

# Voortrekker Road Corridor Integration Zone: Strategy and Investment Plan

Status Quo Analysis Report

**STATUS: DRAFT - INTERNAL CIRCULATION ONLY**

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# 1 Introduction

## 1.1 Objectives

The underlying objective of the baseline study is to act as an informant to the identification of specific areas where targeted interventions and investment could achieve significant impact. The baseline study focuses on the collation of existing information, and the interpretation thereof in terms of the abovementioned objective.

The aim of this phase is to contextualise the Integration Zone in terms of a number of research areas. These research areas have been divided into key themes listed below:

- Area Function, Role and Land Use
- Current, budgeted and planned initiatives
- Demographic Trends
- Socio-economic Trends
- Residential
- Economic Status
- Transport Role and Function
- Services Infrastructure
- Social Facilities Infrastructure
- Land use
- Urban Management

## 1.2 Area Function, Role and Land Use

### 1.2.1 Historical context

The Voortrekker Road Corridor as it functions today is the reflection of urban development processes occurring over many decades. The history of the Voortrekker Road has an undeniable influence of the present and future urban form of the corridor. It is possible to identify several broad development stages of the corridor (see below).

**Table 1: The historical development of the VRC**

Timeframe	Key dynamics	Area development
1680 – 1840	<ul style="list-style-type: none"><li>• Voortrekker road developed from a wagon path from Salt River area to Bellville.</li><li>• "Hardekraaltjie" ("hard surface") - critical juncture in the path the wagons outspanned into an "uitspan"</li><li>• At this point the regional paths converged, creating a logical point for trade, services and the growth of a village.</li><li>• Bellville evolved as a junction of the three most important routes between Cape Town and the Port with the agricultural hinterland: the Paarl route, the Stellenbosch/ Strand route and the Malmesbury route which is today the N7.</li></ul>	<ul style="list-style-type: none"><li>• Limited.</li></ul>

	The importance of Bellville as city-within-region and a connecting hub is as important today as it was 300 years ago.	
1840 – 1945	<ul style="list-style-type: none"> <li>By 1849 a hard road replaced the wagon path. By 1860 the railway line was constructed.</li> <li><b>Residential:</b> The introduction of railways in the mid-19th century spurred the consolidation of high street residential occupation - growing commuter population along the corridor.</li> <li><b>Economic:</b> retail and residential development emerged along transport route - the high street set the context for ribbon development that was supported by Voortrekker Road.</li> </ul>	<ul style="list-style-type: none"> <li>Town centres of Maitland, Goodwood, Parow and Bellville were formed.</li> <li><b>Residential:</b> by 1945, Boston, Bellville, Bellville South, Parow, Parow Valley, Goodwood, Ruyterwacht, Kensington and Maitland established.</li> <li><b>Economic:</b> Industrial development not yet well established, though emerging in Maitland area. Strip retail along transport route.</li> </ul>
1945 – 1980	<ul style="list-style-type: none"> <li>Emergence of significant focus on vehicular mobility network (N1 constructed in the 1950s) and construction of Monte Vista rail line.</li> <li><b>Residential:</b> Town centres were characterised by town halls and civic precincts. As the role of the automobile increased, further extensive suburban development in the corridor.</li> <li><b>Economic:</b> Emerging role of corridor as the focus for jobs - rapid industrialisation was spurred by locational opportunity and relatively low cost of land between Voortrekker Road and the railway and was ideal for factories.</li> </ul>	<ul style="list-style-type: none"> <li><b>Residential:</b> further subdivision and consolidation of development in established areas. Expansion of middle income residential areas toward the N1 (e.g. Parow North, De Tijger) and middle – middle/lower income south (e.g. Thornton, Elsie's River, Leonsdale).</li> <li><b>Economic:</b> Significant growth and expansion in industrial areas across the corridor.</li> <li>University of Western Cape established (1959) and gained university status (1970).</li> </ul>
1980 – 2014	<ul style="list-style-type: none"> <li>Consolidation of auto-oriented development.</li> <li>Mobility network strengthened including connecting through the corridor to growing suburbs and commercial development north of the N1.</li> <li><b>Residential:</b> Further suburban residential development in available remaining greenfield locations.</li> <li><b>Economic:</b> consolidation of existing industrial areas. Explosion of decentralised commercial nodes (office and retail mall development) at interchanges along the N1. Changing retail environment and relative decline / changing market associated with strip retail development along Voortrekker Road.</li> </ul>	<ul style="list-style-type: none"> <li><b>Residential:</b> Much of residential environment developed, development characterised by infill development on remaining greenfield sites.</li> <li><b>Economic:</b> Major commercial nodes emerge just to the north of the corridor on the N1 (Tygervalley, Century City) and south of the N1 (N1 City). Development of Grandwest Casino,</li> <li>Growth of university campus and development of Pentech.</li> </ul>

Sources: Adapted, GTP, 2013



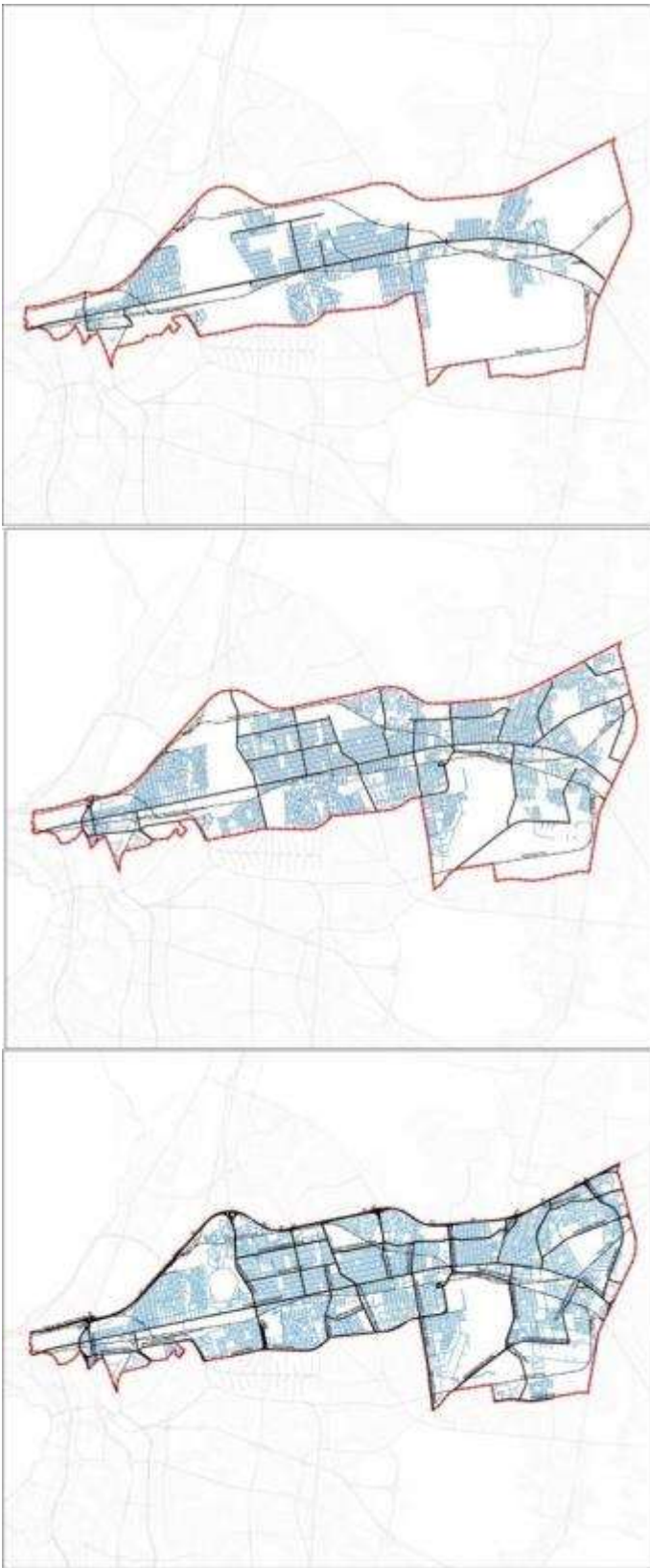


Figure 2: Voortrekker Road Corridor – Street network expansion (1945, 1988, 2012)

## 1.2.2 Current role and area differentiation.

### Urban structure analysis

Urban development patterns have been fundamentally influenced by key structuring transport infrastructure investments over time. The key elements of the Voortrekker Road Corridor are reflected below, along with role played in structuring the urban environment.

**Table 2: Urban structuring elements**

Element	Structuring role
N1 Freeway	The N1 Freeway which connects Cape Town to Paarl and beyond to the Gauteng has become the primary location axis for motor car access based "big box" malls and gated office developments including N1 City, Century City, Tyger Valley, and extending eastwards to Brackenfell including Cape Gate. (GTP 2013). Since 1990 The bulk of commercial development has occurred along this route. The
Voortrekker Road Activity Route	Along with the parallel rail line has supported more intense development including historical strip retail development, diverse residential areas and higher order city functions including civic precincts (Maitland, Goodwood, Parow, Bellville). The route has multiple access points and supports a diversity of scales of land use responding to different levels of exposure along its length.
Rail systems	The Northern line runs parallel to Voortrekker Road and serves residential and employment areas. Station access presents different levels of support for surrounding land use development. The Monte Vista line presents access points to the rail system in the north of the corridor.
East-west arterial road connections	The Voortrekker Road and parallel rail line is supported by a broad system of east-west arterial road connections, the most significant of which are
North south arterial road connections	Voortrekker Road is intersected by a series of key north-south routes of various classes and functions. Apart from the freeway connections of the M5 (Blackriver Parkway), N7 (Vanguard Drive), and R300 several arterials provide a range of levels of access including Vasco Boulevard, Halt Road, Hugo Road, Giel Basson/35th Avenue, McIntyre Road, De La Rey Road, Mike Pienaar Drive, and Durban/Modderdam Road.  Not all of these routes provide a sufficient level of continuity to facilitate better regional access to the corridor. Importantly several north-south links have access onto the N1 including Vasco Blvd, McIntyre Road, Mike Pienaar Drive and Durban Road. High order arterial connections to the south include 35 <sup>th</sup> Avenue and Robert Sobukwe Drive. These connections into the corridor reinforce nodal points along it.

Further to the above, the open space system relating to the Elsiekraal system is the most obvious form giving aspect of the adapted nature environment. This system follows the Elsiekraal River down from the Tygerberg Hills down into the Elsie River and follows the alignment of the Voortrekker Road to eventually link into the Liesbeek River. The Black / Liesbeek river confluence at the Western end of the VRC marks an important transition to the inner city of Cape Town Central. (GTP, 2013).

