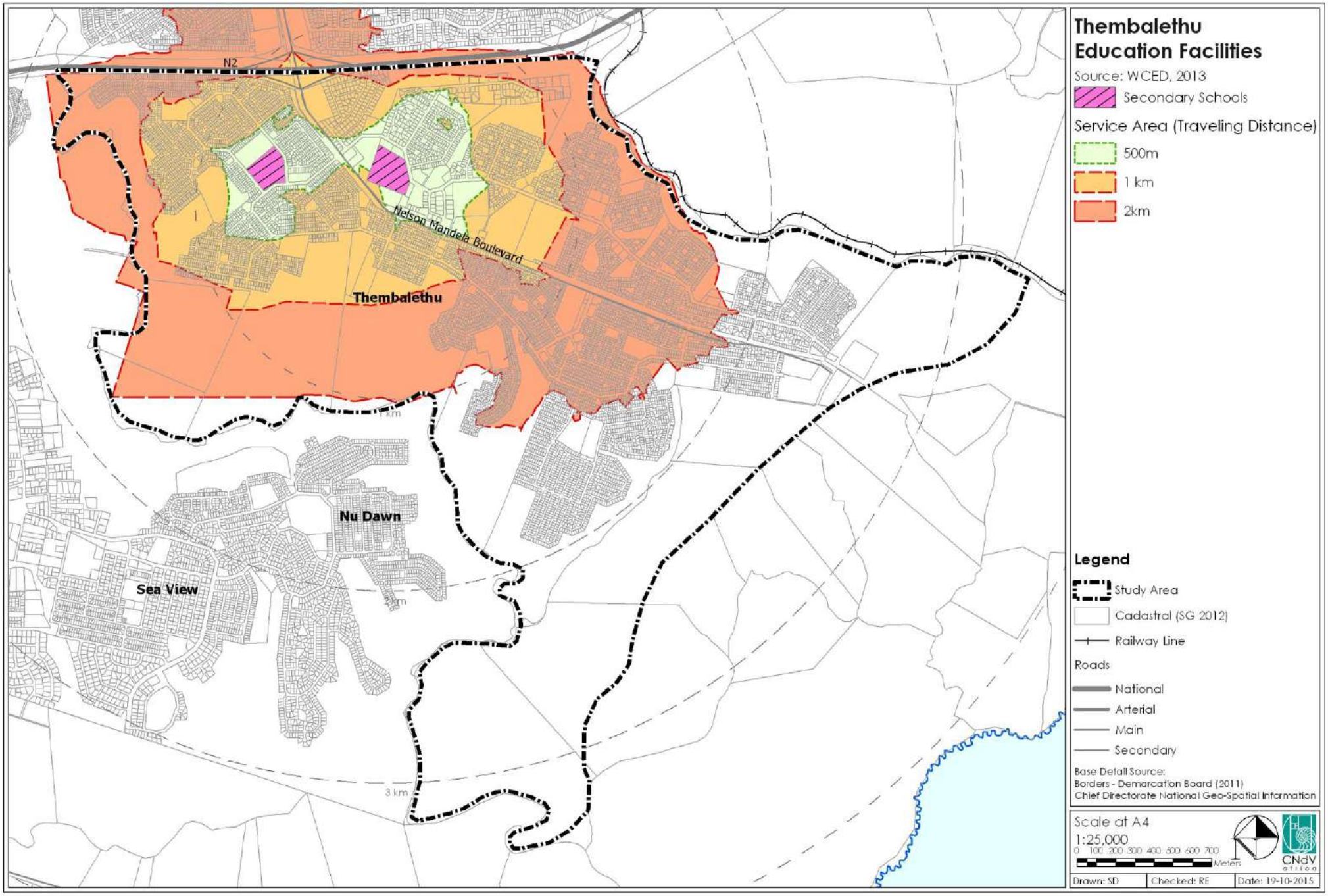


Figure 3.2.1.7b Secondary Schools: Thembalethu

3.2.1.8 Community Facilities

Figure 3.2.1.8 indicates the other community facilities within the Precinct.

The following facilities are available here:

- Post Office;
- Thusong Centre;
- Mall;
- Community Hall; and,
- Library.

A number of Public Open Spaces (POS) are also located in the Precinct. The POS sites are mostly located in the northern parts of the Precinct.

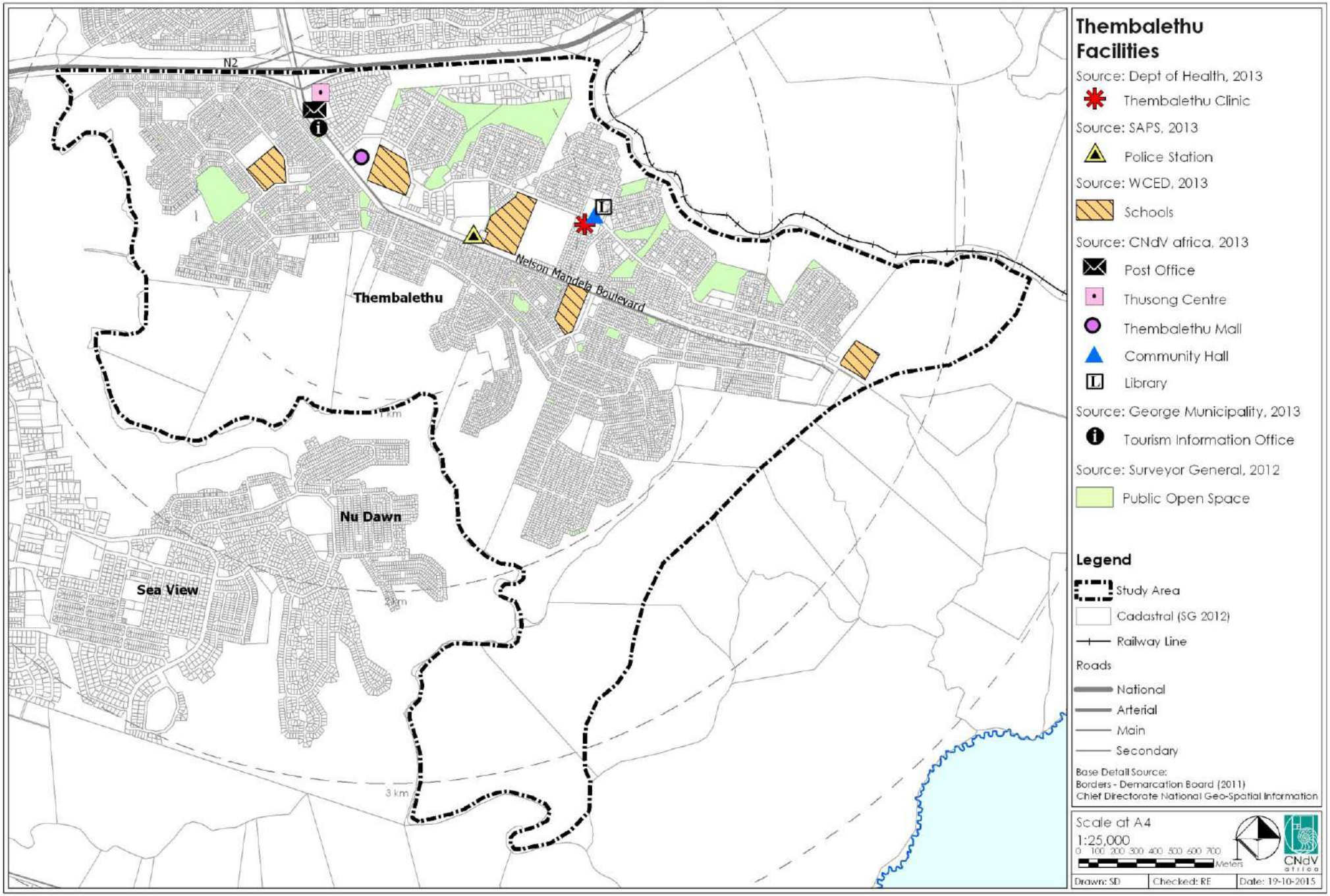


Figure 3.2.1.8 Communal Facilities

3.2.1.9 Unemployment

There are 11 893 (64.49%) individuals employed and 6 546 (35.50%) individuals unemployed according to Census 2011. The total labour force in 2011 was 18 439.

Implications for the Precinct

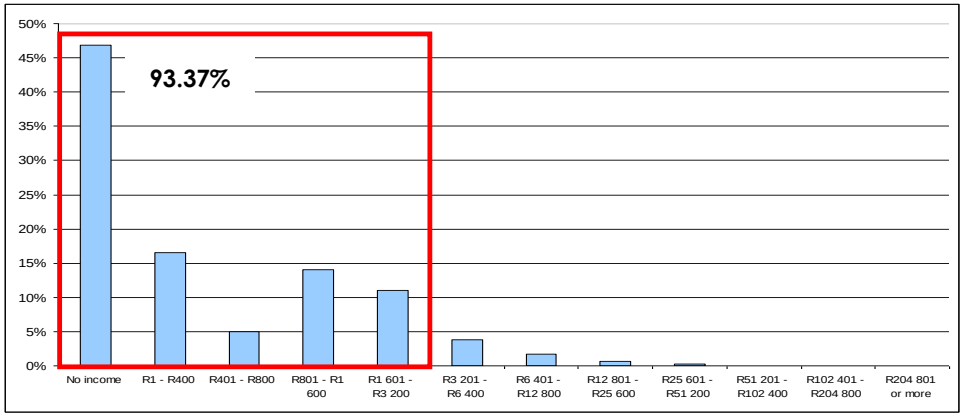
- A large number of the work force is unemployed (35.5%).
- Interventions are required to employ more people from within the Precinct.
- Education initiatives and skills training could be implemented to improve the employability of the workforce.

3.2.1.10 *Individual and household income*

Graph 3.2.1.10 indicates the income levels of individuals in the Precinct.

The following can be derived from this graph:

- 93.37% (majority) of these individuals earn below R3 200/month. This is the government subsidy limit;
- 5.53% of individuals earn between R3 201 and R12 800/month; and
- 1.1% of individuals earn above R12 801/month.



Graph 3.2.1.10 Individual Income (Census 2011)

Implications for the Precinct

- The majority of individuals (93.37%) earn below R3 200 per month (subsidy level).

3.2.2 Land Reform

Figure 3.2.2.1 shows the land affected by land reform in the Thembalethu Precinct. A large land reform project is located in the south of the Precinct. This project straddles the Precinct boundary - approximately 10ha is within the Precinct.

Details of the project located in the Precinct are contained in Table 3.2.2.1 below.

Name	Legal Entity	Grant Type	Production Type	Area	Status
Thembalethu / Eluxolweni	Eluxolweni Founa	LRAD	Food	19.7ha	Transferred

Table 3.2.2.1 **Land reform project** (Department of Rural Development and Land Reform, 2013)

Implications for the Precinct

- Government owned vacant land could potentially be used for land reform projects. The Precinct Plan should identify appropriate land for this.

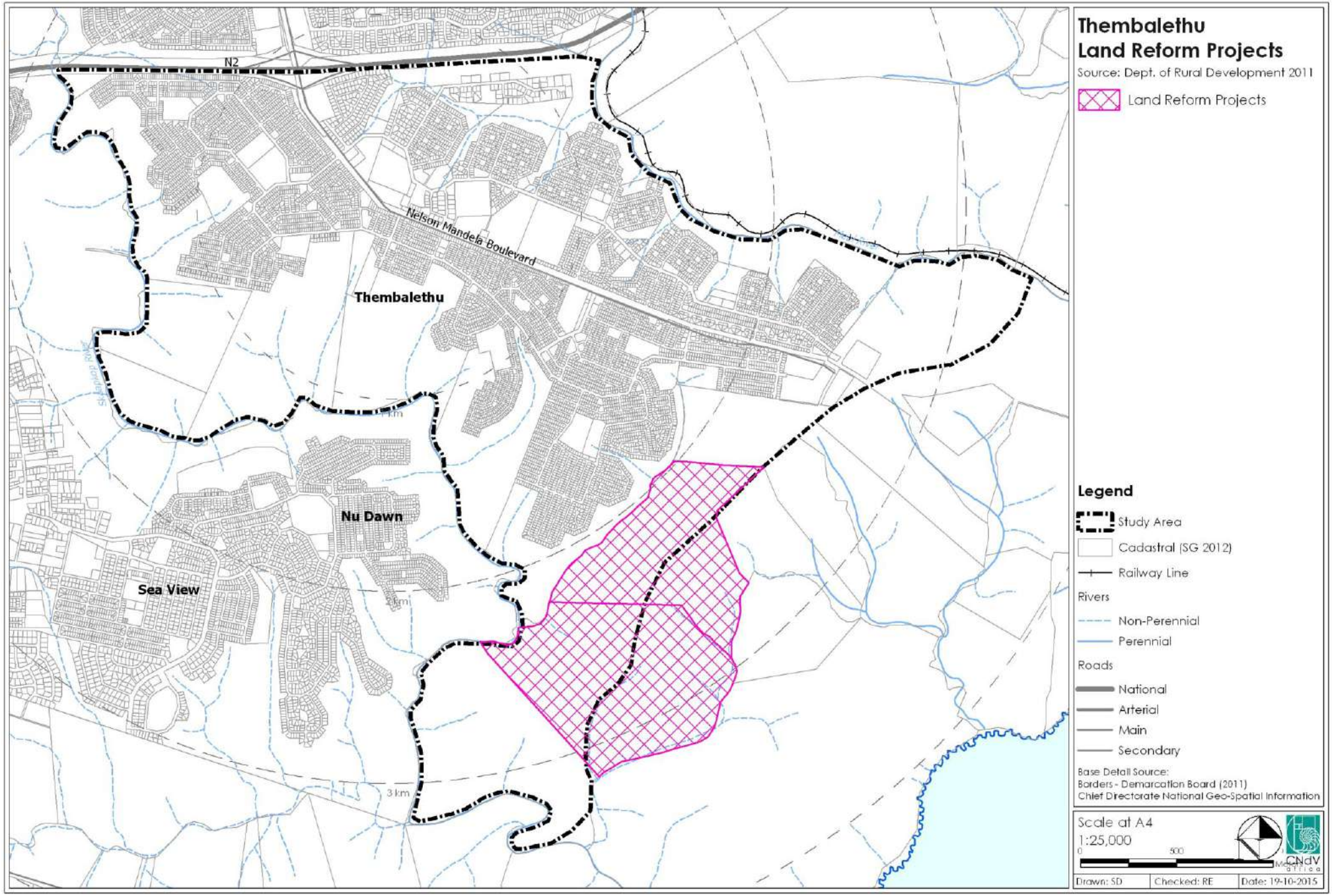


Figure 3.2.2.1 Land Reform Projects

3.2.3 Cemeteries

Figure 3.2.3.1 indicates the location of cemeteries in the Precinct.

The SDF (2009) calls for the extension of the cemetery located along the eastern border of the Precinct by an additional 10ha. Land will be allocated for this next to the planned south ring road.

The Minister of Health has, in terms of Section 68(1)(b) read with Section (90(4)(c) of the National Health Act 2003 (Act 61 of 2003), made regulations relating to the management of human remains (Government Gazette R363, dated 22 May 2013). Section 15(2)(b) of the mentioned regulations has very serious implications. The mentioned sub-sections reads as follows:

"All burial sites must comply with the following environmental requirements-

(a) ….;

(b) be located at least 350m from ground water sources used for drinking purposes and at least 500m from the nearest habitable building;

(c) ….; "

Figure 3.2.3.1 indicates the extent of such 500m restriction. This map shows that a number of residential buildings are already within 500m of a burial site.

Implications for the Precinct

- Ensure the planned extension of the cemetery is provided in a manner which will integrate and compliment the Precinct.
- Specific attention will need to be given to fencing the facility and the provision of gardens and tree planting.
- The cited sub-section of the Health Regulations dictates that there shall be no residential (habitable) buildings within 500m of any burial site. The requirement of this regulation could hamper the ideals of densification in urban areas, especially along Nelson Mandela Boulevard.

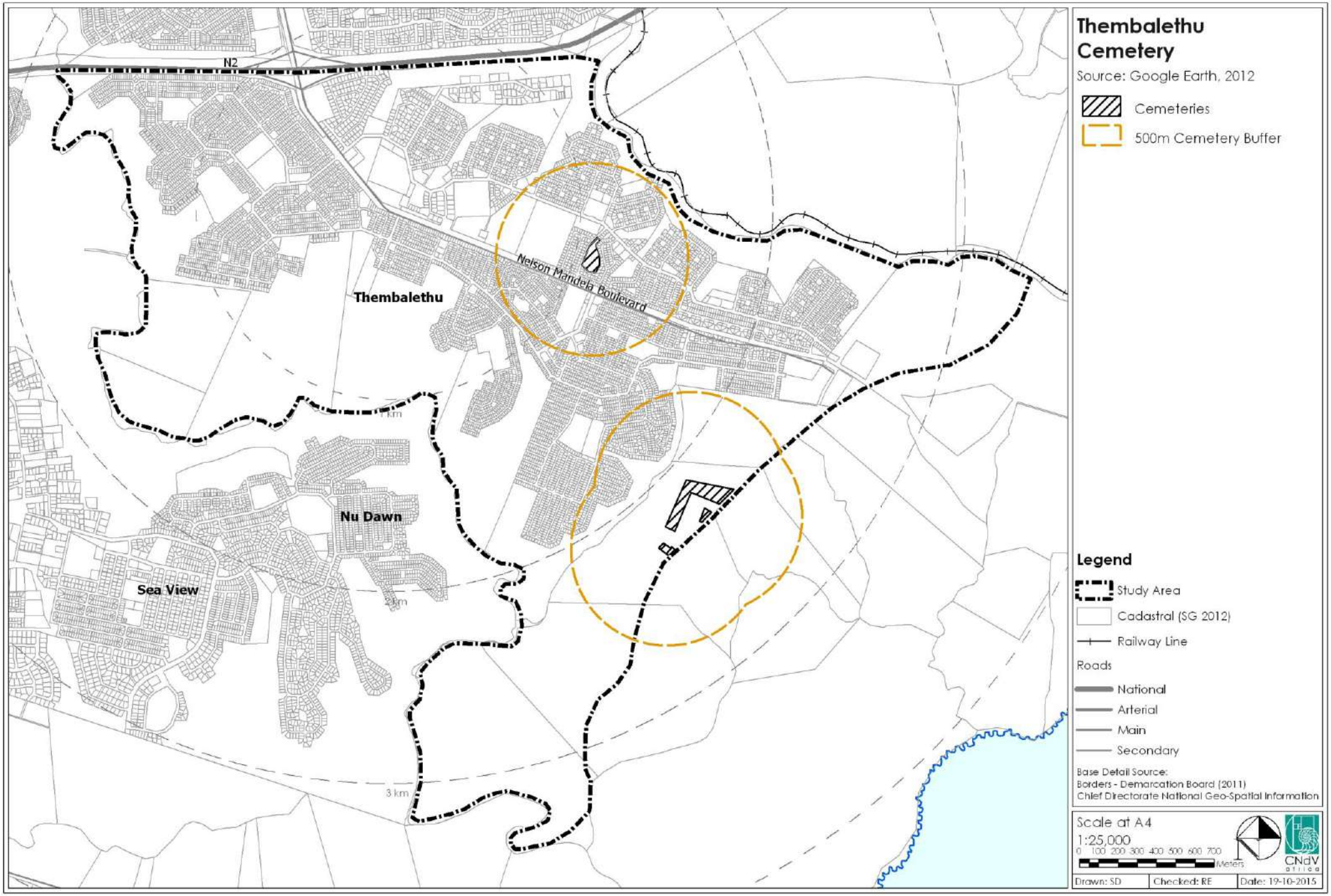


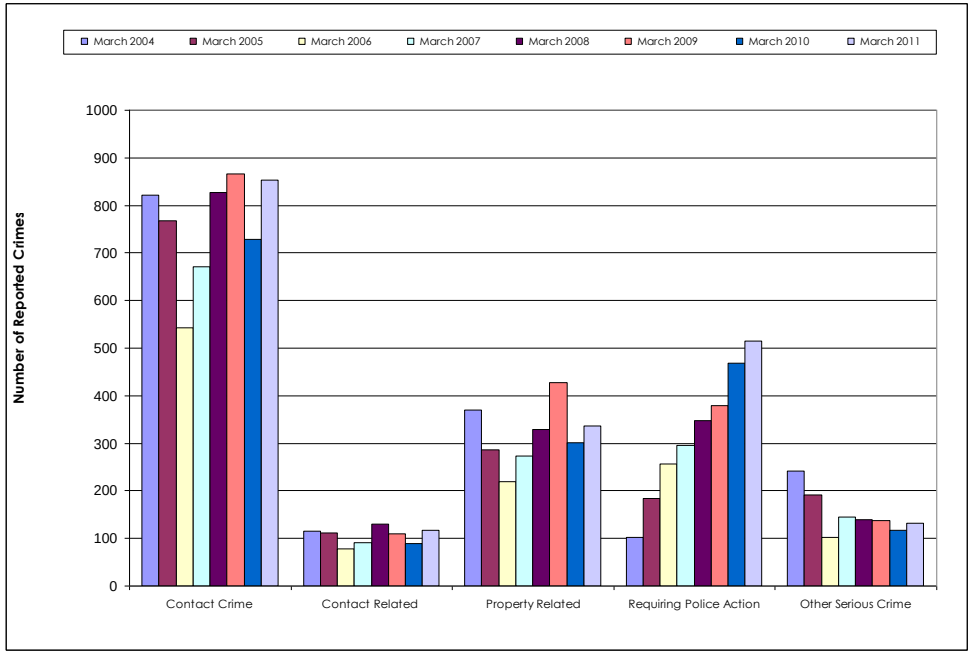
Figure 3.2.3.1 Cemeteries: Thembalethu

3.2.4 Crime

The crime statistics for the Precinct was obtained from the Thembalethu police station, located on Nelson Mandela Boulevard, in the centre of the Precinct, see Figure 3.2.4.1.

Graph 3.2.4.1 shows that Contact Related Crimes are the most reported crimes. Thereafter Crimes Requiring Police Action and Property Related Crimes follow.

Contact crimes consist of murder; sexual crimes; attempted murder; common assault and assault to inflict grievous bodily harm, common robbery and robbery with aggravating circumstances. Property Related crimes include burglary and theft (including stock-theft). These are very serious crimes and indicate the poor socio-economic conditions of the population in and around the Precinct. Contact crimes have also increased between 2010 (853) and 2011 (889).



Graph 3.2.4.1 Reported crimes at Thembalethu police station (2004 – 2011) (SAPS, 2013)

Figure 3.2.4.1 also shows access distances or "service areas" for the Thembalethu Police Station. It is generally regarded that a 1km walking distance is ideal. An analysis was done based on this and the current road network of the Precinct. The orange and red shaded areas indicate those areas where residents have to travel the greatest distances to reach the police station. In this regard the western, eastern and southern most areas of the Precinct have the greatest need.

Implications for the Precinct

- The high crime rate indicates poor social conditions (lack of education, health care, unemployment, etc.). Improvements regarding these should be sought as a priority to reduce crime levels (especially high occurrences of contact crimes).
- Between April 2010 and March 2012 reported crimes have increased. Either there is increased policing resulting in improved detection of crime or more crimes are committed. Nevertheless, crime levels need to decrease through a concerted effort.
- Increased access to police services is required especially for those living on the periphery of the Precinct.

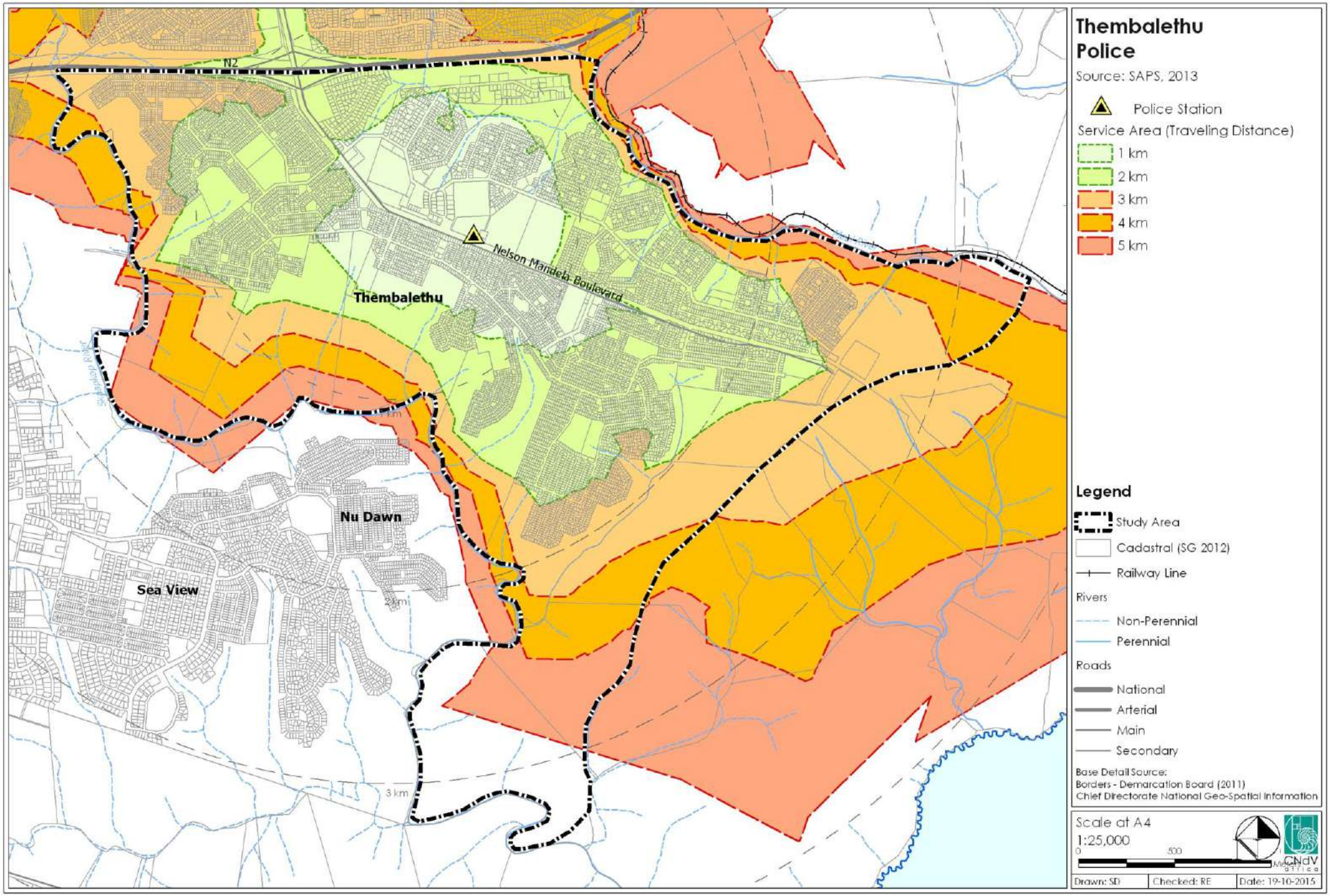


Figure 3.2.4.1 Police Stations

3.2.5 Tourism

Figure 3.2.5.1 indicates the main tourist attractions in the Precinct.

The Spatial Development Framework (SDF) (2009) highlights the need to establish and expand the Church House (one of the oldest buildings in George) as a cultural centre and tourism attraction in Thembalethu. Developments should include a community and cultural centre with a conference facility. As part of this tourism precinct the need to protect the surrounding oak trees as a place of historical significance was also highlighted in the SDF.

Furthermore, the SDF promotes the establishment of Bed and Breakfasts (B&B's) and Taverns along Nelson Mandela Boulevard to attract tourists to the area.

A newly constructed tourism information office is located in the north of Nelson Mandela Boulevard.

Implications for the Precinct

- Promote the Church House as a key driver of tourism in the Precinct.
- Ensure that Thembalethu is marketed as a desirable place for tourists and provide tourist accommodation opportunities.

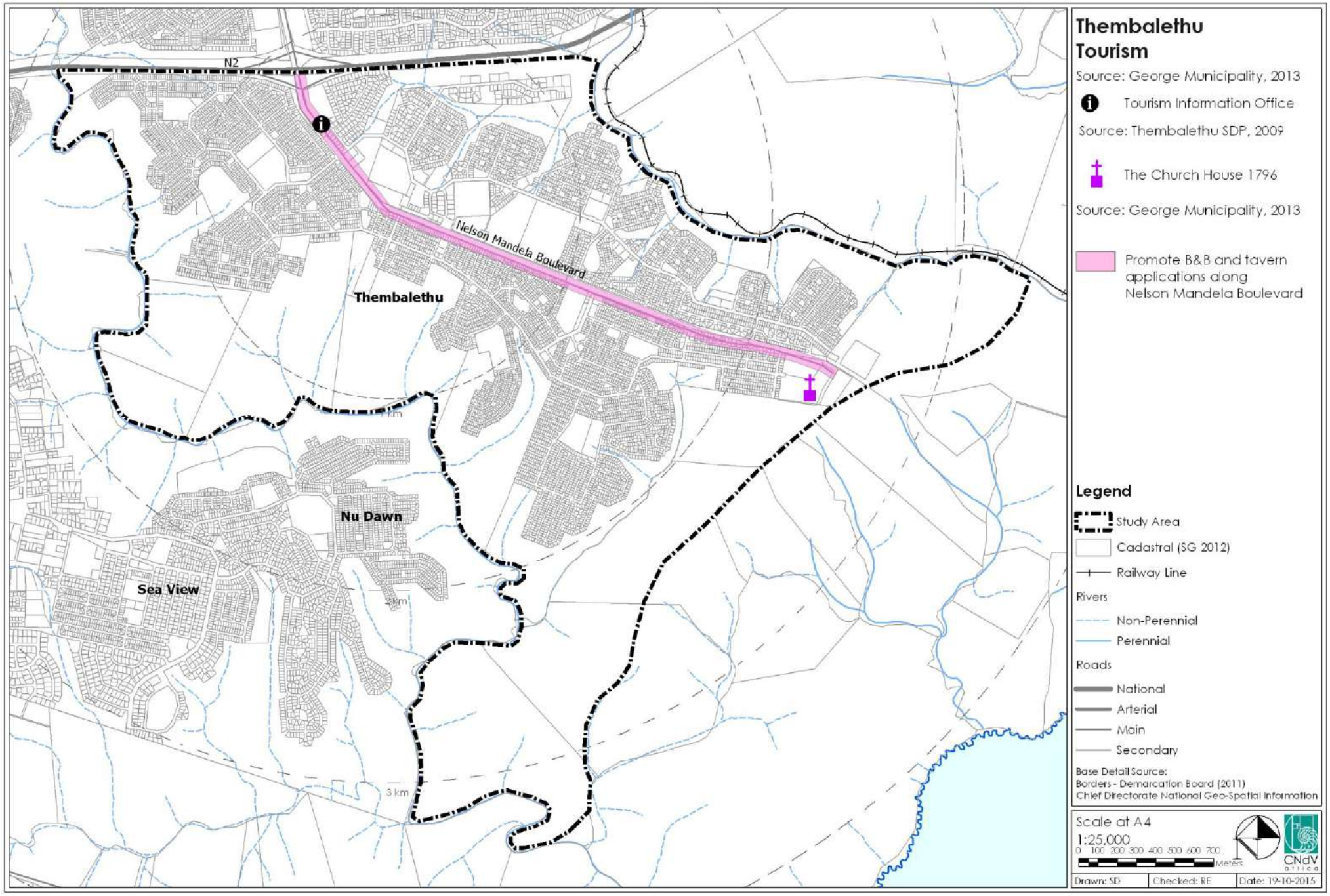


Figure 3.2.5.1 Tourism

3.3 BUILT ENVIRONMENT

3.3.1 Settlements: Thembalethu

Thembalethu is situated south of the N2 national road at George. The main access route into the settlement is Nelson Mandela Boulevard. The majority of higher order uses, e.g. taxi rank, schools, the mall, post office, etc. are located along this route.

The settlement fulfills a mainly residential function for middle to lower income population groups. A number of informal areas have also developed here.

In terms of the natural environment, the settlement is bordered by the Skaapkop River in the south and Meul River in the north. These form distinct barriers which limit expansion possibilities to the north and south. The settlement is largely spread in a linear form along Nelson Mandela Boulevard.

A large brick works is situated in the south of the settlement providing some employment opportunities.

Thembalethu access bridge above the N2 highway

Temporary toilets aside existing informal settlement

Completed street paving and 1 storey single residential dwellings

Example of local business outlets

Current human settlement project

An example of double storey construction

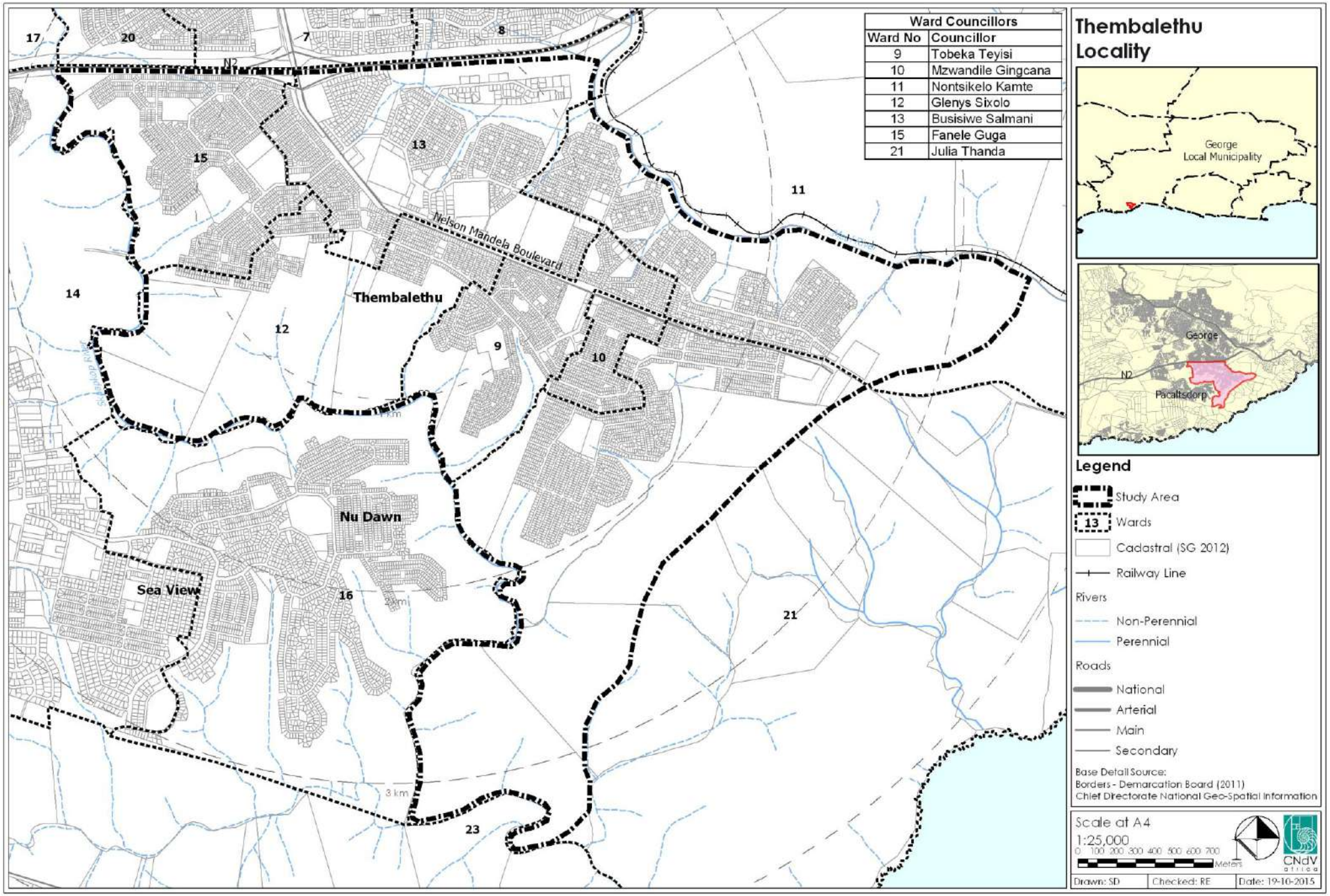


Figure 3.3.1.1 Location of Thembalethu

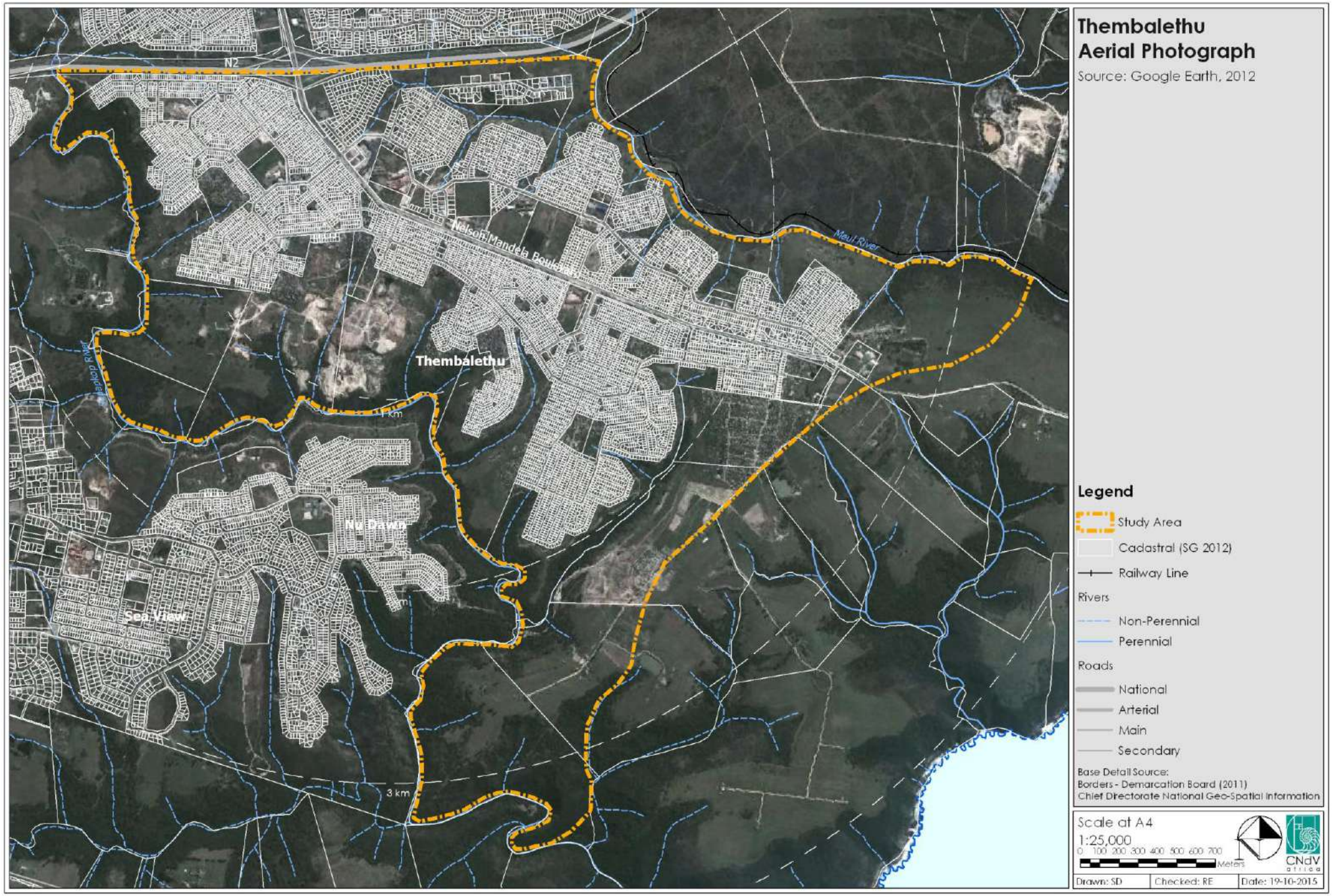


Figure 3.3.1.2 Thembalethu Aerial Photograph

3.3.2 Transportation

3.3.2.1 Major Road and Rail Routes

The main transport routes for the Precinct are indicated on Figure 3.3.2.1.

The Precinct is accessed directly from the N2 Freeway via the Nelson Mandela Boulevard District Distributor. Nelson Mandela Boulevard also acts as the main route within the Precinct.

Major traffic congestion is experienced during the morning and evening rush hour peaks due to there being only one access to the Precinct. Inadequate transport facilities exist for people who travel to their places of employment using non-motorised transport, i.e. on foot or by bicycle (Thembalethu Spatial Development Plan, June 2009).

The major routes within the study area tarred.

3.3.2.2 Non-Motorised Transport

The principal method of movement within the Precinct is by foot. No dedicated pedestrian routes and cycle lanes are located within the Precinct.

The following issues are to be addressed according to the George Mobility Strategy, namely: walkway widths, locations of longitudinal walkways, access pathways, safe pedestrian crossings and the promotion of bicycle use.

3.3.2.3 Air Transport

No airports are located within the Thembalethu Precinct. The George Airport is located approximately 15 km from the Precinct.

The George Airport Transmitter masts are located within the Precinct on Portion 65 of the Farm Sand Kraal No. 197. The transmitter mast site is centrally located and offer potential for commercial and retail or residential development / densification in the future (Thembalethu Local SDF, June 2009).

3.3.2.4 Public Transport

A taxi rank is located within the Precinct, Figure 3.3.2.1. Figure 3.3.2.1 also shows access distances or "service areas" for the Thembalethu Taxi Rank. It is generally regarded that a 1km walking distance is ideal. An analysis was done based on this and the current road network of the Precinct. The orange and red shaded areas indicate those areas where residents have to travel the greatest distances to reach the taxi rank. In this regard the eastern most areas of the Precinct have the greatest need.

The Local SDF prepared for Thembalethu indicates that the taxi rank is underutilised.

It is noted however that the public bus system will be implemented in the 2015/2016 financial year and that the role of the taxi rank will change to that of a long distance taxi rank.

The proposed bus routes as per the George Integrated Transport Route are shown in Figure 3.3.2.2.

3.3.2.5 Transport Improvement Proposals

- Nelson Mandela Boulevard

The George Mobility Strategy proposed the improvement of the carrying capacity of which includes the upgrading of the current bus routes and bus stops.

According to the GMS, Nelson Mandela Boulevard is proposed to be upgraded to a four-lane divided roadway with median. However, right lanes will not be able to be accommodated as road reserves are too narrow.

- Southern Arterial - DR1591 to Nelson Mandela Boulevard

The southern arterial is the extension of the Gwaing Road (DR 1618) and will improve the development potential of vacant land to the south of Thembalethu for residential and resort development along the coast by improving accessibly and mobility in the area (George Roads Master Plan, June 2006).

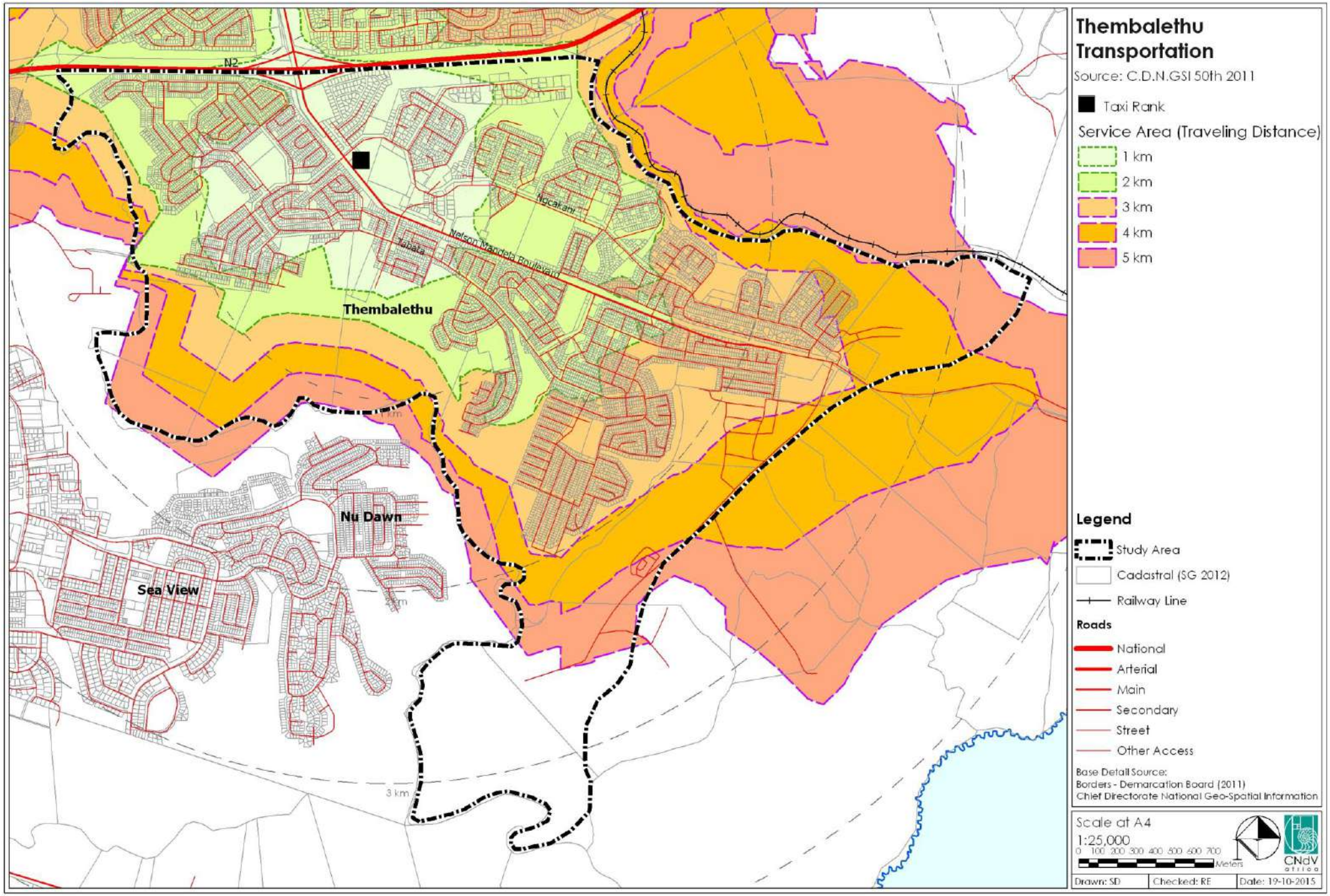


Figure 3.3.2.1 Transportation

The southern arterial consists of three segments, one of which is applicable to Thembalethu. The third segment covers the eastern region between the N2 and Nelson Mandela Boulevard which would open this area up for development and provides an additional access to Thembalethu, see Figure 3.3.2.3.

The southern arterial is proposed to be located south of Thembalethu, extending from the proposed interchange on the N2 of DR1618 in the west to Rademachers filling station near Victoria Bay in the east.

This new link road will function as a ring road, linking the primary road of Nelson Mandela Boulevard and Pacaltsdorp via Gwaing (DR 1618) to the other main roads and the N2 Freeway.

The Southern Arterial - DR159 to Nelson Mandela Boulevard is proposed to be implemented in 2025 at a cost of approximately R41m.

Implications for the Precinct

- If not already implemented, the Nelson Mandela Boulevard upgrade plan should be implemented including the proposed bus routes.
- The Local SDF proposed the following:
    - Upgrade the sidewalks along Nelson Mandela Boulevard;
    - Provide pedestrian crossings at busy intersections, especially at the proposed commercial nodes.
    - Provide bus stops at the locations determined by the George Mobility Strategy.
- A non-motorised transport system should be implemented throughout the Municipality.
- The implementation of the Southern Arterial - DR159 to Nelson Mandela Boulevard will provide an additional access road into the Precinct in the future.
- The Municipality should consider entering into discussions with ACSA in order to have the George Airport transmitter masts relocated so that the existing site can be developed in the future.

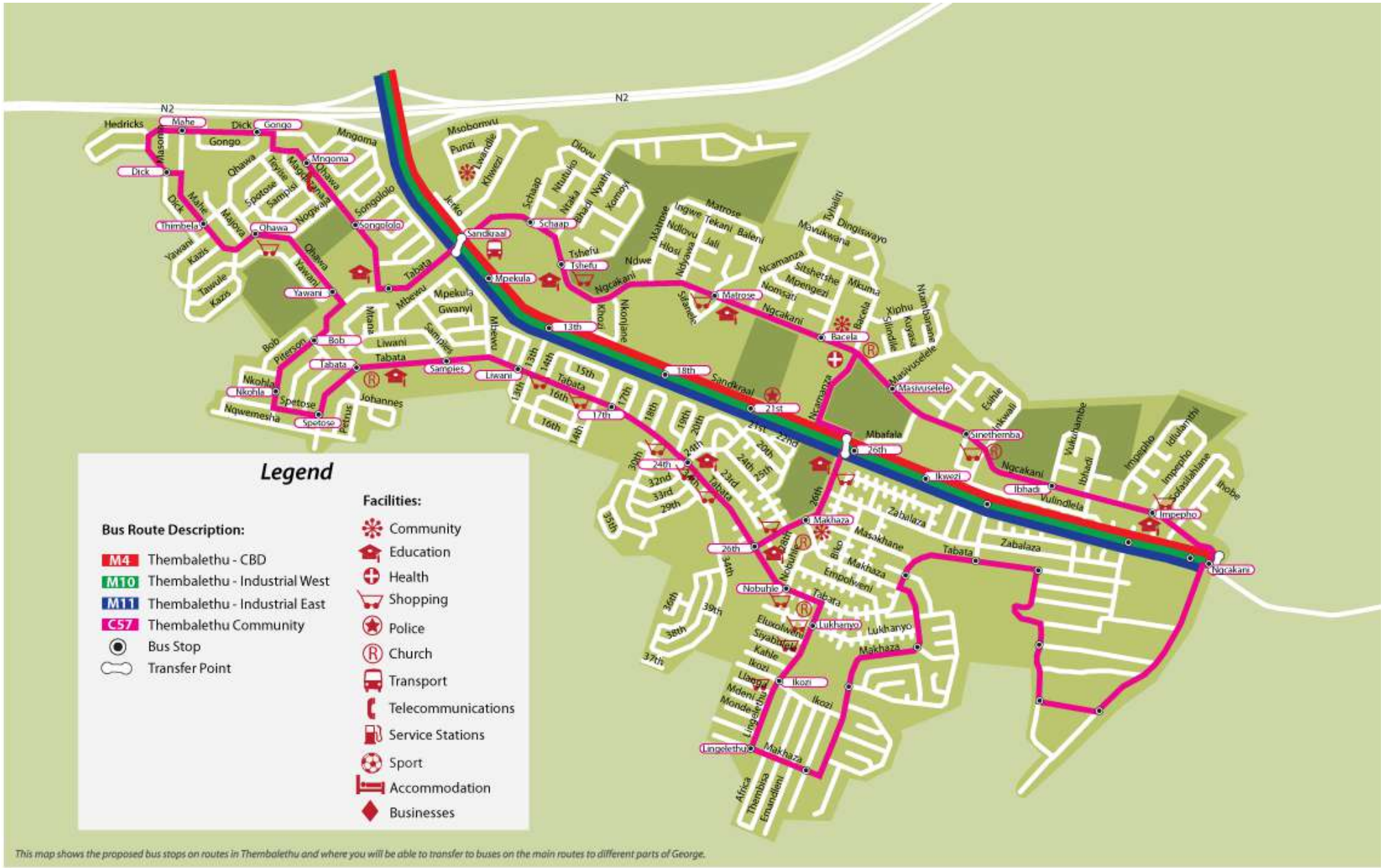
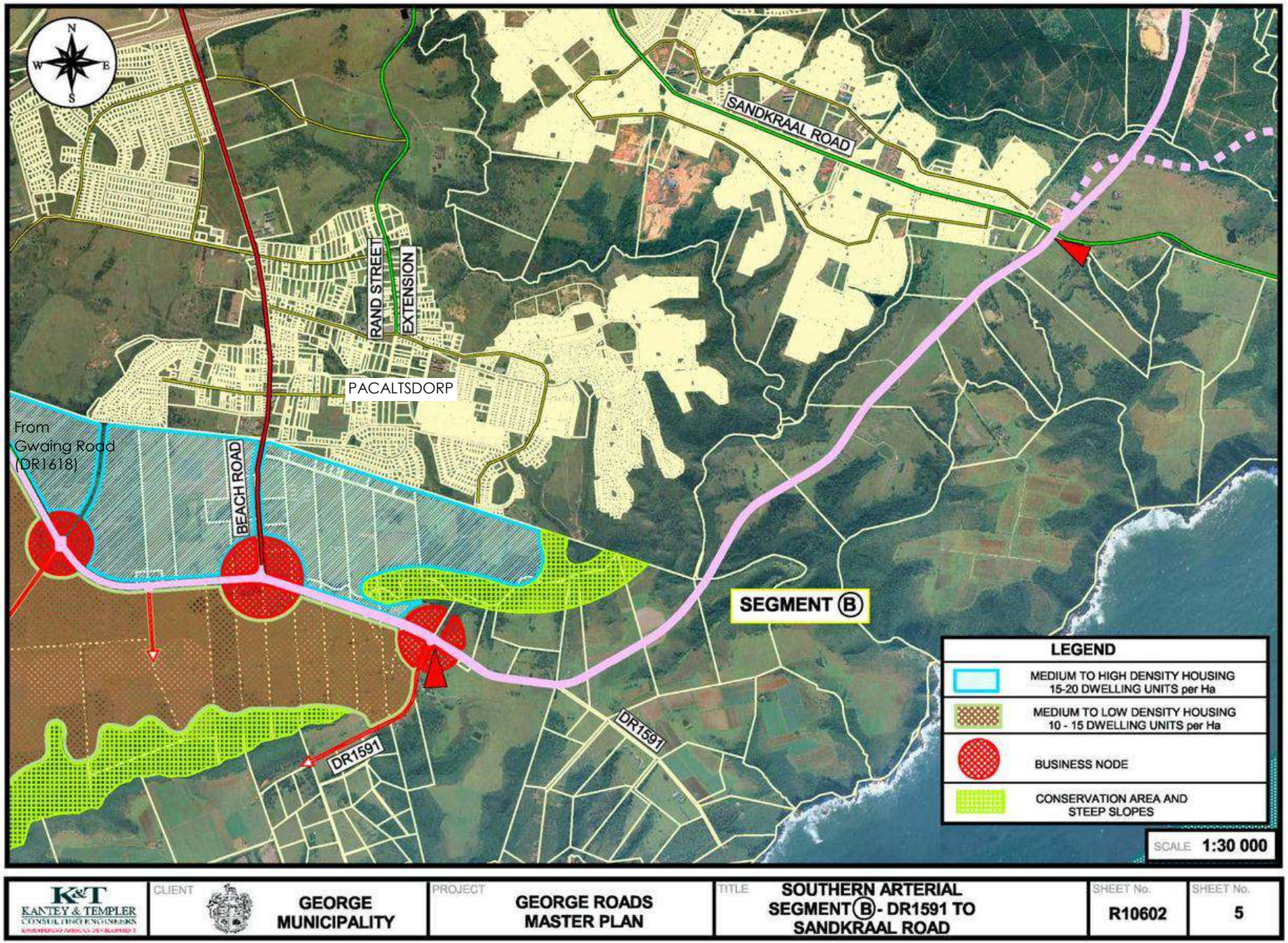


Figure 3.3.2.2 **Bus Routes, Thembalethu** (George Integrated Transport Network, July 2013)



K&T KANTEY & TEMPLER CONSULTING ENGINEERS	CLIENT GEORGE MUNICIPALITY	PROJECT GEORGE ROADS MASTER PLAN	TITLE SOUTHERN ARTERIAL SEGMENT (B) - DR1591 TO SANDKRAAL ROAD	SHEET No. R10602	SHEET No. 5

Figure 3.3.2.3 **Southern Arterial - DR159 to Nelson Mandela Boulevard** (George Roads Master Plan, June 2006)

3.3.3 Water Infrastructure

Figure 3.3.3.1 shows the water infrastructure network for the Precinct. This plan shows that water infrastructure is provided to all households.

Table 3.3.3.1 indicates the number of households that have access to potable water from the municipal water infrastructure network. Households that do not receive water from the municipal infrastructure network receive their water by means of rain water tanks, boreholes and rain water tankers.

No.	Ward	Access to Water (hh)	% Access (Municipality)	Backlog
1.	9	1 819	97.3	49 hh or 2.7%
2.	10	853	97.5	21 hh or 2.5%
3.	11	2 194	96.6	75 hh or 3.4%
4.	12	1 273	98.3	22 hh or 1.7%
5.	13	2 291	98.1	42 hh or 1.9%
6.	15	1 728	93.5	120 hh or 6.5%
7.	21	2 900	90.1	305 hh or 9.6%

Table 3.3.3.1 Households with access to water (Source: IDP 2013/2014)

Note: The backlog for Wards 11 and 21 should be confirmed by the Municipality as the backlog for these Wards may include other areas in addition to Thembalethu.

3.3.3.1 Reservoirs

Even though the Municipality's overall storage capacity might be adequate, there might be some distribution zones within specific areas of the Municipality's networks with inadequate storage capacity. The Water Services Development Plan (WSDP) prepared in 2013 noted the need for additional reservoirs for Thembalethu, see Table 3.3.3.2 below.

No.	Distribution System	Reservoirs required	Capacity (Ml)	Cost
1.	George Wilderness	Thembalethu (East) Reservoir	7.00	R 11 890 760
2.	George Wilderness	Thembalethu (East) Tower	0.60	R 5 577 600
3.	George Wilderness	Thembalethu (West) Reservoir No.2	3.00	R 6 510 000
			10.60	**R 23 978 360**

Table 3.3.3.2 Reservoir Infrastructure (Source: WSDP 2013)

3.3.3.2 Bulk water and reticulation infrastructure and water pump stations

The future development proposed for the Precinct, based on the most likely land use development scenario as per the forward planning documents prepared for the Municipality, will require the following water infrastructure upgrades:

No.	Infrastructure Type	Description	Cost
1.	Water Pump Station	Thembalethu (East) Tower (Future)	R 1 289 260
2.	Bulk water and reticulation infrastructure	Thembalethu East (reservoir sub zone)	R 313 600
3.	Bulk water and reticulation infrastructure	Thembalethu East (water tower sub zone)	R 15 051 260
4.	Bulk water and reticulation infrastructure	Thembalethu West (reservoir sub zone)	R 248 500
5.	Bulk water and reticulation infrastructure	Thembalethu West (water tower sub zone)	R 3 977 820
TOTAL			**R 20 880 440**

Table 3.3.3.3 Infrastructure requirements (Source: WSDP 2013)

Implications for the Precinct

- The Municipality does not have the funding to provide the bulk infrastructure to meet the housing needs.
- The largest population growth is in the lower income sector that is not able to contribute financially to the provision of sustainable services (WSDP, 2013).
- A range of water demand management strategies needs to be developed for all sectors.
- Educating consumers on water wise initiatives including gardening should be implemented across the Precinct.
- The Municipality should endeavour to eradicate the water backlog in the Precinct.
- The Municipality should confirm the water services backlog for Wards 11 and 21.

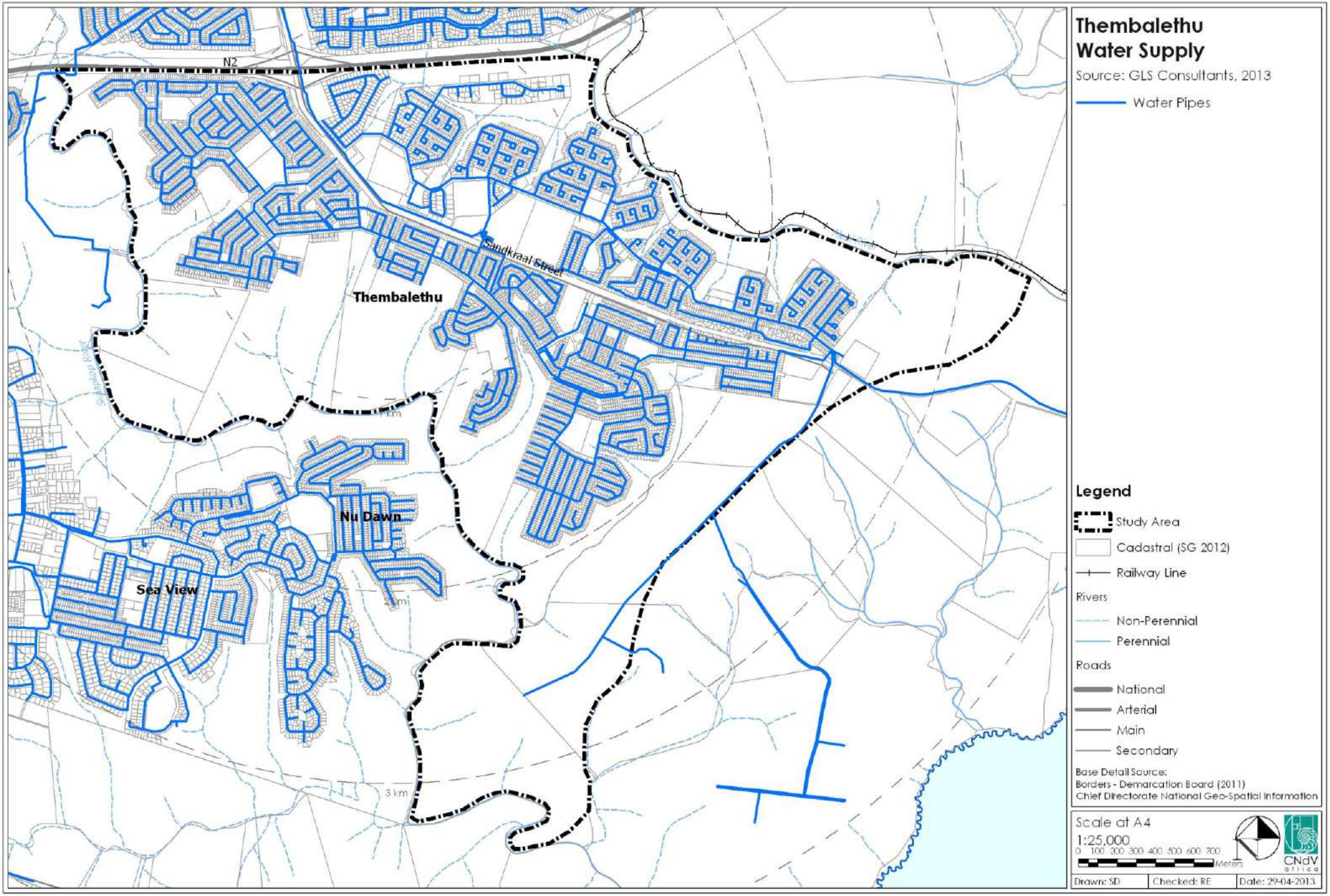


Figure 3.3.3.1 Water Infrastructure

3.3.4 Waste Water Treatment (Sanitation)

Figure 3.3.4.1 shows the sewer infrastructure network for the Precinct. This plan shows that all areas of Thembalethu have sewerage reticulation pipes.

Table 3.3.4.1 indicates the number of households that have access to sanitation above the minimum service level.

No.	Ward	Access to Sanitation (hh)	% Access	Backlog
1.	9	1 559	83.4	- 263 hh with no toilet provision; - 12 hh use the bucket system; - 12 hh use other means.
2.	10	830	94.9	- 38 hh with no toilet provision; - 4 hh use the bucket system
3.	11	2 092	92.	- 137 hh with no toilet provision; - 5 hh use the bucket system; - 3 hh use other means.
4.	12	1 218	94	- 63 hh with no toilet provision; - 10 hh use other means.
5.	13	2 196	94.1	- 103 hh with no toilet provision; - 23 hh use the bucket system; - 10 hh use other means.
6.	15	1 788	96.7	- 30 hh with no toilet provision; - 4 hh use the bucket system; - 19 hh use other means.
7.	21	2 092	65.2%	- 915 hh with no toilet provision; - 110 hh use the bucket system; - 61 hh use other means.

Table 3.3.4.1 Households with access to sanitation (Source: IDP 2013/2014)

Note: The backlog for Wards 11 and 21 should be confirmed by the Municipality as the backlog for these Wards may include other areas in addition to Thembalethu.

Thembalethu Precinct falls within the Outeniqua WWTW drainage area. The Municipality intends to commence with the upgrading of the WWTW during 2013/2014. Both the hydraulic and organic treatment capacity of the WWTW needs to be increased as part of the required upgrades.

The future development proposed for the Precinct, based on the most likely land use development scenario as per the forward planning documents prepared for the Municipality, will require the following sanitation upgrades:

- Bulk sewer and sewer drainage infrastructure:
  - Outeniqua drainage zone: R 104 181 100.

- Sewer Pump Stations (PS):

No.	Pump Station Name	Recommendation	Capacity (l/s)	Cost
1.	Thembalethu PS No.2	Upgrade exiting PS (investigate first)	15	R 15 400
2.	Thembalethu PS No.3	Upgrade exiting PS	45.8	R 374 100
3.	Thembalethu PS No.1	Upgrade exiting PS (investigate first)	41.4	R 15 400
4.	Thembalethu PS No.4	Upgrade exiting PS	15.2	R 203 900
5.	Thembalethu PS No.5	Upgrade exiting PS	36	R 291 200
6.	Thembalethu Ext. 10 PS	New PS	22	R 643 200
7.	Thembalethu Ext. 12A PS	New PS	45.7	R 921 900
8.	Thembalethu Ext. 11B PS	New PS	48.5	R 952 600
9.	Thembalethu 4 PS	New PS	248.2	R 2 680 800
10.	Thembalethu Ext. 10A PS	Upgrade exiting PS (investigate first)	0	R 15 400
11.	Thembalethu 2 PS	New PS	5	R 317 600

Table 3.3.4.2 Sanitation infrastructure requirements (Source: IDP 2013/2014)

Implications for the Precinct

- Eradicate the bucket systems as far as possible.
- The Municipality does not have the funding to provide the bulk infrastructure to meet the housing needs.
- The largest population growth is in the lower income sector that is not able to contribute financially to the provision of sustainable services (WSDP, 2013).
- Off-grid, small bore, dry and alternative technologies such as bio-gas (permanent occupation) or enviro-loos/ biolytics/ventilated improved pit latrines (VIPL) (also suitable for periodic occupation) should be investigated.
- The Municipality should confirm the sanitation services backlog for Wards 11 and 21.

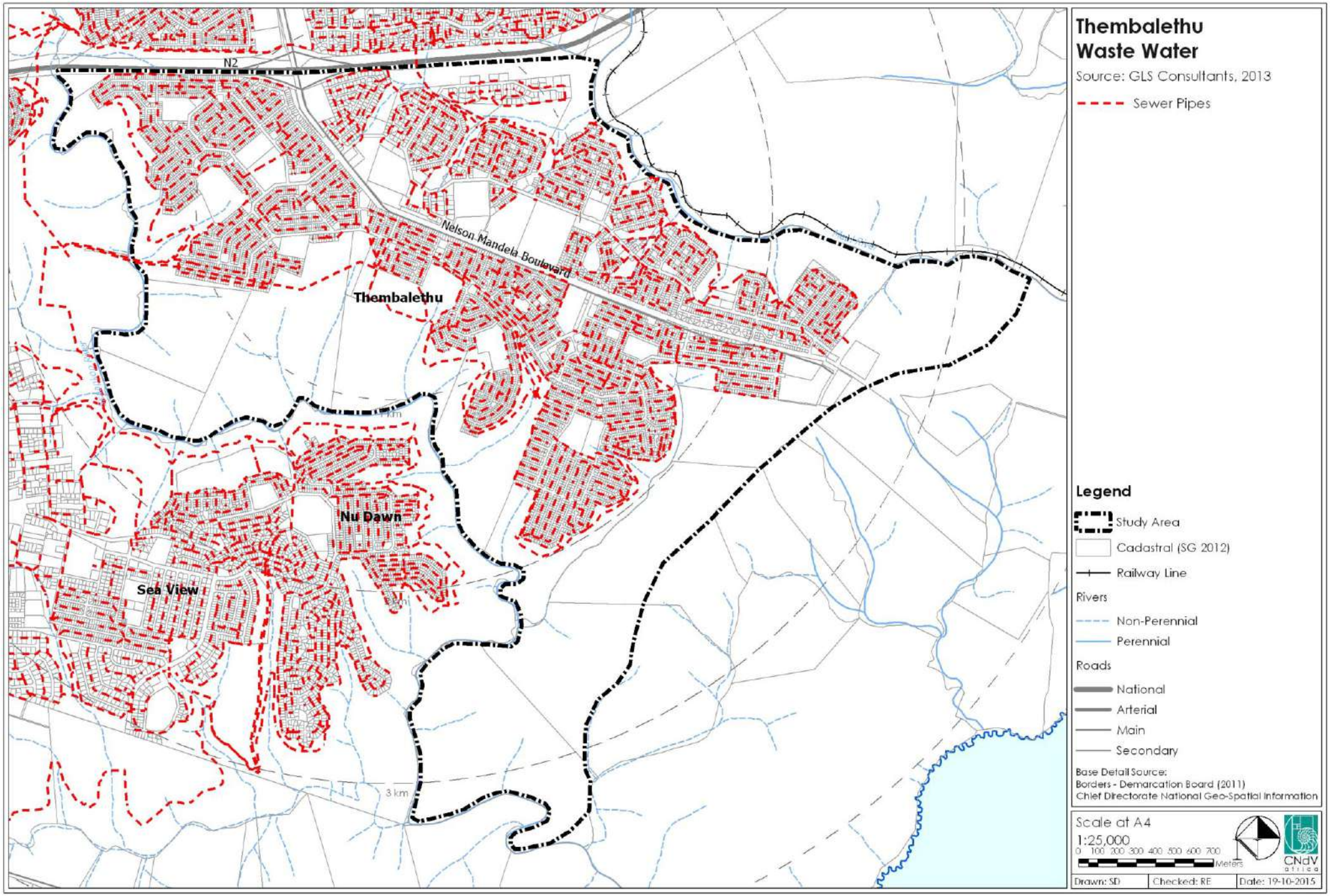


Figure 3.3.4.1 Waste Water Treatment Works

3.3.5 Energy

The electrical infrastructure network for Thembalethu Precinct is indicated in Figure 3.3.5.1.

Table 3.3.5.1 indicates the number of households that have access to electricity for lighting. Households that do not have access to electricity for lighting make use of candles, paraffin and solar energy.

No.	Ward	Access to Electricity (hh)	% Access (Municipality)	Backlog
1.	9	1 520	97.8	- 5 hh with no electricity; - 330 hh using paraffin and candles.
2.	10	829	94.8	- 1 hh with no electricity; - 41 hh using paraffin and candles.
3.	11	2 063	90.9	- 3 hh with no electricity; - 195 hh using paraffin and candles
4.	12	1 200	92.6	- 3 hh with no electricity; - 195 hh using paraffin and candles
5.	13	1 955	83.7	- 5 hh with no electricity; - 371 hh using paraffin and candles
6.	15	1 757	95	- 50 hh with no electricity; - 405 hh using paraffin and candles
7.	21	1 904	59.4	- 4 hh with no electricity; - 1 281 hh using paraffin and candles

Table 3.3.5.1 Households with access to energy (Source: IDP 2013/2014)

Note: The backlog for Wards 11 and 21 should be confirmed by the Municipality as the backlog for these Wards may include other areas in addition to Thembalethu.

Implications for the Precinct

- The Municipality should endeavour to eradicate the electricity services backlog in the Precinct.
- The use of renewable energy sources, i.e. solar hot water cylinders and photo-voltaic systems should be encouraged and implemented in all new developments.
- The Municipality should confirm the electricity services backlog for Wards 11 and 21.

Figure 3.3.5.1 Energy

Awaiting information

3.3.6 Housing

The George Municipal Human Settlement Plan (HSP) estimates that the housing need for the municipality is approximately 24 374 units that comprise the following:

- Informal areas: 6 000
- General waiting list (George): 15 065
- General waiting list (DMA): 1 276
- GAP or rental housing (George): 1 950
- GAP or rental housing (DMA): 83

Total: 24 374

The informal areas located within the Precinct are indicated in Figure 3.3.6.1.

According to the HSP there are a number of informal structures in Thembalethu that are vulnerable to a risk of lack of services. Table 3.3.6.1 indicates that 778 informal settlements and 2 287 backyard shacks have a high vulnerability risk, while 1 140 informal settlements and 956 backyard shacks have a medium vulnerability risk. This totals to 5 161 informal structures in Thembalethu.

Area	High Vulnerability Risk		Medium Vulnerability Risk	
	Informal Settlements	Backyard Shacks	Informal Settlements	Backyard Shacks
Blanco	86			
Borchards		170		
Conville		305		
Die Bof				4
Groeneweide	7			
Lawaaikamp		114		
New Dawn Park				217
Pacaltsdorp				324
Parkdene	20	178		
Protea Park				135
Rosemore				390
Sea View				26
Syferfontein	99			
Thembalethu	778	2 287	1 140	956
Kleinkrantz	48			
Touwsranten	51			
Wilderness Heights	21			
Totals	**1 110**	**3 054**	**1 140**	**2 052**

Table 3.3.6.1 Informal structures vulnerable to risk of lack of services (Source: HSP 2009-2014)

The Local SDF prepared for Thembalethu noted that housing is one of the most important needs of the Precinct. The report states that the placement of low cost housing / state subsidised housing on the periphery of the settlement is not suitable as people are located further away from socio-economic opportunities.

The Local SDF estimated that in 2009 there were 4 350 informal structures in the Precinct. The Asazani housing project intended to provide permanent housing for 2 300 of these informal households.

The current housing pipeline is indicated in Table 3.3.6.2. The pipeline proposes the following housing projects for implementation in Thembalethu:

Pipeline Name	Program	Housing opportunities			
		Sites	Enhanced site	Units	Other
2013 - 2014 (current)					
Rectification (2 144)	RP				600
Asazani (4 350)	UISP	600			
2014 - 2015					
Rectification (2 144)	RP				600
Asazani (4 350)	UISP	600			
Densification	FLISP	240			
2015 - 2016					
Rectification (2 144)	RP				600
Asazani (4 350)	UISP	600			
Total		**2 040**			**1 800**

Table 3.3.6.2 Summary: Housing Pipeline (Source: Department of Human Settlements, June 2013)

This pipeline provides for 2 040 housing appointments and 1 800 rectification of existing units.

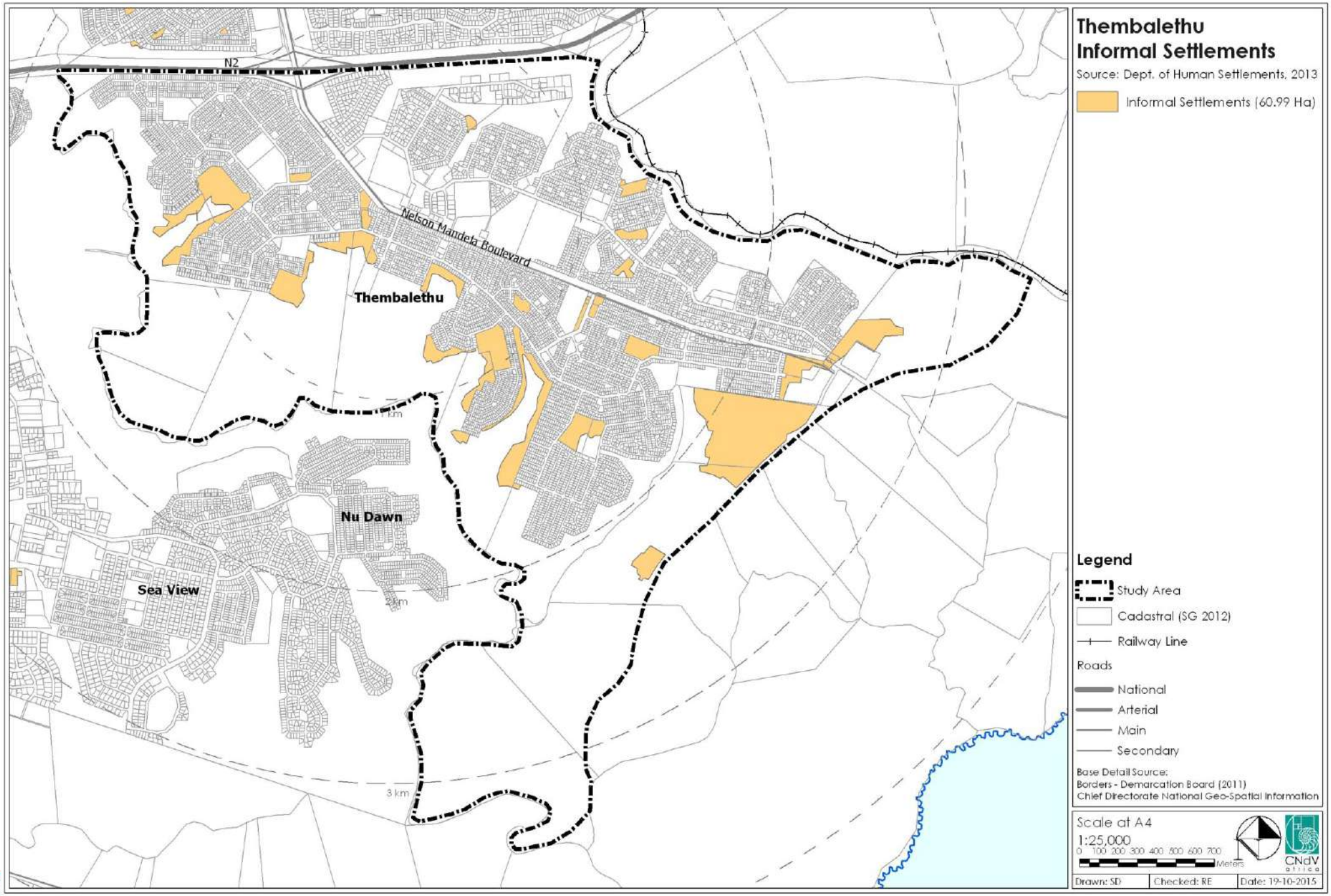


Figure 3.3.6.1 Informal settlements

Implications for the Precinct

- The municipality should confirm the amount of people within the study area that need housing.
- The number of informal settlements increased between 2009 and 2013 of approximately 800.
- The HSP proposed that the Municipality aspire to provide housing according to the following settlement planning principles:
  - Locate activities (residential, transport, work, recreation, etc.) so that at least 50% of them are in walking distance;
  - Locate most frequented activities in the most central / accessible localities, e.g. industrial and commercial;
  - Use all well located vacant land, i.e. within 1 to 2kms of urban centres; and,
  - Locate all future residential areas within walking distance of urban centres where space permits.
- The Local Structure Plan proposed the following:
  - Redevelop erven 2 259 and 2 213 to achieve 40 units/ha (2 – 3 storey innovative residential development).
  - Redevelop sites fronting Nelson Mandela Boulevard to 40 units/ha;
  - Increase the residential density to 25-30 units/ha; and
  - Upgrade the informal households to formalised housing in the identified urban infill sites (see Figure 3.3.6.1).
- There are 5 161 informal structures in Thembalethu that are vulnerable to a risk of a lack of services.
- There is an estimated 24 374 units needed in the Municipality. If Thembalethu (given that the exact figures are not yet available) which has 22% of the municipal population is estimated to have a need of 5 362 units, then there will be a shortfall of 3 322 units, given that the HSP only plans for 2 040 units.

Western Cape Government
Human Settlements

GEORGE TECHNICAL ASSESSMENT (DATE 29 AND 30 APRIL 2013)
DRAFT HOUSING PIPELINE (UPDATED JUNE 2013)

Pipeline name	Business plan	Programme	Township	Estimated project cost	Proposed Implementation Year	Housing Opportunities				Project Readiness									Project Suitability				Technical Assessment Outcome
						Sites	Enhanced Sites	Units	Other	Land Obtained	EIA ROD	LUPO Approval	Bulk Capacity	DHS Approval	Council Approval	Risks / Issues	Readiness	Geotechnical Conditions	Sustainability Criteria	Strategic Alignment	Planning Opinion	Recommendations
2013-14 (current)																						
Tembalethu Rectification 2144		RP	Thembalethu	10,509,000					630					Yes								
Tembalethu Asazani (4358)		LISP	Thembalethu	24,309,000		600								Yes								
Tembalethu Asazani (toilets)			Thembalethu	4,800,000										Yes								
Tembalethu TRA			Thembalethu	7,900,000										Yes								
Uniondale (183)		IRDP	Uniondale	17,385,000		183		183						Yes								Construction should start 2013/14 FY. An extra R4m is required as the subsidity is not enough
Pacalstorp (2000)		Social	Picalstorp	2,900,000		(2000)		(2000)					MIG application is for 2500 sites. Applying for upgrade of sewerage is underway. Major water project is going on and have been completed to supply more bulk infrastructure. The implementation of all these projects with grant funding will require that phasing is spread out more. (MIG funds are over committed on allocations) Additional grant funding will be needed for bulk infrastructure to accommodate all these projects (dependent on implementation period)	Yes		apply for LISP to remove informals from landfill to Erf 325 site, which has all the bulks in place.						Another Picalstorp project has been identified for FLISP. It is a high priority project which should happen over 4 years.
Golden Valley (260)		PLS	Blanco	260,000		260		260						Yes								N4 submitted and approved.
Protea Park (60)		LISP	Protea Park	60,000		60		60						Yes								
				55,005,000		**1,103**	-	**503**	**600**													
2014-15																						
Tembalethu Rectification 2144		RP	Thembalethu	10,509,000					630				Existing	Yes								
Tembalethu Asazani (4358)		LISP	Thembalethu	24,309,000		600							Existing	Yes								
Pacalstorp (2000)		Social	Picalstorp	2,900,000		(2000)		(2000)					Existing	Yes								
PHP Infill Project A & B			Paridene, Ballotsview, Lawaaikamp, Thembalethu, Touwtrantien	4,725,000		64		64					Existing	Submitted?								
Metro Grande		PLS/FLISP	George Industrial	126,900,000		1200		1200					Existing						Next to existing suburb with public facilities. On bus route. New facilities to be provided in layout. Close to employment opportunities			Project is in planning phase
Borcherds		LISP	Borcherds	4,200,000									Existing						In existing suburb with public facilities. Close to employment			Project is in planning phase
Conville		CRU	Conville	21,600,000				80					Existing						In existing suburb with public facilities. Close to employment			Project is in planning phase
Thembalethu Densification		FLISP		35,200,000		240							Existing	N4 application has been submitted					In existing suburb with public facilities. On bus route			Project is in planning phase
				218,325,000		**2,104**	-	**1,354**	**600**													
2015-16																						
Tembalethu Rectification 2144		RP	Thembalethu	10,509,000					630				Existing	Yes								
Tembalethu Asazani (4358)		LISP	Thembalethu	24,309,000		600							Existing	Yes								
Pacalstorp (2000)		Social	Picalstorp	2,900,000		(2000)		(2000)					Existing	Yes								
Metro Grande		PLS/FLISP	George Industrial	126,900,000		1200		1200					Existing						Next to existing suburb with public facilities. On bus route. New facilities to be provided in layout. Close to employment opportunities			Project is in planning phase
2016-17																						
Kleinkranz		LISP	Kleinkranz	175,980,000				1676					Existing						Next to suburb with no public facilities. Far from facilities and economic opportunities	Municipal SDF has not yet been approved.	Not in a good location. Project packaging not yet started. Project not supported by municipal planners. Informal settlements would best be accommodated in Touwrantien	Looking at the housing need, Kleinkranz won't be able to accommodate the full extent of the project. SDF is not supporting the development, particularly low income housing in Kleinkranz (mainly middle income holiday houses in area). Further development on the coastal belt is not advised
Thembalethu 42 & 58		PLS	Thembalethu	24,309,000									Existing						Facilities are existing townships			Ready
Golden Harvest		SOCIAL	George CBD	17,100,000				36					Existing						Close to CBD with all public facilities close by			Project is in planning phase
Groene weide		SOCIAL/FLISP/Market	Groene weide	179,730,000				1626					Existing	Application not yet received					Close to CBD with all public facilities close by			Project is in planning phase
				557,830,000		-	-	**3,338**	-													

Table 3.3.6.3 Draft Housing Pipeline (June 2013) (source: Provincial Government of the Western Cape: Department of Housing)

3.3.7 Vacant Land, Open Space and Land Ownership

Figure 3.3.7.1 shows the land that was identified as either vacant, under utilised and public open space.

The vacant land was obtained from the vacant land audit done for George Municipality. The land audit and recent aerial photography were used to prepare Figure 3.3.7.1. The open space was obtained from the Surveyor General. Together these areas amount to approximately 69.43 ha.

Figure 3.3.7.2 indicates the ownership of land within the Precinct.

Implications for the Precinct

- Integrate the core areas, public open space, public spaces and public walkways.
- As per the settlement restructuring principles, utilise vacant and under utilised land within 1km from urban centres.

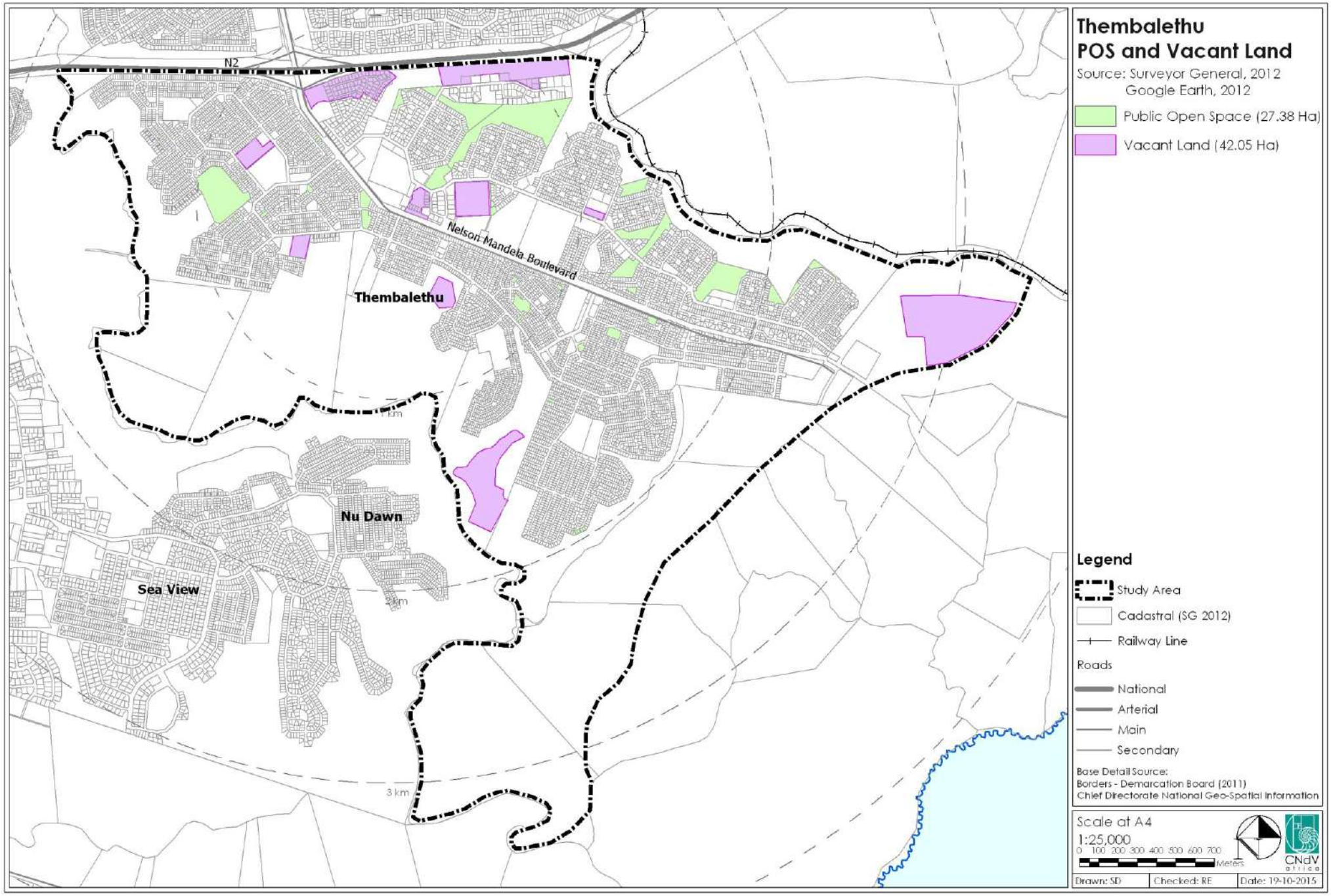


Figure 3.3.7.1 Public Open Space and Vacant Land

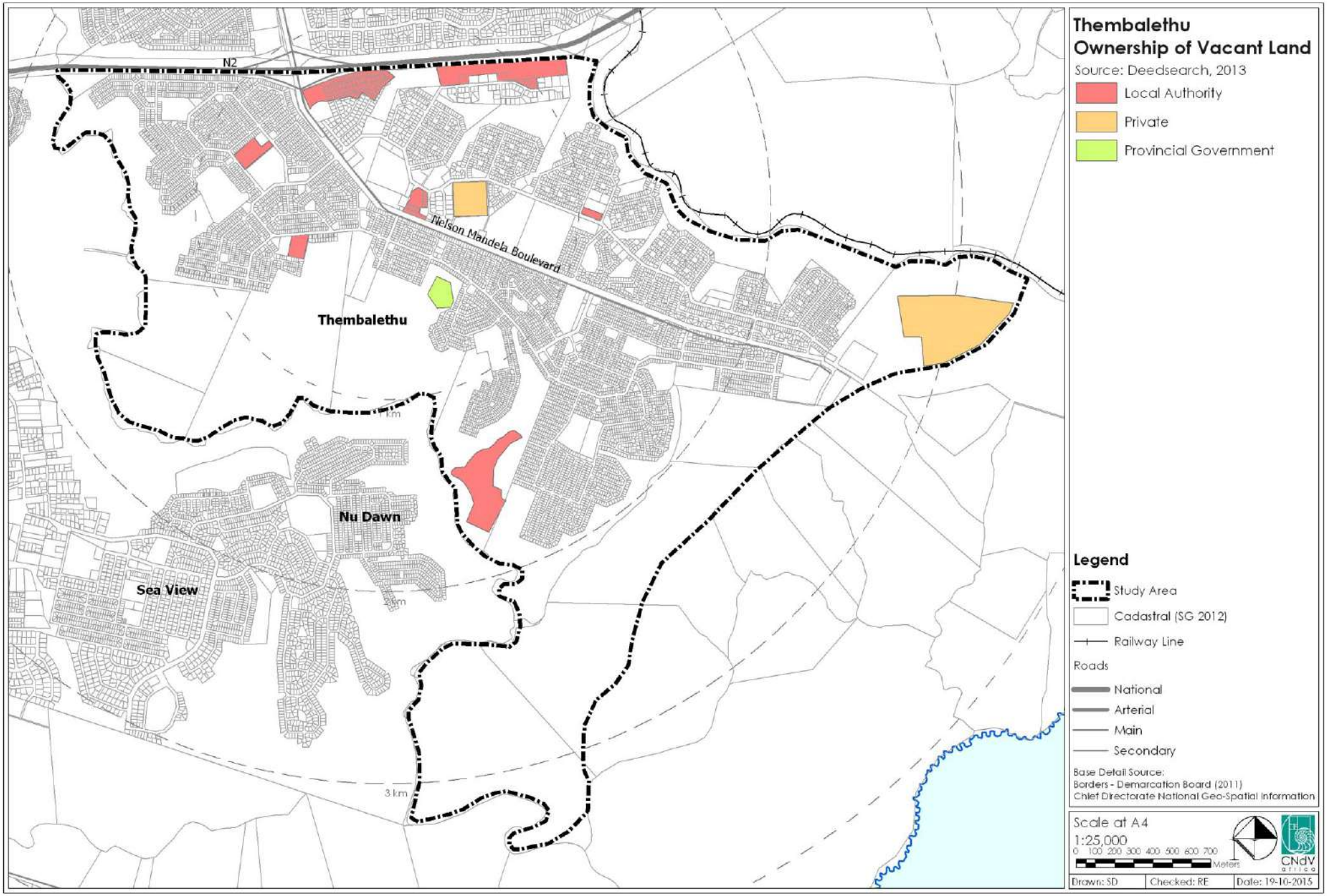


Figure 3.3.7.2 Ownership of Vacant Land

3.3.8 Development Applications

Figure 3.3.8.1 shows the location of the development applications for Thembalethu in the last 6 months.

A rezoning and subdivision application was made for Erf 3274, Tyolora. Tyolora was the former name for the area, and most of the older properties are registered under this name.

The application was made in terms of Regulation 5(1) of the Regulations promulgated in terms of the Black Communities Development Act, 1984 (Act 4 of 1984) to rezone from Institutional Zone I to 167 Residential Zone III erven, two Open Space Zone I erven and two Remainder Road erven.

Implications for the Precinct

- Given the few development applications, there is limited development pressure in the Precinct.