### Corridor Role and Area differentiation

The contemporary Corridor performs a range of roles within the wider metropolitan context, an in particular as:

- a key employment area including:
  - industrial related jobs dominantly located in a belt of industrial areas to the south of Voortrekker Road
  - retail related activities concentrating along Voortrekker Road, in mall type developments and as part of certain historic industrial areas
  - Commercial / office concentrated in Bellville CBD environs and to a lesser extent in Parow and Maitland and around N1 City.
- a diverse, well-located residential environment accommodating a range of income groups;

- an area of concentration for higher order (metropolitan and sub-metropolitan) institutional uses (particularly health and tertiary education).

It is possibly the most accessible sub-metropolitan area in the City, served by three rail lines, a freeway system, and well connected via a grid of arterial routes. It presents a range of locational advantages for a wide diversity of uses. At an intra-corridor level these uses can be differentiated on an area basis as per below.

**Table 3: Areas and broad typologies**

<b>Area typology</b>	<b>Area</b>		
	<b>West: Salt River circle – Vanguard Drive</b>	<b>Central: Vanguard Drive – Mike Pienaar Boulevard</b>	<b>East: Mike Pienaar Boulevard- Stikland</b>
<b>CBD</b>		Parow	Bellville CBD
<b>Office park</b>	Mutual Park		
<b>Retail fringe</b>			Oakdale Bellville CBD fringe
<b>Strip retail / mixed use</b>	Voortrekker Rd Maitland	Voortrekker Rd (Parow – Goodwood) Vasco Blvd Mcintyre Rd Halt Road-North	Voortrekker Rd (Bellville – Parow)
<b>Retail mall</b>		N1 City, Grand West Casino, Parow Centre, China Town	Access Park, Middestad Mall
<b>Industrial heartland</b>	Ndabeni, Viking	WP Park	Sacks Circle Parow Industrial, Parow East
<b>Mixed industrial / retail</b>	Maitland east and west	Elsies River Industrial	Stikland Industrial Triangle Farm
<b>Large scale utility / transport use / state use</b>	PRASA / Transnet Land / Salt River coach works / container yard / Shunting yard Wingfield, Acacia Park, Defence Force.		Bellville Waste Cluster Belcon-Transnet Marshalling Yard
<b>Tertiary campus / institutional</b>	Conradie Hosp	Parow Medi Precinct	Tygerberg hospital Stikland hospital
<b>Residential</b>	Maitland residential Kensington Factreton Thornton Pinelands	Parow-North Goodwood Triangle Goodwood North Goodwood South Ruyterwacht Ravensmead Parow-Central Leonsdale	Boston Belrail Bellville South Belhar Ext. 13 Labiance Glenhaven Oakdale La Rochelle Oakglen Groenvallei
<b>Residential / mixed business</b>	Maitland Garden Village Albert Rd (mix-use)	Parow Valley Alexandra Estate	Stikland residential
<b>Open space / recreation cemetery</b>	Maitland Cemetery Mupine	Parow Golf Course	Elsieskraal Buffer Hardekraaltjie Bellville cemetery UWC Nature Reserve Land adj to R300

### 1.2.3 Future planning

#### *Metropolitan context*

The Cape Town Spatial Development Framework places a high level of significance on the Voortrekker Road Corridor. It and notes that this area, concentrated along a broad band from Cape Town CBD to Bellville CBD, is *the urban core corridor* due to its current and potential roles noting that it (CTSDF, page 34):

- is the most accessible and mature corridor in the city.
- is located in the physical centre of the municipal area, and therefore has the potential to balance the spatial distribution of economic activity 'integrating' the southern and northern parts of the city.
- attracts a broad range of investment and development opportunities along its length, and accommodates a significant percentage of the city's employment opportunities – with the potential to grow and intensify this role.
- Effectively contains the two metropolitan CBDs, holding it on the Western and eastern extremes. Whilst these two CBDs, the Cape Town CBD and Bellville CBD exhibit different attraction levels, they play pivotal roles in the existing economic structure of the city, and the formation of the urban core area between them.

#### *District and local area context*

The Table Bay and Tygerberg District Plans impact on the Corridor. Collectively the plans promote the envisaged role of the Corridor (and the idea of the corridor as the "urban core" reflected in the CTSDF) as a higher density mixed use environment. This is foreseen through:

- Large scale and high intensity development on a range of underutilised, publically owned and strategically located sites including Wingfield, Maitland abattoir, Tygerberg Hospital Conradie Hospital and Stikland Hospital;
- Significant scale redevelopment of existing built stock, particularly close to Voortrekker Road and focussed in Maitland, Parow and Bellville. Potential is noted in terms of intensification in the Bellville CBD in relation to the possible future realignment of Durban Road.
- Smaller scale infill development and incremental densification opportunities.

A more detailed summary of planning guidance is reflected in the table below.

The district plans also emphasise:

- key transport interventions such as priority station upgrades (Parow, Tygerberg, Bellville – Bellville line, Unibell and Pentech on Sarepta line), NMT initiatives, road infrastructure development (e.g. Frans Conradie ext, La Belle ext, Durban Road realignment).
- the importance utilities upgrades in support of the proposed land use development including bulk electricity and sanitation (Bellville WWTW) priority upgrades.



Several local areas are identified for prioritised local area planning and include:

- Maitland local area (short term)
- Upper Halt Road / Elsie's River Industria (short term)
- Factreton/Windemere Framework (medium term)

Beyond these, much of the planning expertise is proposed to support facilitation of key interventions in relation to identified strategic sites.

**Table 4: Table Bay and Tygerberg District Plan - Subdistrict development guidelines**

<b>TABLE BAY DISTRICT</b>				
<b>GENERAL DESCRIPTION</b>	<b>LAND USE</b>	<b>MOVEMENT</b>	<b>OPEN SPACE</b>	<b>CIVIC PRECINCTS</b>
<b>GREATER EASTERN AREA</b>				
1. Kensington Windemere Acacia Park	<ul style="list-style-type: none"> <li>Mixed use intensification along Voortrekker Road</li> <li>Encourage residential densification at higher densities.</li> <li>Consider pockets of vacant public land in Windemere for med. density infill.</li> <li>Mixed use and density around Maitland Station</li> <li>Development around Century City station.</li> </ul>	<ul style="list-style-type: none"> <li>Voortrekker Road – public transport route</li> <li>6th Ave activity street</li> <li>Frans Conrade extension.</li> </ul>	<ul style="list-style-type: none"> <li>13th Ave open space upgrade &amp; Dapper / Nyman Rd link.</li> </ul>	<ul style="list-style-type: none"> <li>Maitland – enhance identify as civic precinct</li> </ul>
a) Wingfield	<ul style="list-style-type: none"> <li><b>Wingfeld:</b> high density residential (social and gap focus) with intense mixed uses on Voortrekker edge.</li> </ul>	<ul style="list-style-type: none"> <li>Upgrade interchange at N7 and Frans Conradie</li> <li>Confirm alignment of Aerodrome Rd</li> <li>Investigation of extension of Milton Rd.</li> <li>Clarity on rail ext proposal.</li> </ul>	<ul style="list-style-type: none"> <li>Green corridor on eastern side and integration of green links with surrounding environment.</li> </ul>	<ul style="list-style-type: none"> <li>Clustering of facilities along Voortrekker Rd.</li> </ul>
b) Ndabeni / Maitland	<ul style="list-style-type: none"> <li><b>Old Maitland Abattoir site:</b> Development of a mixed use precinct on the. (light industrial / commercial / higher density residential – alternately municipal hub). Feasibility study required to inform spatial framework.</li> </ul>		<ul style="list-style-type: none"> <li>Linkages via Berkley Road to TRUP.</li> </ul>	
c) Conradie Hospital site	<ul style="list-style-type: none"> <li><b>Conradie Hospital site:</b> medium to high density mixed use neighbourhood – housing and employment opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>Improved road connections – across canal to Viking way from Voortrekker.</li> <li>Berkley road extension.</li> </ul>	<ul style="list-style-type: none"> <li>Link to Elsieskraal revitalisation</li> </ul>	<ul style="list-style-type: none"> <li>Social facilities to benefit precinct and surrounding areas.</li> </ul>
<b>TYGERBERG DISTRICT</b>				
1) Goodwood, Parow, Bellville Central and East, Stikland	<ul style="list-style-type: none"> <li>High density residential / mixed:</li> <li>Parow area: between Voortrekker Rd and 2nd Avenue / Williams Street and</li> <li>Goodwood area: between Voortrekker Rd and Dingle Street &amp; along Vasco Blv and Hugo Street</li> <li>Bellville Area, the Belgravia Area (portion between Voortrekker Rd, Old Paarl Rd and Link Street) as well as properties situated on Vermeer Street and De La Haye Street in the De La Haye Area (portion between Old Paarl Rd and Vermeer Street, outskirts of the De La Haye area in close proximity to the railway line and the Stikland Hospital grounds).</li> </ul>			

	<ul style="list-style-type: none"> <li>Re-development of properties along Vasco Blvd., Hugo Road, McIntyre Road, De La Hey Road and</li> <li>Old Paarl Road for mixed use purposes – require access and parking guidance.</li> </ul>			
a) Stikland Hospital	<ul style="list-style-type: none"> <li>Stikland hospital site: 140ha, mixed use development in the form of commercial / office /</li> <li>residential development, potential to retain / rationalise existing use.</li> </ul>			
b) New development: infill areas	<ul style="list-style-type: none"> <li>Tygerdal / Monte Vista Station</li> <li>Bellville school sites</li> </ul>			
2) Voortrekker Road / Van Riebeeck Road / Durban Road Activity Corridors	<ul style="list-style-type: none"> <li>High density residential mixed:</li> <li>Highest bulk (3.0) along first block of development on Voortrekker</li> <li>General residential (bulk +/-1.5) on second block north of Voortrekker.</li> <li>High density / mixed / lower impact commercial between highest densities and rail line.</li> <li>High density / mixed use around rail stations. (bulk 3.0).</li> </ul>	<ul style="list-style-type: none"> <li>Durban Road realignment – key potential for intensification between realignment and Carl Cronje Dr.</li> </ul>	<ul style="list-style-type: none"> <li>Jack Muller Park – upgrading to District Park as part of link between Tygervalley precinct and Bellville CBD.</li> <li>Haardekraaltjie,</li> <li>Linear open space – Elsiekraal system – passive / active recreation focus.</li> </ul>	<ul style="list-style-type: none"> <li>Bellville CBD: upgrading of existing pedestrian environment. Reinforce public facilities precinct (Haardekraaltjie).</li> <li>Parow CBD: prioritise Voortrekker Road streetscape, and proposals of Parow public transport interchange planning.</li> </ul>
a) La Belle Triangle	<ul style="list-style-type: none"> <li>Mixed use development –service industrial / commercial potential.</li> </ul>	<ul style="list-style-type: none"> <li>New access required.</li> </ul>		
3) Greater Elsie River, Ruyterwacht, Parow Valle, Tygerberg Hospital, Uitsig	<ul style="list-style-type: none"> <li>Infill housing development, balanced with facility requirements.</li> <li>Commercial development, focussing on higher order routes such as 35<sup>th</sup> Ave, Upper Halt Rd)</li> <li>Local business activity on local routes.</li> <li>Localised infill development.</li> </ul>	<ul style="list-style-type: none"> <li>Improved localised NMT access.</li> </ul>	<ul style="list-style-type: none"> <li>Linear open space – Elsiekraal system – passive / active recreation focus.</li> <li>Riverton as district park.</li> </ul>	<ul style="list-style-type: none"> <li>Urban upgrade prioritised for Upper Halt Road and Elsie River Interchange, Salberau, Leonsdale and Cravenby. .</li> <li>Salberau: upgrading of public facilities.</li> <li>Leonsdale, Uitsig, Adriaanse.</li> </ul>
4) Bellville South, Transnet Marshalling Yard, Parow Industria, UWC / CPUT, Sacks Circule, Bellville Landfill	<ul style="list-style-type: none"> <li>Marshalling yard role medium to longer term for freight / logistics. Portions of marshalling yard e.g. along Robert Sobukwe potential for development.</li> <li>Some localised densification opportunities.</li> <li>Retain existing industrial areas with non-industrial activity limited.</li> </ul>			
5) Greater Belhar	<ul style="list-style-type: none"> <li>Infill residential opportunities – larger scale potential at Unibell Station, with local commercial development.</li> </ul>	<ul style="list-style-type: none"> <li>Possible public transport interchange / station forecourt upgrade.</li> </ul>		