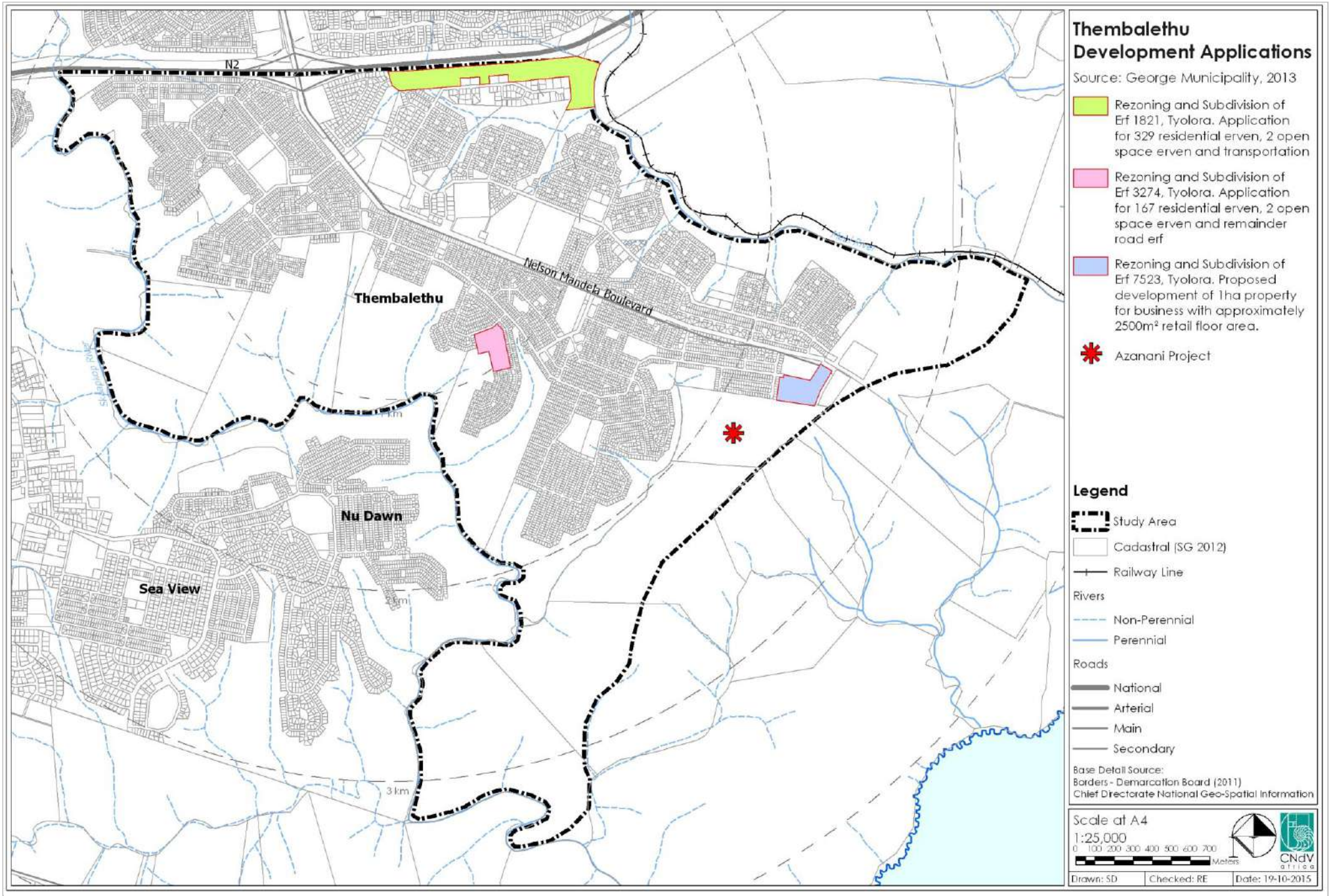


Figure 3.3.8.1 Development Applications

3.3.9 Heritage and Tourism

Figure 3.3.9.1 shows the main heritage sites in the Precinct.

The "Church House" as constructed in 1796. The house served as a school and church and over time has developed into a community centre in the Precinct.

The "church house" provides gardens to the local community to grow their vegetables and also hosts an indigenous tree nursery.

Implications for the Precinct

- The historical site should be harnessed to drive tourism in the Precinct.
- The historic sites form an important place in the future revival of the town and the creation of an important node at the proposed southern intersection with the proposed southern arterial.
- The Local SDP proposed the following:
  - Establish and expand the "Church House" as the cultural centre and a tourism attraction in the Precinct.
  - Protect the "Church House" and surrounding trees as a place of historical significance.

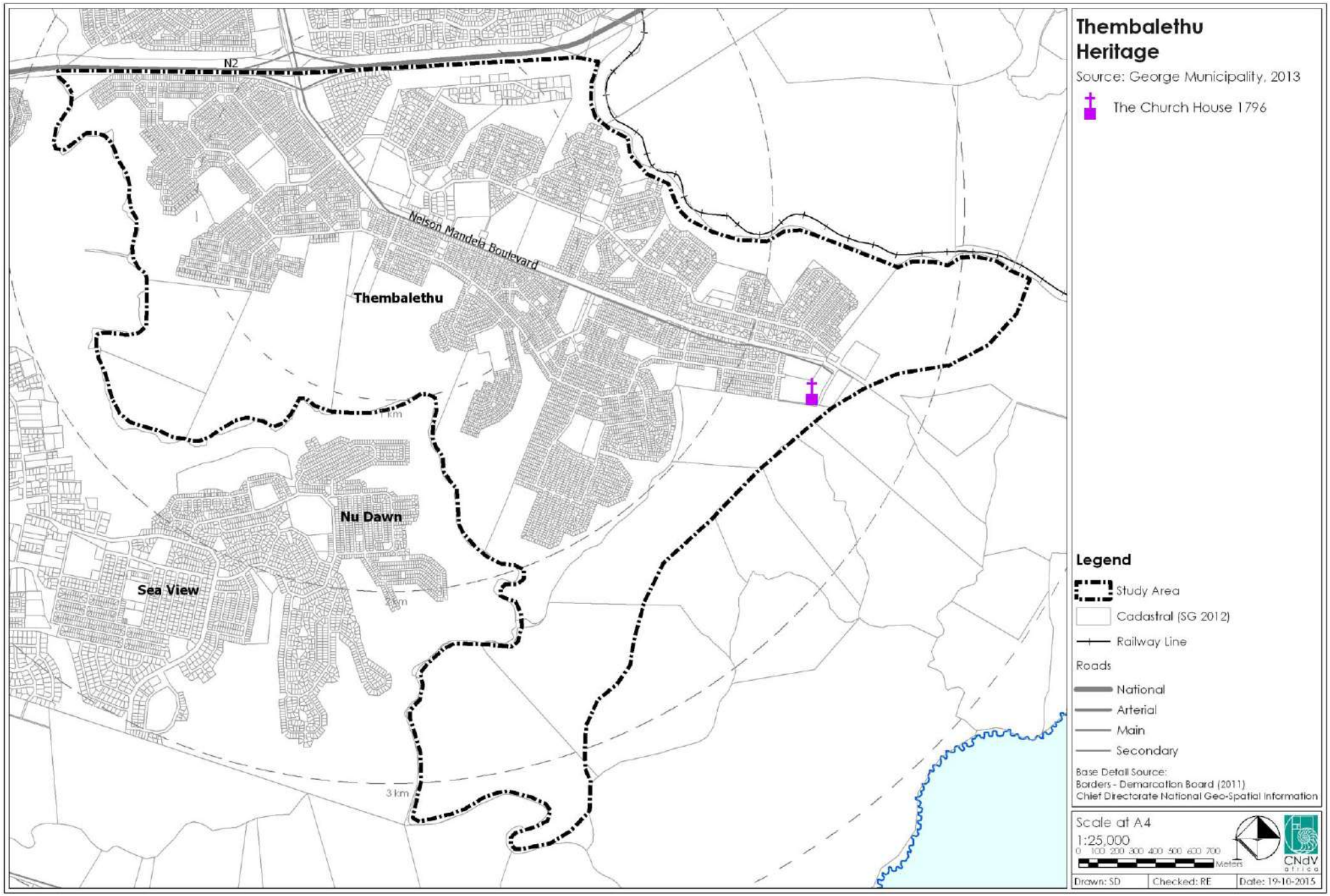


Figure 3.3.9.1 Heritage Resources

3.3.10 Current Zoning

Figure 3.3.10.1 shows the proposed zonings within the Precinct based on the draft Amended George Zoning Scheme (2012).

Information on the current zonings of properties are dealt with on a case by case basis and thus these could not be included. The new draft zoning scheme has been used to illustrate the existing pattern of use rights in the Precinct.

Figure 3.3.10.1 indicates that the Precinct is surrounded by land with open space, undetermined and agricultural rights. Within the precinct there are a large number of properties zoned as places of worship. There is a general business/mixed use cluster at the entrance to the precinct from George. Limited business properties are available in the precinct. The rest of the Precinct is generally zoned for residential purposes.

Implications for the Precinct

- There are a large number of properties zoned as places of worship.
- Additional business properties should be promoted to allow the establishment of local businesses in the precinct.

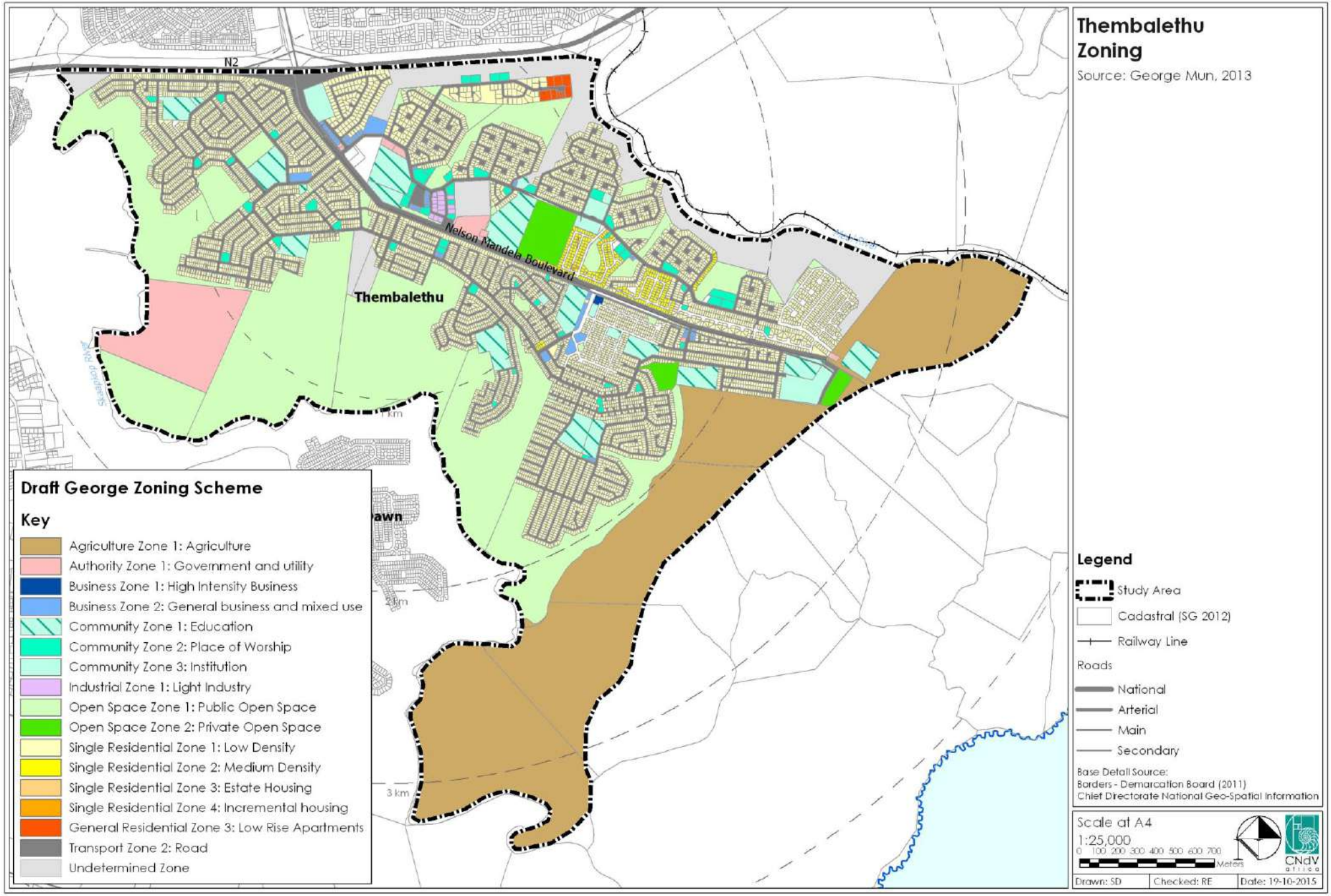


Figure 3.3.10.1 Existing Zoning

4. CONSULTATION PROCESS

4.1 INTRODUCTION

4.1.1 PURPOSE OF THIS REPORT

The Guidelines for the Formulation of SDF's (January 2011) have been applied in the process of drafting the Thembalethu Precinct Plan for the George Municipality, situated in the Western Cape Province of South Africa. The guidelines prescribe 7 phases, of which 2 phases involve public participation. The purpose of this report is to serve as a record of the public participation phases undertaken during the Thembalethu Precinct Plan process.

This report will be updated as the various phases of the project are completed.

4.1.2 GUIDELINES FOR THE FORMULATION OF SDF's (January 2011)

These guidelines comply with the Municipal Systems Act, 2000 (MSA) (Act 32 of 2000), the National Environmental Management Act, 1998 (NEMA) (Act 67 of 1998) and the principles of the Development Facilitation Act, 1995 (DFA) (Act 67 of 1995). The following section briefly describes where public participation fits in this process.

4.1.3 PUBLIC PARTICIPATION PHASES

The SDF guidelines (referred to in 4.1.1, above) stipulate a total of seven phases of which public engagement (or public participation) forms part of in order to:

- Create an awareness of the project and the process;
- Identify strategic issues,
- Stimulate future thinking; and,
- Provide valuable information for analysing the status quo.

The guidelines make provision for two interactive public participation phases, Phases 2 and 5 (refer to Figure 4.1.3.1).

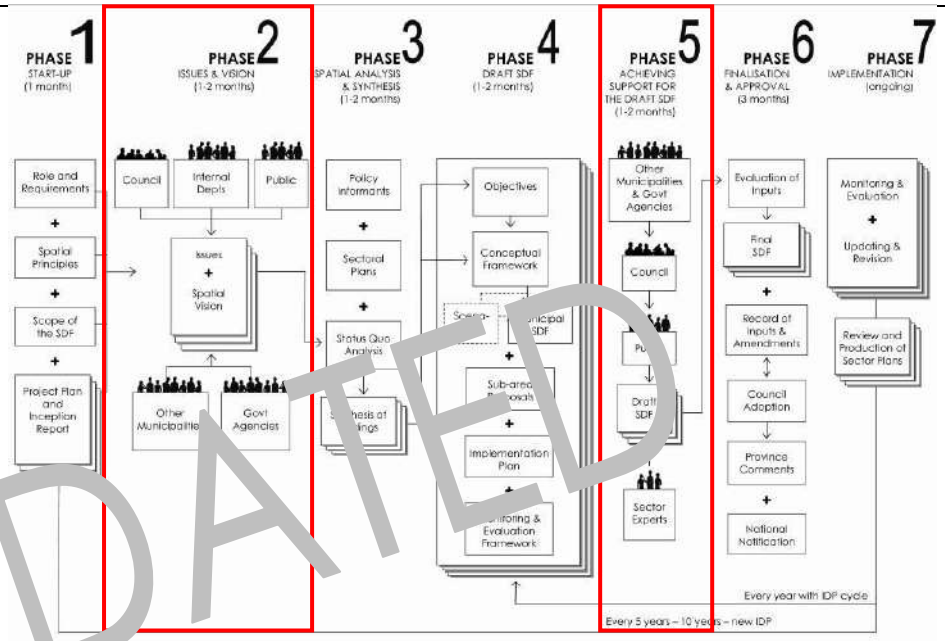


Figure 4.1.3.1 Public participation phases

Phase 2 involves consultation with Council, internal departments, the general public, other municipalities/districts and government agencies. The main purpose of this phase is to gain an understanding of the current issues within the municipality and to formulate a spatial vision or desired future scenario for the study area.

Phase 5 again involves public consultation. The purpose is to achieve support for the draft Precinct Plan by consulting municipality, government agencies, local councils, the public and various sector experts. Inputs from this phase will be evaluated and incorporated into the draft Precinct Plan in order to produce a final Precinct Plan would then be presented for Council adoption.

TO BE UPDATED

4.2 PUBLIC PARTICIPATION: PHASE 2 REPORT BACK

4.2.1 PUBLIC PARTICIPATION PROCESS PLANNING

The initial phase of the consultation process involved the confirmation of suitable dates for conducting the various consultative meetings. Suitable dates were discussed with the George Municipality and the following dates and venues were confirmed and meetings held, see Table 4.2.1.1:

No.	Meeting	Date
1.		
2.		

Table 4.2.1.1 Meetings/workshops held for the overall Thembalethu Precinct Plan

4.2.2 NEEDS, ISSUES AND PROBLEMS

The following needs, issues and problems were raised at the various meetings/workshops and are listed here:

A. Issues and Vision with Officials

Policies	
1.	
Ownership	
1.	
Market spaces	
1.	
2.	
Scenic route	
1.	
Urban Structure / Development	
2.	
3.	
5.	
6.	
Evictions and housing	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
Economy	
1.	
2.	
3.	
4.	
5.	
Services	
1.	
2.	
Transport	
1.	
2.	
3.	
4.	

Table 4.2.2.1 Issues and problems identified by the Officials

TO BE UPDATED

B. Issues and Vision with the Public

COUNCILLOR ..... AND TASK TEAM	
1.	
2.	
1.	
2.	
1.	
2.	
Housing	
1.	
2.	
3.	
4.	
5.	
General	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
Services	
1.	
Facilities	
1.	
2.	
....	
Housing	
1.	
2.	
3.	
4.	
5.	
Facilities	
1.	
General	
1.	
2.	
3.	
Services	
1.	
....	

General	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12	
LAND AVAILABILITY	
1.	
2.	
ROADS	
1.	
HOUSING	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
ECONOMY	
1.	
2.	
OWNERSHIP	
1.	
FACILITIES	
1.	

Table 4.2.2.2 Issues and problems identified by the Public

TO BE UPDATED

4.2.3 VISION

The following vision was proposed at the various meetings/workshops and are listed here:

A. Issues and Vision with the Public

Councillor ..... and Task Team	
1.	
2.	
3.	
1.	
2.	
3.	
1.	
2.	
3.	
4.	
5.	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	

Table 4.2.3.1 Aspects to be included in the Vision for the Local Municipality

TO BE UPDATED

5. CRITICAL FRAMEWORK: SPATIAL PRINCIPLES

Principles on good spatial practise should inform all deliberations on spatial issues as a golden thread from the start. This will help to clarify the issues and vision in Phase 2 as well as provide a yardstick for assessing performance in the Spatial Analysis in Phase 3. These principles interpret the key policy requirements described in sections 2.1 to guide analysis and proposals.

Chapter 2 of the Spatial Land Use Management Act (SPLUMA) presents an extensive list of principles for land development, some of which are aimed at influencing the spatial pattern of development, with others focused on administrative procedures and the facilitation of development.

Figure 5.4 provides notes on the implementation of the SPLUMA principles.

This section provides a set of suggested spatial principles for adoption in the Urban Upgrade Plan that interprets the SPLUMA principles and explains the practical implications of those principles. The proposed principles should be included as part of the background information presented as part of the first round of public participation in Phase 2.

5.1 MEASURING ACCESSIBILITY

The need to ensure that people have access to a variety of opportunities is implied in a number of the SPLUMA principles. This requires an understanding of the relationships between different activities in terms of spatial proximity (close and far), access and time. In the past accessibility has mostly been considered in terms of travel time in private vehicles, however, this measurement is not only environmentally unsustainable, as it is mostly dependent on access to private motor vehicles but also reflects a denial of the reality that the majority of our citizens do not have private vehicles, may not always be able to afford public transport and thus have to spend significant time and energy walking to fulfil their needs. Thus appropriate **walking distance** should always be used as the measure for accessibility. 20 minutes or 1km is regarded as an acceptable distance to walk and should be used as a basis of settlement design, see Figure 5.1.

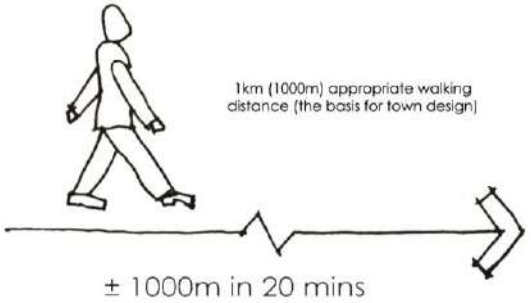


Figure 5.1 Walking distance

5.2 FUNCTIONAL INTEGRATION

The implementation of the walking distance principle to promote greater access to opportunities for all people, will require the functional integration of urban activities. At least **50% of urban activities** should be **within walking distance** of where people live, see Figure 5.2.

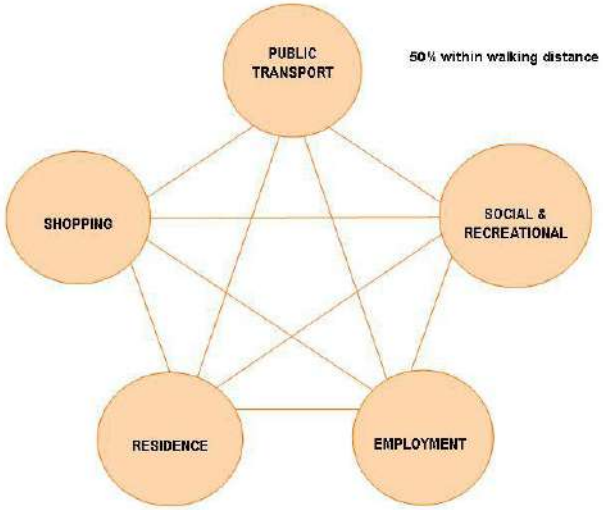


Figure 5.2 Functional integration

5.3 EFFICIENT URBAN STRUCTURE

Applying the principles of walking distance access and functional integration, will contribute to creating more efficient (i.e. where urban infrastructure is used optimally) settlements. Currently settlements are characterized by segregation of land uses and low density development that cannot support public transport, or small businesses. To address these issues and achieve better access and integration, **appropriate densification** will have to be promoted in settlements, see Figure 5.3. Density targets should be as follows: 25 dwelling units per hectare should be the target **average** density for settlements that require internal public transport services (for use by all). In small rural settlements an average gross density of 12-15 dwelling units per hectare should be targeted so that they function within walking distance and reduce the impact on agricultural land and scenic landscapes. Within these average target ranges densities can increase towards the core and decrease to as low as 4 – 8 du/ha to the periphery.

In larger, more complex settlements a multi-nodal pattern following the same principles may be appropriate.

A further mechanism to achieve densification and integration is to **limit lateral growth of settlements** through the use an **urban edge**. An urban edge will promote densification and integration and protecting valuable natural, agricultural and scenic resources, see Figure 5.3.

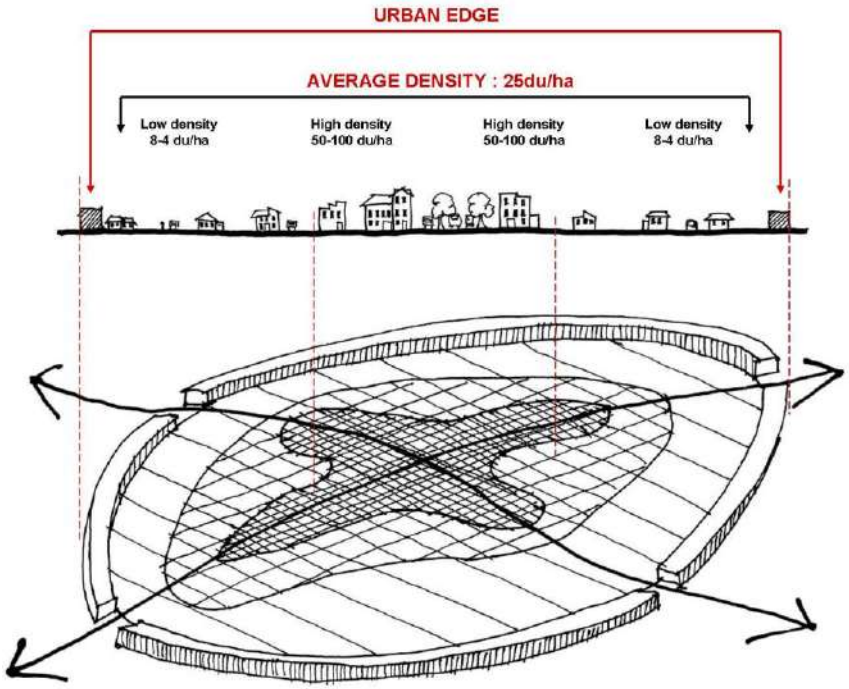


Figure 5.3 Appropriate densification for a single node settlement requiring internal public transport

5.4 A LOGICAL SETTLEMENT HIERARCHY

The concept of nodal development allows for the efficient accommodation of a large population. In large urban areas decentralised nodes are connected by high speed arterials or railway lines. This concept is applicable to metropolitan municipalities and as well as local and district municipalities, where the various settlements should be allowed to grow optimally according to their character and function, whilst protecting agricultural, natural and scenic resources between settlements, see Figure 5.4.

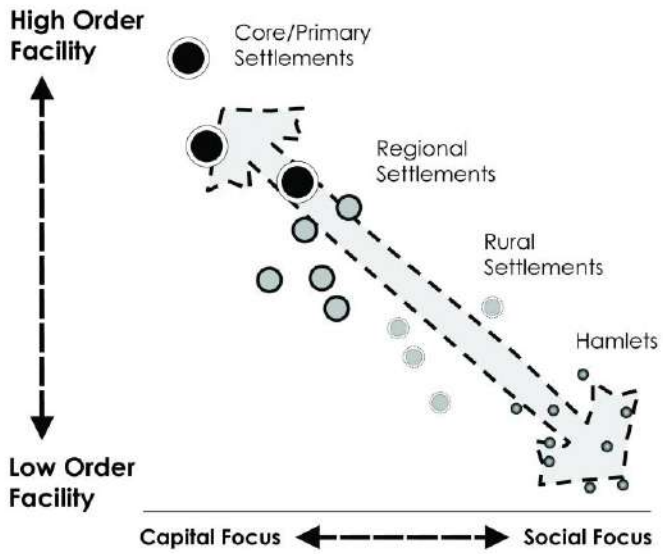


Figure 5.4 Hierarchy of Settlements (source: MCA, 2002)

Use land for its best use whether it is publicly or privately owned

Unless there are absolutely no other options land should be used for its highest and best use where practicable. For example, well located arable commonage land close to urban settlements should be used for intensive agriculture such as crop farming or market gardening rather than extensive agriculture such as livestock farming or peripheral RDP housing schemes.

5.5 A FRAMEWORK FOR PROMOTING SUSTAINABILITY

Long term sustainability is a core thrust of the SPLUMA. In order to ensure that sustainability is achieved whilst meeting the socio-economic demands and requirements facing municipalities, it is important to mediate between competing requirements.

The Ecological Socio-economic Relationship Framework, defines the relationship between ecological integrity, social justice and economic efficiency. It recognizes that economic efficiency is wholly dependent on the quality of human resources and their ability to participate in the economic system. In turn economic efficiency and social development is wholly dependent on the availability of eco-system services such as water, land, building materials and mineral resources. Because our planet is essentially a closed system (with solar energy as our only external input), it is not possible to exceed the capacity of the system in the long term, thus excessive demand in the short term has long term negative consequences. Figure 5.7 graphically illustrates the dependence of economic development and human well-being and reproduction on eco-system services.

This closed cycle implies that **production** is dependent on human resources (i.e. **human reproduction**) and what can be **extracted** from the natural environment. In turn, waste from economic production and human reproduction cannot exceed the capacity of the environment to **decompose** waste.

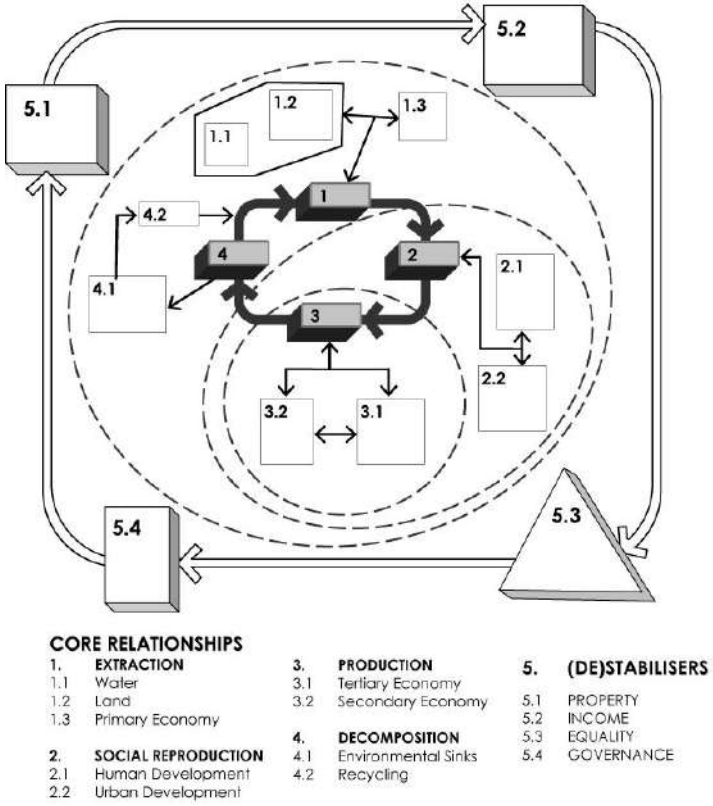


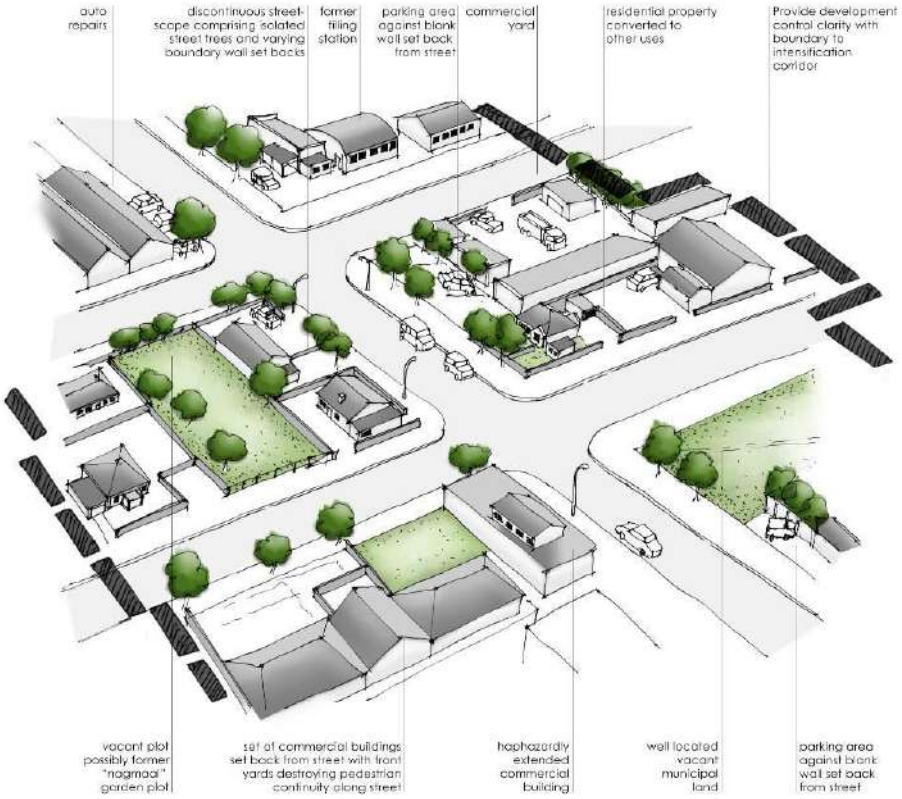
Figure 5.5 Relationship between bio-physical environment, economy and society

5.6 SETTLEMENT GUIDELINES

5.6.1 Intensification Corridors and Linkages, see Figure 5.6.1

Principles:

- **Sensitive infill and redevelopment of major arterial axis in clearly defined precincts;**
- **Corridors to concentrate activities and support its speedy initiation especially in more rural areas, should be delineated to include one erf on either side of the identified street, otherwise called the spine of the corridor;**
- **Show sensitivity towards existing heritage buildings;**
- **Enhancing the street experience through landscaping and guiding the architecture of new developments;**
- **Encourage a multiple level of entry into the economic market and enhance job creation, the intensification corridors should be limited to residential, office and retail uses and only compatible light industrial uses, e.g. non-nuisance manufacturing or craft activities that may require a retail outlet on the same premises;**
- **Define a single uniting structure of intensification corridors, nodes and linkages between town and township; and,**
- **Encourage supporting densification pattern and infrastructure provision.**



Before Development

After Development

Figure 5.6.1 Intensification Corridors

5.6.2 Nodes

This will be shown at town level.

Three levels of hierarchy of urban nodes containing business and community facilities shall be clustered together as far as possible to provide satisfactory access and clustering of activities, see Figure 5.6.2:

- Tertiary: technikons, hospitals, courts, multi-purpose centres, regional or metropolitan transport interchanges, museums, art galleries, indoor sports complexes, regional shopping centres;

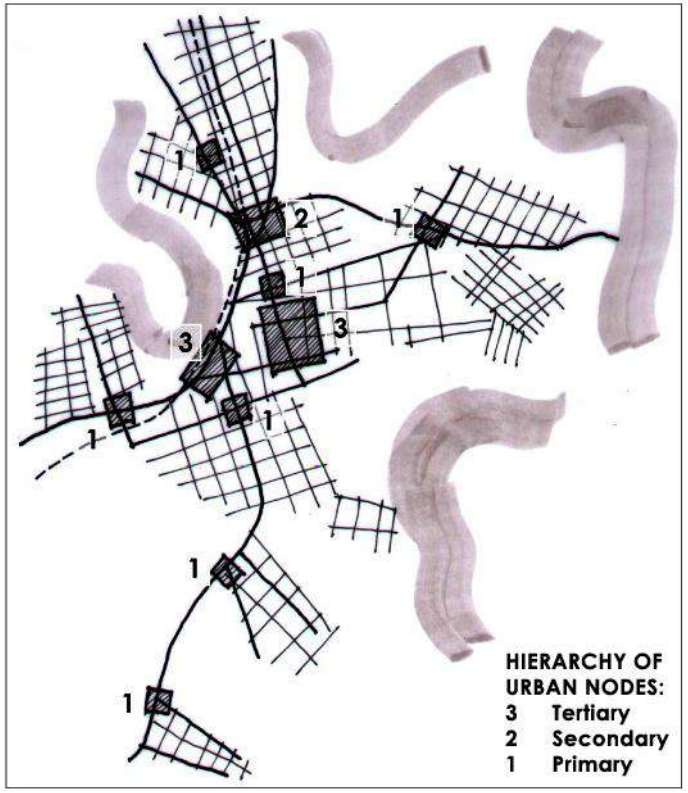
- Secondary: high schools, day care centres, hospitals, libraries, sports and community halls, sportsfields;

- Primary: primary schools, crèches, clinics, bus and mini-bus taxi stops; and

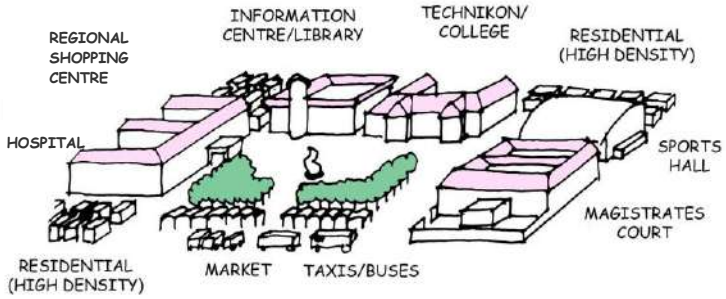
- Nodes should be managed to concentrate the business therein and where growth is required, the node should be encouraged to grow along the corridor towards each other. This is to manage and prioritise in a strategic manner, the implementation of needed infrastructure and to provide the greatest opportunity of success of these business.

Principles

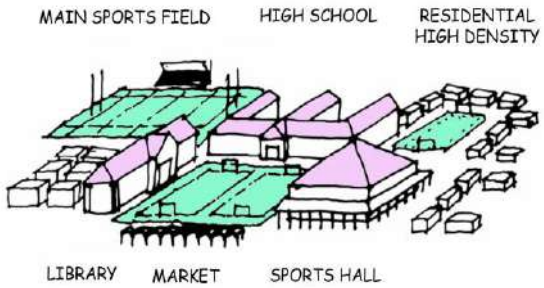
- ***Implement projects on a focused, strategic and hierarchical basis with the largest investments for higher order facilities that will be enjoyed by the greatest number of people.***



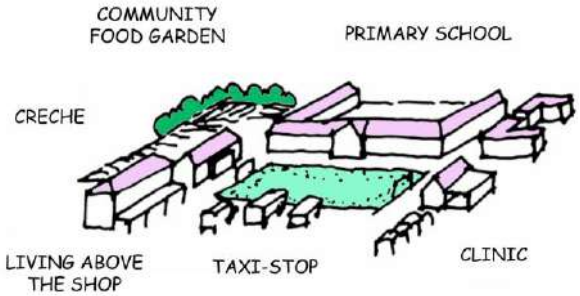
Clustering Civic, Commercial and Residential Activities



Tertiary Cluster of Facilities



Secondary Cluster of Facilities



Primary Cluster of Facilities

Figure 5.6.2 Sub-Centre Nodes

5.6.3 Land use integration and interface

The intensification areas are seen as the prime instruments for promoting integration between the towns and townships of the urban settlements.

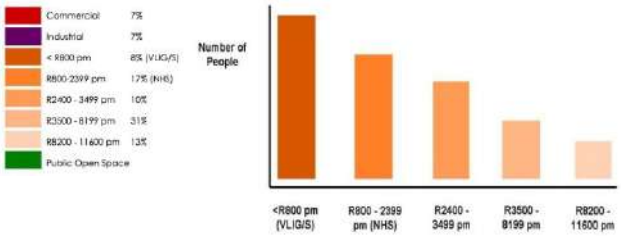
Principles:

- **Locate activities (residential, transport, work, recreation, etc.) so that at least 50% of them are in walking distance;**
- **Sensitively locate the income groups within the 1km radius : e.g. very low not right next to the very high income;**
- **Locate most frequented activities in the most central / accessible localities, e.g. industrial and commercial;**
- **As a general rule Human Settlement schemes should not be targeted at a single income group exclusively, usually subsidy or Site and Service, but should always include at least a GAP housing and top structure subsidy component even if only comprising 10% or 20% of the units;**
- **The arrangement of the housing for the various income groups should be according to the principle of the socio-economic gradient with the higher end of the market closest to the main thoroughfare, see Figure 5.6.3;**
- **Use all well located vacant land, i.e. within 1 to 2kms of urban centres; and,**
- **Locate all future residential areas within walking distance of urban centres where space permits; and,**
- **Locate all future subsidy housing within walking distance of nodal centre where space permits.**

Interface principles:

- **The change between different schemes must happen along the midblock and not across the street;**
- **Residents must be given freehold tenure, i.e. title deeds immediately so that shack upgrading will commence as soon as possible.**
- **In Montagu, Robertson, Bonnievale and Ashton there are developed housing projects that are still owned by the municipality, i.e. transfers to beneficiaries has not taken place as yet.**
- **The Provincial Department of Housing could consider establishing a task team of conveyancer's experienced in human settlement scheme transfers.**
- **The more formal the units the closer they should be to the main public thoroughfare or adjacent upmarket housing.**

Well-located BNG housing project in Langebaan surrounded by up-market housing



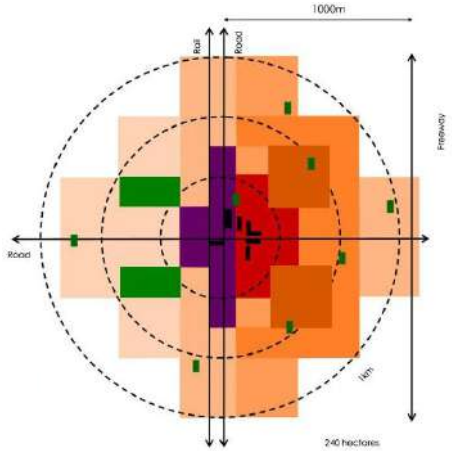


Figure 5.6.3 Socio-economic integration and Interface Treatment

5.6.4 *Urban Edge*

These should be reviewed to ensure that:

- Sufficient protection is given to land requiring protection, inter alia, the agricultural land currently under cultivation;
- That compaction rather than expansion of urban settlements is encouraged to promote non-motorised transport modes where appropriate;
- Furthermore, it should be noted that all of the low income settlements are located in one side or "slice" of the settlement only and their extensions all move outwards along this axis;
- Urban Edges which provide sufficient land for the development of the needs of the area for about 20 years, given the current growth rate, is proposed around the exiting urban footprint; and,
- It is proposed that these urban edge only be realigned based on actual need and once all the existing under or unutilized vacant land has been developed.

5.6.5 *Infill, Densification and the Suburbs*

It is clear that significant infill and densification is required in order to restructure the settlements in the Municipality.

Well located land has been identified to contribute to this important goal.

Guidelines for the settlements will be given.

5.6.6 *Wind and Solar Farm Siting Principles*

The following wind farm siting principles are proposed to be used as a first set of questions to guide potential developers of wind and solar farms. Terrain suitability need to be investigated and should include the following typical aspects in the design process:

- Slopes by gradient classes
- Rocky areas
- Soil type and permeability
- Natural watercourses and areas with high water table, Rainfall data; and,
- Vegetation.

- **Slope**
  - Wind Potential – slopes up to a certain gradient orientated towards prevailing wind directions tend to augment average wind speed;
  - Visibility – wind farms on slopes have increased visibility;
  - Road layout and design – slopes to be considered in road layout to reduce erosion potential of road run-off, rock-fall and landslide potential;
  - Tower foundation design – need to consider falls across the platforms; and,
  - Re-vegetation – steep road verges and cuts require re-vegetation to reduce sedimentation from run-off.

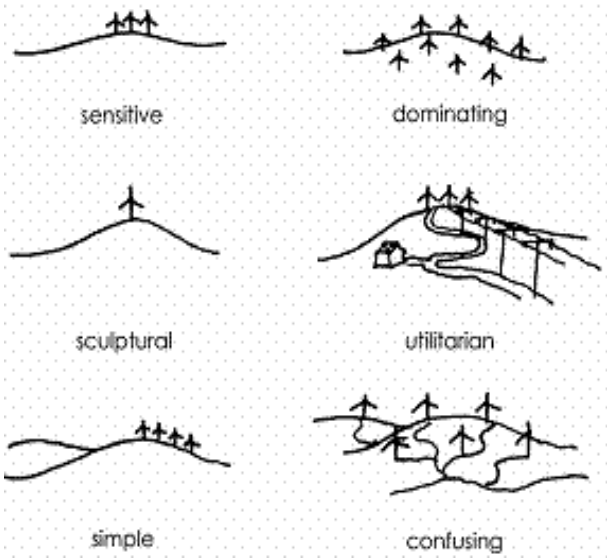


Figure 5.6.6a Location options for wind turbines

- **Geology**
  - Need highly stable underlying geology for heavy wind turbines; and,
  - Investigate existence of bedrock, subterranean voids and possible seismic activity
- **Soils**
  - Potential for erosion; and,
  - Soil types influence road construction and re-vegetation.

- **Surface Hydrology & Groundwater**
  - Design of roads and treatment of runoff from roads and disturbed surfaces to reduce sedimentation and eliminate erosion.

Figure 5.6.6b **Wind farm near Klipheuwel outside Durbanville, Western Cape**

Figure 5.6.6c **Visual simulation of wind turbines, Western Cape**

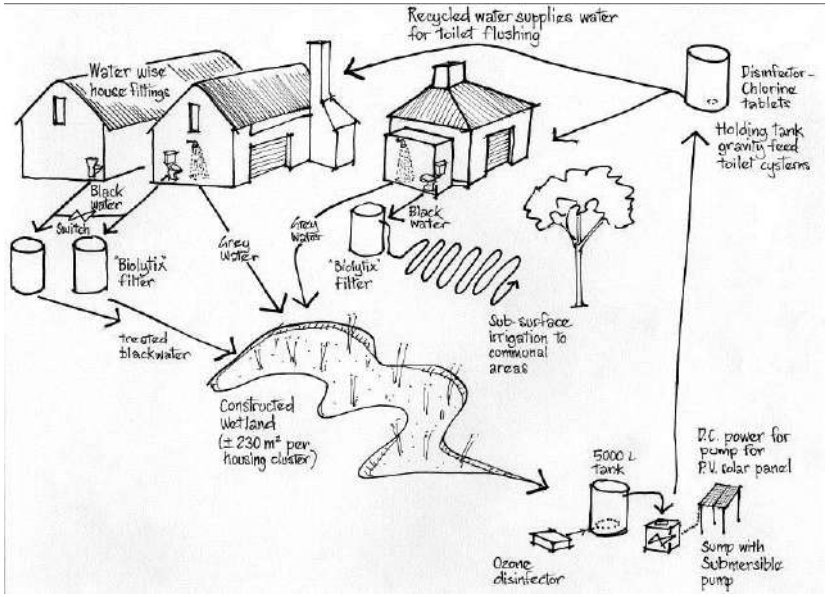
- **Vegetation**
  - Detailed vegetation assessment if the proposal is not in an agriculturally disturbed area;
  - Assessment should include location and condition of:
    - Extent of disturbed or alien vegetation;
    - Extent of any natural vegetation;
    - Indigenous and endemic species; and,
    - Rare and threatened species.

Figure 5.6.6d **Solar farm in Touws River**

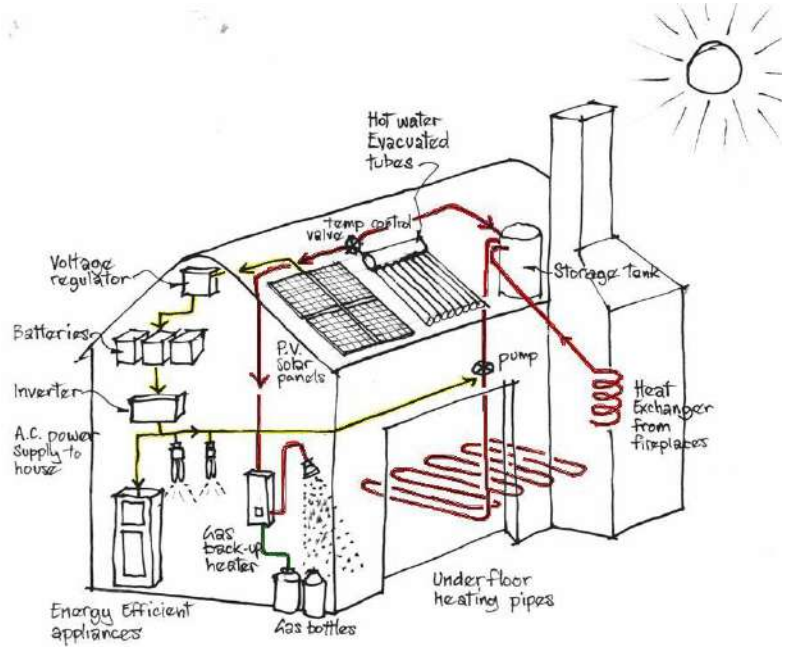
5.6.7 *Infrastructure*

The following principles shall apply:

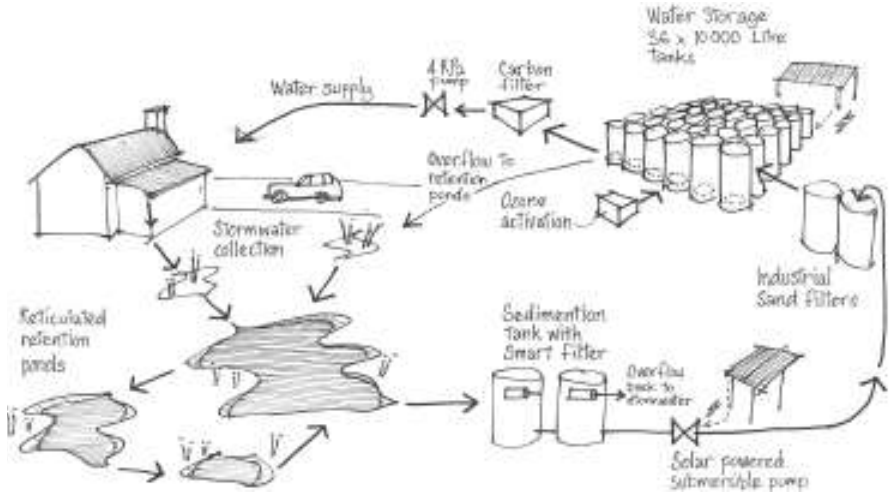
- Ensure a base level of services only is available for all residents in the Municipality including those households qualifying for indigent grants;
- Where possible implement GAP housing schemes as part of subsidy projects so as to help cross-subsidise required infrastructure projects;
- For low density settlements, where the high cost of conventional grid services are prohibited and not preferred and to promote sustainable use of natural resources reduce dependency on conventional grid services, the following are proposed:
  - Promote the use of solar hot water projects so as to help cross-subsidise infrastructure costs;
  - Promote use of solar of water heaters, PV panels, grey-water recycling, waste separation at source, and passive building design to as to minimize energy, solid waste and water demand, see Figures (a) and (b); and,
  - Encourage rainwater harvesting and grey water (water from hand basins and kitchen sinks) recycling, see Figure (c).