## 2 Current budgeted and planned initiatives

The following section provides a brief summary of current, budgeted and planned City of Cape Town capital projects within the VRC over the 2014-2017 budget period. Limitations to this analysis include the lack of information on Government and Parastatal capital expenditure within the corridor (e.g. PGWC, Transnet and PRASA). The information provided below has been sourced from the City of Cape Town: Finance Department August 2014 adjusted budgeted.

<http://cityteams.capetown.gov.za/sites/fincorpbudrep/SitePages/Home.aspx?RootFolder=%2Fsites%2Ffincorpbudrep%2FShared%20Documents%2FFinYear%5F2015%2FApproved%5FBudgets%2FAdjustmentsBudget%5FAug&FolderCTID=0x0120007B55D620AB831E4CB74F49E54872261C&View={53783E0D-BD89-45B2-A1D3-5A9BCF301989}>

### 2.1 Summary of key capital projects within the VRC

The summary provides a description of budgeted projects within the following directorates on a ward allocation basis (refer to Figure 3 below):

Community Services key capital projects

- Capital funding has been dedicated to the upgrading of the Elsieskraal River open space corridor between Jack Muller Park and Elizabeth Park (Ward 2).
- The Maitland Cemetery upgrade includes the upgrading of road infrastructure as well as the installation of a crematorium (Ward 56)

City Health investment key capital projects

- Kasselsvlei Road Clinic in Bellville South requires upgrading and extension (Ward 9)
- Spencer Road Clinic requires extensions for ARV and TB facilities (Ward 55)

Human Settlements key capital projects

- Upgrading of the existing Council flats in Bellville South (Ward 9)
- Implementation of the Belhar/Pentech (Ward 12)

Safety & Security key capital projects

- Roll out of Metro Police Services CCTV camera system in Bellville and installation of radio trunking for strategic support services (Ward 10)
- Establishment of the Maitland Traffic Services Impound Facility (Ward 53)

Transport for Cape Town key capital projects

- Bellville Public Transport Interchange upgrade (Ward 10)
- Parow Public Transport Interchange upgrade (Ward 26)
- Tienie Meyer Bypass maintenance and upgrade - Rehabilitation of road surface (Ward 10)
- Symphony Way maintenance and upgrade. Upgrade of Sarepta railway underpass bridge. (wards 10 and 12)
- Halt Road maintenance and upgrade - Rehabilitation and tarring of sidewalks (Ward 26).
- Viking Way Upgrade - Rehabilitation of road surface (Ward 30)

#### Utilities key capital projects

- Electricity
  - Koeberg Road Switching Station (Phase 2 upgrade) (Ward 55)
  - Platteklouf/N1 Main Substation Reinforcement (Ward 1)
  - Oakdale Main Substation (Phase 2 upgrade) (Ward 3)
- Waste Water
  - Bellville WWTW – Upgrading of clarifiers, screw pumps and replacement blowers (Ward 9)
  - Northern Areas Sewer Line replacement through Thornton (Ward 53)
- Solid Waste
  - Bellville Waste Transfer Station -
  - Bellville Landfill – expansion of operations to the required level of service.
  - Beaconvale drop-off facility – Establishment of a new drop-off facility to replace the Tygerdal drop-off facility, which is to be closed.

## 2.2 Current public investment patterns

From the analysis of the City financial budget, it appears that the majority of public investment within the VRC has been in the upgrading/expansion in capacity of utilities services such as Electricity, Waste Water and Solid Waste within the next three financial years. This additional capacity provided is likely to serve as a primary driver of redevelopment within the VRC. This, coupled with public space and public transport interchange improvements and safety & security upgrades, is envisaged to form a solid platform for regeneration within the corridor.

Further analysis indicates that substantial public investment is to take place in Bellville Central Area (BCA). The nature and extent of investment reflects the desire to reinforce the BCA from a public transport, services infrastructure and public amenity level to that which is in keeping with its status as the second metropolitan node in Cape Town.

However, the lack of investment in upgrading/maintenance of public spaces and streetscapes along the rest of the VRC is notable. Of particular significance is the lack of investment in public transport interchange precincts along the corridor (eg. Maitland, Elsiesriver, and Tygerberg Stations), which have not been maintained to the level befitting their status as public gateways into the corridor.

Furthermore, the lack of investment in lower income areas (Factreton, Leonsdale, Ravensmead and Bellville South), where the bulk of public housing stock is located, is highlighted as a concern.

Figure 4 to Figure 9 indicates the total spend by the 6 major City directorates by ward, while Figure 10 indicates total capital expenditure over the 2014-2017 period.

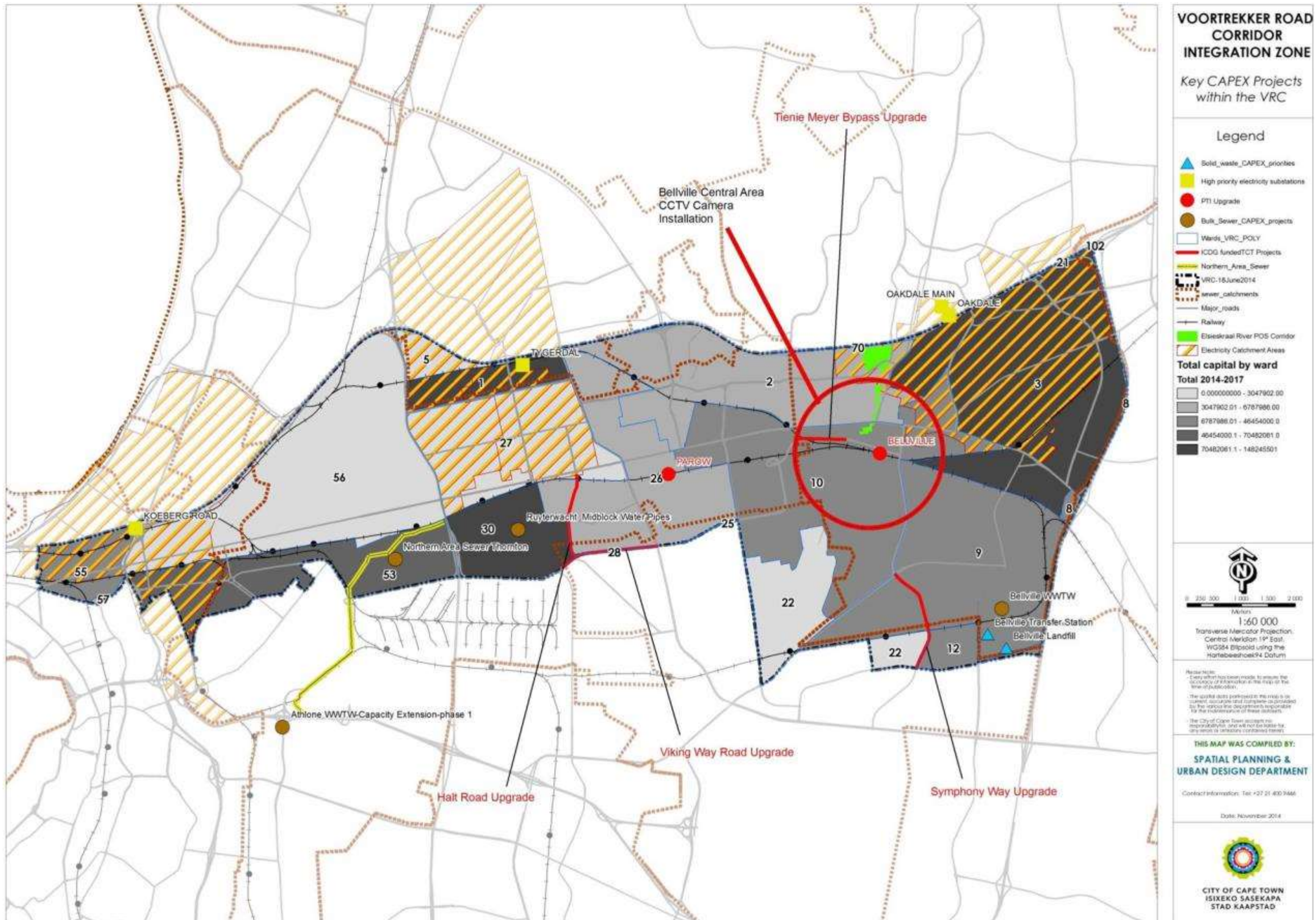


Figure 3: Key Capital expenditure projects within the VRC (2014-2017)