(a) Sanitation System based on sustainable principles



(b) Solar Energy Generation for off-grid energy generation



(c) Rainwater harvesting for sustainable use of water

Figure 5.6.7 Off-grid infrastructure options

5.7 URBAN DESIGN GUIDELINES

UD1 Create open space systems that integrate the elements of a settlement to contribute to a meaningful urban structure. This can be done by:

- Providing connectivity between open spaces;
- Establishing linkages between open spaces;
- Aligning the open space system with public buildings; and,
- Ensuring an improved quality of linkages through the continuation of special activities or functions along major routes.

UD2 Link symbolic elements (statues) or public facilities (library, clinic, etc.) to open spaces in relation to their importance and character.

UD3 Ensure the definition of the public spaces through the effective design of an interface between public and private domains.

UD4 Create visual recognition and surveillance along open spaces and public routes. This can be achieved through:

- Locating buildings around open spaces and streets so that sufficient enclosure is created;
- The appropriate height of buildings; and,
- Locating the highest buildings to the southern side of the open space, with lower buildings or trees on the northern side.

UD5 Markets should be permitted at highly accessible locations in terms of the movement network and urban structure to ensure the greatest viability possible. These locations could be modal interchanges and intersections.

UD6 As a general rule the erection of shopping centres on the periphery of settlements should be discouraged. This should only be permitted if the intention is to initiate a new urban node at the specific location and the proposed shopping centre development is in line with the growth direction of the settlement.

UD7 Accommodate a variety of users in and uses along the streets by doing the following:

- Concentrate intensive activities along major vehicular and public-transport routes;
- Locate majority of public buildings and increase densities along these routes; and,
- Locate buildings closer rather than further from the streets to increase pedestrian activity, a sense of enclosure and surveillance.

UD8 Create appropriate road cross-section widths that can provide for vehicle traffic, parking, pedestrian movement, cycling and landscaping.

UD9 Urban block length should promote access (penetration) and encourage economic activity by orientating the short side of blocks to major streets wherever possible.

UD10 Space buildings from each other to provide adequate solar access to buildings. In this regard the roof pitch of buildings should be orientated so that roof solar panels have a maximum continuous direct access to the sun.

UD11 Any proposals for the redevelopment of existing buildings should consider their heritage value, elements of the vernacular architecture and, where possible, retain these important elements. Similarly, the historical characteristics of existing buildings should be considered to draw from their elements that could be integrated into the design and construction of new buildings close by.

UD12 The use of local materials should be encouraged in the construction of new buildings.

UD13 Encourage appropriate water-wise landscaping.

UD14 Ensure that the main streets of the urban areas are appropriately landscaped to encourage a pleasant gateway treatment into the settlements.

5.8 THE COMPLETE STREETS APPROACH TO TRANSPORT PLANNING

The Complete Streets approach extends the functional road hierarchy to include the principles of; "multi-modal", "smart", and "green".

Figure 5.8.1 **Neighbourhood Main Street – residential area, convenience shopping, business, flats over shops**

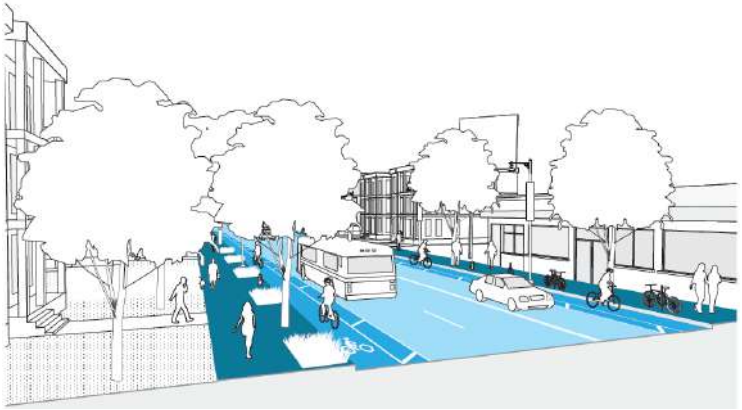


Figure 5.8.2 **Neighbourhood Connector – links a number of neighbourhoods**

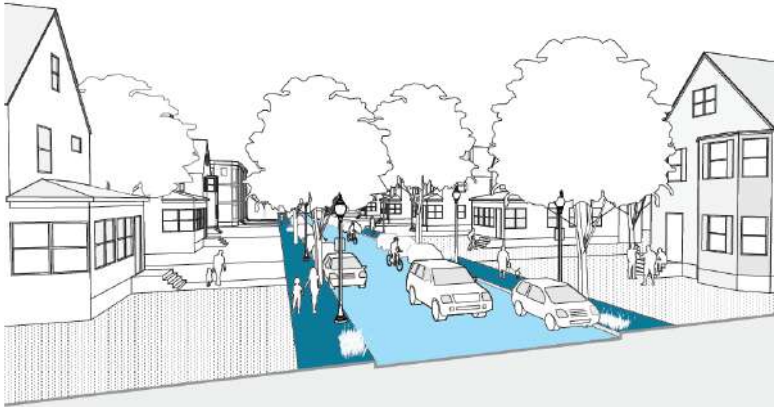


Figure 5.8.3 **Neighbourhood Residential – woonerven, residential access street**

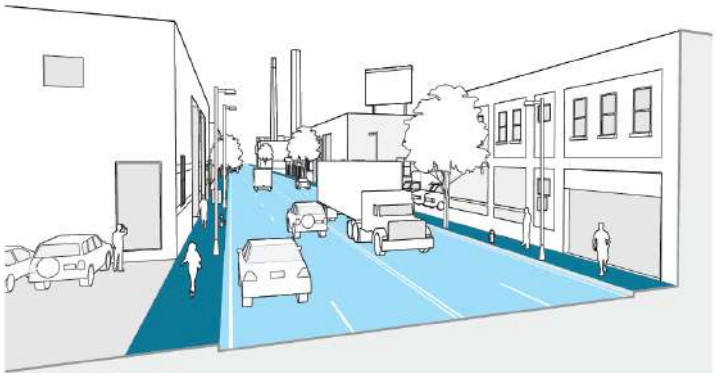


Figure 5.8.4 **Industrial – primarily accommodate freight trucks, should connect directly to regional highway network**

6. CONCEPTUAL PROPOSALS

6.1 PRINCIPLES FOR THEMBALETHU

This section describes the core ideas for the spatial future of Thembalethu Precinct.

6.1.1 URBAN PRINCIPLES

6.1.1.1 Walking distance should be the prime measure of access and good location:

- Use all well located vacant land, i.e. within 1 to 2kms of urban centres; and,
- Locate all future residential areas within walking distance of urban centres where space permits.

6.1.1.2 Functional integration:

- Encourage densification pattern that supports infrastructure provision with the D3708 as the main infrastructure spine.

6.1.1.3 Socio-economic integration:

- Locate all future subsidy housing within walking distance of nodal centre where space permits;
- Promote gap housing within up-market and subsidy housing; and,
- Identify opportunities for infill, redevelopment.

6.1.1.4 Protect sensitive elements: rivers, wetlands, bio-diversity hot spots and heritage buildings and precincts:

- Identify sensitive areas and demarcate conservation setback lines to be accurately defined later by specialist terrestrial and freshwater ecologist in negotiation with land owners and heritage professionals.

6.1.1.5 Ensure at least basic services to all residents either by Municipality or land owners:

- Ensure minimum basic services to all using either conventional technology if bulk capacities are available and the Municipality and users can afford the monthly costs, or off-grid technologies, e.g.:
  - solar hot water cylinders;
  - PV cells;
  - rainwater harvesting; and,
  - grey water recycling.

6.1.1.6 Implement projects on a focused, strategic and hierarchical basis with the largest investments for higher order facilities that will be enjoyed by the most number of people.

6.1.1.7 Appropriate Densification Pattern

There are two main aspects to this principle. The first is to promote appropriate densification in urban settlements whereby settlement densities are increased according to a well thought out plan that takes into account environmental factors such as biodiversity and the water quality and quantity of river systems, public open space requirements and areas for economic activity.

Although the key relationship is population density, from an urban management point of view, densification is most easily managed by measuring dwelling units. There is a close relationship between population density and dwelling unit density, i.e. the number of dwelling units per hectare.

Two average gross density targets have been identified in relevant research: The first is 25du/ha in settlements large enough to require public transport services.

The second is 15du/ha in small rural settlements that should function within walking distance and minimise their consumption of surrounding agricultural and scenic land.
In most South African settlements urban densities need to double.

Density patterns should reinforce the threshold patterns that make business, community facilities and infrastructure viable and efficient, see Figure 6.1. Densities should be highest around and in well located nodes and corridors and lowest on the periphery.

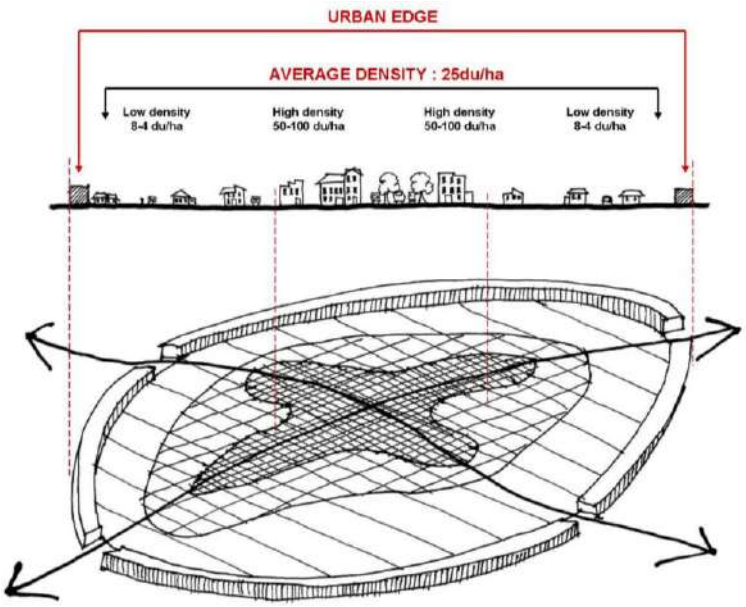


Figure 6.1 Appropriate Density Pattern

6.1.2 RURAL PRINCIPLES AND BIO-REGIONAL SPATIAL PLANNING CATEGORIES

The following principle and bio-regional spatial planning categories are proposed to guide rural development and activities as follows, see Figure 6.2:

6.1.4.1 There should be a simple broad land use management system based on bio-regional planning zones with five broad spatial categories as follows.

1. **Core areas**
   - No development; and,
   - Conservation areas, river corridors, ridge line boundaries.

2. **Buffer areas**
   - Includes undeveloped rural land and extensive agriculture (grazing and browsing);
   - No development beyond 1 building per 10 hectares; and,
   - Development should be clustered (no further subdivisions below minimum farm size – Dept of Agriculture).

3. **Intensive agriculture areas**
   - No development beyond 1 building per 10 hectares; and,
   - Development should be clustered (no further subdivisions below minimum farm size – Dept of Agriculture).

4. **Urban Settlement**
   - Increase gross average densities to 25du/ha in settlements requiring public transport;
   - In smaller pedestrian friendly settlements target gross average densities of 15du/ha; and,
   - Include public open space, golf courses and other urban open space activities.

5. **The Urban Edge**
   - Urban settlement should be located within the Urban Edge;
   - All other uses should, as a general rule, be located outside the Urban Edge;
   - In some instances, e.g. small scale intensive agriculture, market gardens / allotments, may be located within the Urban Edge; and,
   - The Urban Edge should enclose sufficient land to accommodate the settlement's growth for the next 10 – 20 years once it has achieved the target gross average densities of 15 or 25du/ha depending on whether the settlement is dependent on public transport or not.

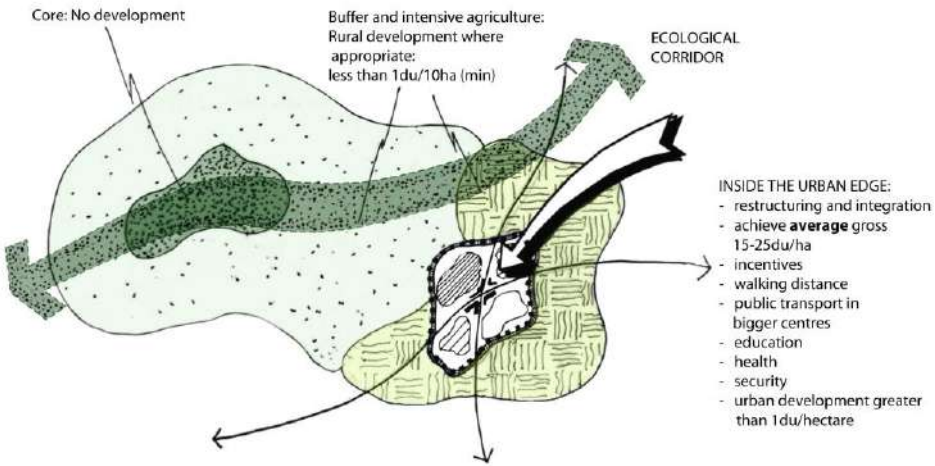


Figure 6.2 Bio-regional Spatial Planning Categories

6.1.3 LINKAGES BETWEEN URBAN AND RURAL

6.1.3.1 Principles

- Transport, infrastructure and information technology linkages between urban and rural should be optimised to facilitate exchange between urban and rural.

- Development activities to facilitate this relationship such as markets and tourism infrastructure should be upgraded from a basic and rudimentary starting point to avoid wasted funding, possible lack of credibility because of poor delivery and should be heavily advertised.

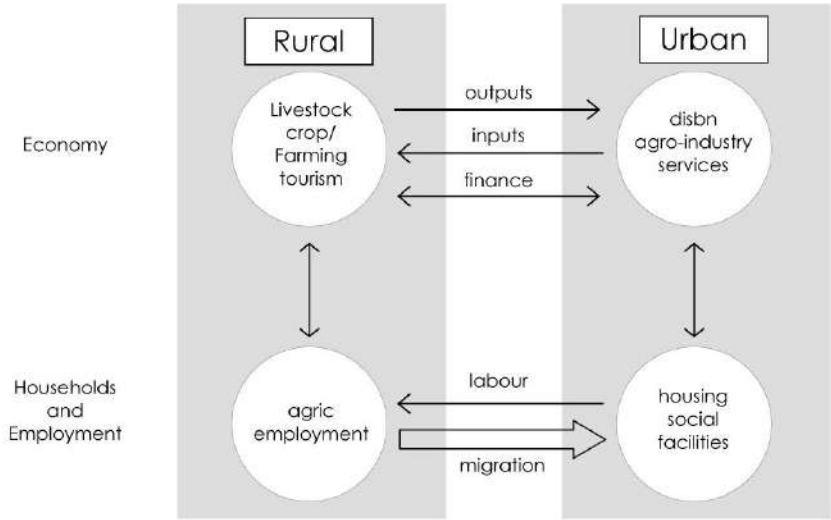


Figure 6.3 Urban and Rural Linkages

6.1.3.2 Ensure adequate transport links between the urban and rural economy

6.1.3.3 Promote agri-tourism, agri-industry and retailing, and rural tourism within the precinct.

6.2 MACRO-CONCEPTUAL FRAMEWORK

6.2.1 Strategic Spatial Vision

Figure 6.4 depicts the spatial vision for Thembalethu precinct.

At the strategic level the idea is to strengthen Thembalethu's links with the rest of the George settlement.

Currently, it exists as somewhat of an island, cut off from the remainder of the settlement to the north by the N2 highway, and to the west and east by the deep v-shaped Skaapkop and Meul rivers. The area to the south comprises agriculture on the highlands which are incised by deep river valleys which drain to the coast. These valleys contain critical biodiversity areas (CBAs).

The main intervention is to strengthen and reinforce Thembalethu's main arterial link with George CBD. While this route already exists along Saandkraal and Albert streets linking directly into York street in the CBD, it is not celebrated, nor does it read like the main route into an area containing over 20% of George's total population (± 43 000 people). The principle that should be adopted in this regard, is that there should be a consistent and continuous standard of urban quality with respect to street trees, street furniture, pedestrian sidewalks, bus stops, road side business opportunities, parallel parking etc. from York Street to the eastern node in Thembalethu.

Therefore, it is proposed that this route, comprising Albert and Saandkraal streets is upgraded with landscaping and tree planting and urban design interventions including promoting high quality shop fronts and building elevations facing onto this road. Short term parallel parking, regulated through set time limits, should be accommodated to promote kerbside businesses.

The road cross-section should also accommodate continuous pedestrian sidewalks and cycle ways and public transport stops to be used by either mini-bus taxis or a bus rapid transit system.

Further integrating links can be achieved in due course to the west along Nqwemesha street across the Skaapkop river to Pacaltsdorp linking to the access road just north of the WWTW, and a future link east onto the proposed Destiny Africa site. Future proposals on the Destiny Africa site must consider the Thembalethu precinct plan proposals.

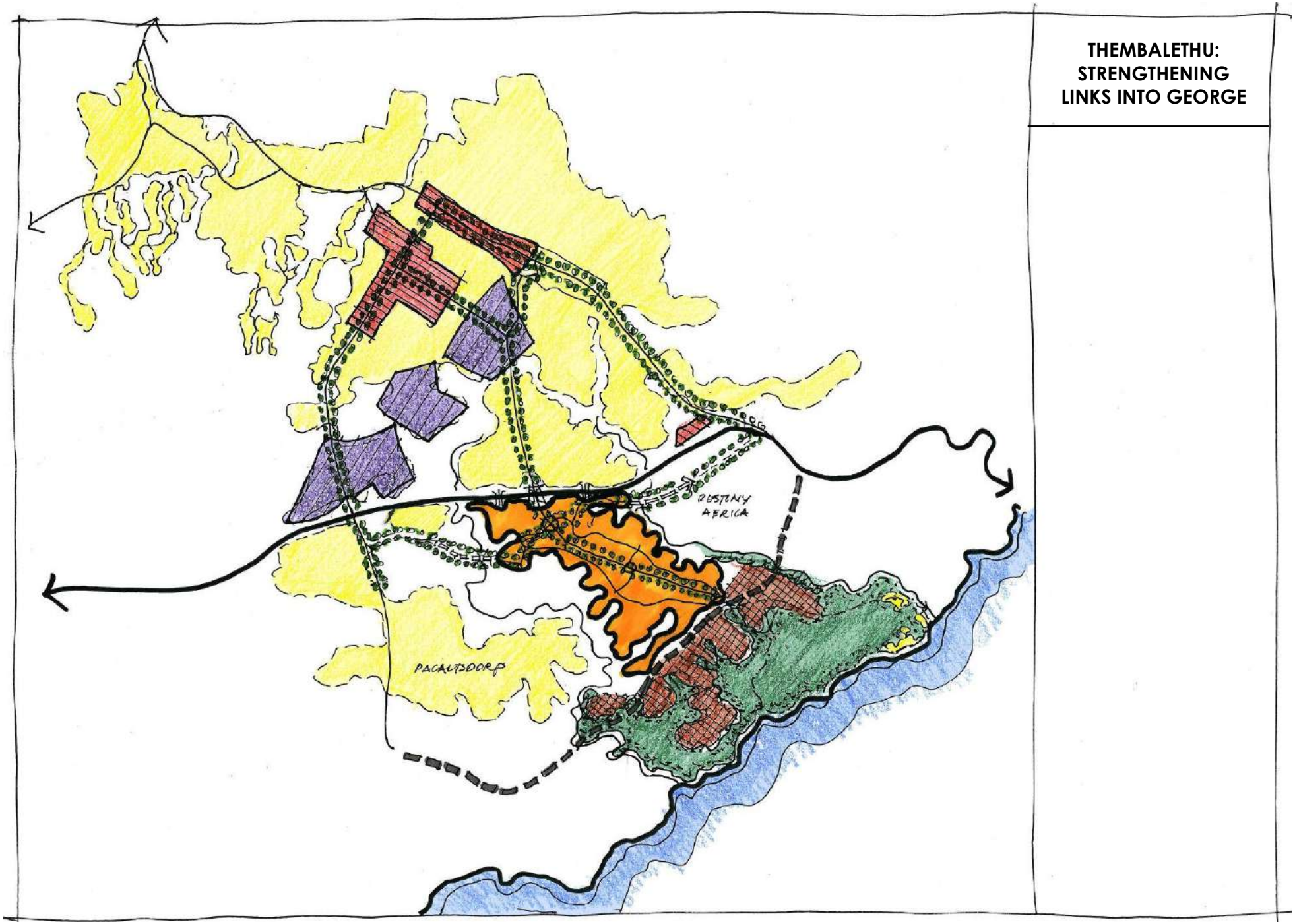


Figure 6.4 Spatial Vision for Thembalethu linking with greater George

6.3 THEMBALETHU IN THE CONTEXT OF GEORGE MUNICIPALITY: OPPORTUNITIES AND CONSTRAINTS

At the level of Thembalethu itself the following constraints and opportunities can be identified:

6.3.1 Constraints

- The area is cut off from the greater George area by the N2 highway and the deep V-shaped Skaapkop and Meul river valleys;
- There is a poor gateway first impression off N2 highway intersection with few trees and large areas of undeveloped land alongside;
- Nelson Mandela Boulevard, which should be the main business spine is significantly underdeveloped with the exception of the shopping centre and building materials supply store at the intersection of Saandkraal and Ngcakani streets;
- Thembalethu currently works like a "doughnut" in that the spine of the area between Ngcakani and Tabata streets centred on Saandkraal street, has some of the lowest densities or least intensely developed land. Higher intensities of land development are found further way between Ngcakani and Tabata streets towards the edge of the settlement;
- Reasons for this include:
  - Nelson Mandela Boulevard is designed as a limited access arterial instead of an urban high street and all of the residential properties abutting it turn their backs to it;
  - Apart from the business node mentioned above and two other nodes zoned at the 26th street and the Zabalaza/Saandkraal link road intersections no other commercial development has been proposed;
  - The predominant zoning except for two extensions zoned medium density, although their underlying layout is similar to the remainder, is for Single Residential zone 1(Low Density); and,
  - The best located land for highly visible industrial and commercial development abuts the N2 highway but this land, although largely undeveloped to date, site no. 5 on figure 6.5, has been planned for middle income low density housing, and site J and K have been planned for low income housing, notwithstanding that this site suffers from higher noise levels and pollution levels than sites further away;
- The highest densities are found in the informal settlements and there is virtually no two to four storey walk up housing.

6.3.2 Opportunities

- Sites with access off highways usually command high commercial values and the land remaining in this situation should be used for this purpose, figure… describes sites that could be used for this purpose;
- In this case, the lack of development of the low density middle income abutting the highway is seen as an opportunity to change the land use management policy including subdivision, if necessary, and promote it for this purpose. This land can be of particular assistance to promoting small businesses;
- Nelson Mandela Boulevard varies between 22 and 28 metres wide. Tabata street varies between 12 and 16 metres and Ngcakani street up to 22m;
- These three roads should be designed as an integrated trinary system possible with Ngcakani and Tabata being two way streets designed in line with the 'Complete Streets' principle. This includes upgrading the system with tree planting, cycle lanes and pedestrian walkways (see section …). The land uses abutting the trinary system will largely remain residential, however may increase with some residential uses being converted mixed use, allowing for business uses on the ground floor and residential on the first floor. Increased densities are encouraged along the trinary route system;
- There are various links between the two crossing over Saandkraal which would allow vehicles in the middle of the section of one of these routes to cut across and travel in the opposite direction without having to travel all the way to one or the other ends;
- Nelson Mandela Boulevard could then become a public and non-motorised transport spine with limited, but not none, provision for private motor vehicles;
- Development, ranging from constructing mixed use apartment buildings through to turning the backrooms of a house currently turning its back to this major route, should be incentivised, in particular the vacant and underdeveloped land abutting Nelson Mandela Boulevard, e.g. Masipumulele proposals, see Figure 6.7;
- Design typologies, included limited parking on site, permitting the redevelopment of the well located informal settlements whose location is suitable to high densities should be encouraged, see Figures 6.8 and 6.9;
- The river system around the settlement should be designed and planned as a recreational and bio-diversity conservation opportunity; and,

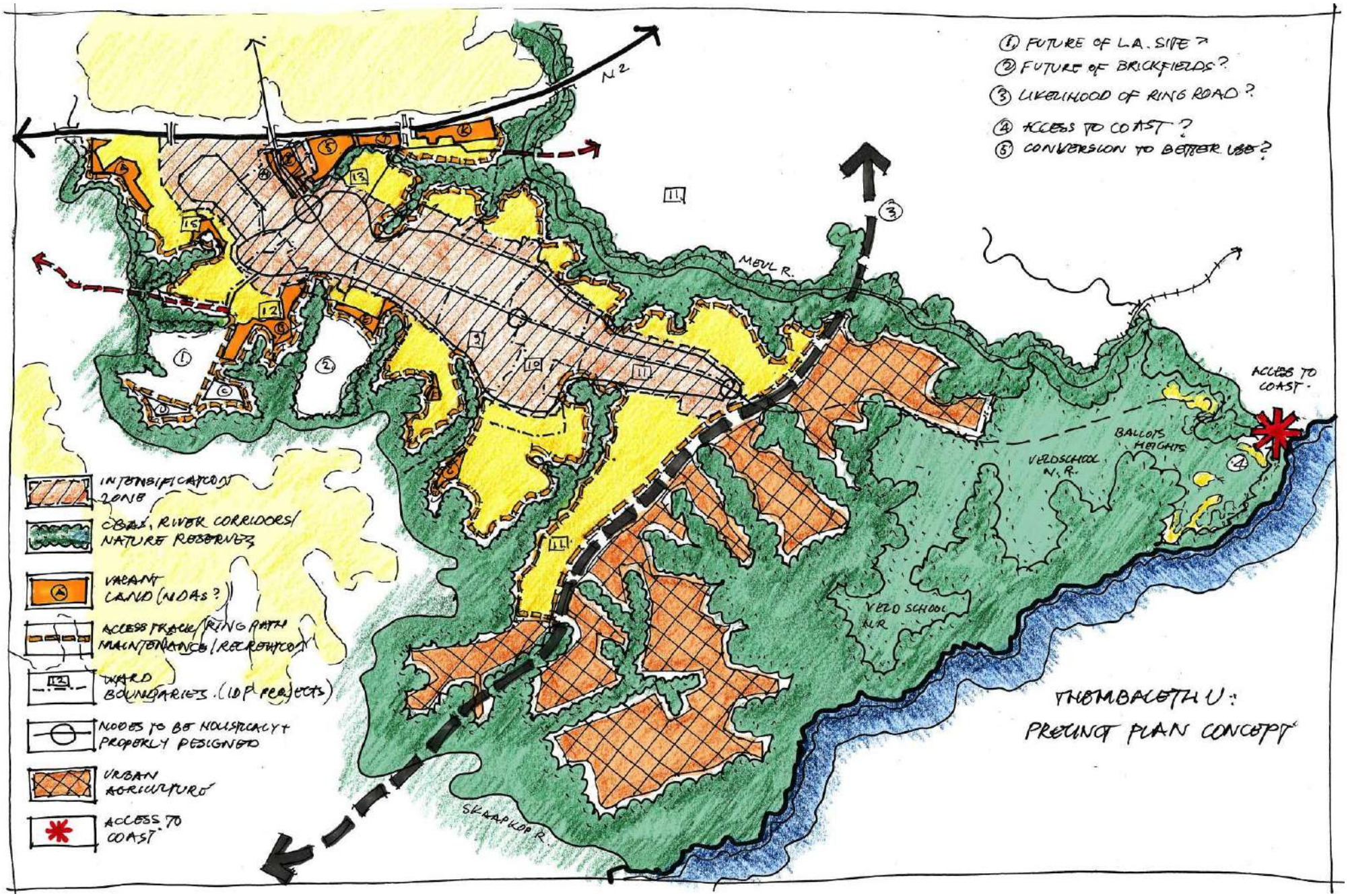


Figure 6.5 Thembalethu Precinct: Opportunities and Constraints

6.4 BROAD CONCEPTUAL FRAMEWORK

Figure 6.6 shows the conceptual framework for the Thembalethu precinct.

It comprises the following elements:

- Trinary transport spine system comprising Tabata, Nelson Mandela Boulevard and Ngcakani roads from south to north with the first and last route operating as two way routes and Nelson Mandela Boulevard as the public transport and non-motorised transport spine;
- These routes should be treed and landscaped and direct access permitted wherever possible;
- Mixed use intensification area between Tabata and Ngcakani streets making use of all surplus and underdeveloped land, see Figure 6.8. This should include two to four storey walk up and mixed use housing, see Figures 6.9 and 6.10;
- Public open space network comprising the river valleys lined with a recreational/maintenance track that also helps to manage urban encroachment into the river valleys and helps with storm water management and water quality;
- Between the proposed alignment of this track and the current extent of urban development there are opportunities for urban extension, some identified in the UISP study;
- The mine rehabilitation plans of the brickfields should be reviewed to ensure that this land will be suitable for urban development in the long term;
- The informal settlements should be redeveloped to high urban densities achieved to a certain extent by providing pedestrian walkways to some units rather than full motor roads;
- The alignment of the proposed ring road should function as the southern limit of development; and,
- Beyond this area suitable agricultural land should be retained for this purpose so as to provide a livelihood for emerging farmers and short supply chains into the food market with Thembalethu.

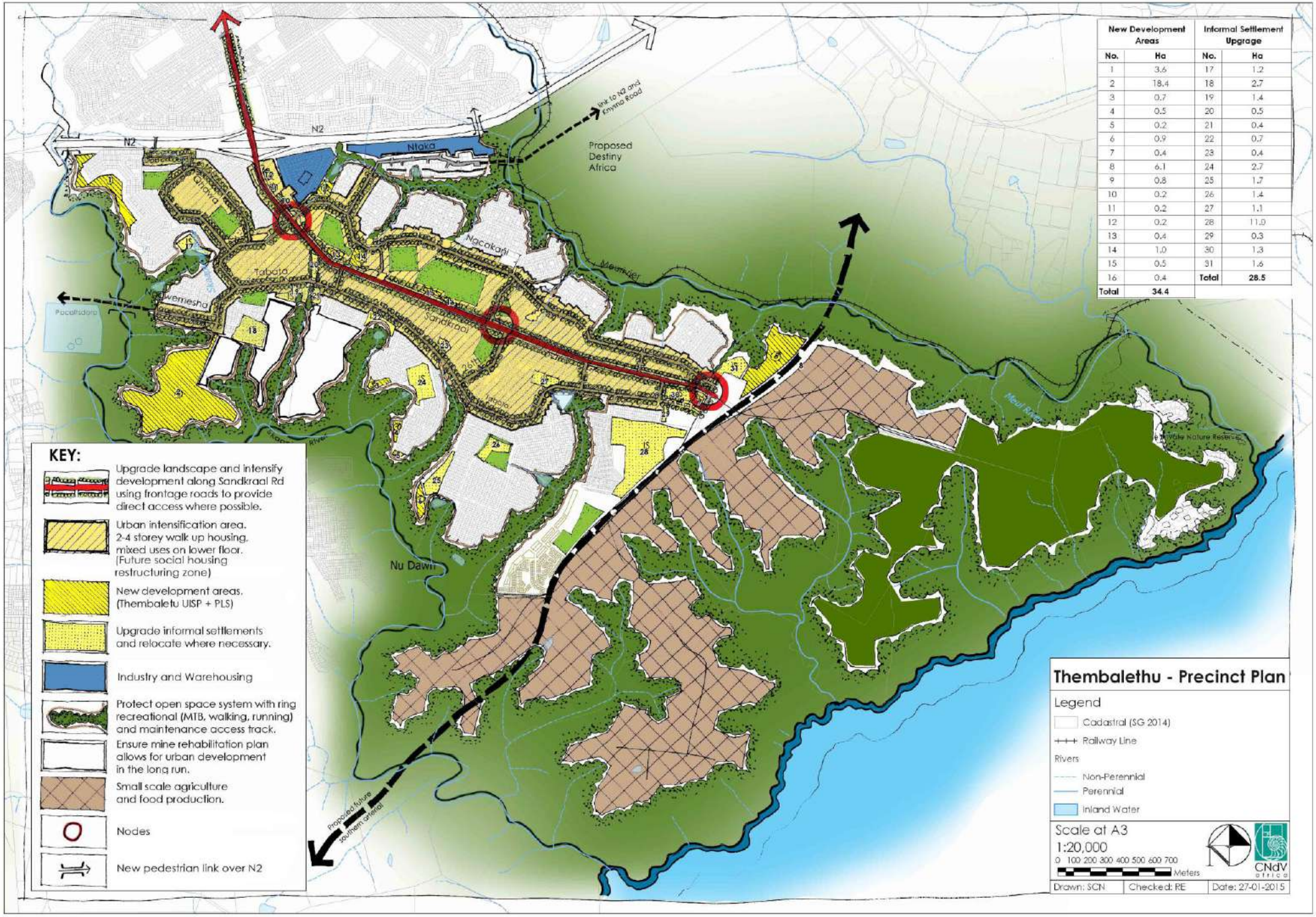


Figure 6.6 Thembalethu: Conceptual Precinct Plan

Figure 6.7 Thembalethu: Concept Perspective illustrating SDF proposals

7. IMPLEMENTATION FRAMEWORK

7.1 INTRODUCTION

A consultative meeting was held on 20 November 2014 with the Thembalethu Ward Councillors to introduce the draft concept report (phase 4) and to seek a mandate for the completion of the project. The outcome was the endorsement of the draft proposals and an agreement that a consultative process would be undertaken with the relevant government sector departments to see how the Thembalethu precinct plan could be implemented.

The purpose for the consultative engagements was to:

1. To solicit comments on the draft proposals of the Precinct Plan;
2. To understand the funding structures of relevant sector departments; and,
3. To understand the sector department's future plans for Thembalethu.

The following departments were consulted:

- The Western Cape Department of Human Settlements (WCDHS);
- The Western Cape Department of Economic Development and Tourism;
- The Western Cape Department of Public Works: Transport;
- The Western Cape Department of Public Works: Properties;
- The National Department of Treasury: The Neighbourhood Development Partnership Grant;
- George Integrated Public Transport Network (Mr Robbie Robertson); and,
- The Western Cape Department of Agriculture.

The following municipal line departments were also consulted on 20 October 2015.

- Spatial Planning Department;
- Engineering Department;
- Local Economic Development Department; and,
- Human Settlements Department.

In addition, the George Municipality IDP for 2013/2014 was also consulted and relevant projects for Thembalethu identified.

Section 7.2 describes a composite implementation plan with projects listed in Section 7.2.1.

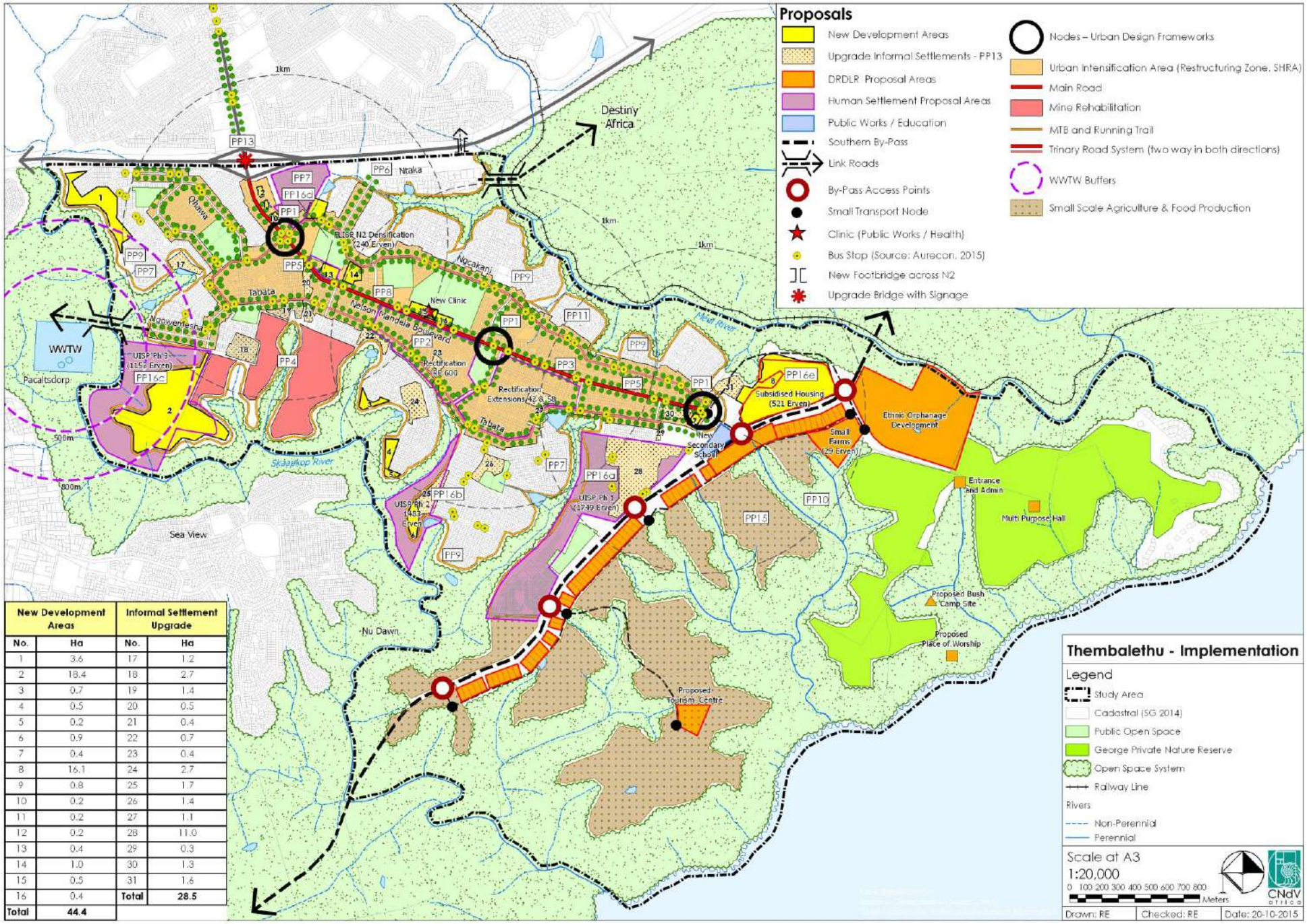
Section 7.3 describes existing government projects with 7.3.1 showing Western Cape Department of Human Settlements Projects.

7.2 STRATEGIES AND POLICIES TO IMPLEMENT THE FRAMEWORK

Table 7.2.1 describes the proposed projects, approximate costs and possible implementation agents. Projects numbered PP1 to PP16 are illustrated on figure 7.2.1.

Proposal		Project / Policy Description	Approx. Budget	Approx. Timeframe	Implementation Agent	Funding Agent	Status
Planning							
PP 1	Urban Design Frameworks for the nodes	Prepare detailed urban design and landscaping frameworks for nodes within Thembalethu	R 300 000 planning	Short Term (To commence in 12 months)	George Municipality: Planning dept; spatial planning	• George Municipality • DRDLR	George Mobility strategy To be appointed
PP 2	Urban Intensification along Nelson Mandela Boulevard, Tabata and Ngcakani streets.	Encourage private development 2 – 4 storey housing and mixed use development on lower floor.	Not applicable	Long Term (To commence after 3 yrs)	GM: spatial planning/Land Use Managers	• Private	
PP 3	NMB Landscaping PT & NMT	Prepare landscape design plan for NMBd.	R250 000 master plan R5 000 000 imp tbc	Medium Term (To commence between 12 months & 3 yrs)	George Municipality	• George Municipality	To be appointed
PP 4	Mine rehabilitation plan	Review mine rehabilitation plan for future urban development	To be determined	Medium Term (To commence between 12 months & 3 yrs)	George Mun Department of Minerals and Energy	• Department of Minerals and Energy	
PP 5	Main Road Interface Guidelines Study	Prepare detailed Main Road Interface Guidelines Study for the Main Road.	R 400 000	Medium Term (To commence between 12 months & 3 yrs)	George Municipality:Planning Dept; spatial planning, LUMS, Roads & Transport, George Mobility Strategy	• George Municipality • DRDLR • DEADP • DBSA	To be appointed
Transport Engineering							
TE 1	NMB Road Upgrade:	Upgrade NMB road to PT & NMT (4 lanes councillors?)	To be determined	Medium Term (To commence between 12 months & 3 yrs)	George Municipality :engineering dept	• George Municipality • Department of Transport	George Mobility strategy
TE 2	Recreational and maintenance access track	Develop a ring recreational (MTB, walking, running) and maintenance access track around Thembalethu.	R 4,5m @ R220k/km (22kms)	Medium Term (To commence between 12 months & 3 yrs)	George Mun: engineering and city parks	• George Municipality • Department of Economic Development and Tourism	
TE 3	Upgrade road to coast	Open up tourism opportunities create continuous tourism route	R3m @ R1m/km	Medium Term (To commence between 12 months & 3 yrs)	George Mun: engineering dept LED	• George Municipality	
TE 4	Trinary road system	Design NMB, Ngcakani and Tabata roads as trinary road system. Ngcakani and Tabata streets become two way streets.	To be determined	Medium Term (To commence between 12 months & 3 yrs)	George Mun: George engineering dept George Mobility study	• George Municipality	In George Mobility study
TE 5	Thembalethu Bridge Widening	Upgrade the Thembalethu Bridge and increase vehicle capacity.	95m	Medium Term (To commence between 12 months & 3 yrs)	George Mun: Geoge engineering dept.	• National Council of Provinces	Currently seeking funding from the NCoP.
TE 6	Bridge to Pacalsdorp	Construct bridge to Pacalsdorp	200m	Long Term (To commence after 3 yrs)	George Mun: Geoge engineering dept. DPW	• Department of Roads & Public Works	To be appointed
TE 7	Bridge to Destiny Africa	Construct bridge to Destiny Africa site	100m	Long Term (To commence after 3 yrs)	George Mun: Geoge engineering dept. DPW	• Department of Roads & Public Works	To be appointed
TE 8	**Go George implementation**	**Phase 4 of the Go George Mobility Project implementation to be implemented in June.**	**N/A**	**Short Term (To commence in 12 months)**	**George Mobility study**	• **Department of Roads & Public Works**	**To begin in June**
Civil Engineering							
CE 1	Renewable Technologies Strategy	Prepare a renewable technology strategy focusing on implementation options for water management and energy generation in projects and developments.	R 450 000	Medium Term (To commence between 12 months & 3 yrs)	George Municipality: engineering dept	• George Municipality	To be implemented
CE 2	Upgrade Pacalsdorp WWTW	Upgrade WWTW to 500m buffer facility or less	R20 mil	Medium Term (To commence between 12 months & 3 yrs)	George Municipality: engineering dept George Municipality: Human Settlement Department	• George Municipality	Funding requested from council
CE 3	**UISP Roads and Stormwater**	**Source: George Municipality IDP 2013/2014**	**R11 378 000 (2014/2015)**	**Short Term (To commence in 12 months)**	**George Municipality: engineering dept**	• **George Municipality**	
CE 4	**UISP Water**	**Source: George Municipality IDP 2013/2014**	**R 1 501 000 (2014/2015)**	**Short Term (To commence in 12 months)**	**George Municipality: engineering dept**	• **George Municipality**	
CE 5	UISP Sewerage	Source: George Municipality IDP 2013/2014	R4 429 000 (2014/2015)	Short Term (To commence in 12 months)	George Municipality: engineering dept	• George Municipality	
CE 6	Bulk Sewer Upgrade	Source: George Municipality IDP 2013/2014	15 000 000 (2014/2015)	Short Term (To commence in 12 months)	George Municipality: engineering dept	• George Municipality	
Local Economic Development							
LED 1	Tourism Plan	Investigate cultural, adventure, eco- and agri - tourism opportunities and the development of existing tourism opportunities/facilities.	R 400 000	Short Term (To commence in 12 months)	George Municipality: LED, HWC, Cape Nature, Department of Economic Development and Tourism	• George Municipality • Department of Economic Development and Tourism	
LED 2	Small scale agriculture and food production	Implement Sandkraal integrated development framework, horticlture, livestock, agri markets, social agriculture	R22m for agric only	Medium Term (To commence between 12 months & 3 yrs)	George Mun DRDLR DoA Cape Natur e	• Department of Agriculture	Need champion - NGO?
LED 3	Project Khulisa	Investigate DEDAT's game changer Project Khulisa programme for tourism and agri-processing expansion.	N/A	Short Term (To commence in 12 months)	George Municipality: LED, Department of Economic Development and Tourism	• Department of Economic Development and Tourism	To be investigated
LED 4	Broadband Access	Investigate bringing broadband access to Thembalethu.	N/A	Medium Term (To commence between 12 months & 3 yrs)	George Municipality: LED, Department of Economic Development Tourism	• Department of Economic Development & Tourism • Project Khulisa	To be investigated
LED 5	Agriculture market links	Two potential agriculture market links.Table Top Vegetable Factory require 3000 ha of additional vegetables. Outeniqua farmers market takes place on a weekly basis.	N/A	Medium Term (To commence between 12 months & 3 yrs)	George Municipality: LED, Department of Economic Development Tourism Department of Agriculture	• Department of Agriculture • Department of Economic Development & Tourism	To be investigated
LED 6	Revision of municipal incentive scheme	Revise municipal incentive scheme to benefit local businesses	N/A	Medium Term (To commence between 12 months & 3 yrs)	George Municipality: LED,	• George Municipality	To be appointed
LED 7	Expand Community Markets	Expand community markets to all wards as originally intended	N/A	Medium Term (To commence between 12 months & 3 yrs)	George Municipality: LED,	• George Municipality	
Human Settlements							
HS 1	**Ph1 (1749) (DHS) (1749)**	**BNG Housing projects**	**R227m**	**being developed**	**Municipality**	**Department of Human Settlements**	**Short term**
HS 2	Ph2 (1483) (DHS) (1835)	BNG	R192m	Medium Term (To commence after 12 months & 3 yrs)	Municipality	Department of Human Settlements	Await funding Aurecon IS updating plan
HS 3	Ph3 (1118) (DHS) (595 Aurecon)	BNG	R145m	Medium Term (To commence after 12 months & 3 yrs)	Municipality	Department of Human Settlements	Await funding Aurecon IS updating plan
HS 4	N2 BNG project	BNG		Medium Term (To commence after 12 months & 3 yrs)	Municipality	Department of Human Settlements	Consider to industry and business along N2
HS 5	N2 FLISP (240)	Social/GAP		Medium Term (To commence after 12 months & 3 yrs)	Municipality	Department of Human Settlements	Consider to industry and business along N2
HS 6	Ext 42 and 58 Rectification	Repair of existing houses		Medium Term (To commence after 12 months & 3 yrs)	Municipality	Department of Human Settlements	Await funding
HS 7	Sandkraal (521)	BNG	R67.73m	Medium Term (To commence after 12 months & 3 yrs)	Municipality	DRDLR	Review implementing and funding agent
Electricity							
E 1	Electricity Reticulation Scheme	Source: George Municipality IDP 2013/2014	R4 386 000	Short Term (To commence in 12 months)	George Municipality: Electricity Department	• George Municipality	

Table 7.2.1 Proposed projects, approximate costs and possible implementation agents



New Development Areas		Informal Settlement Upgrade	
No.	Ha	No.	Ha
1	3.6	17	1.2
2	18.4	18	2.7
3	0.7	19	1.4
4	0.5	20	0.5
5	0.2	21	0.4
6	0.9	22	0.7
7	0.4	23	0.4
8	16.1	24	2.7
9	0.8	25	1.7
10	0.2	26	1.4
11	0.2	27	1.1
12	0.2	28	11.0
13	0.4	29	0.3
14	1.0	30	1.3
15	0.5	31	1.6
16	0.4	Total	28.5
Total	44.4		

Figure 7.2.1 Proposed projects (see Section 7.2.1)

7.2.1 Planning Department Projects

PP1 - **Urban Design Framework for the nodes**: Thembalethu comprises three (3) potential nodes:

- first is located in the northern entrance on the Nelson Mandela Boulevard and Tabata and Ngcakani streets intersection.
- second is centrally located on a 'dog's leg' street pattern where 26th Street and Zabalaza Street link with Nelson Mandela Boulevard.
- third potential node is located in the southern end of Thembalethu where Nelson Mandela Boulevard again intersects with Tabata and Ngcakani Streets.