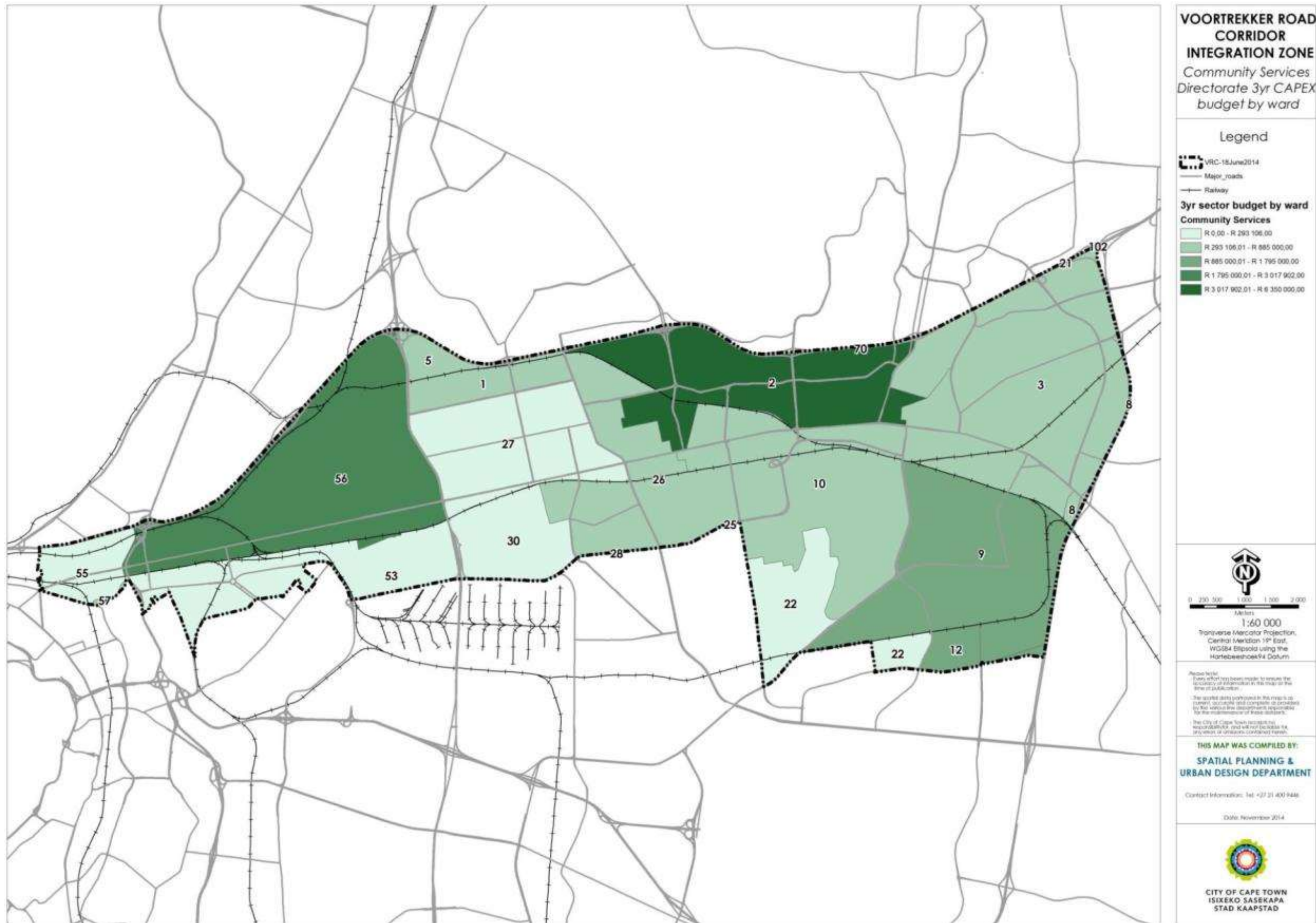


Figure 4: Community Services Directorate 3yr Capital budget by ward



Figure 5: City Health Directorate 3yr Capital budget by ward



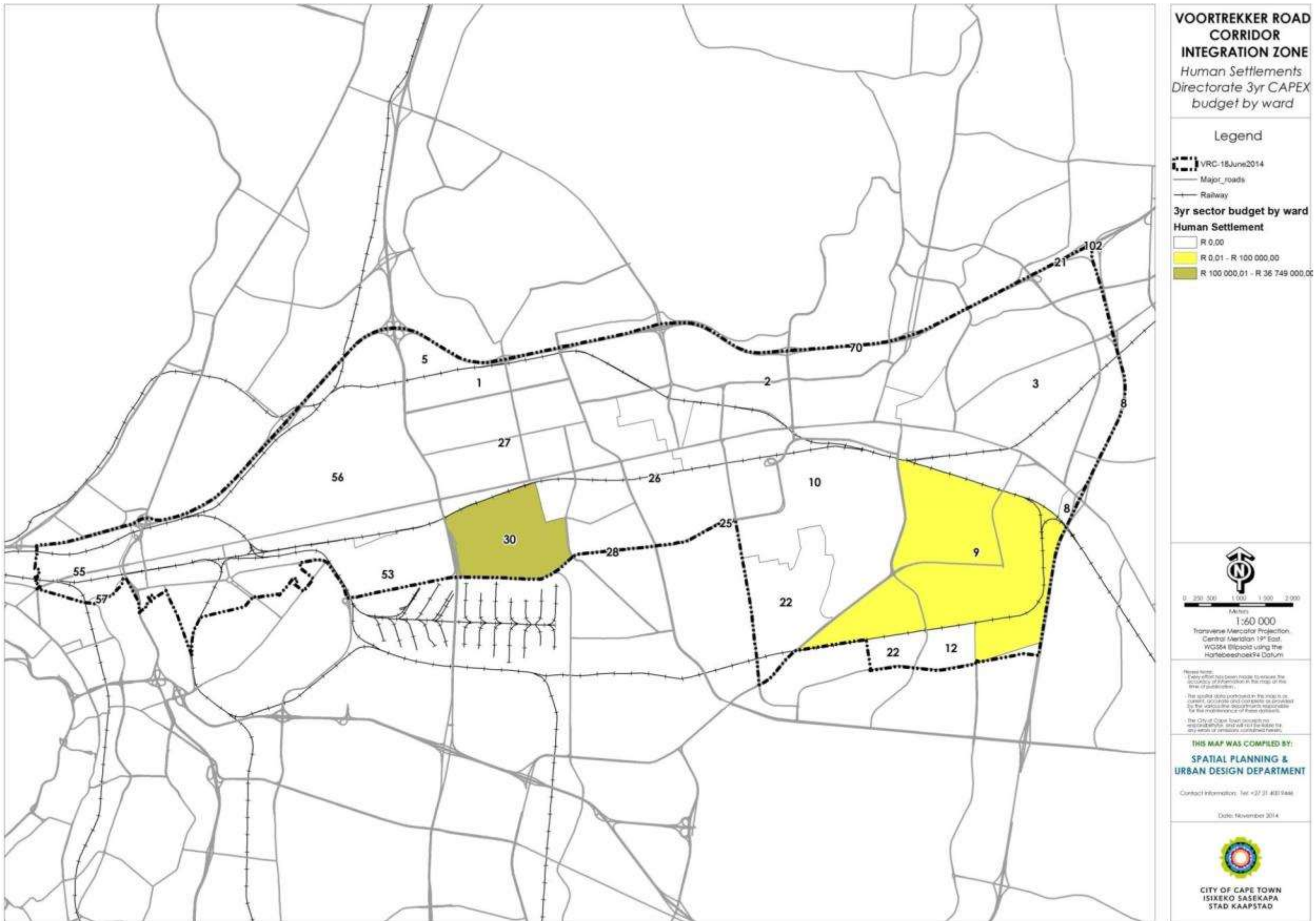


Figure 6: Human Settlement Directorate 3yr Capital budget by ward

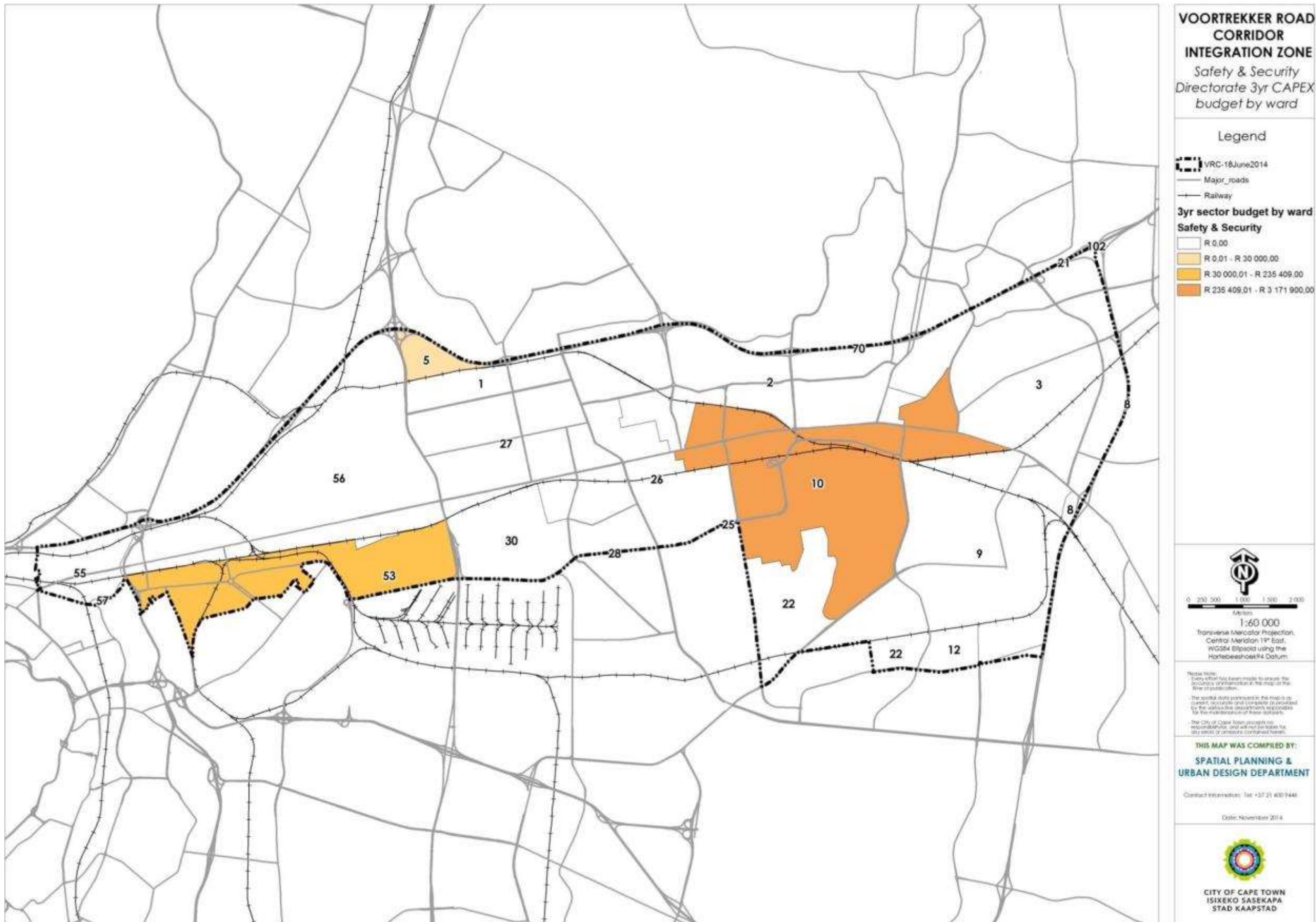


Figure 7: Safety and Security Directorate 3yr Capital budget by ward

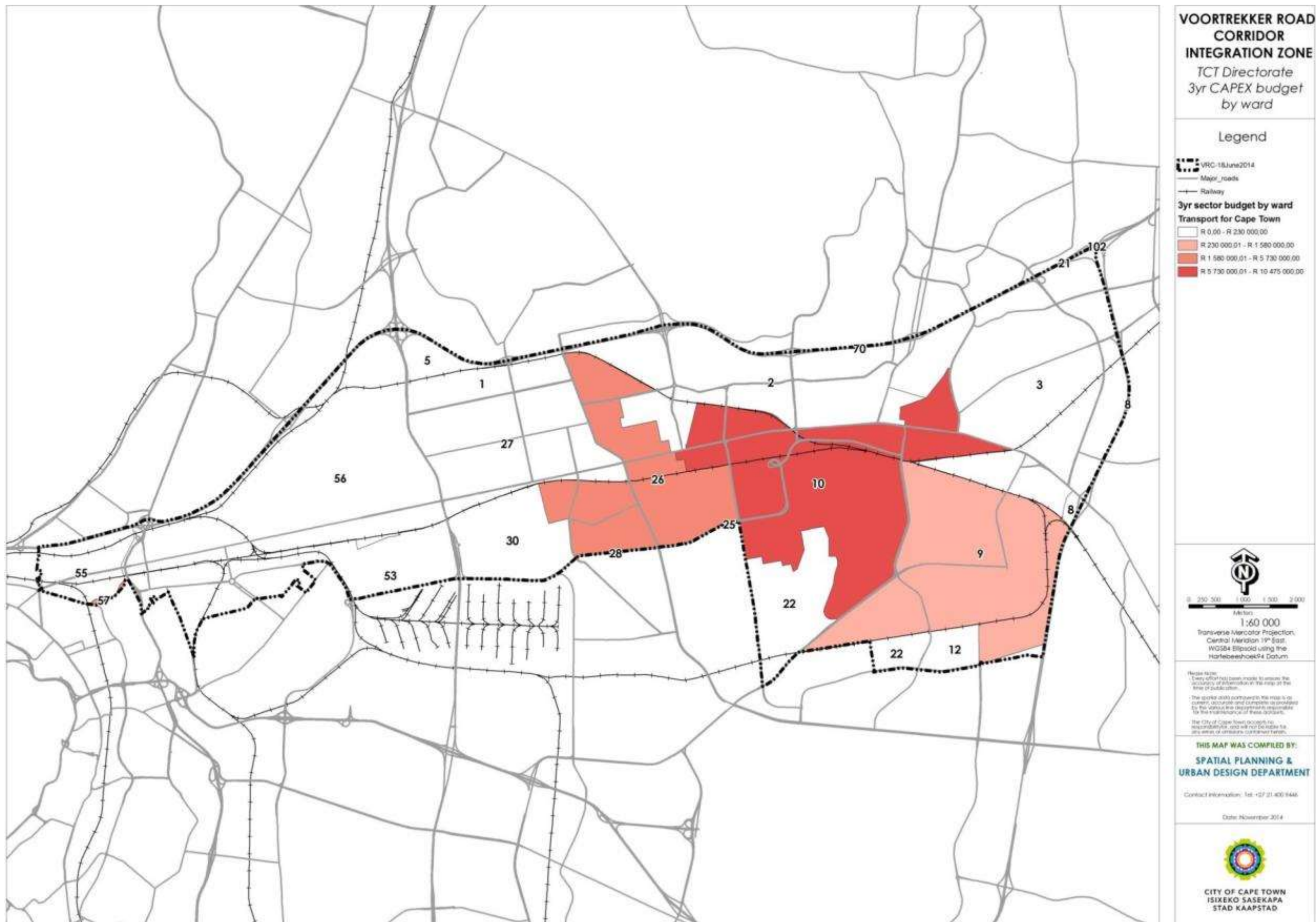


Figure 8: Transport for Cape Town Directorate 3yr Capital budget by ward



Figure 9: Utilities Services Directorate (consolidated) 3yr Capital budget by ward

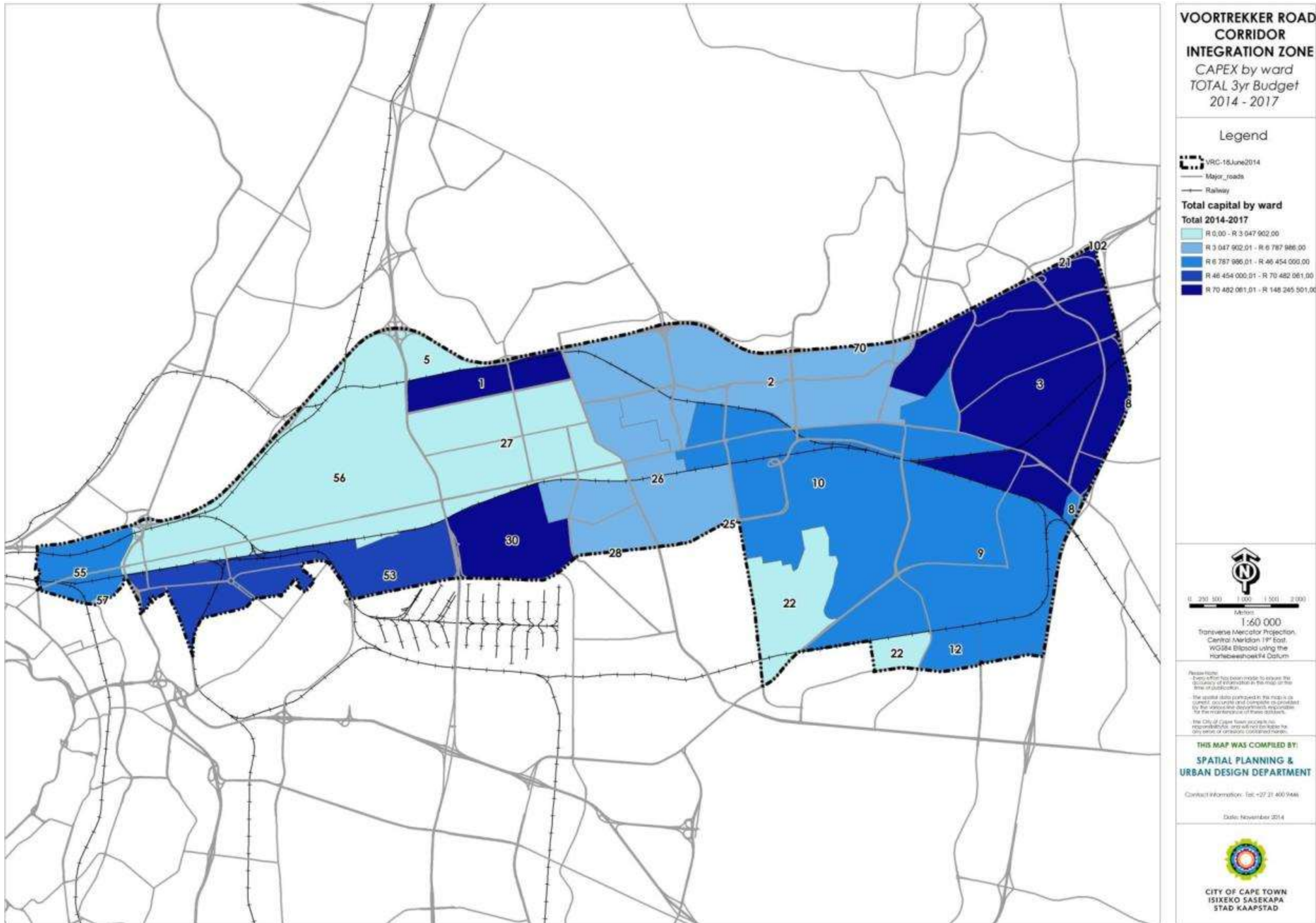


Figure 10: Total City of Cape Town capital project expenditure by ward

## 3. Demographic Trends

### 3.1 Methodology

#### 3.1.1 Information gathering

The demographic information was mainly extracted from the Census 2001 and Census 2011 data published by StatsSA. Where available and usable in its existing format, this data (in spreadsheet, database or shapefile form) was downloaded from the City's database.

In addition, meetings were held with several custodians of data within the City. The City's Strategic Development Information (SDI) team assisted with the extraction / collation of data in relevant formats through their SuperCROSS software package.

Population projections for 2022 and 2032 were carried out by the City's Spatial Planning and Urban Design (SPUD) department, based on the 'pragmatic densification scenario' that was postulated as part of the department's work around Growth Options for the City. Details of the 'pragmatic densification scenario' approach and methodology are available on request.

#### 3.1.2 Representation of Information

Information is represented in the form most appropriate for illustration of specific trends, including:

- Tables
- Bar graphs
- Pie charts
- GIS maps (illustration of spatial variances)

#### 3.1.3 Reporting of Information

This report provides the following interpretations for each of the demographic informants:

- A high level comparison between the VRC Integration Zone and the entire Metro
- Identification of any trends / patterns / outliers within the VRC.

With the exception of population densities and projections, reporting is mainly focussed on 2011 census data, as comparison between the 2001 and 2011 data sets are complicated due to differences between the respective enumerator areas, and the study area boundary for the VRC not correlating entirely with the 2001 data area boundaries.

### 3.1.4 Information to Be Obtained

This section contains the information obtained for each demographic informant, interpreted as follows:

- A high level comparison between the VRC Integration Zone and the entire Metro
- Identification of any trends / patterns / outliers within the VRC.

Information was obtained for the following demographic informants:

Population	<ul style="list-style-type: none"> <li>• Population Group</li> <li>• Gender</li> <li>• Age</li> <li>• Population Projections</li> <li>• Population Density</li> <li>• Migration</li> </ul>
Households	<ul style="list-style-type: none"> <li>• Dwelling Types</li> <li>• Household Sizes</li> <li>• Household Densities</li> <li>• Tenure</li> </ul>
Education	<ul style="list-style-type: none"> <li>• Highest Levels of Education Obtained</li> </ul>
Employment:	<ul style="list-style-type: none"> <li>• Employment Status</li> <li>• Employment by Sector</li> <li>• Unemployment Rates</li> </ul>
Household Income:	<ul style="list-style-type: none"> <li>• Monthly Household Income</li> </ul>

### 3.1.5 List of Informants / Engagements

Targeted engagements were held with the following persons:

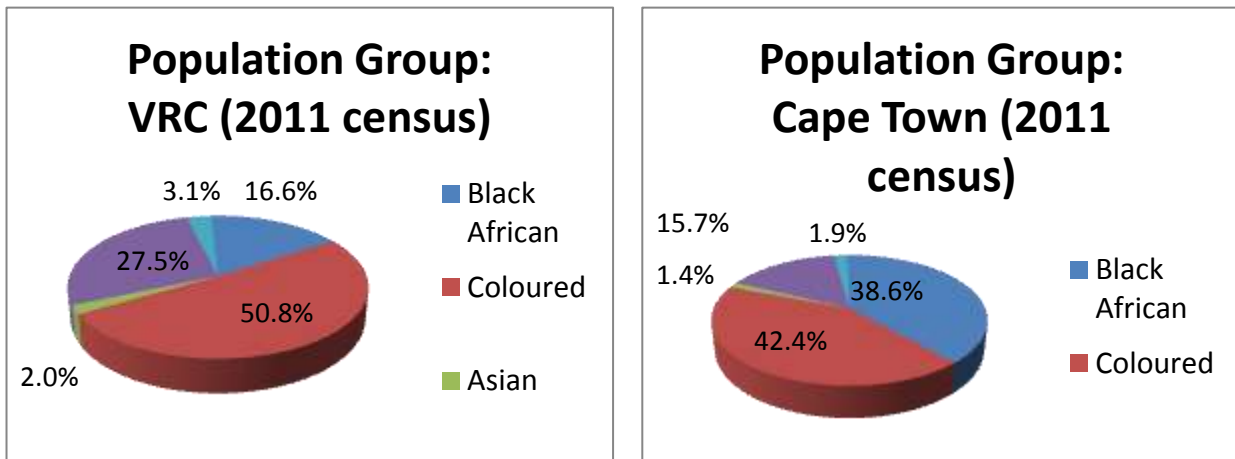
- Carol Wright: City of Cape Town Strategic Development Information
- Karen Small: City of Cape Town Strategic Development Information
- Jaco Petzer: City of Cape Town Spatial Planning and Urban Design: Metro branch

## 3.2 Population

### 3.2.1 Population Group

#### VRC vs Metro

The VRC Integration Zone predominantly contains members of the Coloured (50.8% vs 42.4% for the entire Metro) and White (27.5% vs 15.7% for the entire Metro) population groups. The VRC has a noticeably smaller Black African representation



(16.6%) than the rest of the Metro (38.6%).

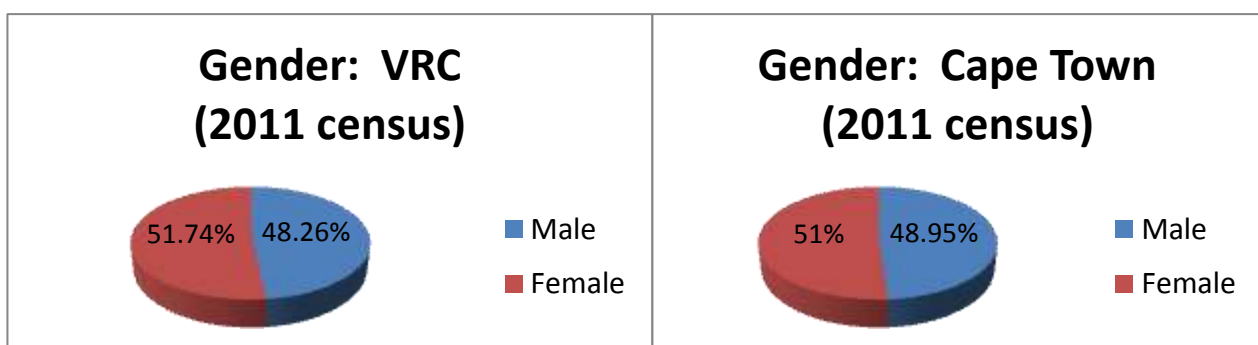
#### Trends and patterns

No specific analysis was made of intra-corridor variations in terms of population groups.

### 3.2.2 Gender

#### VRC vs Metro

There are no major variances between the City-wide and VRC gender profiles – both indicate that Females are just slightly more prevalent than Males.



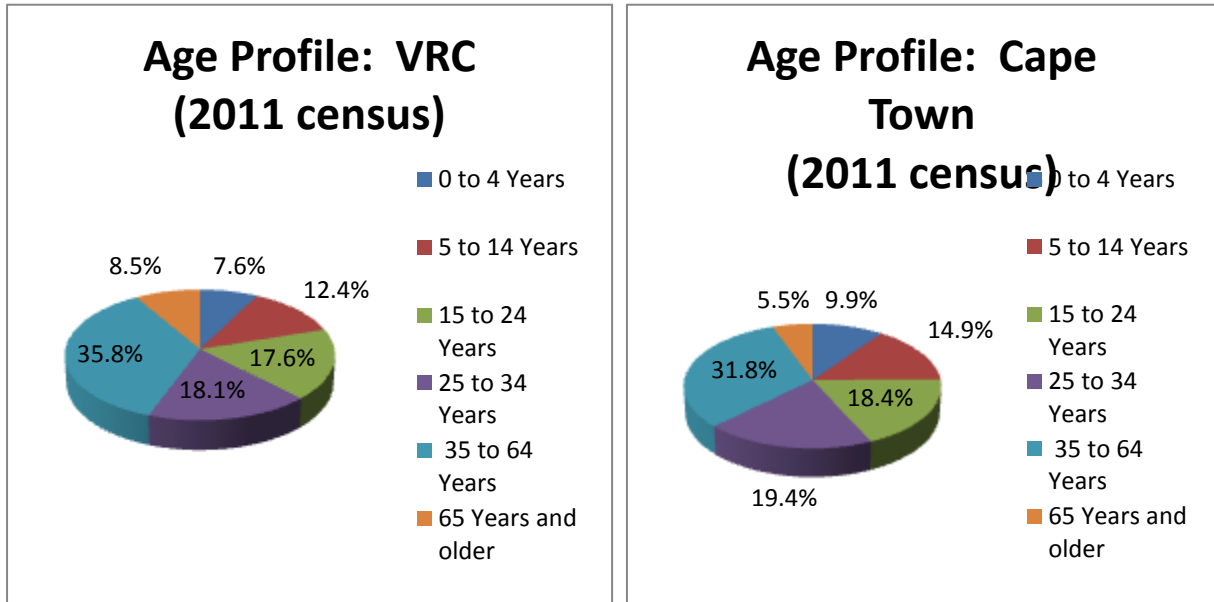
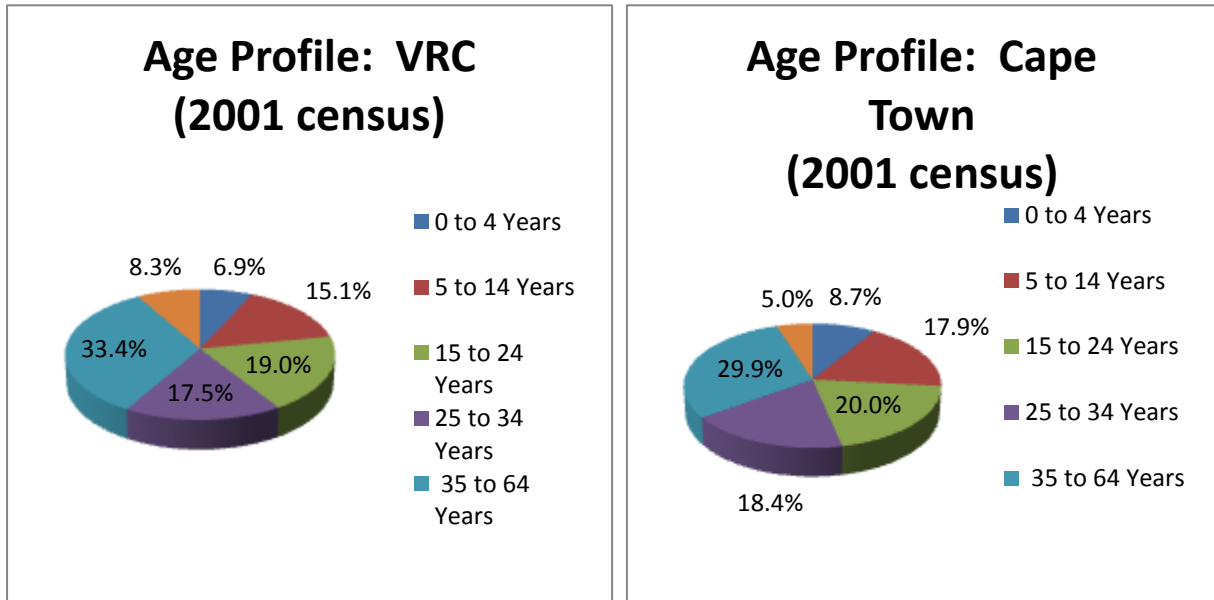
#### Intra-corridor Trends and patterns

No specific analysis was made of intra-corridor variations in terms of gender splits.



### 3.2.3 Age

The VRC population is generally older than that of the Metro, with the top two age groups (35-64 and 65+) constituting 44% of the VRC's population, while only constituting 38% of the Metro's population. Likewise, the Metro population in the bottom three age groups (0-4, 5-14 and 15-24 years) contributes 43% of the Metro's population, while that of the VRC contributes only 38%. Both the VRC and Metro populations appear to have aged somewhat between 2001 and 2011.



## **VRC vs Metro**

### **Intra-corridor Trends and patterns**

An analysis of intra-corridor variations in the mean age bracket values for each small area within the corridor was made. Variances between the median value for each small area (within the VRC) and the median Citywide value for each age bracket area were plotted to spatially illustrate excessive concentrations of specific age groups.

There are no real outliers, although some areas south of Voortrekker Road (e.g. Bellville South, Elsie's River), and Maitland appear to have a slightly larger percentage of persons under 4 years old than the City median.