These are important structuring nodes or growth points that offer the perfect location for mixed use development, local business, retail, government services and public transport interchange areas.

Instead of allowing these to take shape informally, prepare urban design frameworks that will inform planning and land use allocation in the nodes.

PP2 - **Urban intensification along Nelson Mandela Boulevard, Tabata and Ngcakani streets:** Reverse the 'doughnut' like, low density settlement pattern that currently exists between Tabata and Ngcakani Street by classifying this area as an urban intensification zone.

Encourage higher residential densities and the development of mixed use apartment buildings. Houses whose backyards currently turn their back onto Nelson Mandela Boulevard and other main roads should be encouraged to front-up to them. This can be done through a municipal incentive scheme which is already in operation, however in need of revision. (reference to follow)

PP3 - **Nelson Mandela Boulevard landscaping and public and non – motorised transport.** Promote Nelson Mandela Boulevard to become a high intensity public and non – motorised transport spine with limited provision for private motor vehicles. The quality of Nelson Mandela Boulevard experience should be enhanced by appropriate landscaping.

PP4 - **Mine Rehabilitation Plan:** Minimise the long term damage of the current sand mining site for future development, a mining after-use plan should be prepared and if already in place, reviewed. The site's envisaged future use according to George Municipality is for human settlements.

PP5 - **Main Road Interface Guidelines Study:** Enhance the quality of Nelson Mandela Boulevard by guiding the architecture of new developments that abut the main road through the preparation of a main roads interface guidelines study.

PP6 - **Ntaka Street Precinct Review:** Investigate alternative layout that accommodates business activities abutting the N2 and locates the same number of approved housing units, but all of the higher density options on suitable adjacent land.

PP7 - **Msobomvu Estate Review:** Investigate possibility of using unsold publicly owned properties nearest to the N2 for business purposes and retain remainder of estate away from N2 for residential purposes.

7.2.2 Engineering Department Projects

PP8 - **Upgrade Nelson Mandela Boulevard:** Upgrade Nelson Mandela Boulevard with the aim to increase capacities as well as to support a high intensity public transport system and provide for non-motorised transport with clearly visible bicycle lanes.

PP9 - **Recreational and Maintenance access track:** Align a recreational walking/running/cycling track on land lying above the river valleys. This track will be a recreational facility for local residents and will also have tourism value and can be used to host regional running or cycling events and will bring tourist exposure to Thembalethu. The track will also assist with channelling storm water before water enters the river system.

PP10 - **Upgrade road to the coast:** Residents in Thembalethu have expressed the desire for short direct access to the coast. Upgrade the existing route to the coast for this purpose. This will require negotiation as the route currently cuts through privately owned property. This will also

open up tourism opportunities as holiday makers may seek to use a continuous tourism route through Thembalethu.

PP11 - **Trinary Road System:** Design Nelson Mandela Boulevard, Ngcakani and Tabata streets as a trinary road system, where Tabata and Ngcakani Streets are two way streets.

PP12 - **Renewable Technologies** (non-spatial) not shown on Figure 7.2.1: Prepare a renewable technology strategy focusing on implementation options for water management and energy generation in projects and developments. Promote the use of solar hot water projects, solar water heaters, PV panels, grey water recycling etc.

PP13 - **Upgrade appearance and signage of N2 NMB Bridge:** NMB bridge over the N2 should perform a landmark function to traffic on the N2 identifying Thembalethu to passersby and setting the scene for future business and tourism development therein. The proposed business edges with their excellent exposure along the N2 will assist this.

7.2.3 Local Economic Development Projects

PP14 - **Tourism Plan** (non-spatial) not shown on Figure 7.2.1: Currently there appears to be limited tourism opportunities for Thembalethu. Prepare a tourism plan to investigate cultural, adventure, eco and agri – tourism opportunities and the development of existing tourism opportunities.

PP15 - **Small scale agriculture and food production:** The Sandkraal Farm integrated development framework contains proposals for horticulture, livestock and social agriculture. This plan should be implemented where possible. Ensure agriculture market links in order to ensure production sustainability. This sector is challenged among other things by water availability and expensive irrigation methods due to high slopes south of Thembalethu.

7.2.4 Human Settlement

Informal Settlement Upgrades (see sites 17 to 31 on Figure 7.2.1): Upgrade informal settlements to high urban densities to be achieved by providing pedestrian walkways to some units rather than full motor vehicle roads.

PP16 - **BNG and Social Housing as per DHS Pipeline** (see Sites 1 to 16, Figure 7.2.1):

PP16a - Phase 1 – 1749 units – in progress

PP16b - Phase 2 – 1483 units

PP16c - Phase 3 – 1118 or 1153 units (Pacaltsdorp WWTW buffer blocking this project)

PP16d - N2 FLISP 240 (Msobomvu Estate) (excluding 10, 13 – 15, 7)

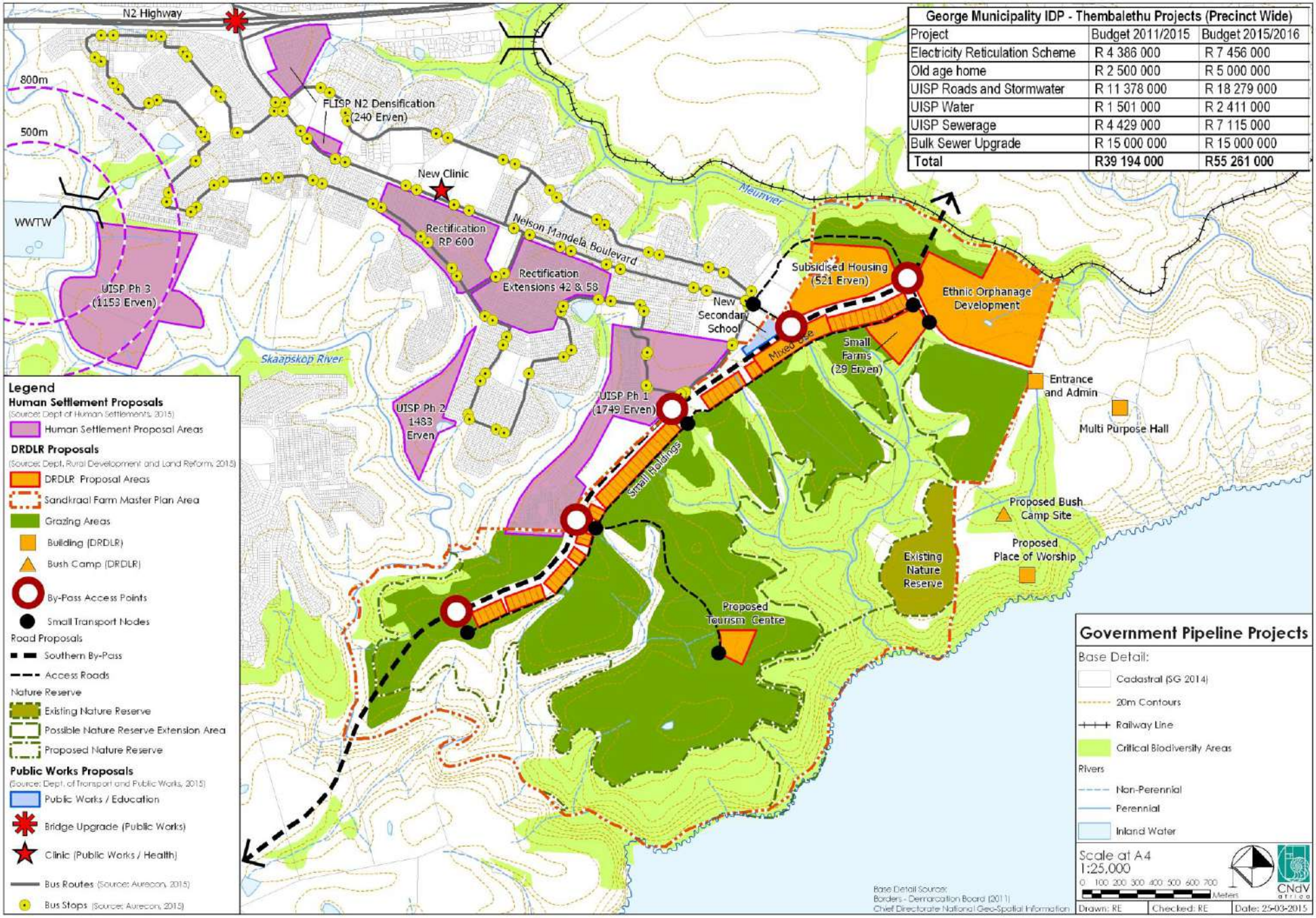
PP16e - Sandkraal 521

PP 17 - **Informal Settlements** (see sites 17 – 31, Figure 7.2.1): Upgrade informal settlements maintaining current densities or higher using reblocking strategy.

PP 18 - **Social Housing Sites 10, 13, 14, 15, 7:** Declare area between Tabata and Ngcakani streets as Restructuring Zone to facilitate social housing.

7.3 IMPLEMENTATION PROSPECTS

Figure 7.3 indicates government proposals for the Thembalethu area.



George Municipality IDP - Thembalethu Projects (Precinct Wide)		
Project	Budget 2011/2015	Budget 2015/2016
Electricity Reticulation Scheme	R 4 386 000	R 7 456 000
Old age home	R 2 500 000	R 5 000 000
UISP Roads and Stormwater	R 11 378 000	R 18 279 000
UISP Water	R 1 501 000	R 2 411 000
UISP Sewerage	R 4 429 000	R 7 115 000
Bulk Sewer Upgrade	R 15 000 000	R 15 000 000
Total	**R39 194 000**	**R55 261 000**

Figure 7.3 Government Pipeline Projects for Thembalethu

7.3.1 Western Cape Department of Human Settlements

The WCDHS are guided by the new policy approach that is driven by the National Department of Human Settlements under Minister Lindiwe Sisulu. The approach is to undertake mega projects of approximately 1 000 – 1 500 units per projects.

This policy approach has a direct impact on the direction of priority funding. Thembalethu however appear to have high priority as three of the eleven human settlement catalytic projects in the Western Cape are in Thembalethu.

These are namely UISP Ph 1 (1 749 erven), Ph 2 (1483 erven) and Ph 3 (1 153 erven). There are two rectification projects and the Middle income FLISP N2 densification project (240 units), see figures 7.3 and 7.3.1.

Relevant/Possible Projects:

1. UISP Phase 2 (1 483 erven);
2. UISP Phase 3 (1 153 erven);
3. N2 BNG project;
4. N2 FLISP project (240 units approved);
5. Ext 48 and 52 Rectification project; and,
6. Sandkraal 521 (521 erven).

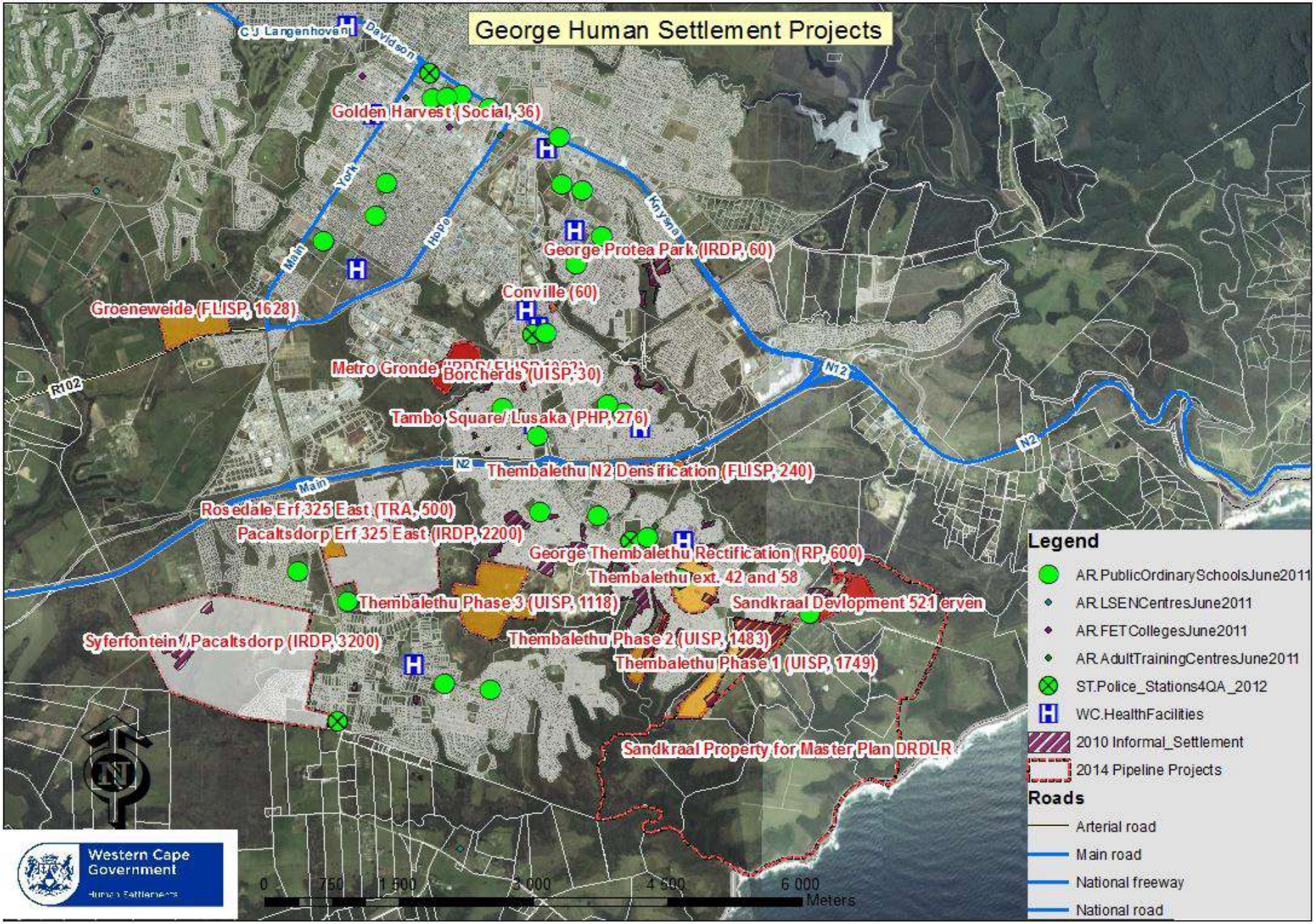


Figure 7.3.1 Western Cape Department of Human Settlements (source: Thembalethu Municipality, 2015)

7.3.2 Western Cape Department of Economic Development and Tourism

The DEDAT's main focus is to fulfil National Strategic Objectives (NSO) as well as the objectives of the National Development Plan (NDP). These NSOs are translated into provincial goals such as to increase employment, economic growth, rural development and urban development especially within the region of the metro.

Project Khulisa is DEDAT's game changer programme which will be rolled out from the 2015/2016 financial year. The focus will be growth in tourism, agri-processing, oil and gas production.

The precinct has an opportunity to benefit from the programme's tourism and agri-processing focus. The challenge however has been identifying strategic projects that have regional impact translated into the municipal IDPs. Often projects identified by municipalities at forums such as the 'IDP Indaba' are non - strategic and have a small regional impact.

Tourism opportunities such as the access lane and cycle track are projects that could place Thembalethu in good stead to benefit from tourism at a regional scale. This cycle lane can be constructed and marketed as a venue for regional cycling events. It would appear that the DEDAT are very interested in projects of this nature.

Relevant/Possible Projects:

1. Recreational and Maintenance access track;
2. Project Khulisa – Tourism and agri-processing;
3. Broadband access; and,
4. There are already approved BNG and FLISP housing projects on unique, accessible land abutting the N2 Highway and Nelson Mandela Boulevard. However, opportunity should be considered for either private owners, small business owners (Thembalethu Business Partnership) or the municipality to consider land uses that take advantage of this unique location abutting the highway with its excellent visual exposure and quick road connections onto the national route.

7.3.3 Western Cape Department of Public Works

The DPW is concerned with the provision of infrastructure grants to local municipalities, mainly in partnership with recipient ministries. It is also concerned with road infrastructure and public transport.

The DPW currently, has earmarked the construction of two public amenities. A new clinic, on the centrally located Imizamo Primary School property and is planned to abut the Nelson Mandela Boulevard. A new secondary school is planned south of the Nelson Mandela Boulevard west of the proposed southern node, see Figure 7.3.

The DPW is also involved in public transport initiatives in the precinct linked to the Go George project. Improvements to the road infrastructure such as the removal of heightened speed humps that would adversely affect the low suspension buses and the upgrading of the Thembalethu bridge are at planning stage or underway.

The Go George public transport project is a flagship project. Currently, implementation is at phase 1 with four bus routes in operation. The phasing is as follows:

- Phase 1: George CBD, Wilderness, Rosemoor, Loerie Park and Denneoord
- Phase 2: Blanco Phase 3: Pacaltsdorp
- Phase 4: Thembalethu

Figure 7.3 indicates planned bus routes and bus stops in the Thembalethu precinct area.

DPW's funding structures are informed by the section 78 agreement of the Municipal Finance Management Act. It is vital to their funding structure that projects appear on municipal IDPs in order to include them in the funding process.

Relevant/Possible Projects:

1. New Clinic; and,
2. New High School.

7.3.4 Western Cape Department of Agriculture

The Department of Agriculture (Elsenburg) has assigned Mr Clyde Lamberts as the district manager in the Eden District.

The department has been active in Thembalethu mainly through the establishment and the support of agricultural Co-ops. Millions of rands have been spent in the area in this regard. However, progress has been difficult as a result of politics between land claimants, agricultural co-ops, residents and other groups.

The department has also in the past been represented in meetings concerning the Sandkraal Farm Project, south of Thembalethu. The status of the project is not known and the land use department has not been approached for comment as yet. It is unlikely that the department will endorse a radical character change in land use in the area as much of the land is zoned agricultural zone 1.

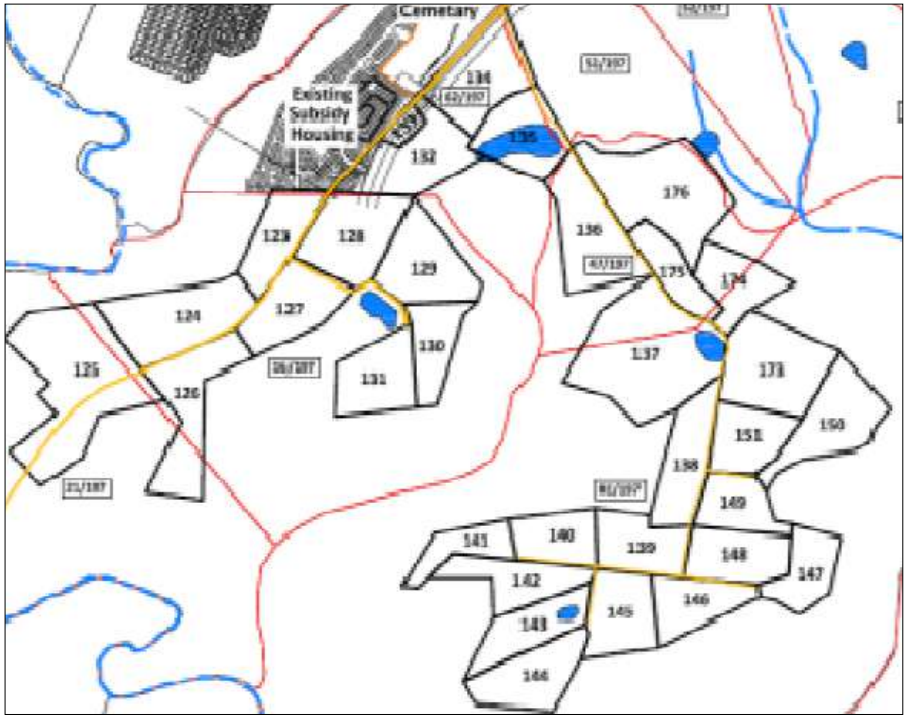


Figure 7.3.4a **33 Farm Portions** (source: Umhlaba et al, undated)

The Department of Agriculture will set new targets in April, however it is not certain that Thembalethu will feature in the proposed budget.

Relevant/Possible Projects:

1. Agricultural Co-ops support.

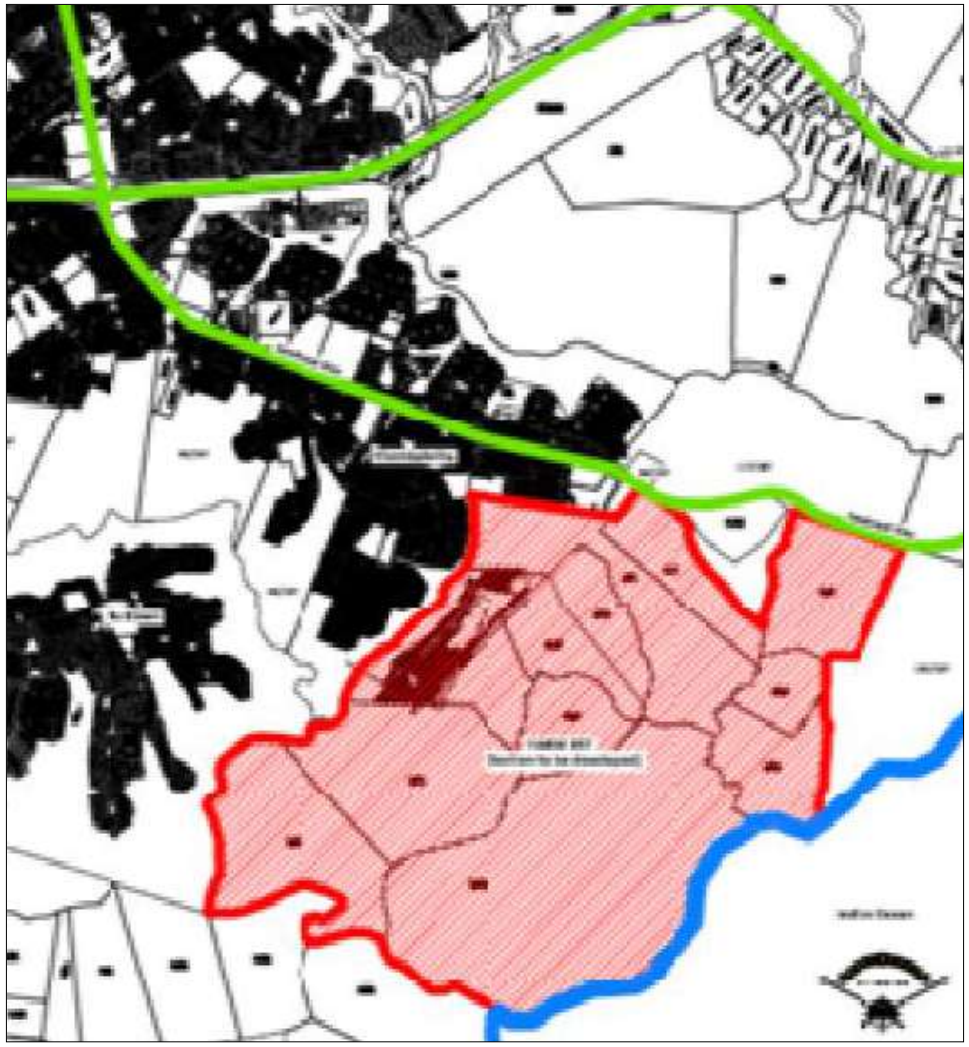


Figure 7.3.4b **33 Farm Portions - Context** (source: Umhlaba et al, undated)

7.3.5 George Municipality Local Economic Development

George Municipality's LED Strategy was prepared and adopted in 2012 and has identified the following key products as the major drivers of economic development in George Municipality:

1. Call Centres;
2. Vegetable Production;
3. Berries;
4. Timber;
5. Dairy;
6. Hops; and,
7. Honeybush Tea.

An opportunity exists for product development south of Thembalethu in the form of vegetable production. The opportunity is however stifled by small town politics between the vegetable farmers, historical claimants, residents and livestock farmers.

Thembalethu also faces a challenge in that water must be pumped upward at expensive costs.

In terms of a possible connection to markets, the old closed down McCain factory has been taken over by owners of the Table Top Project. Table Top is an old frozen vegetable factory in George, which now requires approximately 3000 ha of additional vegetables. The Outeniqua farmers market is another potential connection to the market. This market takes place, weekly, close to the Garden Route Mall.

The LED departments also facilitate local community markets which were intended to take place in every ward. The market is held in Thembalethu every Saturday.

In business, the George Business Chamber currently assists the Thembalethu Business partnership which has 150 members. The Thembalethu business chamber has in the past expressed interest in developing the land abutting the N2 in Thembalethu for business purposes.

The business incentive scheme policy is in place to support areas such as Thembalethu, however it is in need of revising. The scheme was initially written in order to attract large scale investment and should be reviewed to benefit small business.

Relevant/Possible Projects:

1. Vegetable Production;
2. Market connections – Table Top Vegetable factory and Outeniqua Farmers Market;
3. Expansion of community markets; and,
4. Revision of municipal incentive scheme policy.

7.3.6 George Municipality Human Settlements Department

There are currently 4 catalytic projects in Thembalethu. The UISP Phase 1 project is currently under construction. Phase 1 to 4 are to be completed by 2019, see Figure 7.3.1.

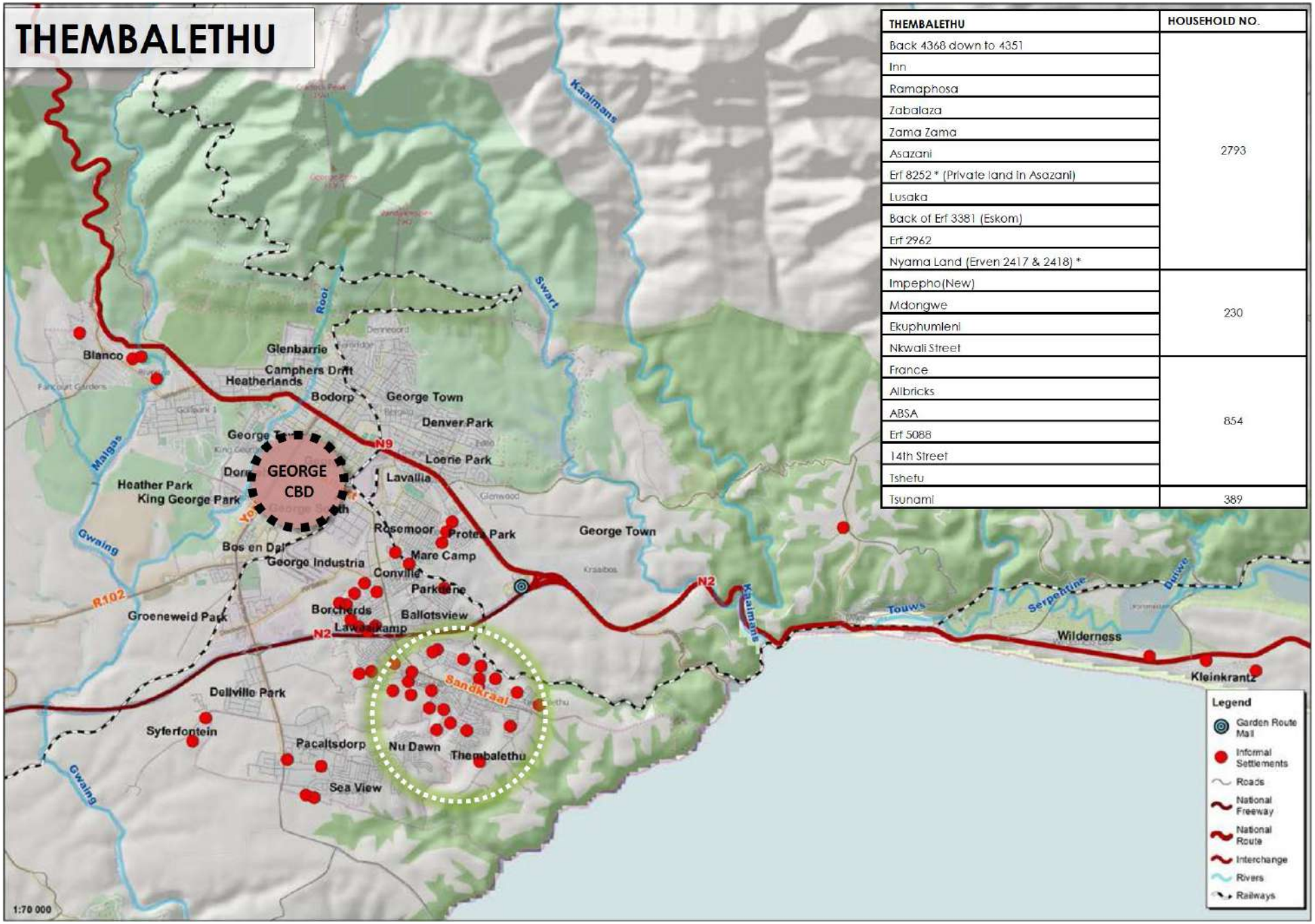
The 521 units project included as part of the Sandkraal Farm Project has not been discussed with the George Municipality human settlement department. It was recommended that the project be handed over to George Municipality should the project go ahead, however the status is unclear.

One of the main challenges threatening the phase 5 project on the Thembalethu north west boundary is the Pacaltsdorp WWTW which currently requires an 800m buffer between itself and residential development. The department has submitted a proposal for R10 mil for the purpose of upgrading the WWTW to a 500m buffer facility.

The N2 BNG and middle income housing projects have been approved by council.

Relevant/Possible Projects:

1. UISP Phase 2 (1 483 erven);
2. UISP Phase 3 (1 153 erven);
3. N2 BNG project ;
4. N2 FLISP project (240 units);
5. Ext 48 and 52 Rectification project; and,
6. Sandkraal 521 (521 erven).



THEMBALETHU	HOUSEHOLD NO.
Back 4368 down to 4351	2793
Inn	
Ramaphosa	
Zabalaza	
Zama Zama	
Asazani	
Erf 8252 * (Private land in Asazani)	
Lusaka	
Back of Erf 3381 (Eskom)	
Erf 2962	
Nyama Land (Erven 2417 & 2418) *	
Impepho(New)	230
Mdongwe	
Ekuphumleni	
Nkwali Street	
France	854
Allbricks	
ABSA	
Erf 5088	
14th Street	
Tshetu	
Tsunami	389

Figure 7.3.6a **George Municipality Informal Settlement Plan** (source: Aurecon, 2014)

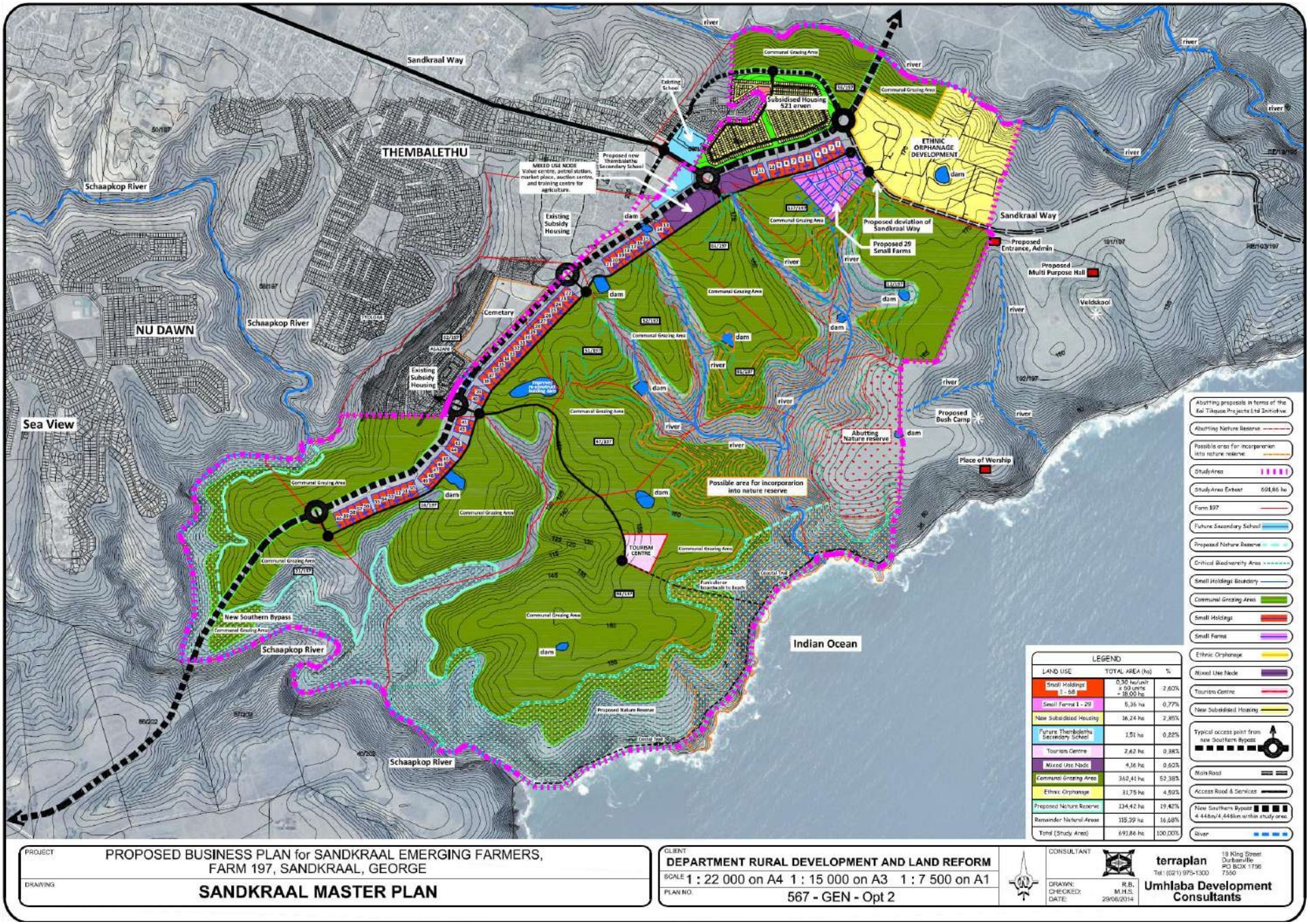


Figure 7.3.6b **Sandkraal Master Plan** (source: Umhlaba Development Consultants, 2014)

7.3.7 George Municipality Engineering Department

The following projects have recently been completed in Thembalethu:

- The bulk sewer lines have recently been upgraded
- R12m gravel road upgrade including sidewalks

The upgrade of the Thembalethu bridge is at planning stage, however funding is still being sought. The bridge will cost approximately R16m – R17m.

George Municipality has also recently received a 50 mega litre water use licence, which sufficiently caters for the water needs in the municipality, including Thembalethu.

The Nelson Mandela Boulevard is currently a class 4 or 5 road and needs to be upgraded to a class 3, however the challenge is that there is private access onto the road. It may be possible to build a frontage road on the 34m road reserve in order to address the challenge.

The Go George Project is currently being implemented and the municipality wants to achieve a 60/40 public transport/private car modal split within the next 15 years.

Alternative Linkages into Thembalethu such as those to Pacaltsdorp and Destiny Africa are very important as there is no alternative road access in and out of Thembalethu should a disaster collapse the current bridge.

Relevant/Possible Projects:

1. Thembalethu Bridge;
2. Nelson Mandela Boulevard upgrade; and,
3. Alternative road linkages into Thembalethu.

7.3.8 Aurecon (Robbie Robertson) - The Go George Project

The Go George Project seeks to convert informal public transport to formal. The process of entering into contracts with taxi operators to take over the bus service is ongoing.

The next stage will be to develop urban design concepts for the Thembalethu nodes, however the challenge will be finding suitable land as there are no generous road reserves in Thembalethu.

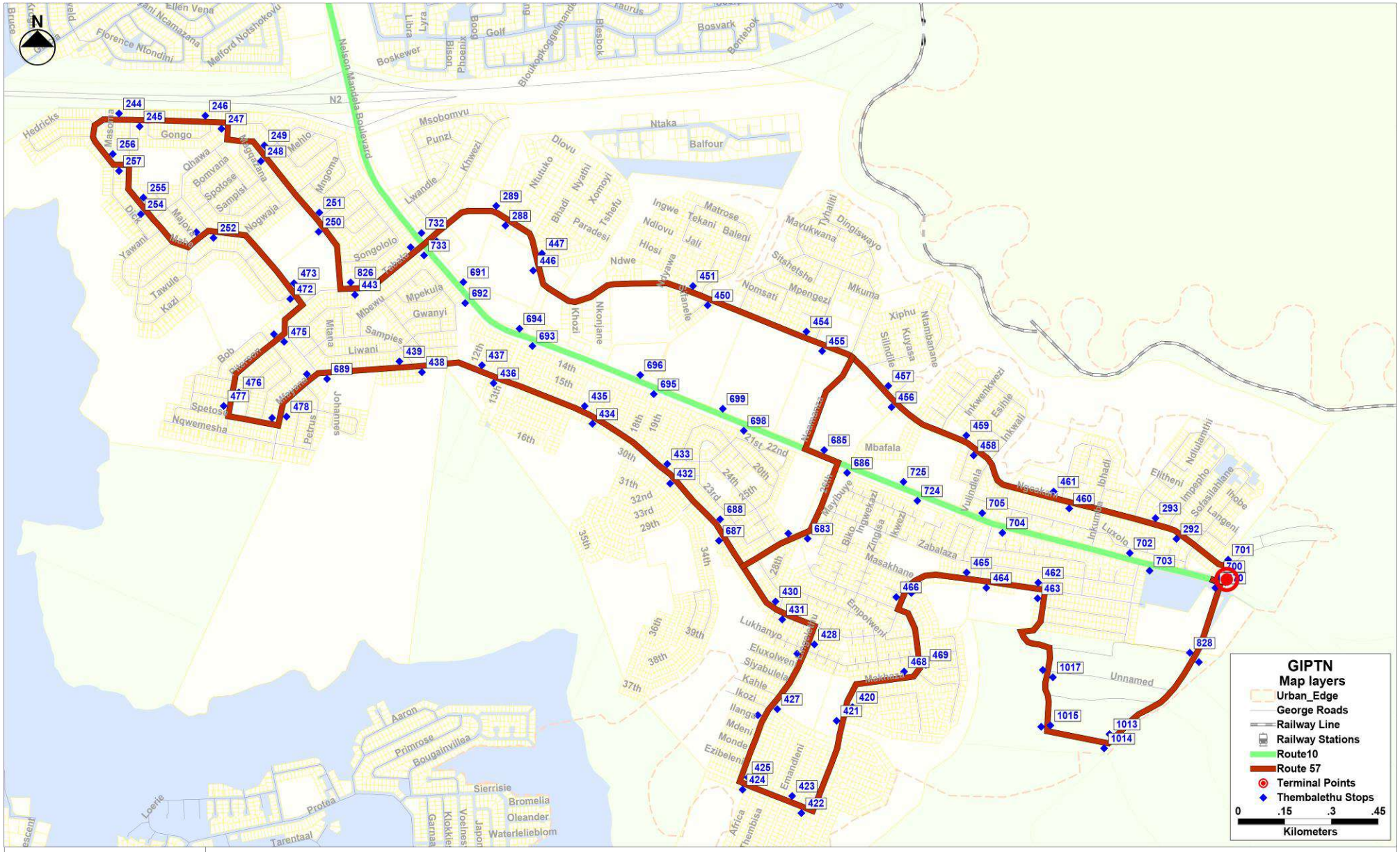
In the near future, Nelson Mandela Boulevard is to be upgraded and the Thembalethu internal roads are to be serviced by minibuses.

The public transport budget is currently depleted. There is no budget for shelter infrastructure. The municipality requires an additional R60 mil for transportation infrastructure.

The existing taxi rank in Thembalethu is to become a long distance taxi service.

Relevant/Possible Projects:

1. Urban Design Framework for Thembalethu nodes; and,
2. Construction of Shelter Infrastructure.



aurecon

GEORGE INTEGRATED PUBLIC TRANSPORT NETWORK

THEMBALETHU COMMUNITY BUS ROUTE COVERAGE

Figure 7.3.8 **Thembalethu Go George Project - Bus Routes** (source: Aurecon, 2015)

7.4 RECOMMEND REVISION OF EXISTING POLICIES

As a result of their continued implementation the following practices have become entrenched and require revision

Main spatial policies to be revised include:

7.4.1 Land for Low and Middle Income Housing

The current policy of using land located on the outermost periphery of the existing urban environment and using well located land that could be better suited for business/light industrial purposes in proximity to the N2 and Thembalethu main emerging node should be revised as follows:

Investigate the feasibility of utilizing the land identified on the Precinct Plan for urban development as this is land close to the existing core of the settlement starting where possible preferably within the 1km walking distance radius otherwise within the 2km radius.

The design of such projects should be guided by the principles of functional and socio-economic integration, see Sections 5.1, 5.2 and 5.3.

An argument exists for developing small sites at higher residential densities within walking distance to transport, facilities, employment and business opportunities. These can be built incrementally to match the 'mega project' scale rather than locate large low income housing on the outskirts of development.

Periphery housing is better suited for middle to high income households who do not have the burden of overcoming large distances by foot to reach the services they require. These income groups can also afford to pay for the beautiful views offered by incising river valley.

7.4.2 Land Use Management

The George IDP 2014/2015 indicates that it's land use management tools such as the zoning scheme and spatial plans need to be reviewed to comply with the SPLUMA 2013 (Act 16 of 2013) and LUPA 2014 (Act 3 of 2014). This revision should be used to promote the use of overlay zones which identify strategic parts of the urban settlement where different or more intense land uses need to occur to assist with urban restructuring. Through this provision, Thembalethu homeowners situated in the proposed intensification zone can be incentivised to develop 2 – 4 storey walk up housing.

This realignment will make the settlements more efficient, convenient and conducive for the viable support of businesses, community facilities and public transport (Go George transport network) and create less demand on land, water and transport resources.

This realignment will make the settlements more efficient, convenient and conducive for the viable support of businesses, community facilities and public transport (Go George transport network) and create less demand on land, water and transport resources.

8. SPATIAL TRANSFORMATION PRINCIPLES AND TOOLS

8.1 Appropriate Walking Distance

8.2 Functional Integration

8.3 Socio-economic Integration and Interface

8.4 Restructuring Existing Apartheid Towns

8.5 Intensification Corridors and Linkages

8.6 Nodes and Intersections

8.7 Urban Edge

8.8 Infill, Densification and the Suburbs

8.9 Wind and Solar Farm Siting Principles

8.10 Off-grid Infrastructure

8.11 Spatial Management of River Corridors

8.12 Complete Streets Approach to Transport Planning

8.13 George Mobility Strategy

8.13 Cycle Network Design Principles

8.14 Mining and Quarrying

8.1 APPROPRIATE WALKING DISTANCE

The need to ensure that people have access to a variety of opportunities is implied in a number of the SPLUMA principles. This requires an understanding of the relationships between different activities in terms of spatial proximity (close and far), access and time. In the past accessibility has mostly been considered in terms of travel time in private vehicles, however, this measurement is not only environmentally unsustainable, as it is mostly dependent on access to private motor vehicles but also reflects a denial of the reality that the majority of our citizens do not have private vehicles, may not always be able to afford public transport and thus have to spend significant time and energy walking to fulfil their needs. Thus appropriate **walking distance** should always be used as the measure for accessibility. 20 minutes or 1km is regarded as an acceptable distance to walk and should be used as a basis of settlement design.