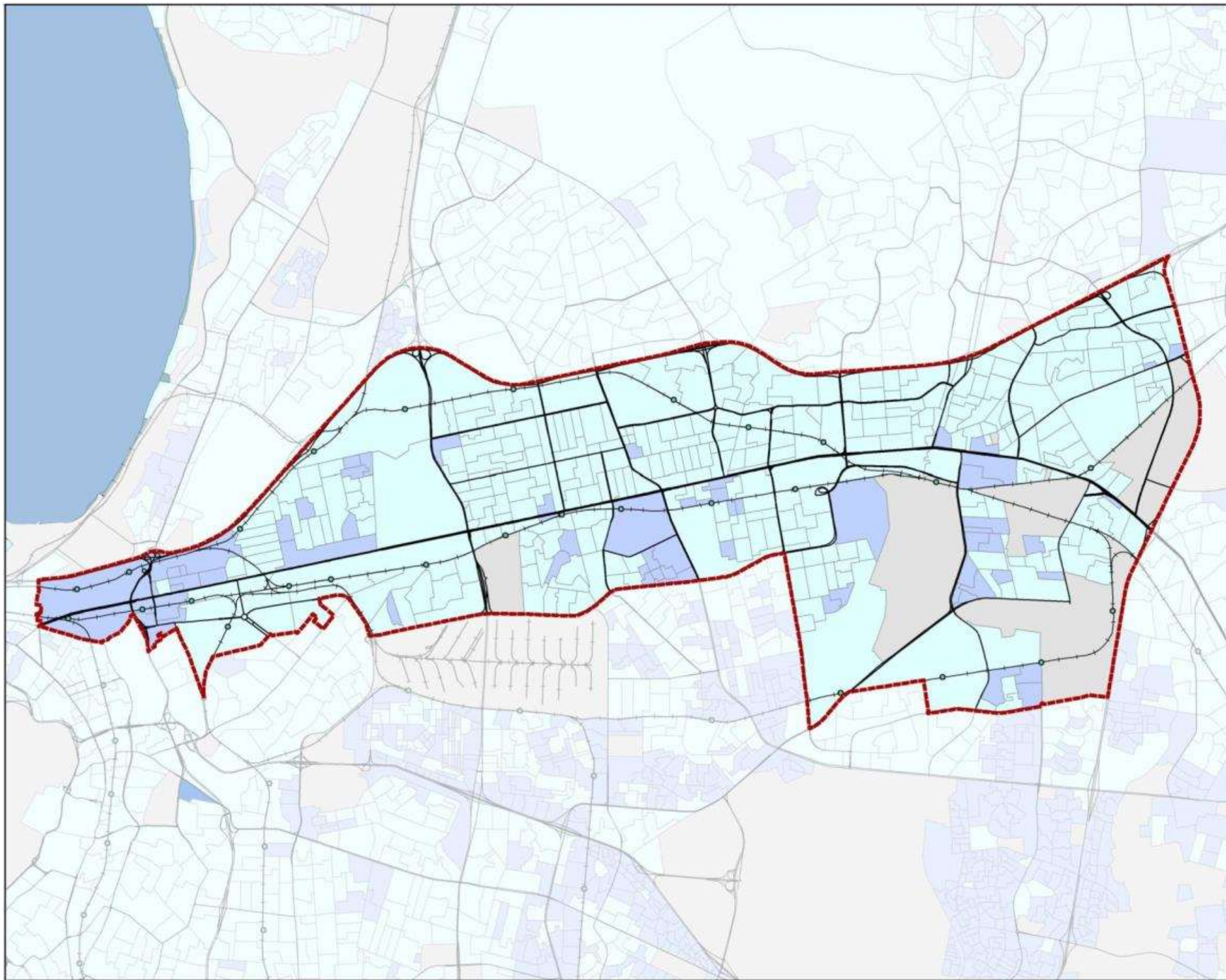
Similarly, the only outlier in the 5 - 14 age group is the Blanc Kelly small area in Bellville South which has a very low population size, thus providing a distorted interpretation of the data.

In the 15 - 24 age group, noticeable variations occur in the Ndabeni, Tygerberg Hospital, Peninsula Technicon and University of the Western Cape small areas. The Ndabeni variance could be ascribed to a concentration of young single (migrant?) workers, while the variance in the other instances could possibly be ascribed to the presence of students (and perhaps nursing staff in the case of Tygerberg Hospital) in the areas.

A number of small areas contain more than the City-wide median for this age group (25 – 34), e.g. Belhar, Parow East, De Bron and Maitland. This could possibly be ascribed to the prevalence of young families in these areas.

Quite a large number of small areas contain much larger proportions of people in this age group (35 – 64). As in the 25 – 34 age group, this could possibly be ascribed to the prevalence of families in these areas.

A number of small areas contain disproportionately large numbers of older (65+ years) people. There could potentially be a correlation between the location of old age homes and retirement villages, or grandparents that are living with their children in these suburbs.



### VRC IZ

Age: 4 and under  
2011

#### Legend

- % in age group above City median**
- < 50 persons
  - 0.0% to 9.90%
  - 9.901% to 19.90%
  - 19.901% to 47.37%

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data



0 200 300 1 000 1 500 2 000  
Metres

1:60 000

Sarawati-Mercator Projection,  
Central Meridian: 18° East,  
WGS84 Ellipsoid using the  
World Geodetic System Datum.

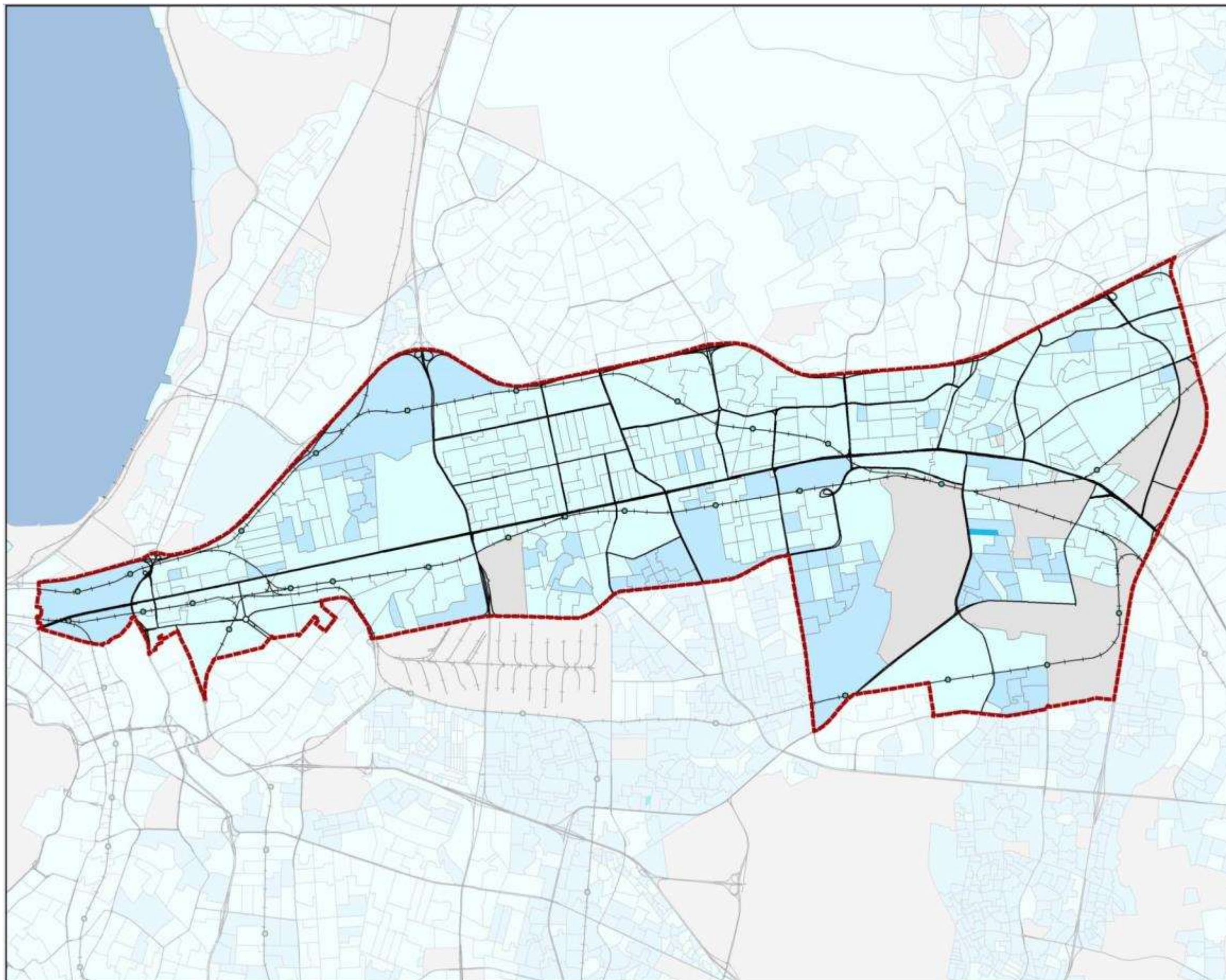
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URBAN DESIGN DEPARTMENT**

Contact Information: Tel: +27 21  
Fax: +27 21  
Date: March 2014



**CITY OF CAPE TOWN**  
**ISIXEKO SASEKAPA**  
**STAD KAAPSTAD**



**VRC IZ**  
Age: 5 - 14  
2011

- Legend**
- % in age group above City median**
- < 50 persons
  - 0.0% to 14.92%
  - 14.921% to 24.92%
  - 24.921% to 33.33%

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- + Railway

Source:  
SDI extracted from  
2011 census data

  
 0 200 300 1 000 1 500 2 000  
 Meter  
**1:60 000**  
Transverse Mercator Projection,  
Cape Mission 1983,  
WGS84 Ellipsoid using the  
South African Datum

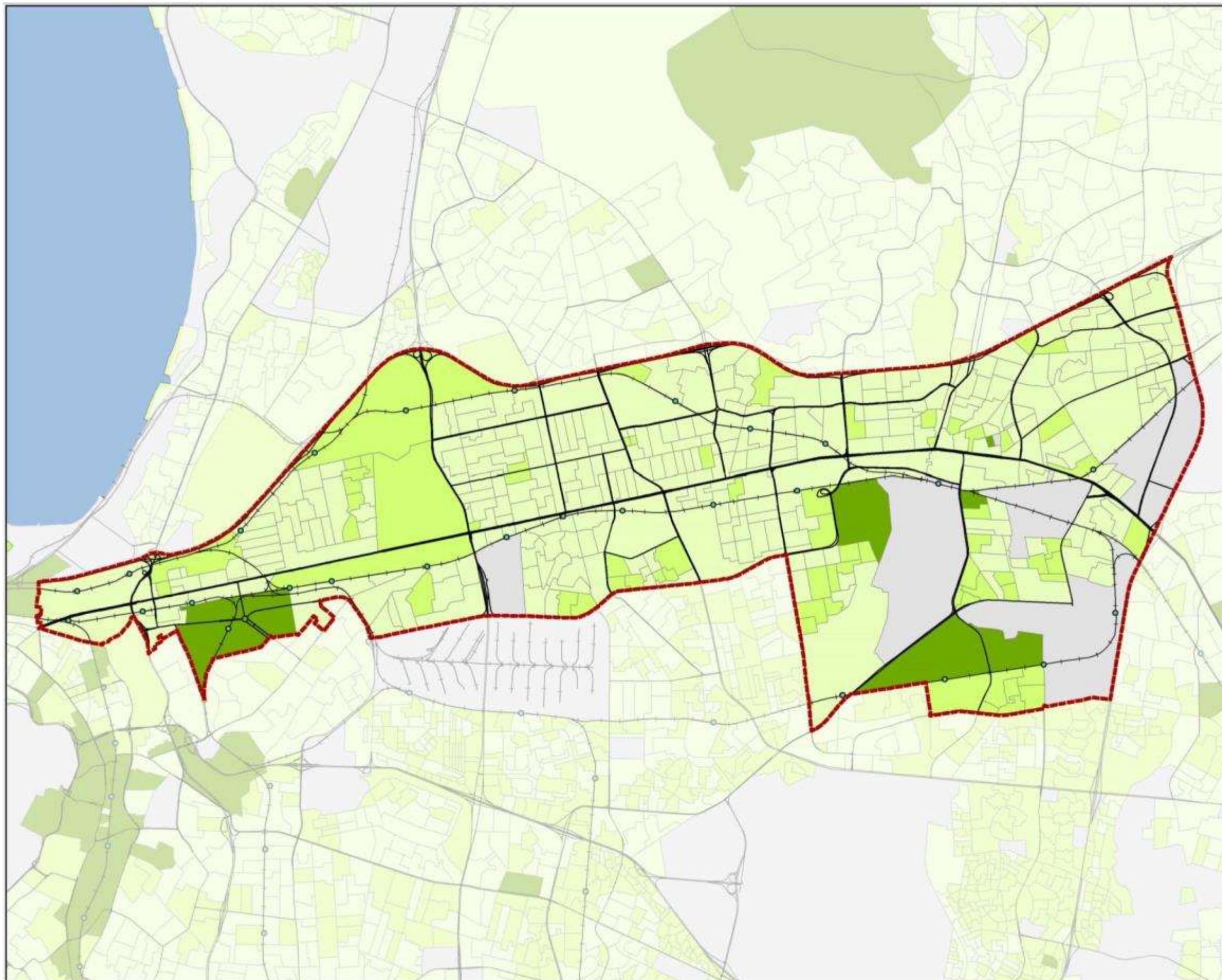
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**STAD KAAPSTAD**