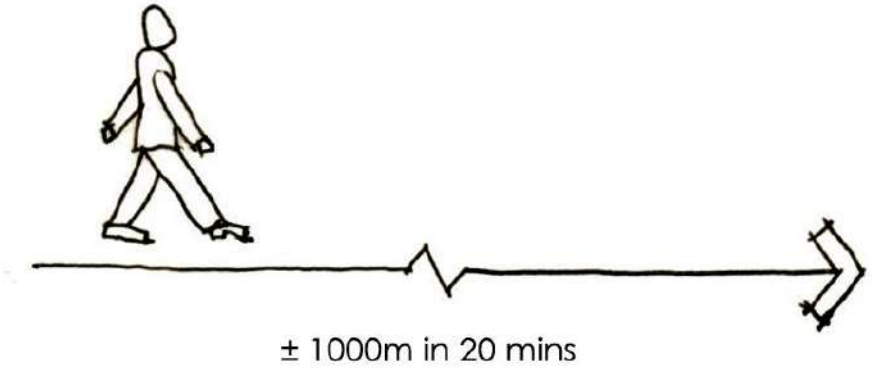


Figure 8.1 Walking Distance

- **Prioritise well located vacant land - within 1 to 2kms of urban centres;**
- **Locate future residential areas within walking distance of urban centres where space permits.**

8.2 FUNCTIONAL INTEGRATION

The implementation of the walking distance principle to promote greater access to opportunities for all people, will require the functional integration of urban activities. At least **50% of urban activities** should be **within walking distance** of where people live

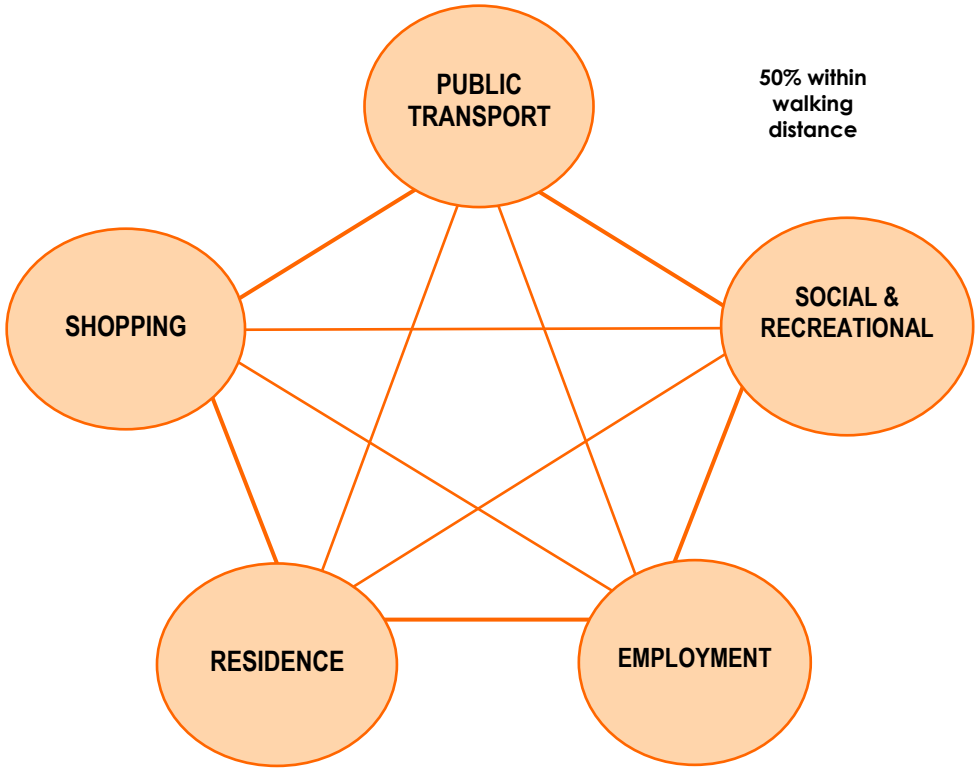


Figure 8.2 Functional Integration

- **Define a single uniting structure of nodes and corridors between town and township;**
- **Encourage supporting densification pattern and infrastructure provision.**

8.3 SOCIO- ECONOMIC INTEGRATION AND INTERFACES

The intensification areas are seen as the prime instruments for promoting integration between the towns and townships of the urban settlements.

Principles:

Locate activities (residential, transport, work, recreation, etc.) so that at least 50% of them are in walking distance;

Sensitively locate the income groups within the 1km radius : e.g. very low not right next to the very high income;

Locate most frequented activities in the most central / accessible localities, e.g. industrial and commercial;

As a general rule Human Settlement schemes should not be targeted at a single income group exclusively, usually subsidy or Site and Service, but should always include at least a GAP housing and top structure subsidy component even if only comprising 10% or 20% of the units;

The arrangement of the housing for the various income groups should be according to the principle of the socio-economic gradient with the higher end of the market closest to the main thoroughfare;

Use all well located vacant land, i.e. within 1 to 2kms of urban centres; and,

Locate all future residential areas within walking distance of urban centres where space permits; and,

Locate all future subsidy housing within walking distance of nodal centre where space permits.

Interface principles:

The change between different schemes must happen along the midblock and not across the street;

Residents must be given freehold tenure, i.e. title deeds immediately so that shack upgrading will commence as soon as possible;

The more formal the units the closer they should be to the main public thoroughfare or adjacent upmarket housing.

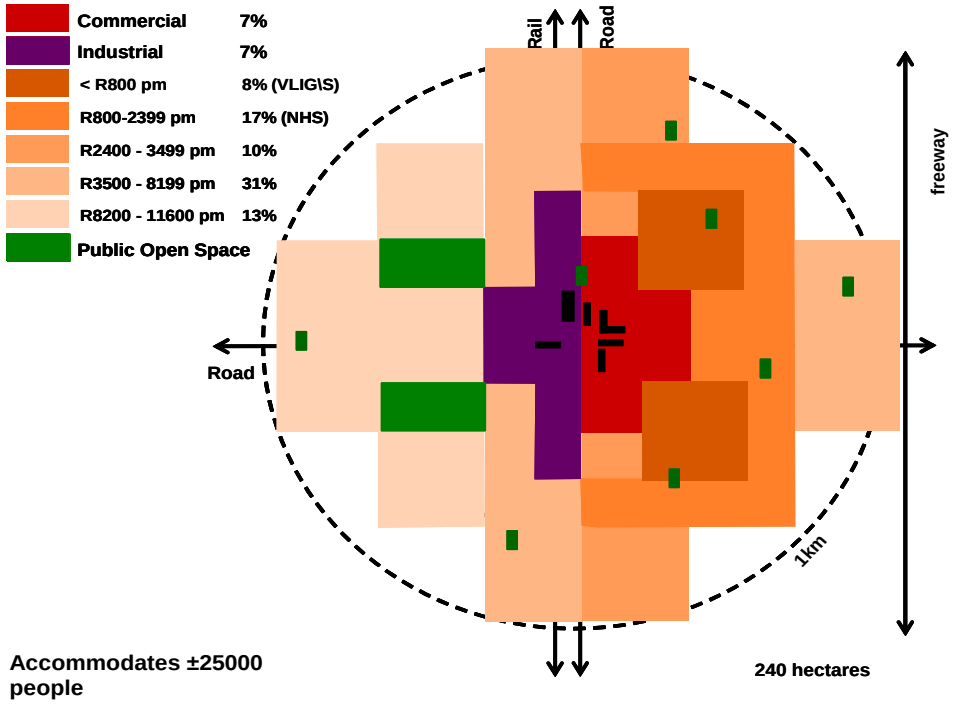


Figure 8.3 Socio-economic Integration

8.4 SOCIO-ECONOMIC GRADIENT

- **Human Settlement projects should not be targeted at a single income group exclusively, e.g. BNG or site and service (S+S), but should always include at least a GAP housing and top structure BNG component even if only comprising 10% or 20% of the units.**
- **Where possible market housing should be included as well.**
- **Arrangement of housing for various income groups should be according to the principle of the socio-economic gradient with higher end of market closest to main routes.**

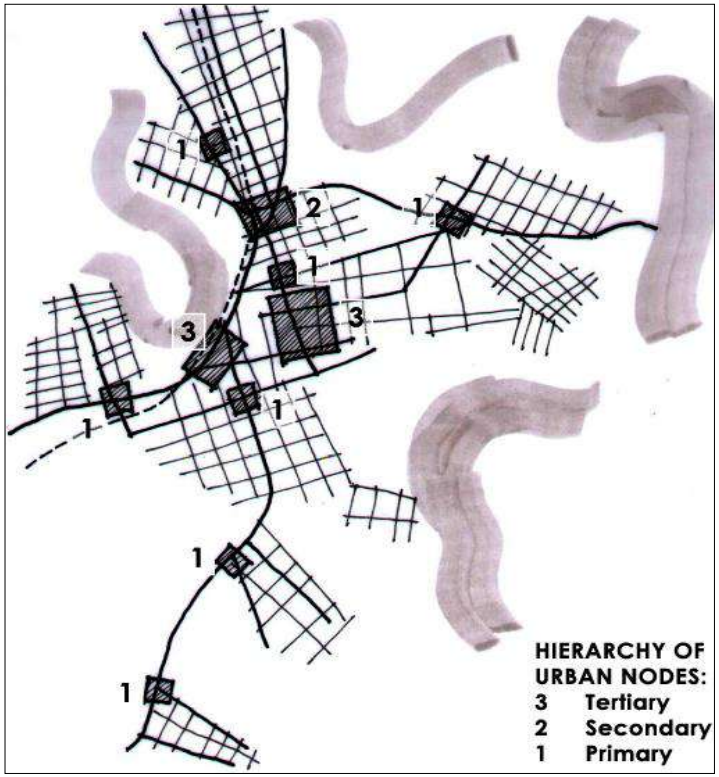
Figure 8.4 Spatial socio-economic gradient

8.5 INTENSIFICATION OF NODES AND CORRIDORS

Figure 8.5 Intensification of Nodes and Corridors

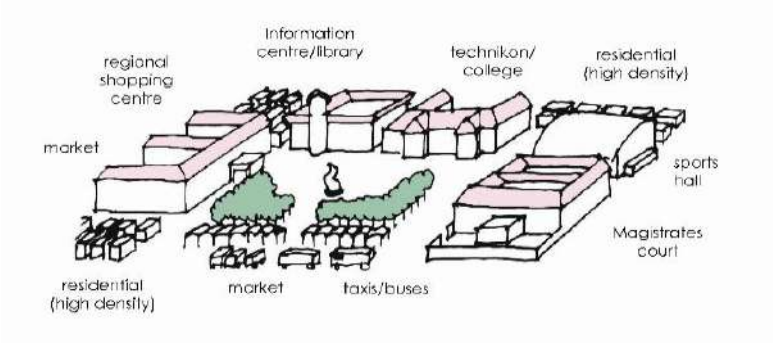
- **Sensitive infill and redevelopment along main routes in well located precincts**
- **Sensitivity towards existing heritage buildings**
- **Enhancing the street experience through landscaping and building design quality in new developments**

8.6 NODES AND INTERSECTIONS

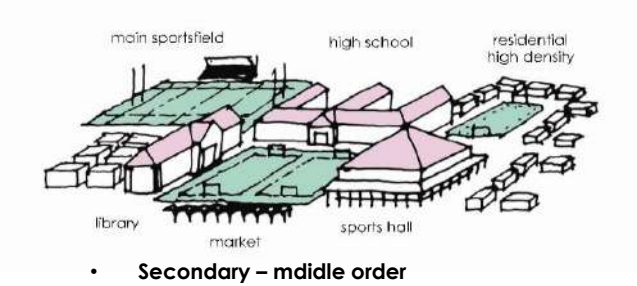


Clustering Civic, Commercial and Residential Activities

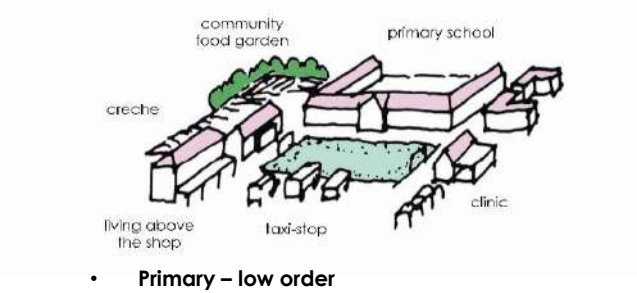
Figure 8.6 **Nodal Location and Hierarchy**



- **Tertiary –high order**



- **Secondary – mdidle order**



- **Primary – low order**

Three levels of hierarchy of urban nodes containing business and community facilities shall be clustered together as far as possible to provide satisfactory access and clustering of activities.

- **Tertiary: technikons, hospitals, courts, multi-purpose centres, regional or metropolitan transport interchanges, museums, art galleries, indoor sports complexes, regional shopping centres.**
- **Secondary: high schools, day care centres, hospitals, libraries, sports and community halls, sports fields.**
- **Primary: primary schools, crèches, clinics, bus and mini-bus taxi stops.**
- **These nodes should be located at accessible intersections, the higher the node order, the greater should be the volume of passing traffic and trade.**

8.7 URBAN EDGE

- The urban edge alignment should be reviewed to ensure that:
- Sufficient protection is given to land requiring protection, inter alia, agricultural land currently under cultivation, wetlands and river corridors, steep slopes, biodiversity conservation and critical biodiversity areas, and scenic landscapes;
- Compaction rather than expansion of urban settlements is encouraged so as to promote non-motorised transport modes where appropriate;
- Furthermore, it should be noted that all of the low income settlements are located in one side or "slice" of the settlement only and their extensions all move outwards along this axis;
- Urban Edges which provide sufficient land for the development of the needs of the area for about 20 years, given the current growth rate, is proposed around the exiting urban footprint;
- It is proposed that these urban edge only be realigned based on actual need and once all the existing under or unutilized vacant land has been developed;
- "town cramming", i.e. developing all available public open space, often just because it is municipal owned; and,
- Thought should be given to future urban quality with well maintained parks and river corridors surrounded by higher density development.

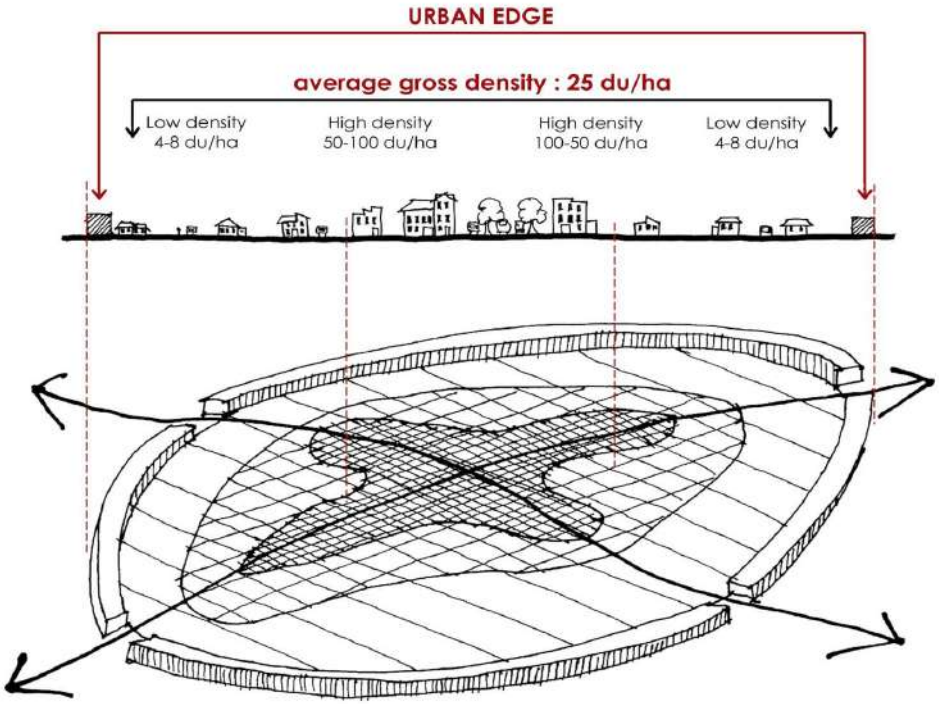


Figure 8.7 Urban Edge

8.8 OFF-GRID INFRASTRUCTURE

- **SA settlements increasingly facing services affordability and availability of supply challenges.**
- **Off-grid infrastructure to be promoted to greatest extent possible.**

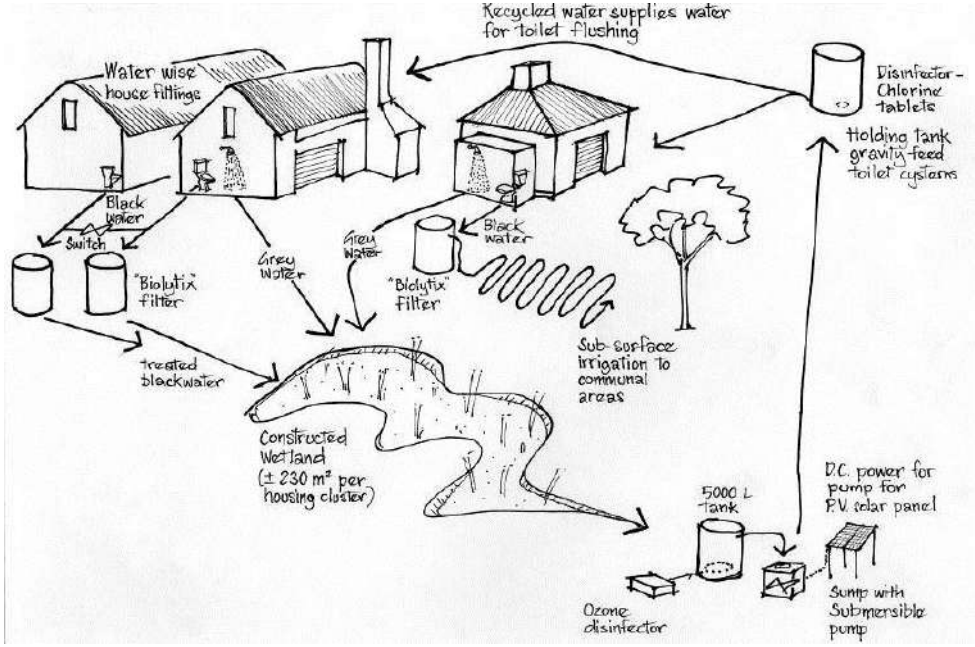


Figure 8.8 **Off-grid Sanitation System**

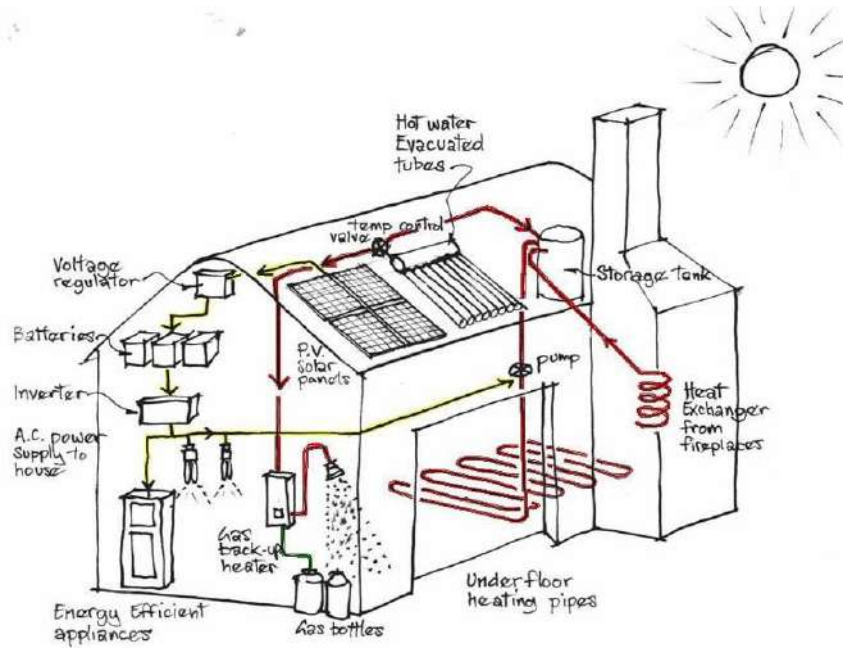


Figure 8.9 **Solar Energy Generation**

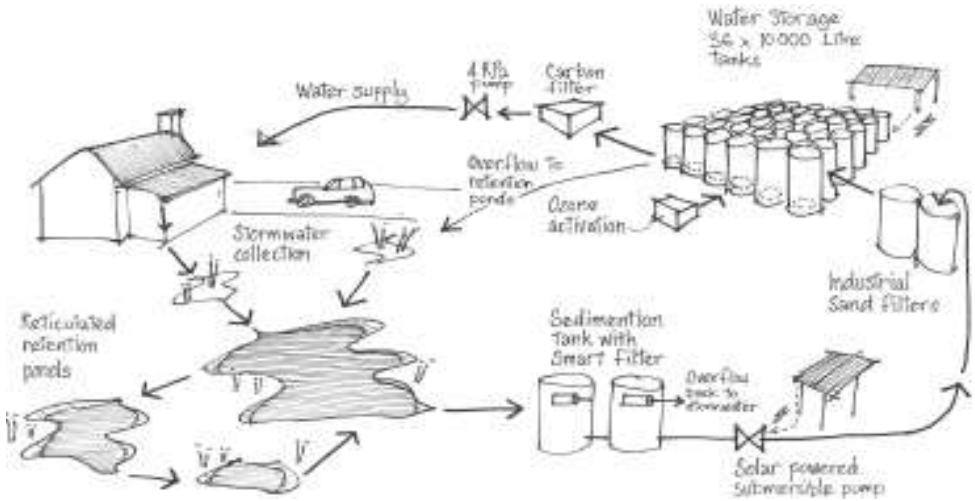


Figure 8.10 **Rainwater harvesting**

8.9 RIVER CORRIDORS SPATIAL MANAGEMENT

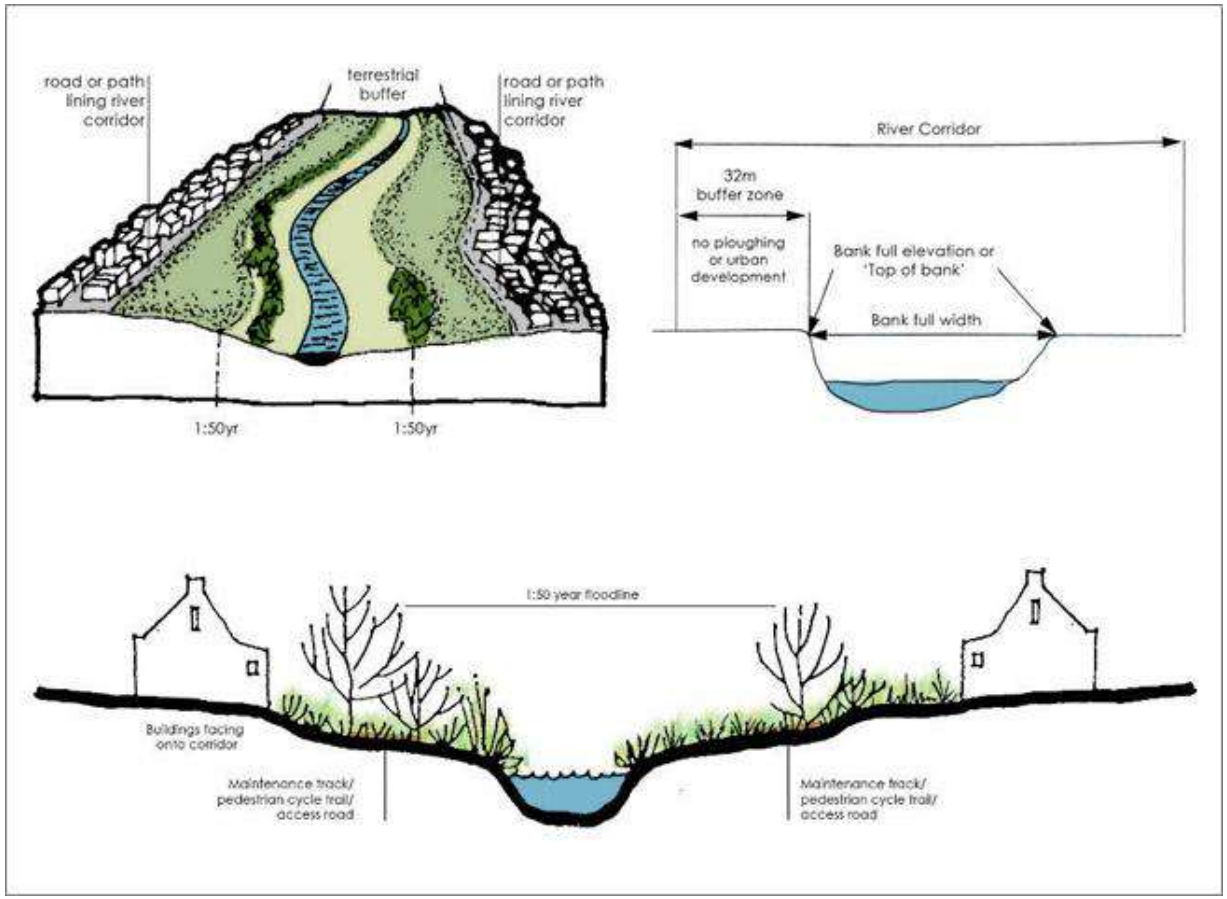


Figure 8.11 **River and Watercourse Corridor Spatial Management**

- **Keep ploughing and urban development at least 32m from banks or closer of further if flood lines or other studies have been completed.**
- **Ensure development faces onto and not away from river, and public open space corridors and parks.**

8.10 COMPLETE STREETS APPROACH TO TRANSPORT PLANNING

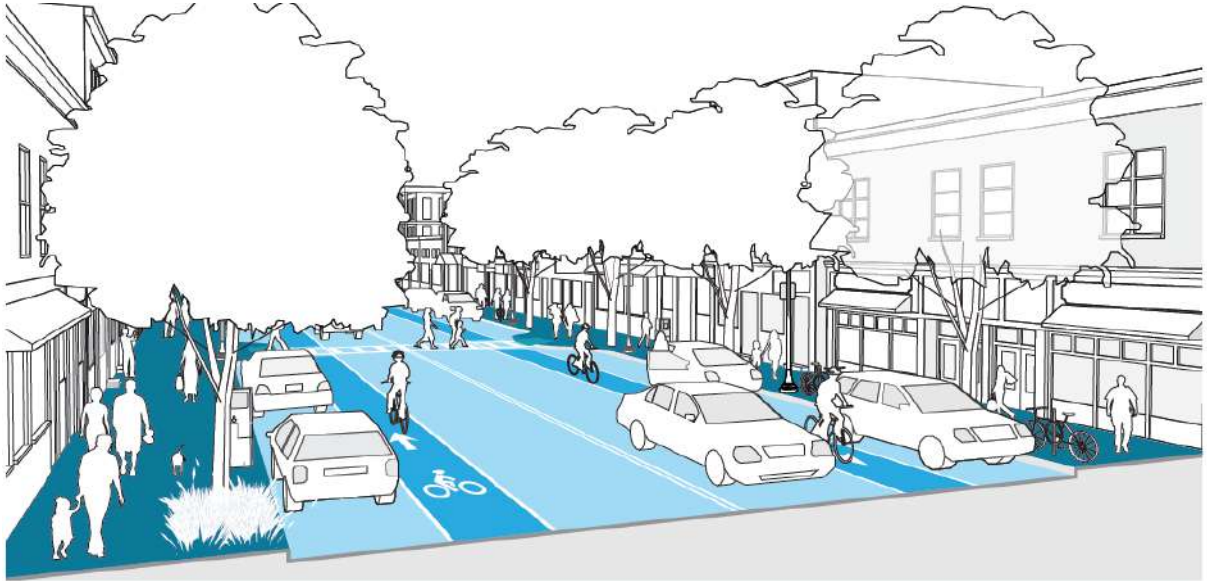


Figure 8.12 Neighbourhood Main Street

Figure 8.14 Neighbourhood Residential

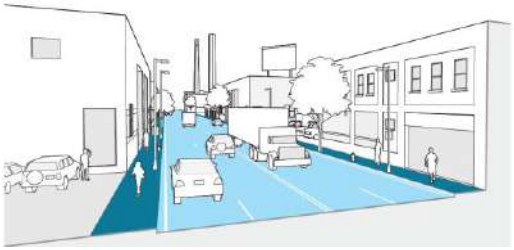


Figure 8.15 Industrial

- **All modes of transport:**
  - **Pedestrian;**
  - **Cycle;**
  - **Bus and taxi;**
  - **Private motor vehicles;**
  - **Trucks;**
  - **Kerb-side formal and informal businesses**
  - **Tree planting and beautification**
- **to be considered in design of streets in town and townships**

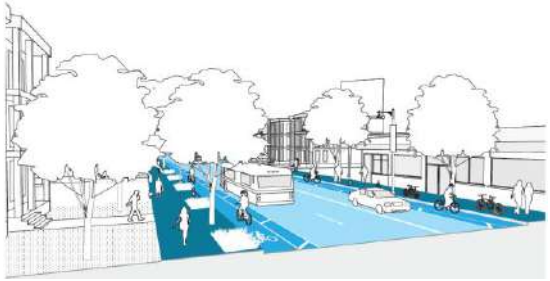


Figure 8.13 Neighbourhood Connector

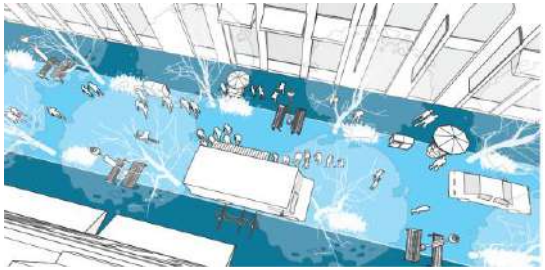


Figure 8.16 Shared streets

8.10.1 Street Cross-section Options

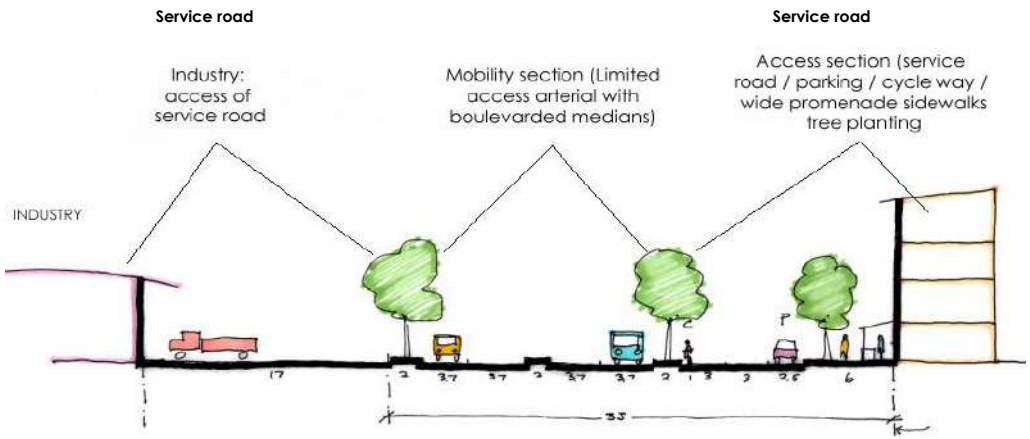


Figure 8.17 **Mobility route with frontage / service roads**

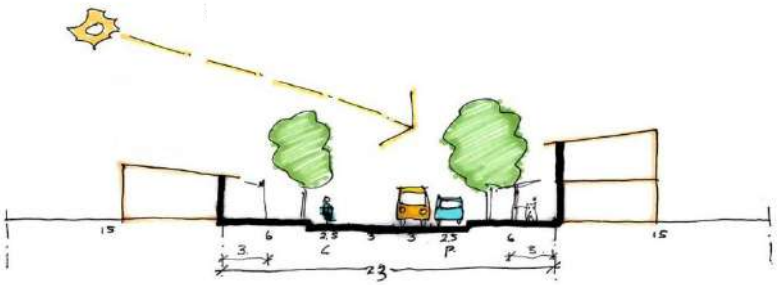


Figure 8.18 **Class 4 high street (internal routes)**

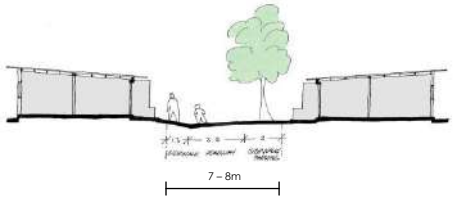


Figure 8.19 **Minor residential street**

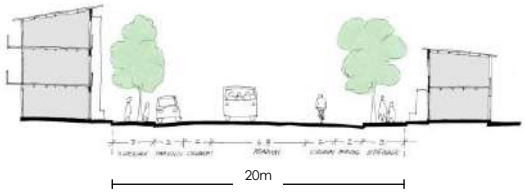


Figure 8.20 **Bus / taxi / business route**

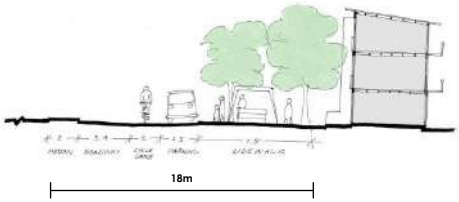


Figure 8.21 **NMT and trading route**

8.11 GEORGE MOBILITY STRATEGY (2005)

An important set of principles and tools for road management in Thembalethu is contained in the George Mobility Strategy Report (Ninham Shand, 2005).

Section 4.5 of this report describes road cross-section alternatives for Sandkraal, now Nelson Mandela Boulevard, and Albert roads. Albert road connects Thembalethu to York Street across the N2to George CBD. Nelson Mandela Boulevard is the main transport artery for Thembalethu.

- At the time of writing this report (2005) Nelson Mandela Boulevard only extended as far as node 2, (26th street). The report observed that from the N2 to Tabata street a four lane divided roadway with two lanes including a wider side bus/cycle lane is feasible (Ninham Shand p 23). Beyond Tabata Street to the end of Nelson Mandela Boulevard the road reserve narrowed and right turn lanes could not be accommodated. Figure 8.23 shows the (Sandkraal) road corridor as proposed in this report together with a typical cross-section, see Figure 8.24.

- In section 9, urban design proposals, the main elements of this road cross-section proposal that have been taken forward include the 4 m bus cycle lane and the 3.4 cross-section. Other elements of the traffic lane have been amended, including diverting the space proposed for the 1.5 centre median to the sidewalks and frontage/service road sections.

- These shared 4 m public transport/cycle lanes have been termed "sharrows", see section 8.12 following, in keeping with modern transport terminology.

- The report anticipated that the major intersections along Nelson Mandela Boulevard will be signalised in due course. This is likely to also occur at node 3, although this node was not in existence at the time of writing the report, see figure 8.25.

- Guidelines are also given for 3 by 12m bus stops to be located downstream of intersections, see figure 8.26.

- The report does not make mention of frontage/service roads nor does it anticipate parking occurring along Nelson Mandela Boulevard. Table 8.1 suggests that direct access should be eliminated along NMB and shoulders and roadside parking are not recommended. These two recommendations bring the proposals into conflict with how residents are trying to take advantage of the NMB's economic opportunities.

  It is for this reason that frontage service roads and parallel parking bays are proposed in sections 9.1, 9.2 and 9.3.

- Due to the imperative of using every spatial opportunity possible to promote economic activity and employment creation, proposals are made in section 9 for devices along the roads such as parallel parking, wider sidewalks, and depending on the road reserve width, service and frontage roads, to help accommodate these much-needed activities. Informal traders and small businesses are already trying to take advantage of these opportunities alongside Nelson Mandela Boulevard although the physical infrastructure has not been designed for this purpose.

- It is considered extremely important that where possible infrastructure is designed to support these much needed activities.

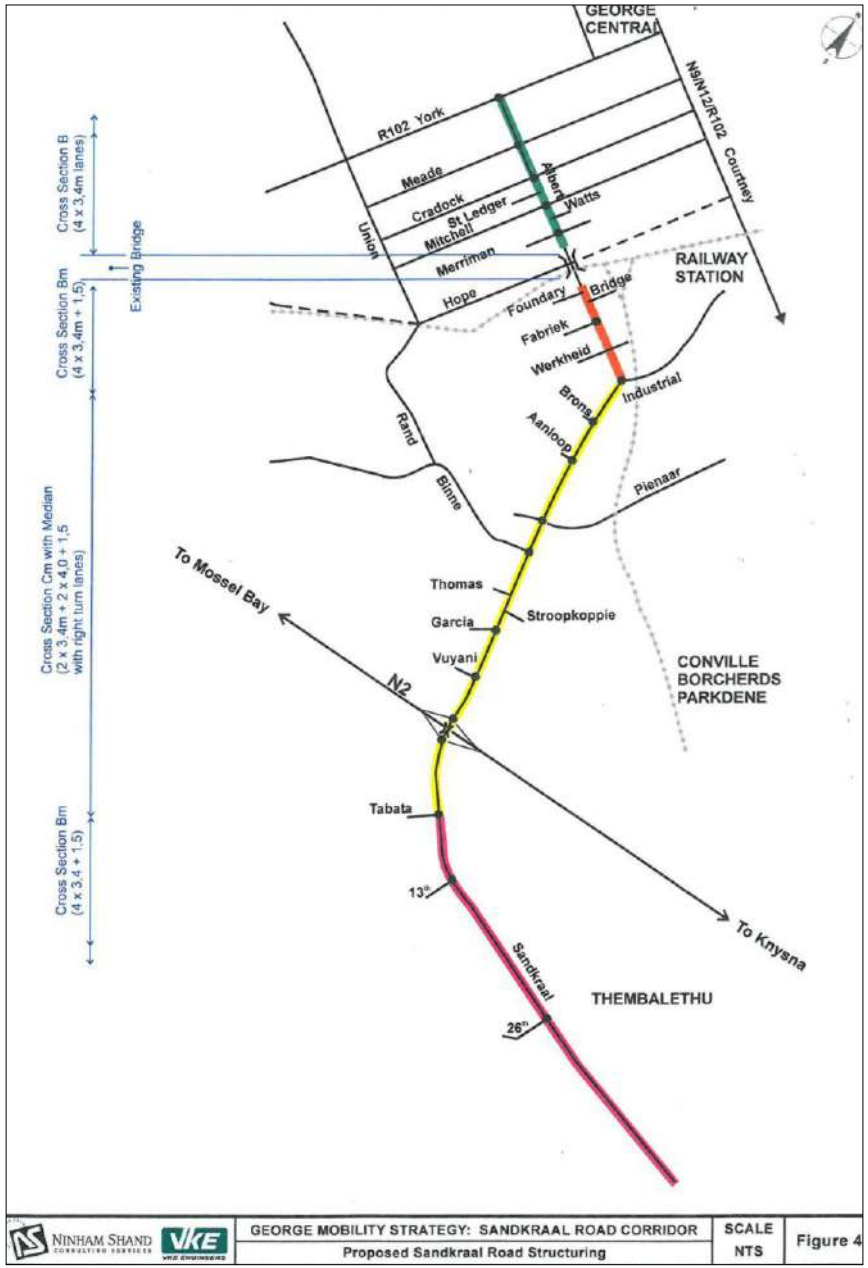
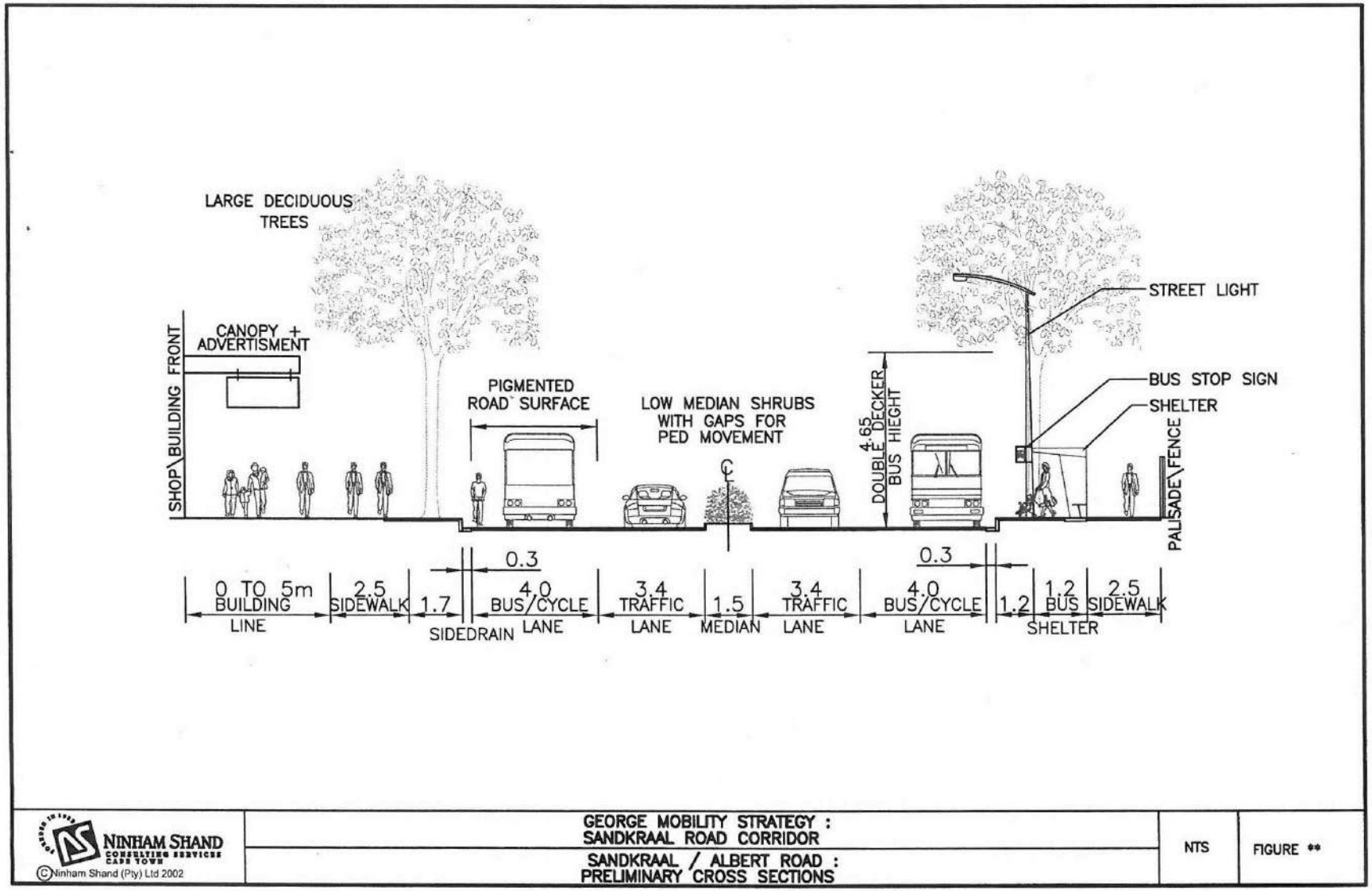
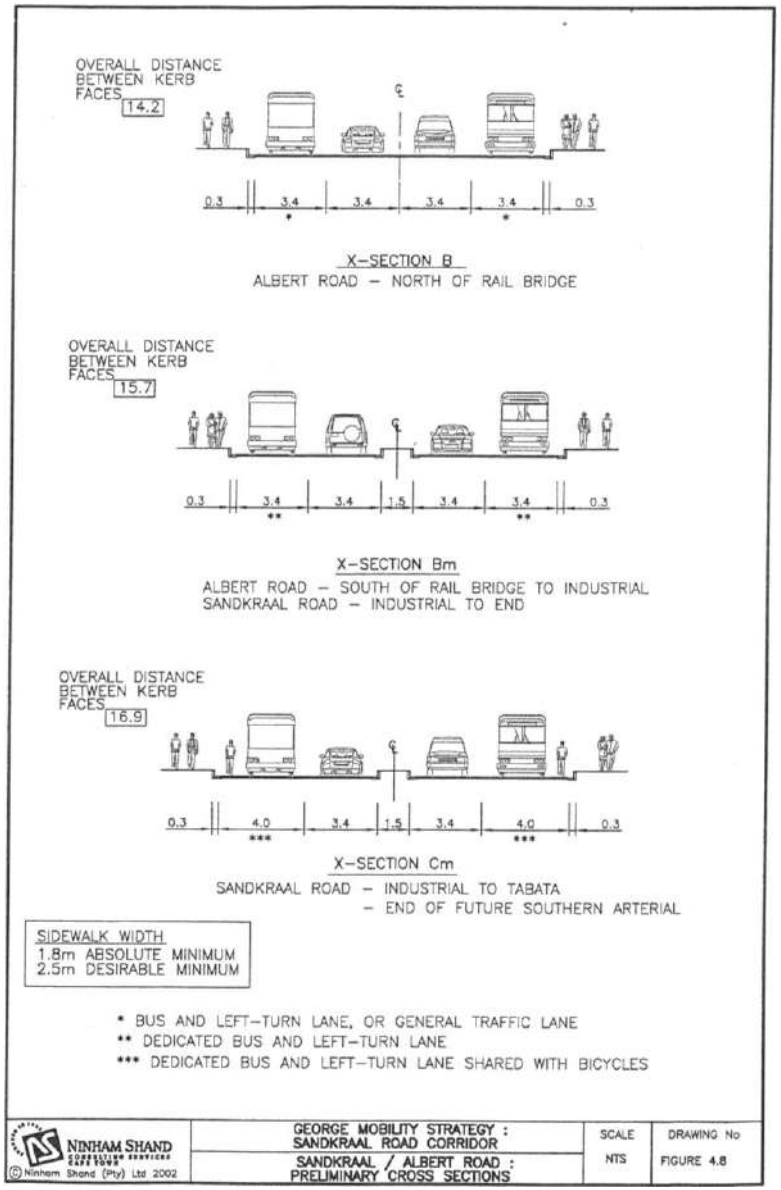


Figure 8.22 **Sandkraal Road Restructuring** (source: George Mobility Strategy, Ninham Shand, 2005)



Sandkraal / Albert Road Preliminary Cross-sections

Figure 8.23 **Sandkraal Road Corridor** (source: George Mobility Strategy, Ninham Shand, 2005)



Sandkraal / Albert Road Preliminary Cross-sections

Figure 8.24 **Sandkraal/Albert Road Preliminary Cross-sections** (source: George Mobility Strategy, Ninham Shand, 2005)

Road Element	Standard	Comment
Traffic lane width	3,4m	• Width suitable for operating speed less than 80km/hr. • For situations where there is more than one lane in the travel direction.
	4,0m	• Preferred for single carriageway two-lane roads.
Bus lane priority width	4,0m	• Potential for reserving lane for bus only and sharing with a limited number of cyclists (outer lane). • Where two-way central bus lanes are provided (Paris style).
	3,4m	• Where cyclists has separate right-of-way.
Cycle lane width	2,5m + 0,5m hardened verge on each side	• For Class 1 and 2 separate or separated right-of-way.
	1,5m	• Class 3 cycle lane adjacent to traffic lanes. (No physical separation)
		• All cycle lanes must be paved.
Pedestrian sidewalk and walkways	1,8m minimum	• Effective walkway widths should be determined from flow predictions. • LOS C or better desired. • Must be paved
Intersection spacings (traffic signal control)	375 (to 540m)	• The lesser value suitable for *district distributors in intermediate development environment.*
Median	1,2 absolute minimum 1,5m desirable minimum (for wheelchair) (5,0m desirable)	• Presence considerably reduces pedestrian safety risks. • Contributes to better vehicular behaviour. • Contributes to better access management.
Right-turn lane	3,1m	• Desirable at all intersections if can be accommodated.
Left-turn lane	3,1m	• Provide on demand only. • The presence does increase walk crossover width.
Road shoulders	Not recommended	• Encourages stopping and parking.
Intersection curve radii	8,0 – 10,0m	• Entry into residential areas.
	15,0 – 20,0m	• Entry into industrial areas.
Streetlighting standards		•
Bus stops	3,0m embayments	• On single carriageway two-lane roads.
	In-lane bus stops (markings only)	• Where two or more lanes in travel direction.
Private access driveways	To be eliminated	• In support of traffic flows optimisation. • The prospect of left lane being a bus priority lane.
Number of travel lanes	Two per direction	• Creates situations where left outer lane can be used as priority/dedicated bus lane
Roadside parking	Not recommended	• Will negatively impact on road carrying capacity if present.

Road Elements and Standards Appropriate to the Sandkraal Road Corridor

Table 8.1 **Road Element Standards** (source: George Mobility Strategy, Ninham Shand, 2005)

Number of Lanes		Travel width (m)	Side drains (m)	Right-turn lane (m)	Overall width between kerb faces (m)	Overall width with 1,5m median (m)
A	2 x 4,0 m traffic lanes	8,0	0,6	3,1	8,0	N/A
B	4 x 3,4 m traffic lanes	13,6	0,6	Nil	14,2	15,7
				3,1	17,3	18,8
C	2 x 3,4 m traffic lanes + 2 x 4,0 m bus lanes	14,8	0,6	Nil	15,4	16,9
				3,1	18,5	20,0
D	4 x 3,4 m traffic lanes + 2 x 1,5 m bicycle lanes	16,6	0,6	Nil	17,2	18,7
				3,1	20,3	21,8

Notes: (1) 3,0 m added width required where bus embayments are provided. The alternative is to stop buses in lane, which is preferred where dedicated bus lane not justified and where bus re-entry into traffic stream is a priority.

(2) Sidewalks not included above, but are to be provided; should not be less than 1,8 m. (absolute minimum)

(3) Bus lanes can be shared with bicycles where numbers of both are moderate.

Road Cross-section Alternatives

Table 8.2 **Lane Diversions** (source: George Mobility Strategy, Ninham Shand, 2005)

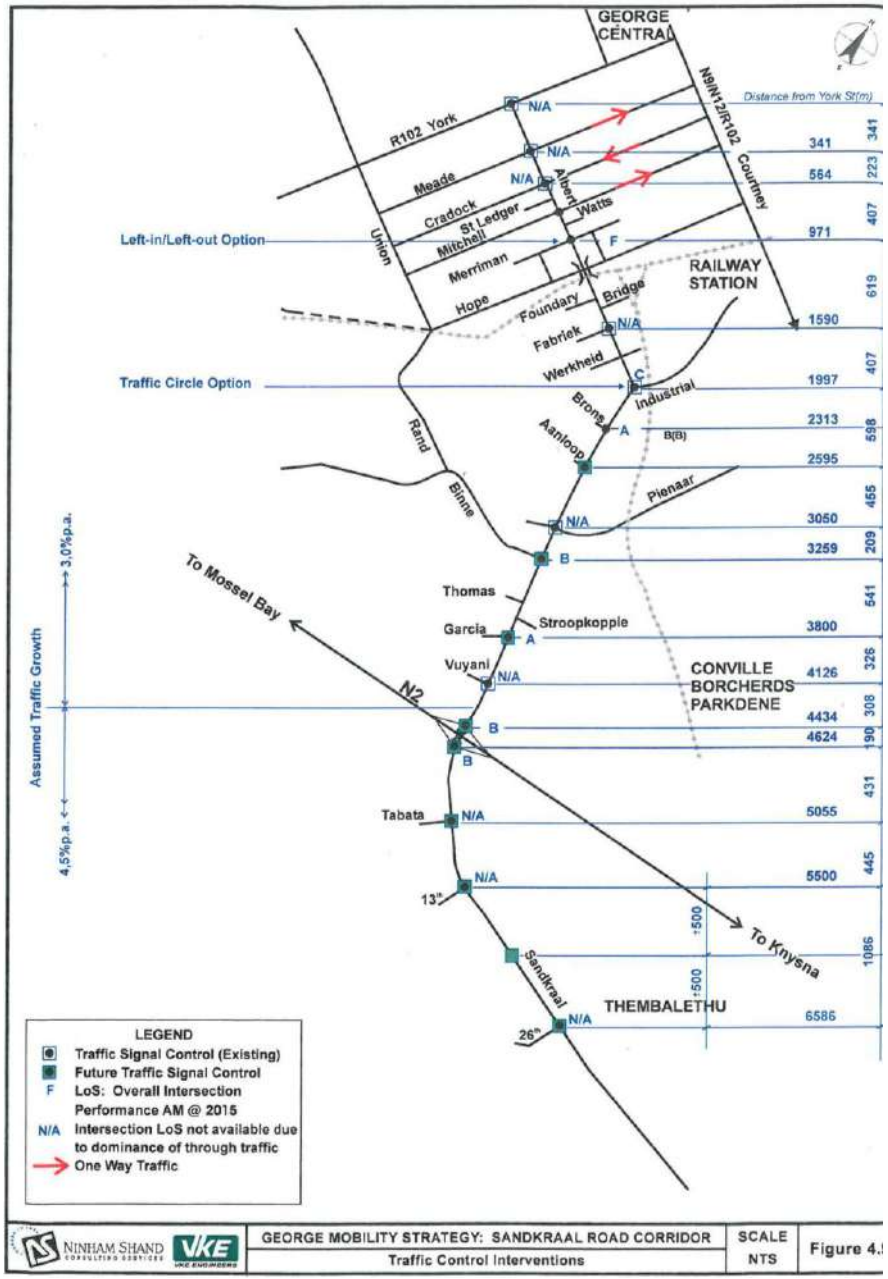
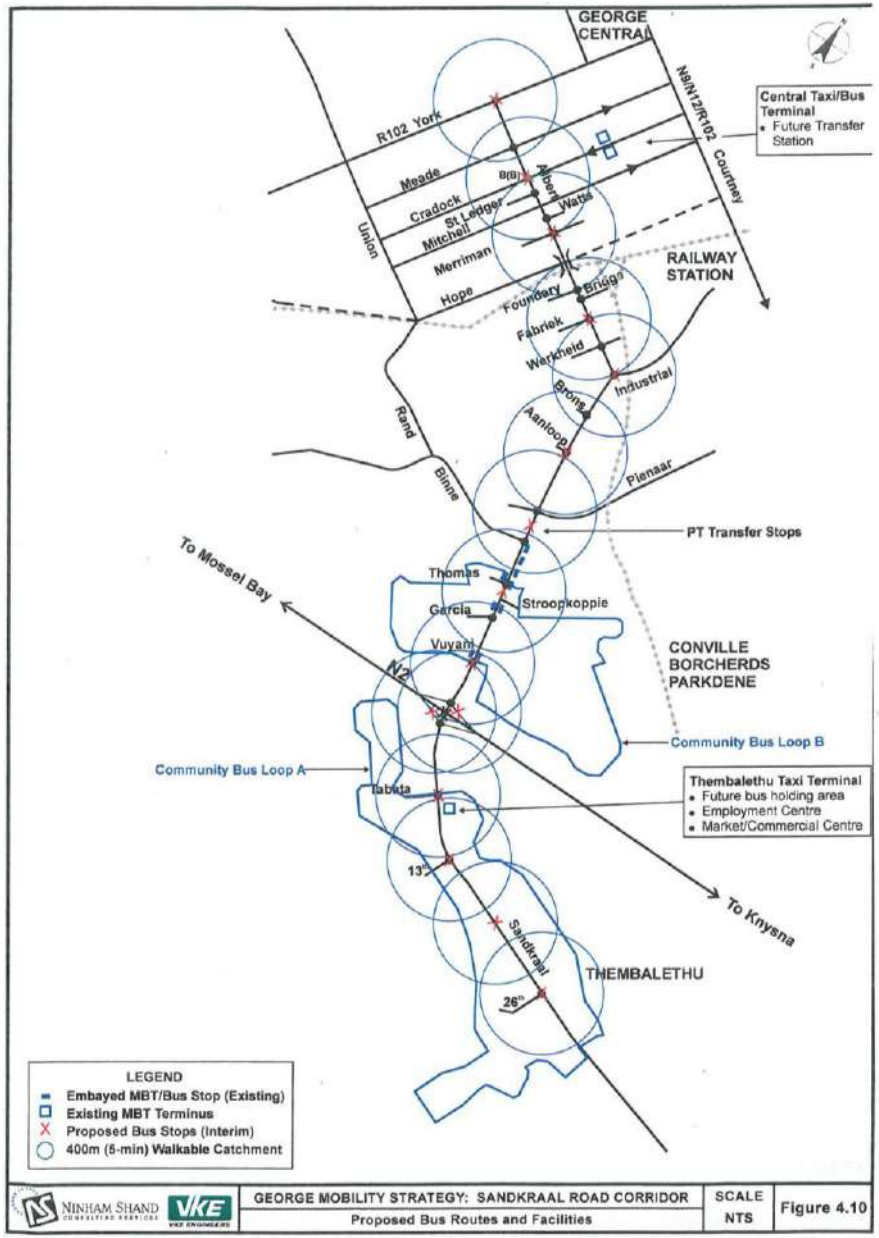
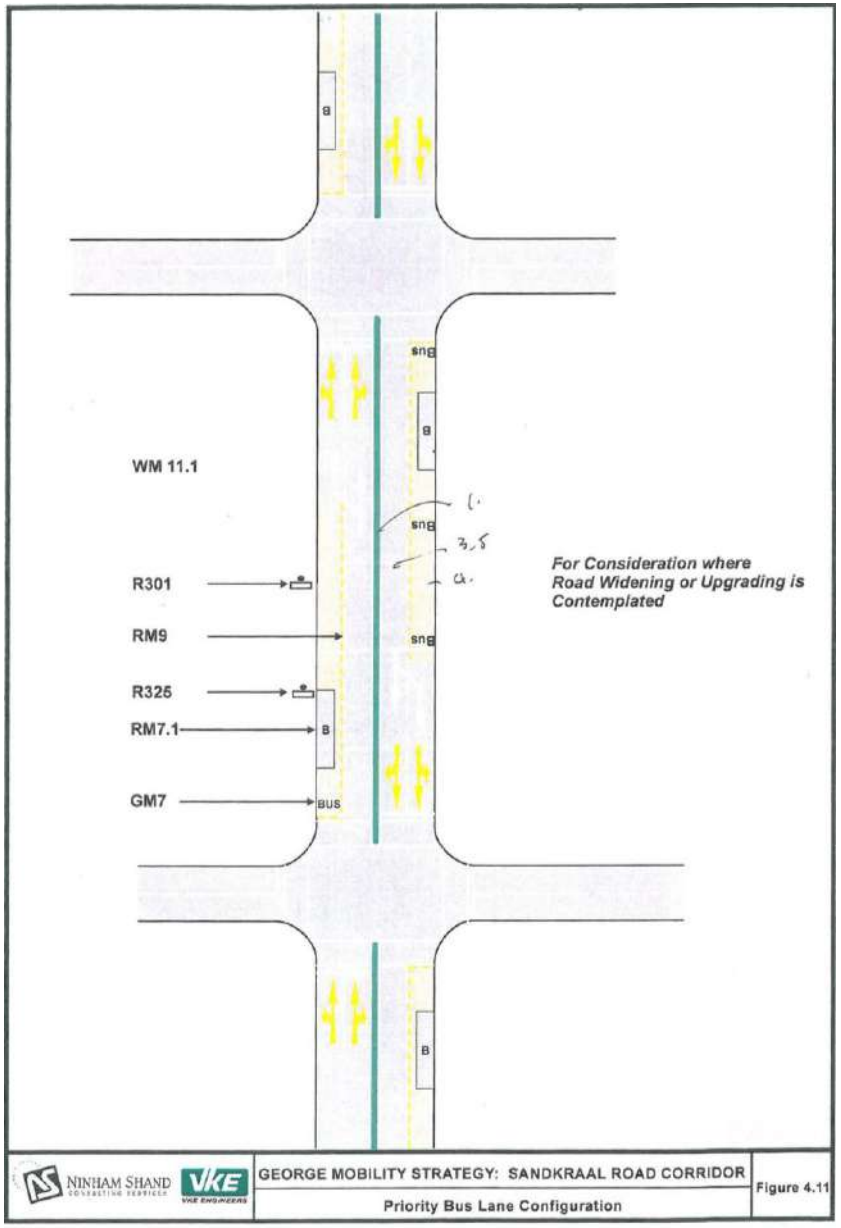


Figure 8.25 **Traffic Control Interventions** (source: George Mobility Strategy, Ninham Shand, 2005)



Proposed Bus Routes and Facilities



Priority Bus Lane Configuration

Figure 8.26 **Proposed Bus Routes** (source: George Mobility Strategy, Ninham Shand, 2005)

Figure 8.27 **Priority Bus Lane Configuration (1)** (source: George Mobility Strategy, Ninham Shand, 2005)

8.12 CYCLE NETWORK PLANNING AND DESIGN PRINCIPLES

Commuter cycling is facility driven, i.e. the more facilities are provided the more people will cycle. Lack of cycling cannot be taken as an indicator of low demand for cycling if there are no continuous cycle lane network, abundant secure bike parking areas and showers and change rooms in all non-residential buildings. There should also be convenient bike parking areas along streets.

The cycle network must be continuous. This does not imply uniform cross sections and material throughout although consistency should be a high priority. Most importantly, cyclists must be able to see where the next section of their route is. This can be accomplished in a number of different ways including effectively designed dedicated lanes, painted lanes, and "sharrows" (streets marked to indicate that the roadway is shared by both cycles and vehicles as part of the core cycle network) with consistent signage. An important aspect of this to have a consistently coloured surface, e.g. all cycle ways are always bright green painted tarmac for instance. Figure 8.28 illustrates this principle applied in Cape Town CBD.

The cycle network should link into surrounding road and MTB cycle networks. For example a MTB, running and walking trail is proposed around the perimeter of Thembalethu. This should link directly into cycle routes in Thembalethu's streets as well as across the N2 to the rest of George. The longer the commuting distances that can be encouraged onto cycle ways the greater the impact of the shift to this mode.

The cycle network, signage and intersection protocols must be consistent and easily discerned. While attention must be paid to the urban design and aesthetics of the landscaping of public streets cycle signage must not be so muted as to be almost unnoticeable. This is the case with the some of the concrete paver cycle symbols used in Cape Town. A great deal can be cost effectively achieved with white paint.

The greater the volume of cyclists the less cycling accidents there are, see graph on Figure 8.28 reflecting empirical research in Portland, Oregon, U.S.

Commuter cycling operating speeds are closer to urban vehicle average speeds than pedestrian average speeds. Even an out of condition commuter cyclist is capable of reaching speeds of 25 to 30 km/h on flat routes. Thus, the geometry of cycle lane sections and intersections and the placing of street furniture must take this into account. It is very dangerous for cyclists if street furniture is placed as though they travel at the extremely slow speeds of pedestrians and have the same ability to avoid obstacles. It is for this reason that, where it is not possible to have a completely separate and appropriate designed cycle route, it is preferable to locate cycle lanes, providing they are well market and signposted, within vehicle roadways, rather than in pedestrian sidewalks in the cross-section of urban streets. This pattern of having cyclists travelling with cars rather than pedestrians can be seen in all of the successful American and European cycling friendly cities.

Vehicle road way intersection geometrics need to take into account the potential left and right turn conflicts between cyclists and vehicles. Cyclists are at their most vulnerable when crossing intersections. Intersection marking need to take this into account and make provision for different vehicle and cycle movements. Many cities provide dedicated boxes for two wheeled vehicle abutting the stop line at intersections into which they can filter ahead of other vehicles. The left turn can be particularly dangerous for cyclists if they are incorrectly riding next to the kerb rather than the outside edge of the left turn lane. In the former position they are vulnerable to being run over by left turning vehicles.

Post trip facilities must be generously provided. Having completed their trip cyclists need to access their destinations. In most cases they need bicycle lock-up facilities. This requires convenient street furniture which could range from functional U beams to urban sculptures to which bikes can be locked. To assist with longer distance work-commuter trips, showers should be provided in all new buildings and encouraged or incentivised to be retrofitted in those which don't have them.

Cycle Network Planning And Design Principles – example of continuous cycle route network planning

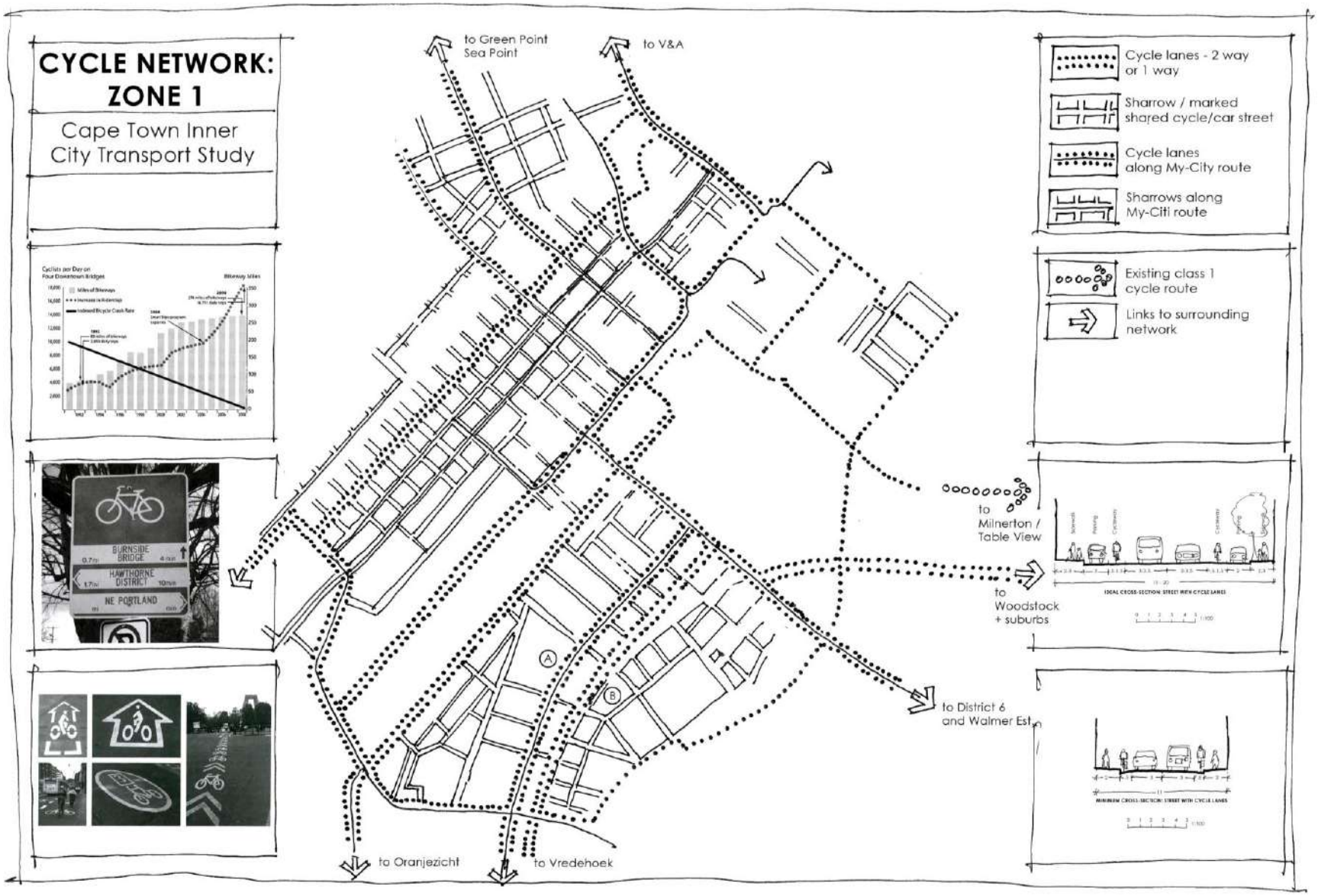


Figure 8.28 Cycle network for Cape Town CBD illustrating principles

8.13 MINING AND QUARRYING REHABILITATION

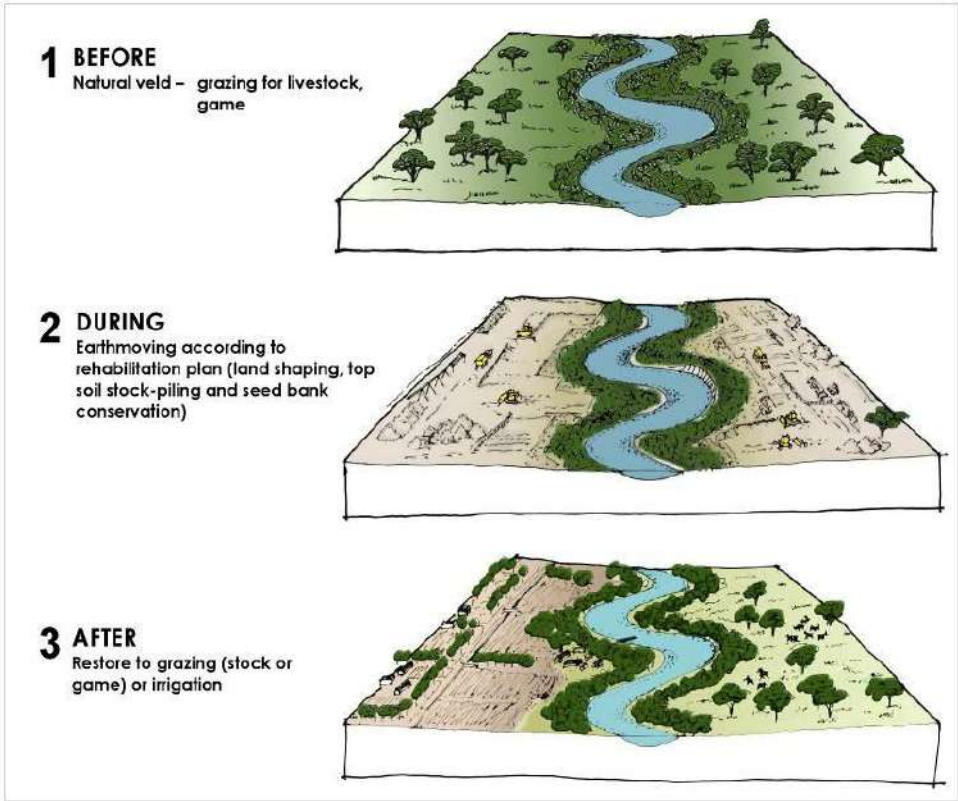


Figure 8.29 Mining and quarrying rehabilitation process.

- **Mining and quarrying permits and prospecting licenses should not be issued unless the after-use has been clearly identified and plans for these activities endorsed by the relevant authorities and included in the SDF; and,**
- **During the exploitation phase the land should be shaped and rehabilitated, including the stockpiling of topsoil, to facilitate the after-use.**
- **After use maybe:**
  - **Bio-diversity conservation and eco-tourism**
  - **Agriculture; and/or;**
  - **Urban development**

9. URBAN DESIGN PROPOSALS

This section, Urban Design Proposals, provides practical details on how to achieve the precinct plan policies and projects contained in Section 7 at six strategic sites using the tools and primciples described in Section 8, see figure 9.1:

- Nodes 1, 2 and 3 along Nelson Mandela Boulevard;
- Ntaka street precinct, abutting the N2;
- Msobomvu estate, abutting the N2 intersection; and,
- N2 bridge entrance.

It is common cause that access to economic opportunities and employment creation are the two biggest challenges facing South Africa whose 25% unemployment rate is considered unsustainable. Long term reliance on social grants as a stop gap is also not considered sustainable. The burden of unemployment is highest among 18 to 24 years olds, the milennials. It is particularly bad in former black group areas whose locality, mix of land uses, layout and design is seldom conducive to business development and employment creation.

Thembalethu is no exception. It was originally designed as a residential dormitory suburb of George with only social facilities and a few convenience retail shops.

Urban quality, in the form of tree planting, high quality street scapes and public buildings also tend to be lacking although George Municipality has invested heavily in aspects of this, especially sidewalk upgrading and implementing Go George public transport service.

Therefore, the urban design proposals must address the need for both economic opportunity and spatial quality.

First, attention has be given to making the most of Thembalethu's inherent and unique spatial economic opportunities where these exist.

Spatial economic opportunities are fixed, They cannot be transferred, taken advantage of elsewhere, and, if developed for non-economic purposes, will be destroyed at considerable opportunity cost.

Thembalethu's spatial opportunities and advantages include:

- Direct access to the N2 national route, the main transport arterial along South Africa's coast connecting the coastal cities of Cape Town, Port Elizabeth, East London and Durban;

- Its frontage along the N2, which gives it some of the best exposure in the George area to high volumes of passing traffic. Such locations are highly sought after by property developers due to the excellent business opportunities they create, These opportunities should be made available to local Thembalethu business people to the greatest extent possible;

- The main transport spine of Nelson Mandela Boulevard (NMB), which connects directly to the N2 and on into George CBD in the north along Albert road. Eventually, NMB could link to the coast to the south with the tourism opportunities this offers. Its strategic importance has recently been enhanced by implementing the Go George phase 4 public transport service along this route.

Not using these opportunities and advantages to their highest and best use will create a significant opportunity cost to the Thembalethu community.

Secondly, attention has to be paid to upgrading the overall urban quality of Thembalethu and making it desirable as a place to visit, invest and live, especially along its main streets which are experienced by the majority of residents and visitors.

Figure 9.1 Thembalethu Strategic Site

9.1 NODE 1

Figure 9.1.1 Node 1: Aerial Photograph (Source: Google Earth, 2015)

Figure 9.1.2 Node 1: Existing Zoning (Source: George Municipality, 2013)

9.1.1 Node 1: Nelson Mandela Boulevard/ Ngcakani street

- First major commercial node and taxi terminus on entering Thembalethu from N2;
- Generally only large corporate tenants are able to afford rentals in the commercial centre;
- It occupies only one quadrant of highly accessible intersection – the other three quadrants are "wasted". The northern quadrant has extensive vacant land;
- Access to the spatial economic opportunities of this intersection should be broadened to benefit local SMMEs and create jobs;
- This requires small scale affordable access in the other three quadrants;
- Informal traders are best placed to take advantage of these opportunities but more should be done to improve affordable access to local SMMEs through spatial and transport policy which addresses safety and urban quality;
- Plots around the node turn their back on the main streets as a result of strict road access guidelines aimed at eliminating side friction. This has the consequence of removing access to high volumes of passing traffic;
- Access and land use management solutions that not only address safety issues but also increase affordable access to economic opportunities are required.

Figure 9.1.3a Nelson Mandela and Ngcakani Road Intersection

Figure 9.1.3b Vacant Plots along Nelson Mandela zoned Business II

Figure 9.1.3c Vacant Plots along Ngcakani Road zoned Business II

Figure 9.1.4 **Node 1: Block perspective looking east over Node 1**

Figure 9.1.5 **Node 1: Block Perspective looking east over Node 1**

9.1.2 Urban Design Proposals (PP1) see Section 7.2.1

- Maximise economic opportunities by encouraging mixed-use activities at street level with dwellings above on properties abutting these major routes, see Figure 9.1.6a;
- Encourage rezonings to mixed use residential on properties abutting major routes, NMB, Tabata, Ngcakani to access high volumes of private and public transport along NMB create strongest thresholds in Thembalethu for informal and small business, see mixed use area, Figure 9.1.7;
- Where necessary and appropriate impose a 3 m front set back line to extend sidewalks and encourage colonnades and stoeps to facilitate sidewalk business and activity, see Figure 9.1.8;
- Promote 2 – 4 storey GAP/ mixed use development on vacant land in this vicinity: proclaim as Restructuring Zone and co-develop with social housing institution, see Figure 9.1.7;
- Facilitate SMME development with frontage / service roads where road reserve width and intersection spacing permits, according to RAG requirement, see Figures 9.1.7, 9.1.8 and 9.1.9;
- Plant trees along entire length of NMB, see Figures 9.1.7 and 9.1.8;
- Upgrade sidewalks, see Figure 9.1.6c;
- Install cycle lanes;
- Co-ordinate with George Mobility bus service (Phase A recently implemented along NMB).

Figure 9.1.6a **Masiphumelele: 2- 4 storey housing along main street to settlement**

Figure 9.1.6b **Cradock: informal trading embayments on main road**

Figure 9.1.6c **Street and sidewalk upgrading: Tarkastad, Tsolwana (EPWP)**

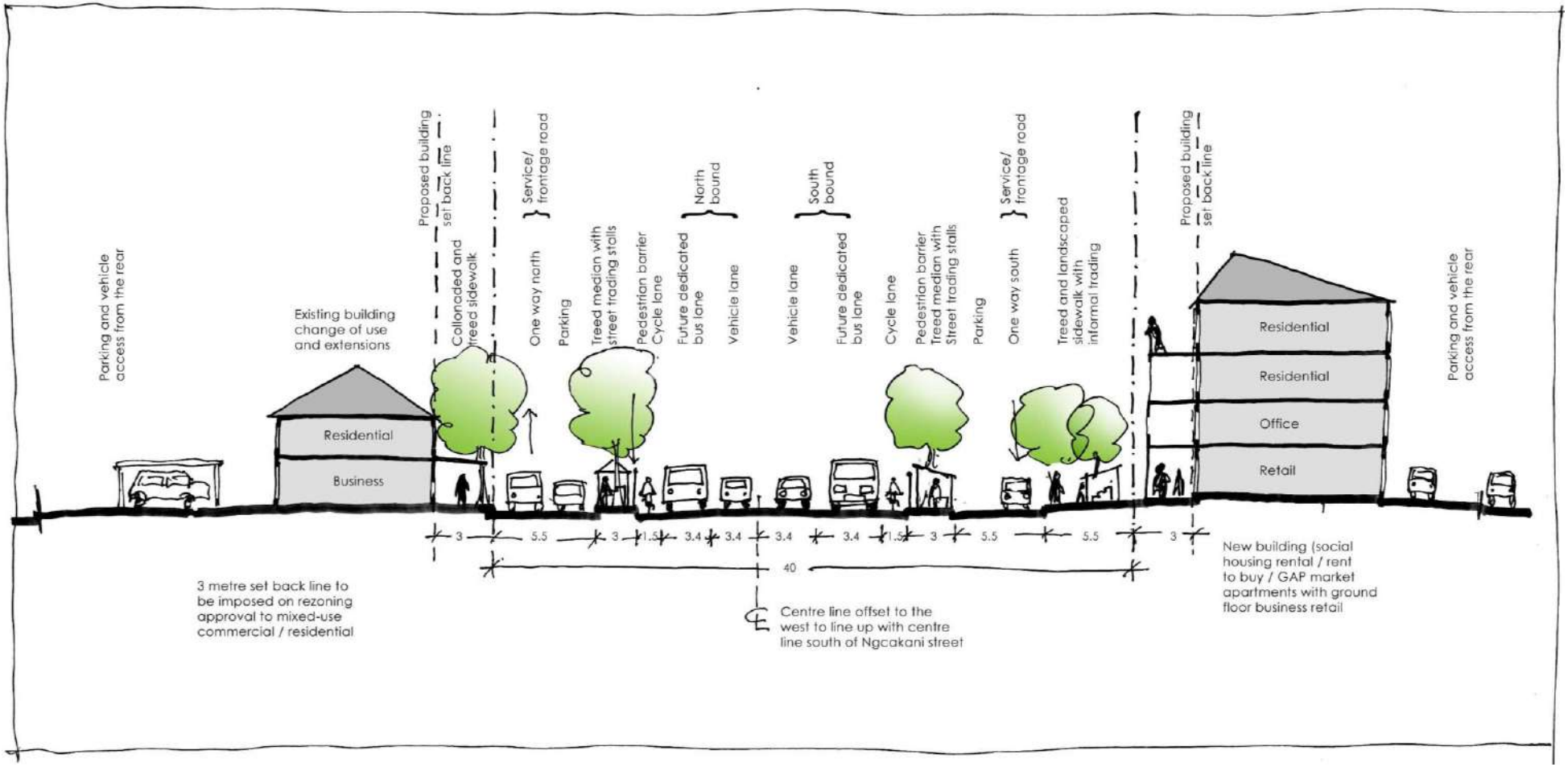
2 to 4 story social/Housing with small-scale retail below. Front elevations of buildings should create positive interface onto Nelson Mandela Boulevard with colonnades and tree planting along pedestrian edge. Parking and vehicle access be from the rear. Can be developed by social housing institution in partnership with municipality

Properties abutting Nelson Mandela Boulevard, Tabata and Ngcakani roads to be encouraged to rezone to mixed-use commercial. Buildings, particularly frontages , should upgraded plus tree planting to create a positive, pedestrian friendly, street elevation conducive to small business development.

Main intersection to be landscaped and paved as either raised or depressed speed table(depending on stormwater management requirements) with minimum of raised barrier kerbs. Vehicle roadways should be traced out with flat pavers in pavement surface but their design should not dominate over pedestrian and cycle ways.

Where road reserve width permits one way frontage/service roads providing access to treed informal trading median fenced off from main road should be provided, see Cradock, E Cape precedent, see Figure 9.1.6b.

Figure 9.1.7 Node 1: Urban Design Concept



PROPOSED NELSON MANDELA BOULEVARD: ECONOMIC AND TRANSPORT ARTERY" 40m CROSS-SECTION

Figure 9.1.8 Node 1: Activity Spine cross-section adapted from George Mobility Strategy typical 40m cross section (separate cycle lanes)
(Figure **, Ninham Shand George Mobility Strategy, Sandkraal Road Corridor Upgrade Draft 2 Nov 2005)

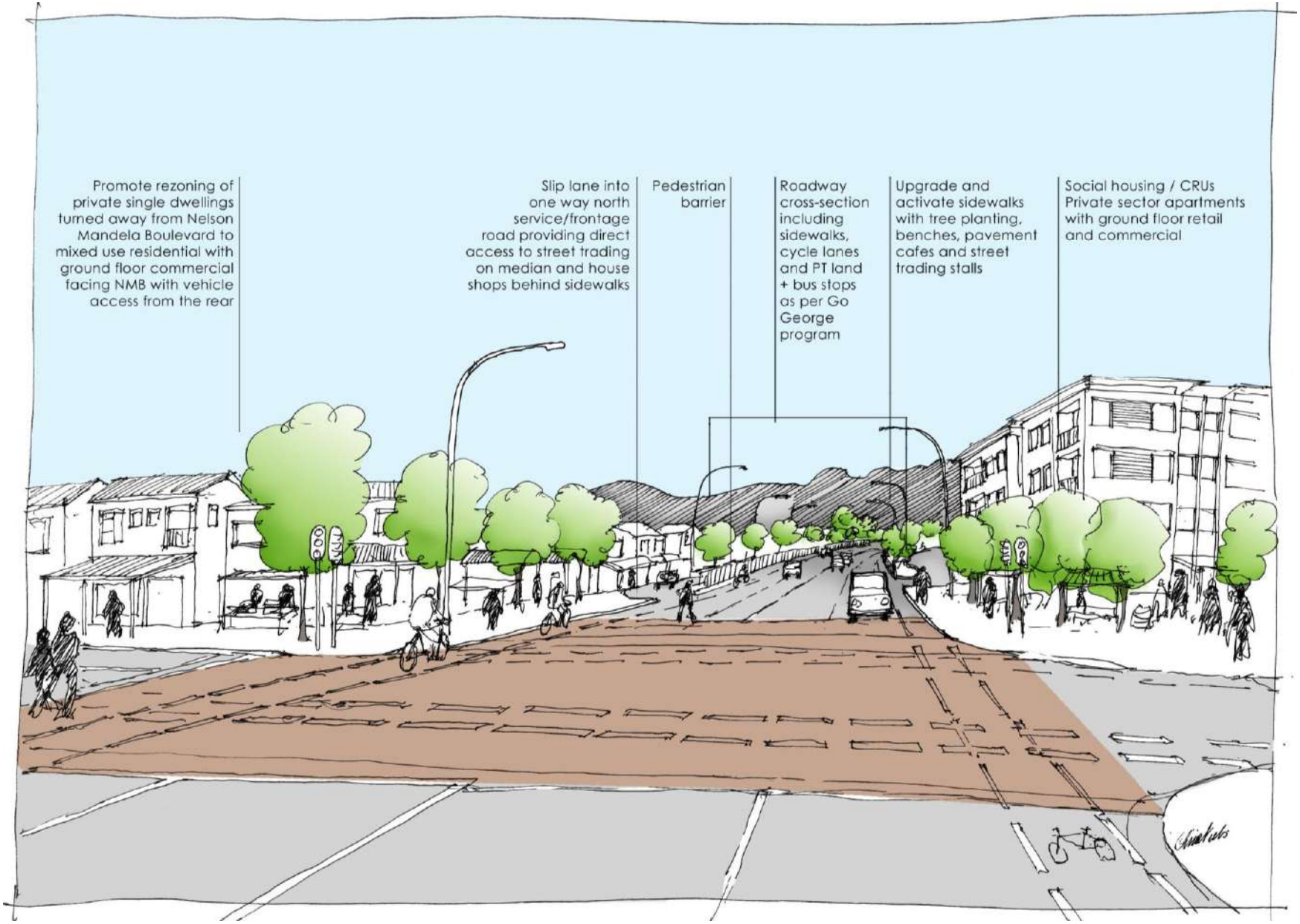


Figure 9.1.9 Node 1: NMB/Ngcakani street intersection sketch perspective

9.2 NODE 2

Figure 9.2.1 Node 2: Aerial Photograph (Source: Google Earth, 2015)

Figure 9.2.2 Node 2: Existing Zoning: note medium density zoning between Ncamanza and 6th Streets (surce: George Municipality, 2013)

9.2.1 Node 2: Nelson Mandela Boulevard (NMB) between and including Ncamanza and 26th Street intersections

This potential node is located midway along NMB between Nodes 1 and 3 where Ncamanza and 26th Street link to Ngcakani and Tabata streets forming an almost direct link between the two, with a "dog leg" along NMB. Together with NMB these two streets form a trinary route network spine that functions as Thembalethu's transport spine, see Section 7.2 (PP9).

Node 2 has been identified as having higher order potential in several planning and transport policy plans.

Holorha Primary School , as a higher order activity, contributes to this potential.

As usual street traders always the first and most flexible to identify and take advantage of economic opportunities, are well established, see Figure 9.2.3 a and b, but some detailed planning and land use management interventions are required for this potential to be realised for SMMes and adjacent residents and homeowners.

Figure 9.2.3a Informal and formal business activities and densification occurring in response to Node 2 potential

Figure 9.2.3b Informal activities facing NMB at rear of properties facing access internal access street

Figure 9.2.3c NMB approaching Ncamanza intersection showing sidewalks devoid of tree planting

Figure 9.2.4 Node 2: Typical Cross Section of Proposed Roads

Figure 9.2.5 Node 2: Typical View Down Proposed Roads

9.2.2 Urban Design Proposals, PP1, see Section 7.2.1

- NMB is 34m wide at this point requiring a different cross-section from the north section through Node 1, see section 9.1
- Separate cycle lanes can no longer be accommodated;
- Cycles should share the wide 4 m public transport lane;
- This should be demarcated as a "sharrow", a road facility commonly used in US and Europe to denote where cars and cycles must share the road way. This maintains the very important cycle way continuity even where there is not enough room for standard cycle lanes;
- 5,5m one way frontage/service road with parallel parking with 3 metre sidewalk abutting the road reserve boundary;
- A 3m building line from NMB reserve boundary which may be encroached over with stoeps and collonades, to be imposed when zonings and building plans are approved for mixed use buildings "backing" onto NMB , see Figure 9.2.8.

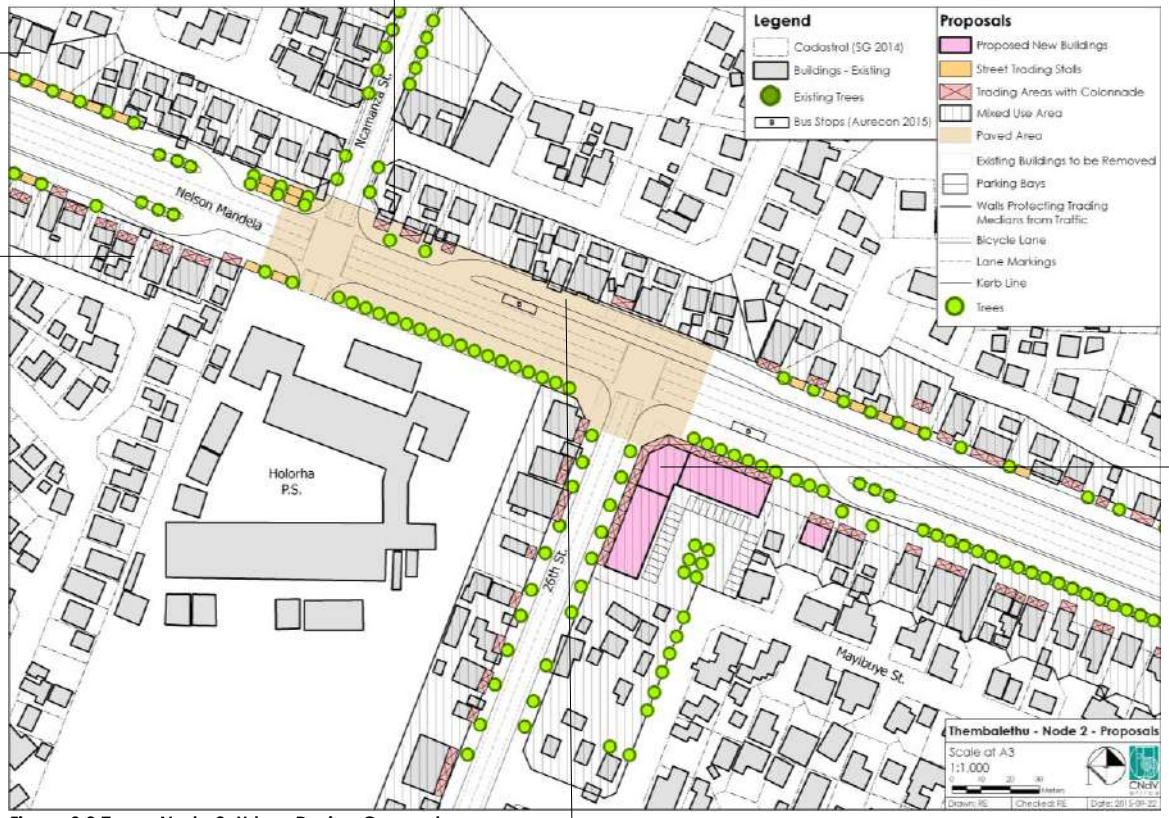
Figure 9.3.6a Masiphumelele

Figure 9.3.6b Cradock Informal Street Market on R510

Figure 9.3.6c Street and sidewalk upgrading: Tarkastad, Tsolwana (EPWP)

Nelson Mandela Boulevard between Ngcakana and 26th street intersections to be to be landscaped and paved as either raised or depressed speed table(depending on stormwater management requirements) with minimum of raised barrier kerbs. Vehicle roadways should be traced out with flat pavers in pavement surface but their design should not dominate over pedestrian and cycle ways paved with raised speed table to emphasis nodal quality of this vicinity

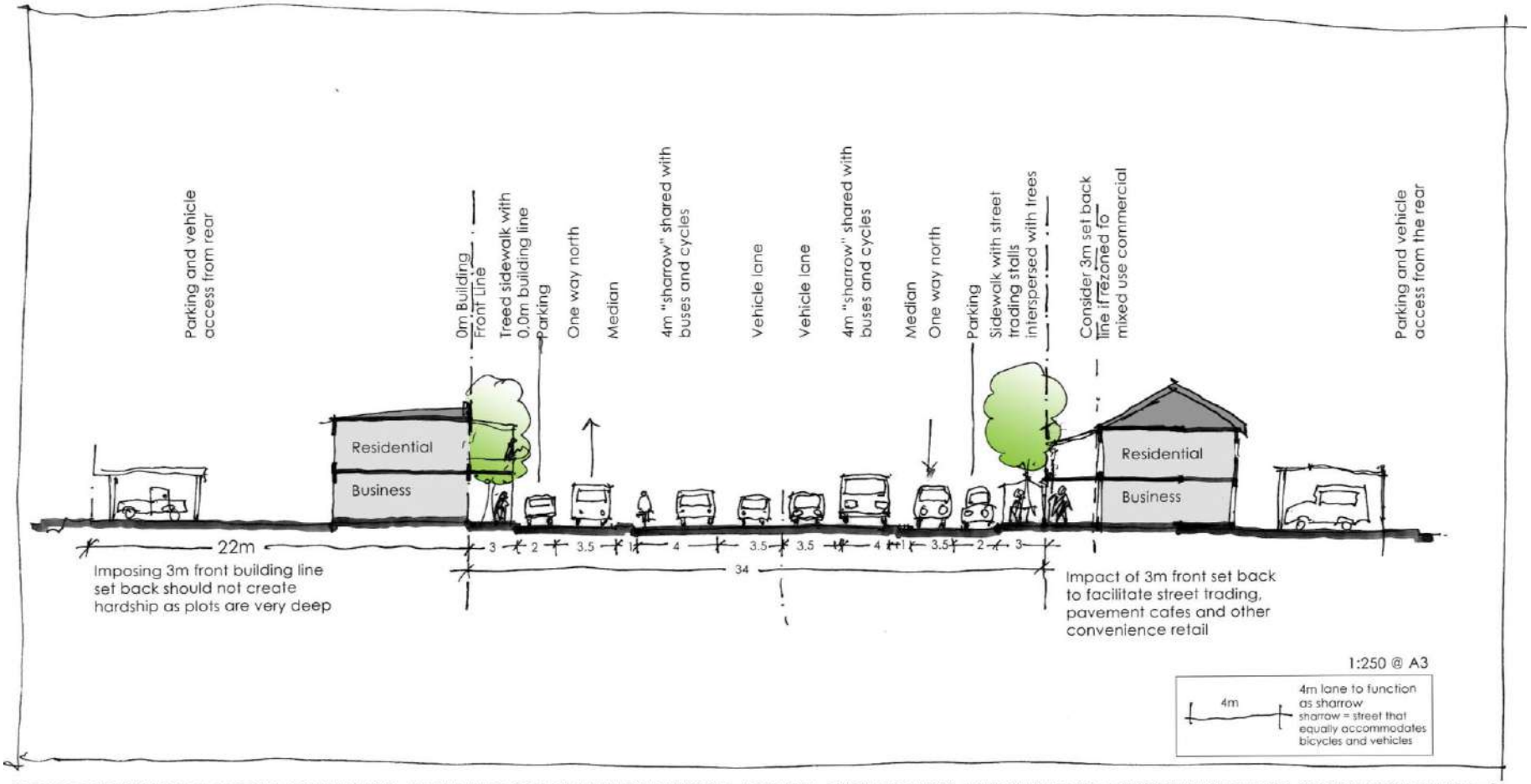
Properties abutting Nelson Mandela Boulevard, Ncamanza and 26th streets to be encouraged to rezone to mixed-use commercial. Buildings, particularly frontages , should upgraded plus tree planting to create a positive pedestrian friendly street elevation conducive to small business development.



New 2 – 4 storey residential/mixed use building with ground floor commercial on vacant prominent corner - 26th/NMB, already zoned for Business
Vehicle access from rear

Figure 9.2.7 Node 2: Urban Design Concept

Where road reserve width permits one way frontage/service roads providing access to treed informal trading median fenced off from main road should be provided, see Cradock, E Cape precedent



PROPOSED NELSON MANDELA BOULEVARD: RETAINING CONTINUITY OF KERBSIDE ACTIVITY, CYCLE ROUTES AND PUBLIC TRANSPORT IN REDUCED CROSS-SECTION (34m)

Figure 9.2.8 Node 2: Activity Spine cross-section informed by George Mobility Strategy typical cross section
Figure **, Ninham Shand George Mobility Strategy, Sandkraal Road Corridor Upgrade Draft 2 Nov 2005)

Figure 9.2.9 Node 2: 34m cross-section Perspective

9.3 NODE 3

Figure 9.3.1 Node 3: Aerial Photograph (Source: Google Earth, 2015)

Figure 9.3.2 Node 3: Existing Zoning (Source: George Municipality, 2013)

9.3.1 Node 3: termination of NMB and Ngcakana street

- Ngcakana street and NMB terminate together at this traffic circle, see Figure 9.3.1;
- This node is currently mostly vacant being at the extreme rural end of Thembalethu's development;
- It is likely to develop in importance, particularly if the well located vacant land around this point is used for medium and high density development rather than the low intensity open space and educational facilities indicated by the SDF and zoning scheme, see Figure 9.3.2;
- The vacant land to the west of the node has potential to be part of a mega project fronting onto NMB;
- There are already signs of this node's future potential in the small businesses that are beginning to occur, see Figure 9.3.4
- The node is devoid of street trees and now would be a good time to get them established, either on site or in a near by nursery;
- Although the roads were recently completed no allowance has been made for cycle lanes.

Figure 9.3.3 traffic circle with taxi lay-by

Figure 9.3.4 Approach to traffic circle

Figure 9.3.5 Vacant well located land abutting taxi lay-by

Figure 9.3.6 Node 3: 3D View: Proposals – View 1

Figure 9.3.7 Node 3: 3D View: Proposals – View 2

9.3.2 Urban Design Proposals (PP1, see Sec 7.2.1)

- Node 3 should be intensively developed to form a strong southern anchor to the NMB activity spine, see Figures 9.3.6 and 9.3.7;
- This will create a dynamic tension along NMB that will increase movement thereby improving utilisation of the Go George transport service and increase formal and informal business and community facility thresholds along the entire route making all of these activities and services more viable;
- Node 3 is ideal as core of a mega catalytic project, as per DHS drive, on the surrounding large tracts of land;
- Such a project will include a significant GAP / Social housing and market apartment component;
- Social/GAP 2 – 4 storey mixed use housing should be clustered around the node as shown, see figures 9.3.6 and 9.3.7, and should include a landmark building;
- WC DHS and Social Housing Regulatory Authority (SHRA) are currently declaring Restructuring Zones in 11 Western Cape municipalities for social housing. Node 3 will be an ideal candidate;
- The proposed school, see blue buildings, should be set back to enable a continuous edge of mixed use apartment buildings along NMB, see Figures 9.3.6 and 9.3.7.

Figure 9.3.8 Amalinda, East London

Figure 9.3.9 Umndeni Gardens, Fordsburg

Figure 9.3.10 Brickfields, Johannesburg

2 – 4 storey apartment buildings with ground floor business abutting main routes Can be built as part of social housing initiative with study area between Tabata and Ngcakani streets declared as Restructuring Zone ito of SHRA guidelines

NMB cross-section narrowed to 24m. Cycle lanes should be "sharrows" to share space with public transport and other road users

Main square to be paved with raised or depressed speed table depending on requirements of municipality

School set back from NMB with 2-4 storey apartment buildings as interface with NMB

Memorable main square enclosed by 3 to 4 storey apartments with land mark building as focal point.

Figure 9.3.11 Node 3: Urban Design Concept

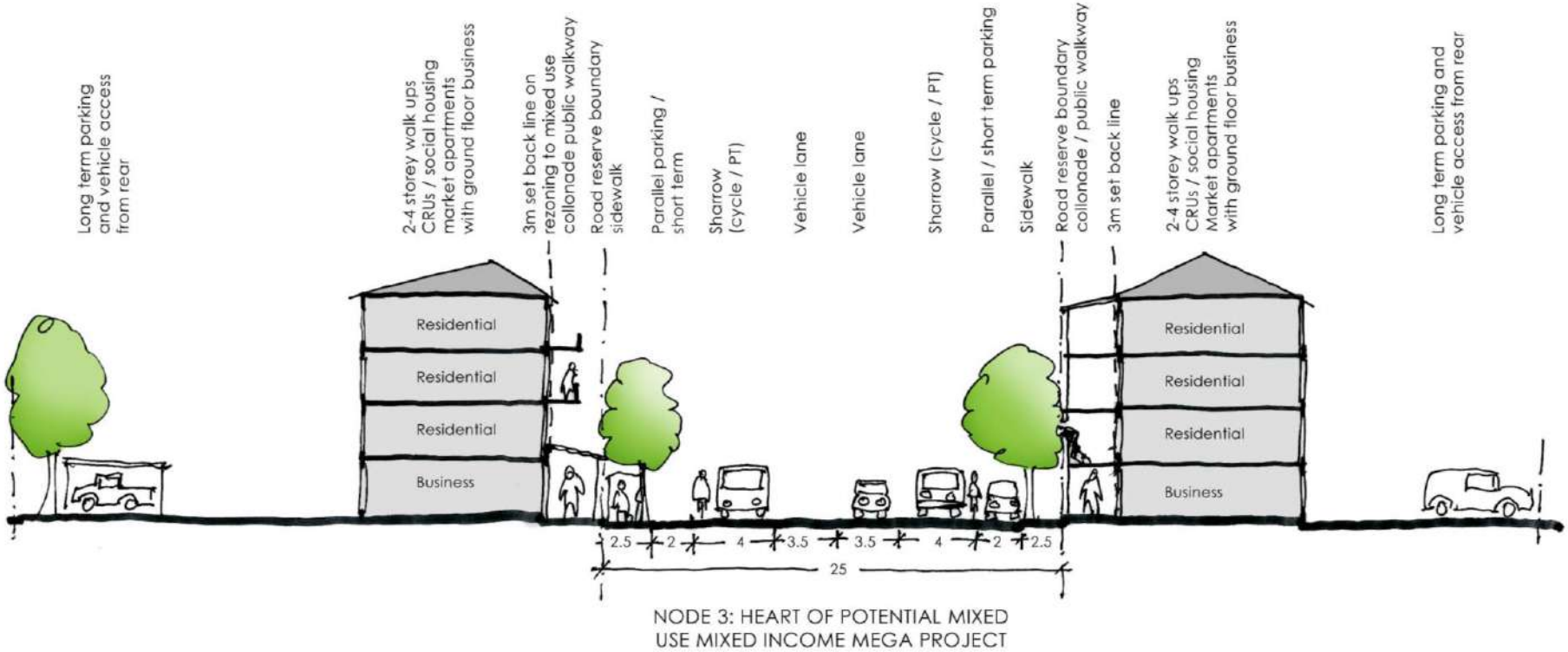


Figure 9.3.12 Node 3: Activity Spine 25m cross-section informed by George Mobility Strategy typical cross section
(Figure **, Ninham Shand George Mobility Strategy, Sandkraal Road Corridor Upgrade Draft 2 Nov 2005)

Figure 9.3.13 Node 3 Perspective: view of square and taxi rank

9.4 NTAKA STREET PRECINCT

Figure 9.4.1 Ntaka Street: Aerial Photograph (Source: Google Earth, 2015)

Figure 9.4.2 Ntaka Street: Existing Zoning (Source: George Municipality, 2013)

9.4.1 Ntaka Street Precinct

- This precinct has one of the best locations in Thembalethu due to its position abutting the N2, see Figures 9.4.1 and 9.4.3. and is highly visible from the N2, see figure 9.4.6;
- Ntaka street, the precinct's main spine road, also has the opportunity to integrate Thembalethu laterally to the east to the Destiny Africa site if it is continued across a portion of Portion 538 (see Figure 9.4.7) with a new bridge, see Figure 9.4.4;
- The site is zoned for low density residential with some group housing to the east and undetermined zone abutting the N2, see figure 9.4.2;
- The site has recently received development approval for a low income residential scheme of 326 dwelling units at two net densities, 73 du/ha (80m^2 plots) and 125 du/ha (50m^2 plots), see Figure 9.4.7;
- This is considered as Option 1 for this precinct;
- Acknowledging the large demand *for* housing and the effort to achieve approvals to date , it is still considered necessary to see if the considerable and unique business potential of this site can also be developed, see PP7, section 7.2.1;
- A footbridge has been proposed across the N2 from the eastern end of Ntaka street.

Figure 9.4.3 View over N2

Figure 9.4.4 Potential link with bridge to Destiny Africa

Figure 9.4.5 Typical low density development: Ntaka Street

Figure 9.4.6 **Shows highly prominent position of site to N2 traffic travelling westwards**

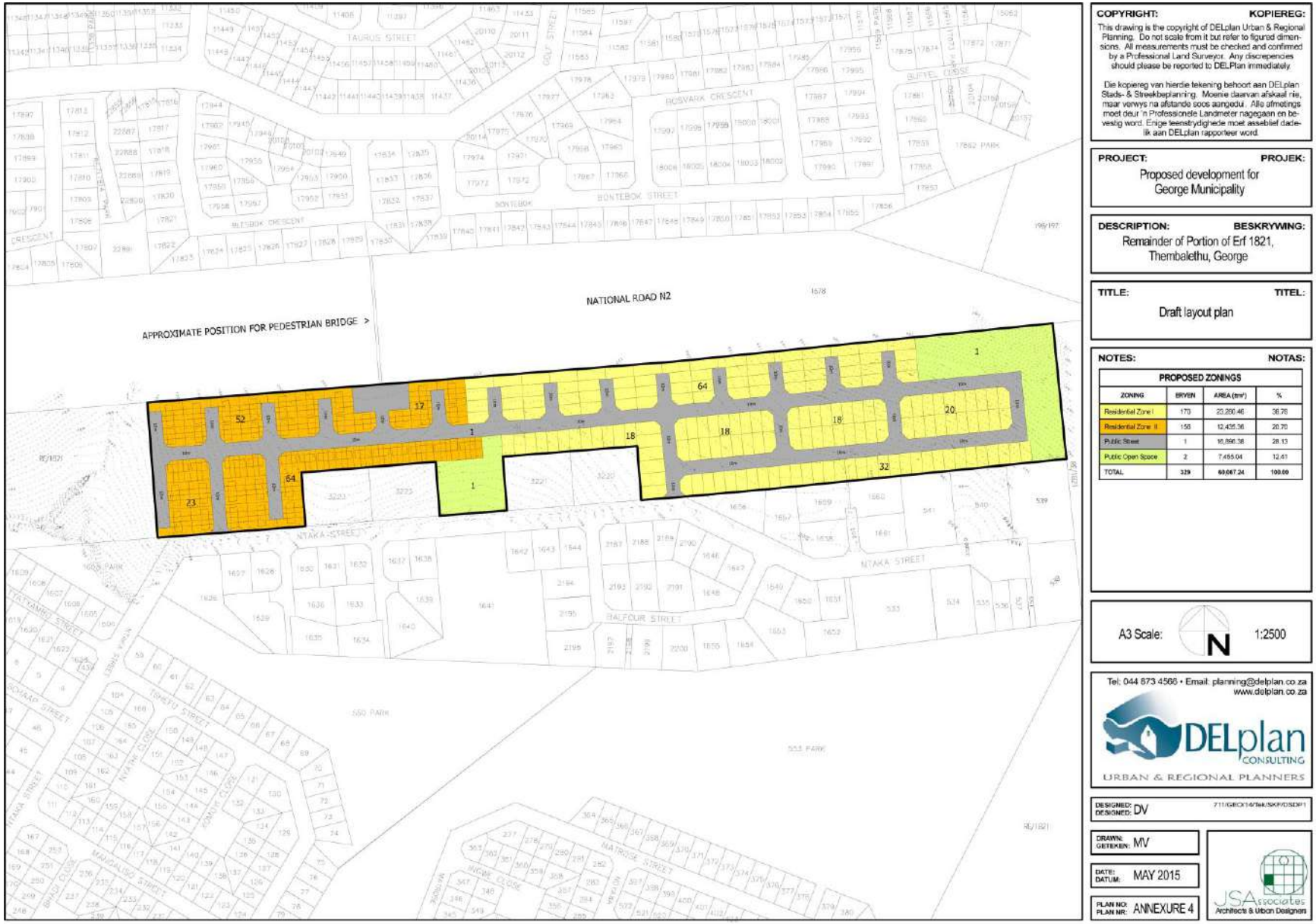


Figure 9.4.7 Approved layout for new housing in Ntaka Street Precinct.

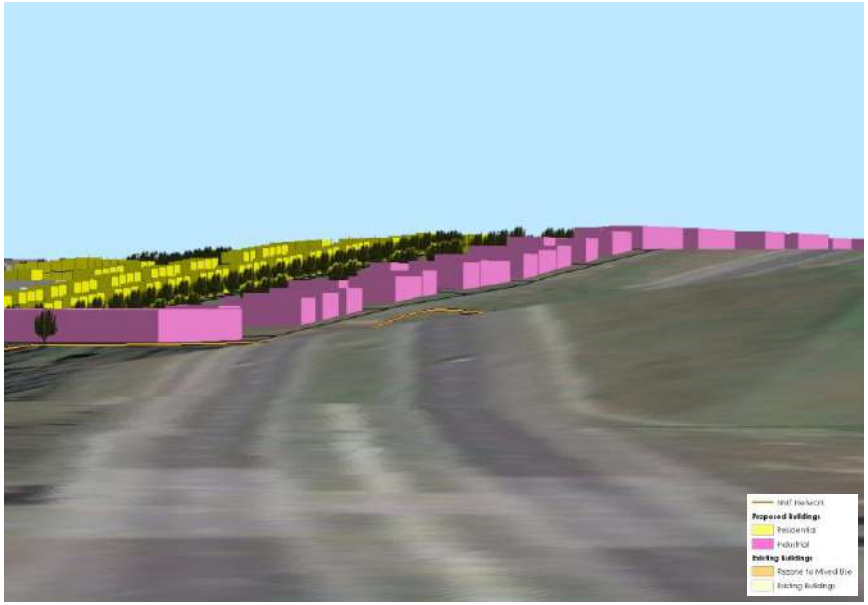


Figure 9.4.8 **View from N2 showing possible commercial development with excellent visual exposure and residential behind.**

Figure 9.4.9 **View from above Thembalethu showing residential development behind commercial lining N2**

9.4.2 Alternative development scenario for Ntaka street precinct: Option 2 mixed use development

- Clearly, there is a massive need for housing in Thembalethu that cannot be ignored. However, it is also recognised that in the near future, once residents' shelter needs are addressed, the need for business and employment generation will be paramount;
- Therefore Option 2 explores the possibility of locating business and light industrial uses along the N2, see Figure 9.4.8 and 9.4.9 and relocating the some of the residential to abutting vacant land.
- It maintains the current number of approved housing units (326) but now all of them are the higher density double storey units (Residential Zone II);
- A high level investigation reveals that there is flattish land on which further higher density units could be built, see Figures 9.4.10 and 9.4.11.
- Figure 9.4.12 shows a layout which could accommodate both uses.
- It is recommended that Option 2 be investigated before deciding to develop Option 1 so as to be very confident about not being able to use the land fronting the N2 for its highest and best use.
- Access to the commercial / light industrial properties will be taken along Ntaka and Ngcakani streets. These are Class IV roads of sufficient width to carry the main traffic flows in the area.

Figure 9.4.10 **View across river valley of relatively flat slopes to south of suitable for urban development subject to geo-technical investigation**

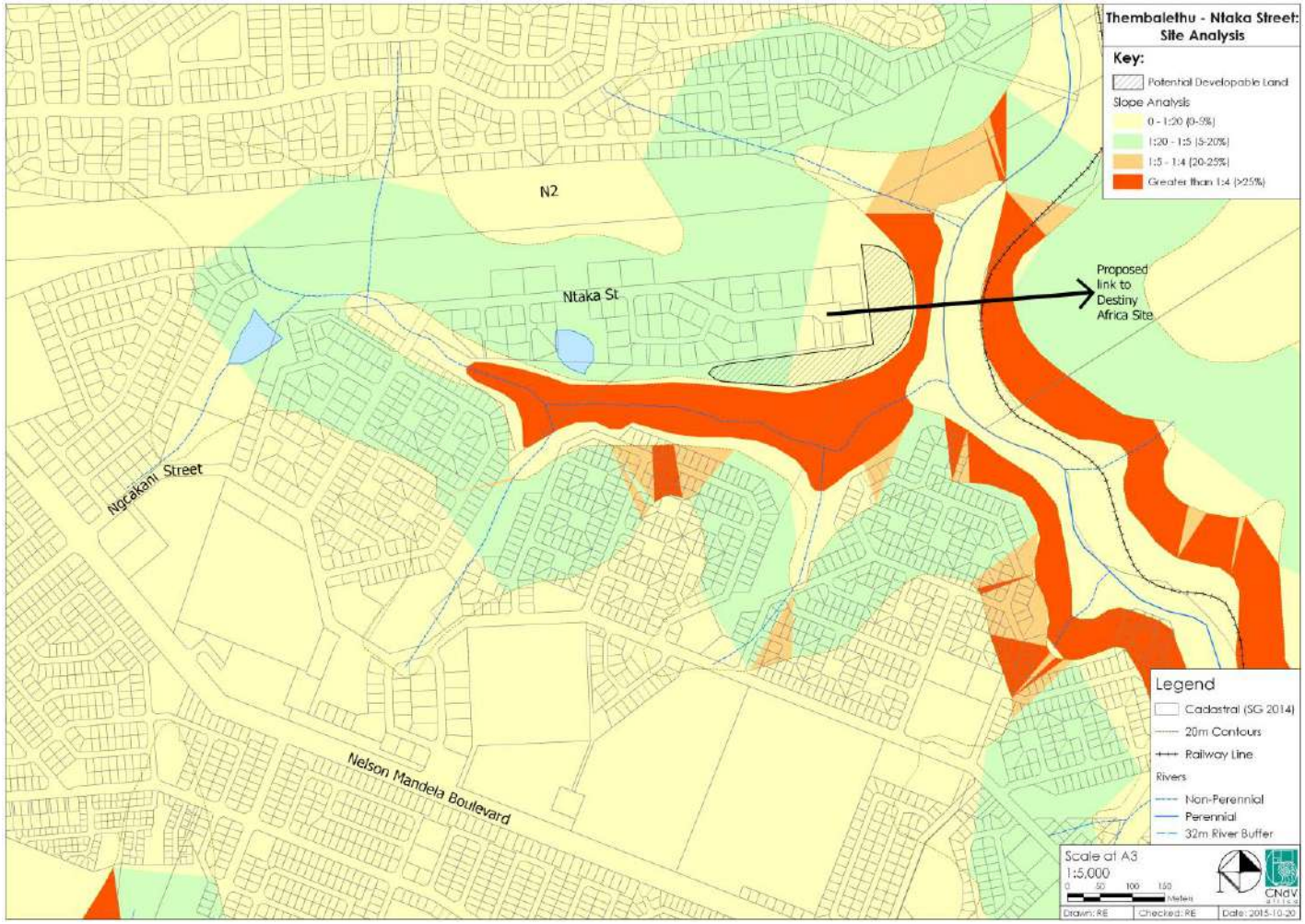


Figure 9.4.11 Site analysis showing suitable land for extending urban development

Figure 9.4.12 **Urban Design Concept – same number of units as approved but all in the higher density configuration Residential Zone II located on flatter land around the site and on portions of vacant undeveloped land with the existing township.**

9.5 MSOBOMVU BUSINESS AND RESIDENTIAL ESTATE

Figure 9.5.1 Msobomvu Estate: Aerial photo

Figure 9.5.2 Msobomvu Estate: Current zoning

9.5.1 Msobomvu Estate

- Msobomvu estate enjoys an excellent location with high visibility from the into and Nelson Mandela Boulevard as it enters Thembalethu, ideal for business, retail, and light industrial development.
- It takes access off the Ngcakani intersection from Nelson Mandela Boulevard along Jeriko and Lwandle streets.
- However, these distances are not excessive at all. The estate was originally developed as a low-density middle income housing estate, notwithstanding its excellent location for business and retail.
- It is only partially developed. The few plots that have been developed are further away from extremely noisy N2, see Figures 9.5.1 and 9.5.5.
- The northern, undeveloped part of the site has excellent locational attributes for business with signage opportunities along the N2.
- Attracting passing trade are very different to the attributes required for pleasant residential living.
- PP7, see Section 7.2.1 identifies the need to investigate the possibility of using that portion of the township nearest the N2 for commercial activity.

Figure 9.5.3 View from NMB entering Thembalethu

Figure 9.5.4 Vacant land with N2 hidden in cutting beyond

Figure 9.5.5 Existing infrastructure and residential dwellings

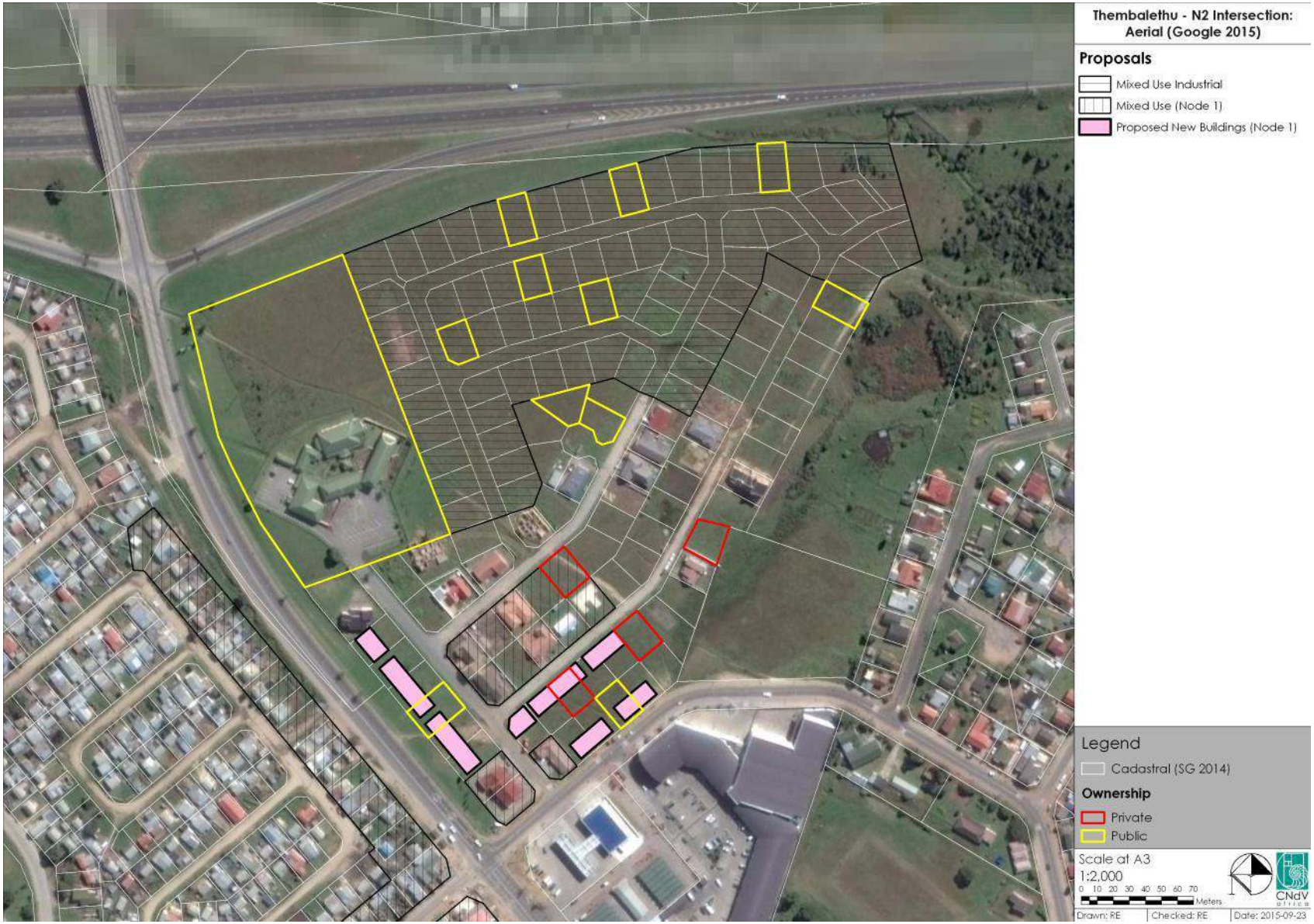


Figure 9.5.6 Land ownership of selected properties

Figure 9.57 **3 D block view showing light industrial retail nearest the high way with residential in a more protected environment to the rear. (Note same pattern with Ntaka Street precinct in the background) The strategic potential of the vacant land behind the SASSA building in the N2/NMB corner is also clear**

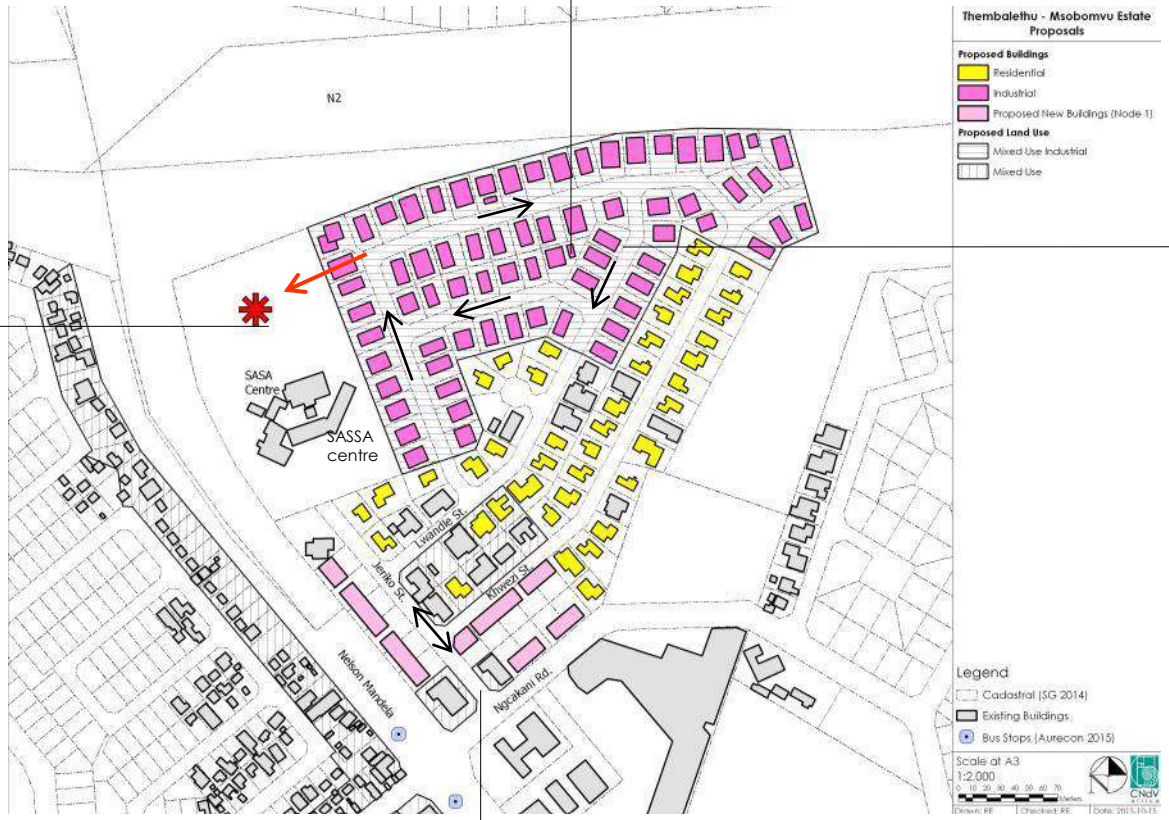
Figure 9.5.8 **3-D block view from north**

9.5.2 Msobomvu Estate: Proposals

- The current development pattern, or lack thereof, suggests that sites closer to the freeway are not ideal for residential living. However, they are currently zoned for this purpose and official policy discourages business development on the site.
- A 10% audit of the land ownership reveals the undeveloped properties closest to the N2 are still publicly owned. This suggests an opportunity to revisit the use and development options for these erven.
- It is recommended that the estate be split into two with a light industrial / retail component closest to the N2 and a residential component on the balance away from the highway, see Figures 9.5.5, 9.5.6 and 9.5.10.
- This configuration is likely to be positive for both types of development in the long-term as follows:
  - business development will be able to take advantage of the opportunities of the site's excellent location in relation to the N2;
  - this will screen the residential component from the noise pollution hazards of the highway, thereby creating a more conducive residential environment.
- Access to the business portion should be taken along Jeriko and a short section of Lwandle Street.
- If the northern-most road loop functions as a one-way system it will be able to accommodate large industrial vehicles.
- There are only two existing dwellings at the western end of Lwandle street affected by this access arrangement.
- Most of the residential properties along Jeriko street are undeveloped and it is proposed they are developed as 2-4 storey mixed use housing, see Section 9.1 with vehicle access and parking off Jeriko street. This land use will be much less affected by passing commercial traffic than if it were residential frontages.

Portion of township abutting N2 to be rezoned for mixed use/light industrial/retail

Well located portion of SASSA site to be investigated for development potential. Access can be taken through one of the adjacent properties



Due to the relatively narrow road reserves and to minimise nuisance to the residential portion the business/industry portion should function as a one way system off Lwandle, Jeriko and Ngcakani roads

Main entrance to business estate along Jeriko road to minimise nuisance on residential portion

Figure 9.5.9 Msobomvu Estate: Urban Design Concept

9.6 N2 BRIDGE

Figure 9.6.1 **Nelson Mandela Boulevard Bridge: View from N2 West**

Figure 9.6.2 **Nelson Mandela Boulevard Bridge: View from Thembalethu**

9.6.1 N2 Bridge Analysis

- Thembalethu's only external road access is the 3 lane road-over-road bridge connecting it to the N2 national route and Albert road which links to York street and George CBD.
- The current bridge is a bland standard fly over with heavily caged pedestrian sidewalks to prevent objects being dropped on the high way.
- The width of the highway road reserve at this point and the austere nature of the bridge design do little to enhance Thembalethu as an attractive place to live and visit, see Figure 9.6.1.
- Thembalethu's gateway experience has the potential to be so much more, particularly given the dramatic views of the Outeniqua mountains when exiting Thembalethu along Nelson Mandela Boulevard, see figure 9.6.2.
- There are plans to widen this N2 bridge, see figures 9.6.3 to 9.6.7.

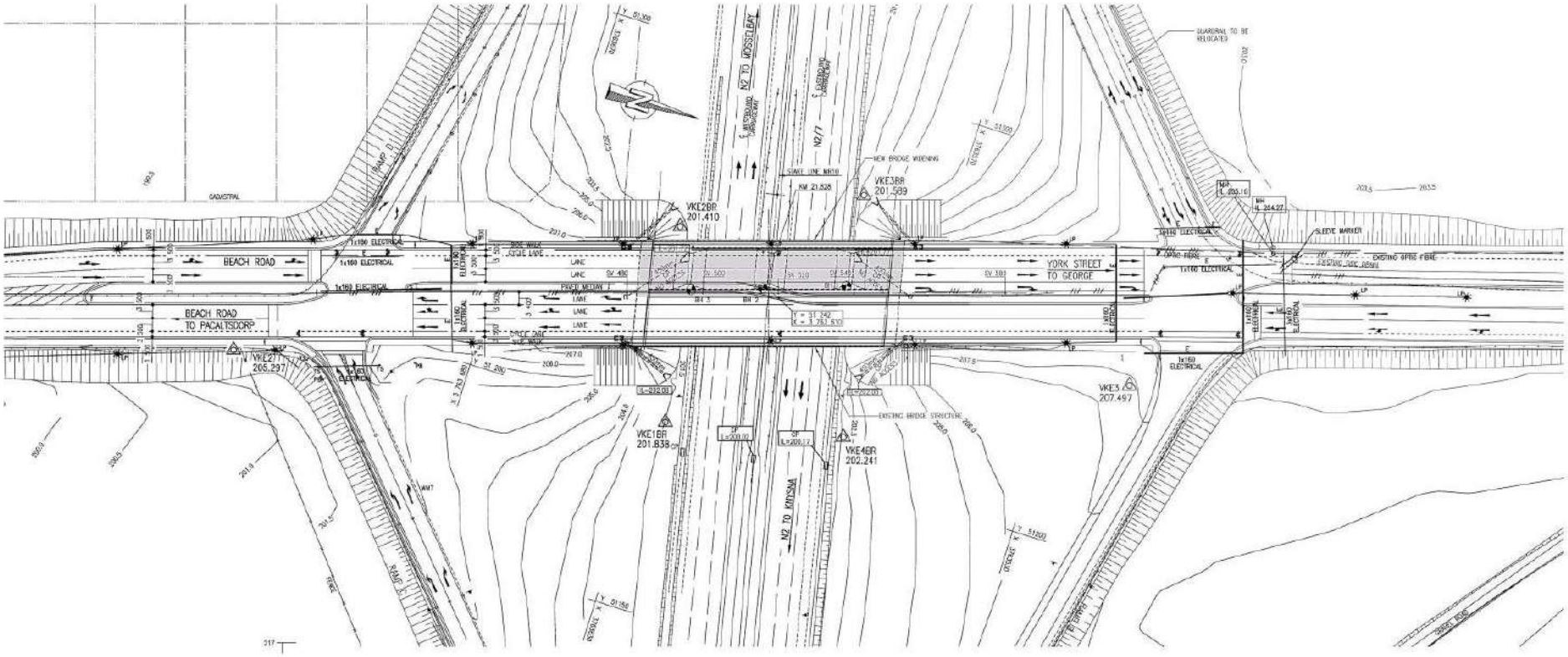


Figure 9.6.3 Pacaltsdorp N2 bridge widening – model proposed for Nelson Mandela Boulevard bridge over N2.

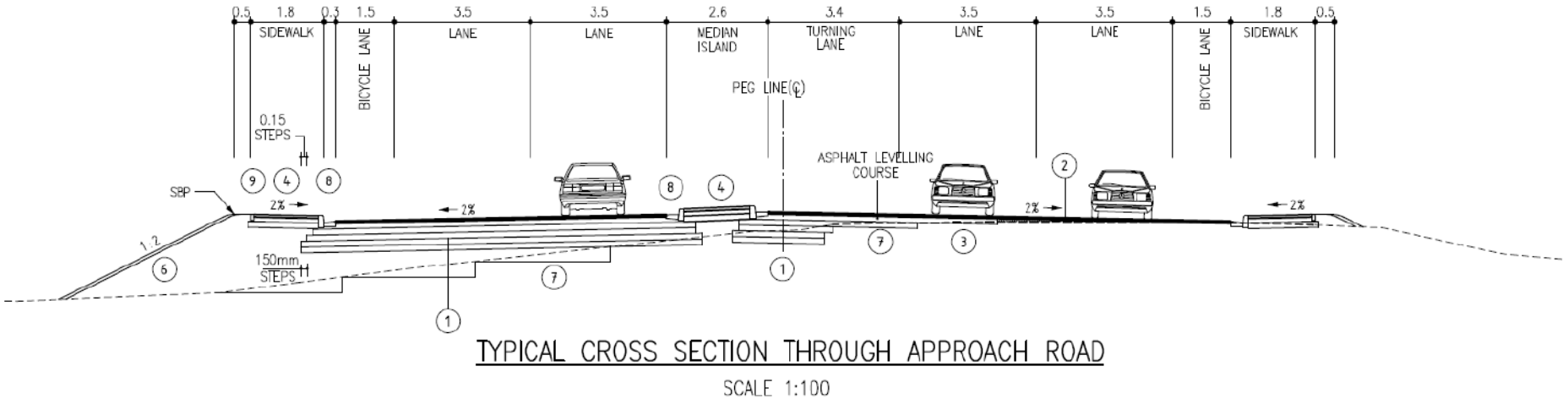


Figure 9.6.4 **N2 bridge approach road cross-section**

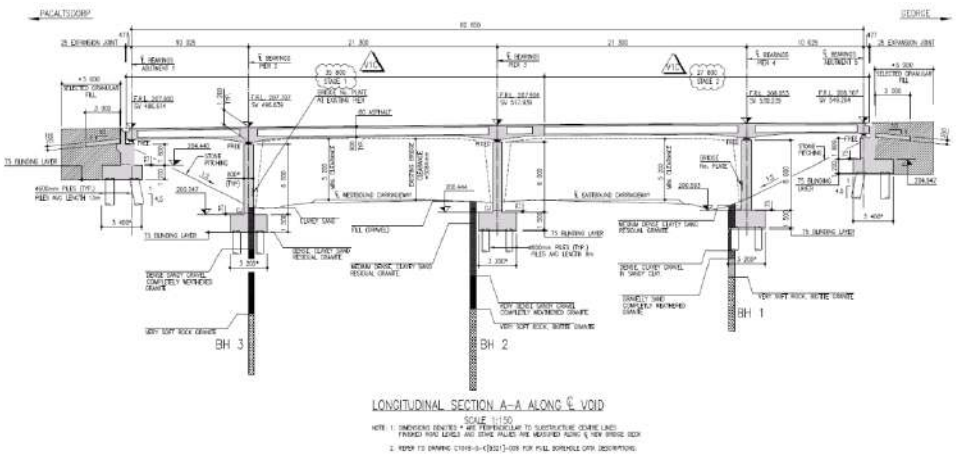


Figure 9.6.5 **Bridge long section**

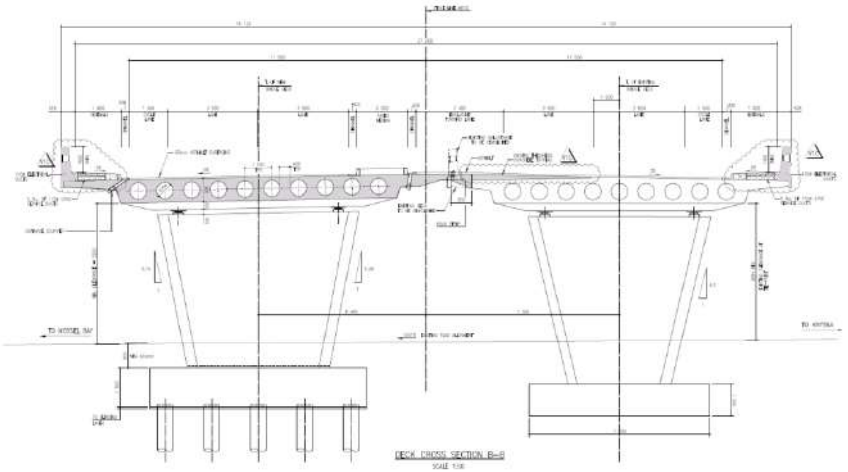


Figure 9.6.6 **Bridge cross-section showing deck extension**

Figure 9.6.7 N2 Bridge Proposed: Aerial Photograph (Source: George Municipality, 2013)

9.6.2 Proposal: A Striking Gateway for Thembalethu

- Due to safety, site lines and access ramp geometrics there is little development that can occur close to a major gateway such as a free way interchange. Developments immediately abutting or even spanning the freeway are at intersections that serve very few users not an entire community in on a through road location;

- The only exception to this may possibly be the land behind the SASSA Centre, see Figures 9.5.3 and 9.5.9.

- Therefore, the only way that Thembalethu's gateway experience can be enhanced is through innovative design of the bridge structure itself and landscaping within the constraints of site lines and clear spaces around the intersection ramps;

- Figures 9.6.8 – 9.6.10 show examples of bridge design that have a dramatic gateway effect, The pedestrian bridge over the N2 at Plettenberg Bay, see Figure 9.6.10, has become a well known land mark;

- It is proposed that the bridge design for NMB should incorporate signature elements that make the bridge distinctive from other bridges along the N2, see figure 9.6.11;

- These signature elements can preferably be incorporated in the structure as shown in Figures 9.6.8 – 9.6.10 or, if costs preclude such elements being structural, they can be decorative clip-on elements such as patterned balustrading;
- Gateway signage may also be clipped onto the bridge, see figure 9.6.11;

- Where conditions permit, i.e. away from the bridge decks, the approaches should be designed so that trees can be planted on the sidewalks so as to enhance the comfort of pedestrians and improve environmental quality, see Figure 9.6.12.

Figure 9.6.8 **Isando bridge (httpkemptonexpress.sites.caxton.co.za)**

Figure 9.6.9 **Nelson Mandela bridge (httpwww.sa-venues.com)**

Figure 9.6.10 **Plettenberg Bay bridge (httpsanral.ensight-cdn.com)**

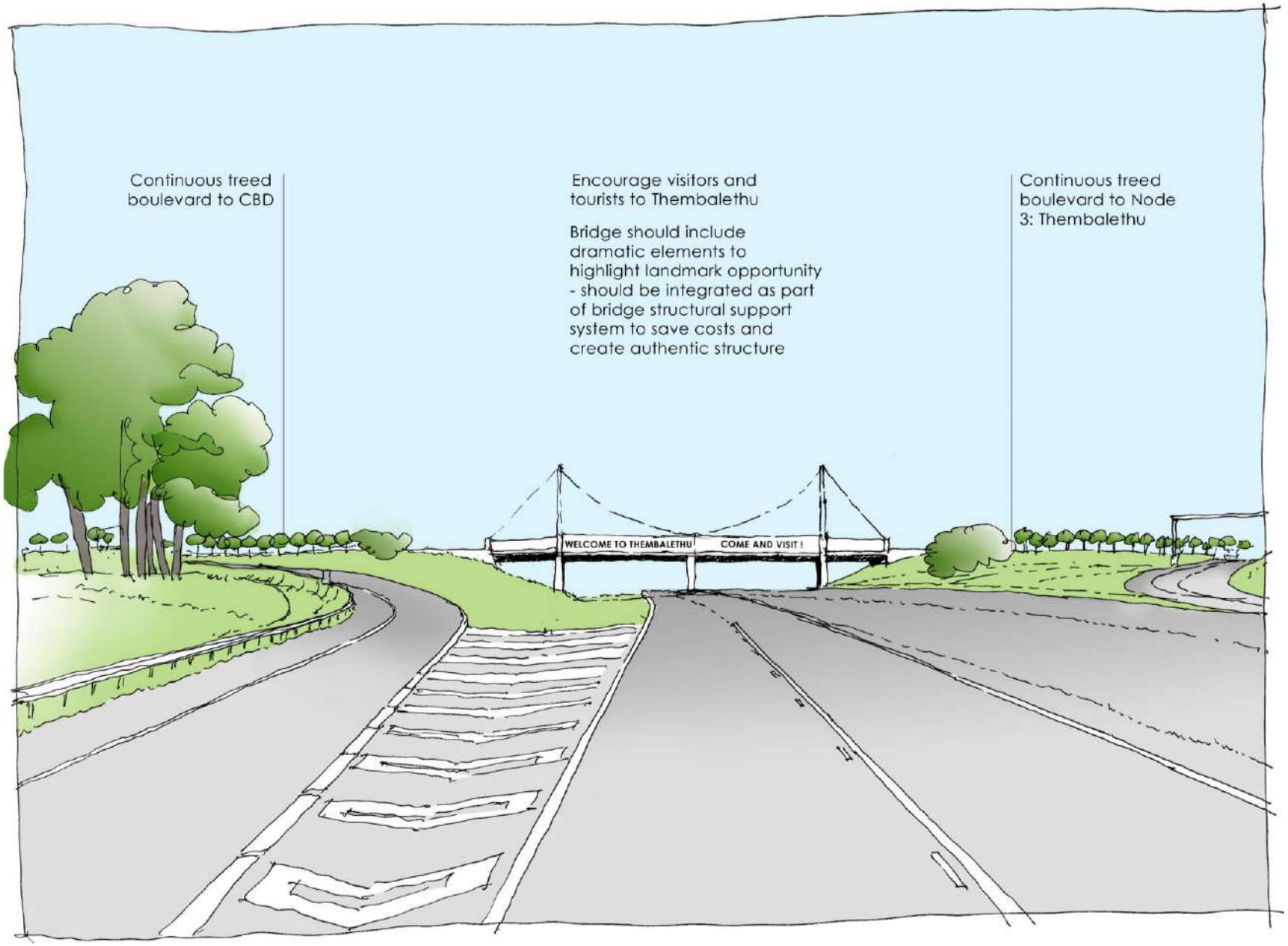


Figure 9.6.11 Urban Design Concept: Landmark long N2

Figure 9.6.12 Urban Design Concept: Dramatic exit with views of Outeniqua Mountains from Thembalethu linking to George CBD

10. CONCLUSION AND RECOMMENDATIONS

10.1 CONCLUSION

- The last two sections of this report contain a business and employment creation and urban quality driven set of urban design proposals to transform Thembalethu from a township into an exciting, vibrant and enabling urban environment with convenient and affordable access to transport, jobs, recreation, urban agriculture and shopping ;
- It should not only function as a dwelling environment for its residents but should also be capable of attracting visitors and tourists thereby growing the market thresholds to which its business people and job seekers can have access;
- The proposals have attempted to create as many economic opportunities and as much urban quality as possible within the constraints of current land use and transport policies;
- Thus, the innovative PT and NMT transport oriented cross-sections of the Go George mobility study have been adapted still further to achieve the following:
    - facilitate the informal and SMME businesses that are trying to gain a foothold along NMB and other major routes, through the use of frontage/setback roads where the road reserve width is wide enough;
    - as part of the zoning conditions, to provide 3m building set backs to extend pedestrian sidewalk widths to accommodate pavement cafes, street trading and comfortable pedestrian facilities when residential properties abutting the major routes are rezoned to mixed use and;
- This two pronged strategy, to promote economic development and improve urban quality, includes proposals to review the approved townships for the Ntaka Street Precinct and Msobomvu estate, both fronting the N2,
- Access and visual exposure onto a major national highway near a growing city is a major property development opportunity highly sought after throughout South Africa.
- Such land should always be put to its highest and best use unless there are extremely compelling reasons why it should not.

10.2 RECOMMENDATIONS

1. Draw up detailed urban design frameworks (UDFs) for each node to assist the land use managers with approving applications for properties abutting the main routes to achieve mixed-use and high densities;
2. Include street set back lines to require property owners to extend sidewalks provide covered stoeps and colonnades;
3. Serve notices on property owners along these routes advising them that applications for higher-order uses will be positively considered by council;
4. Request transport authorities to investigate the feasibility of frontage/service roads and parallel parking along Nelson Mandela Boulevard to permit direct access to properties abutting the road reserve.
5. Conduct an intensive tree planting and landscaping exercise along the whole length of Nelson Mandela Boulevard beginning with the three nodes. Coordinate this exercise with the transport planning exercise, see 4 above.
6. Proclaim Restructuring Zones to facilitate social housing programs along Nelson Mandela Boulevard between Tabata and Ngcakani streets either for its entire length or for a significant radius around nodes 1,2 and 3.
7. Investigate viability of revising the recently approved township layout in Ntaka Street precinct to accommodate business and light industrial activities fronting the N2 in terms of option 2, see section 9.4 above without losing any dwelling units. Possibly a first phase of this project can commence with those residential units whose position is unchanged while the investigation into the viability of amending the rest of the layout is completed.
8. Review the Msobomvu estate township with regards to the viability of changing the use of the northern part of the township to light industrial business and commercial activities. This will take advantage of the visual exposure to passing traffic on the N2 and shield the residential portion of the township from the noise and pollution of the highway. This will be facilitated if most of the land in this part of the township is still in public ownership.
9. Investigate enhancing the proposed N2 bridge design to create an attractive gateway to Thembalethu.

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