**VRC IZ**  
Age: 15 - 24  
2011

- Legend**
- % in age group above City median**
- < 50 persons
  - 0.0% to 18.37%
  - 18.371% to 28.37%
  - 28.371% to 98.13%
- VRC Integration Zone
  - Census Small Areas
  - Roads
  - Rail Stations
  - Railway

Source:  
SDI extracted from  
2011 census data

  
  
**1:60 000**  
Northern Hemisphere Projection,  
Cape Point 19 12m,  
WGS84 Ellipsoid using the  
South African Datum

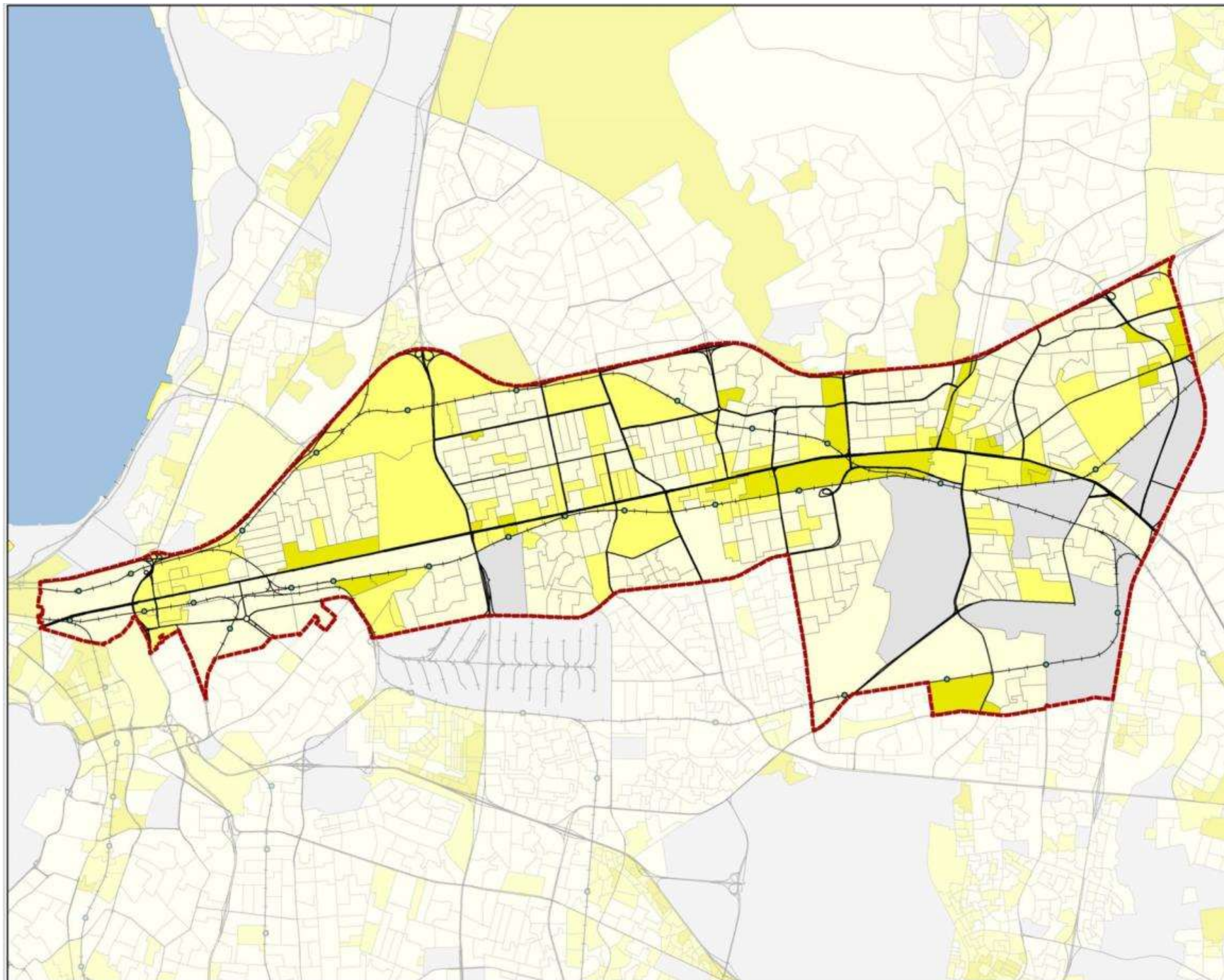
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Date: March 2014





## VRC IZ

Age: 25 - 34  
2011

### Legend

**% in age group above City median**

- < 50 persons
- 0.0% to 19.45%
- 19.451% to 29.45%
- 29.451% to 69.97%

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data



0 250 500 1 000 1 500 2 000  
Metres

1:60 000

Robinson Winkel Projection,  
Cape Meridian (P. Cap.  
WGS84 Ellipsoid) using the  
Hotelling-Hotelling Datum

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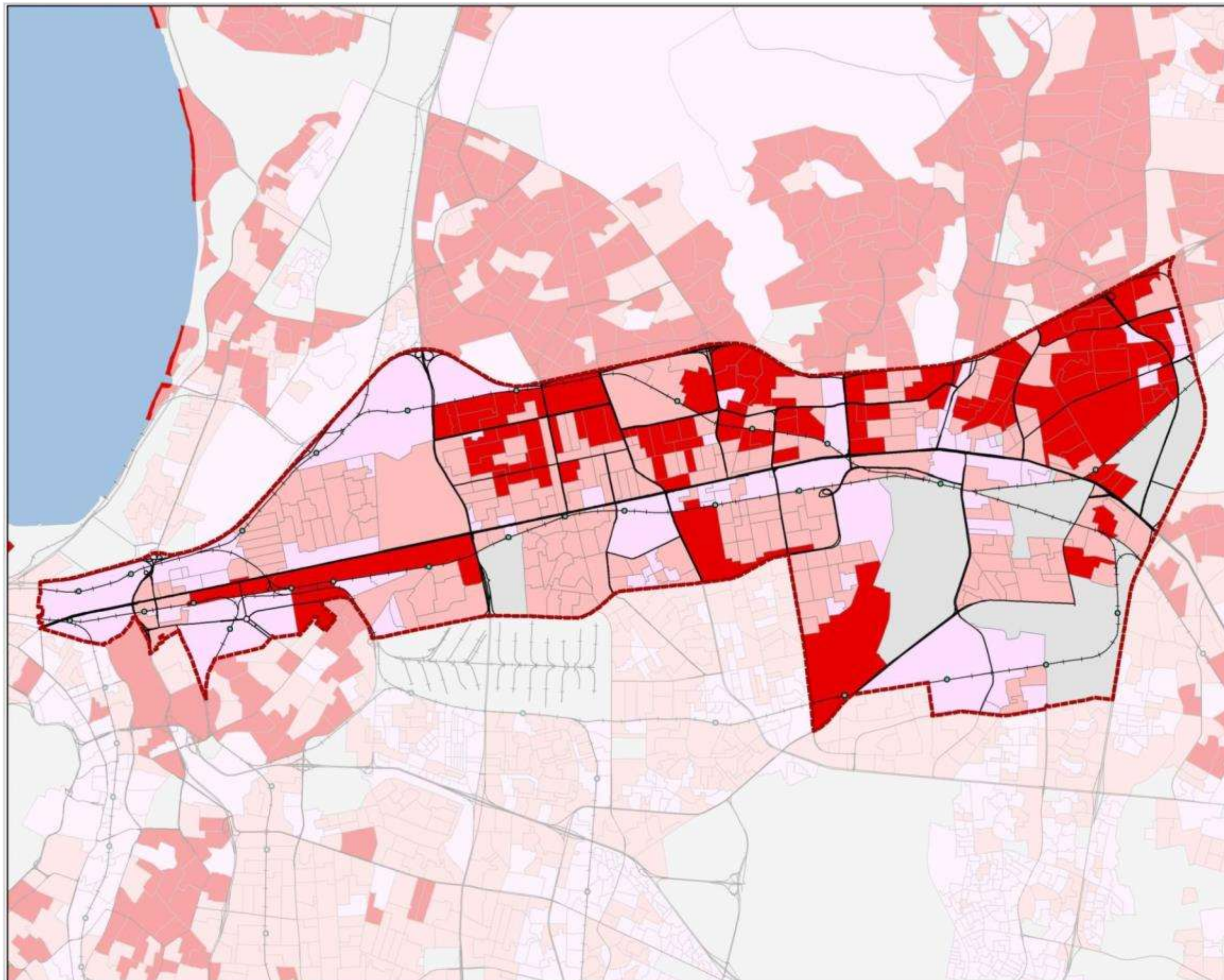
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**STAD KAAPSTAD**



**VRC IZ**  
Age: 35 - 64  
2011

**Legend**  
**% in age group above City median**

- < 50 persons
- 0.17% to 31.82%
- 31.821% to 41.82%
- 41.821% to 81.82%

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data



0 200 500 1 000 1 500 2 000  
Meters

1:60 000

South African Projection,  
Cape Town Zone 27 S, 27 E,  
WGS 84 Ellipsoid and the  
NAD 2011 datum

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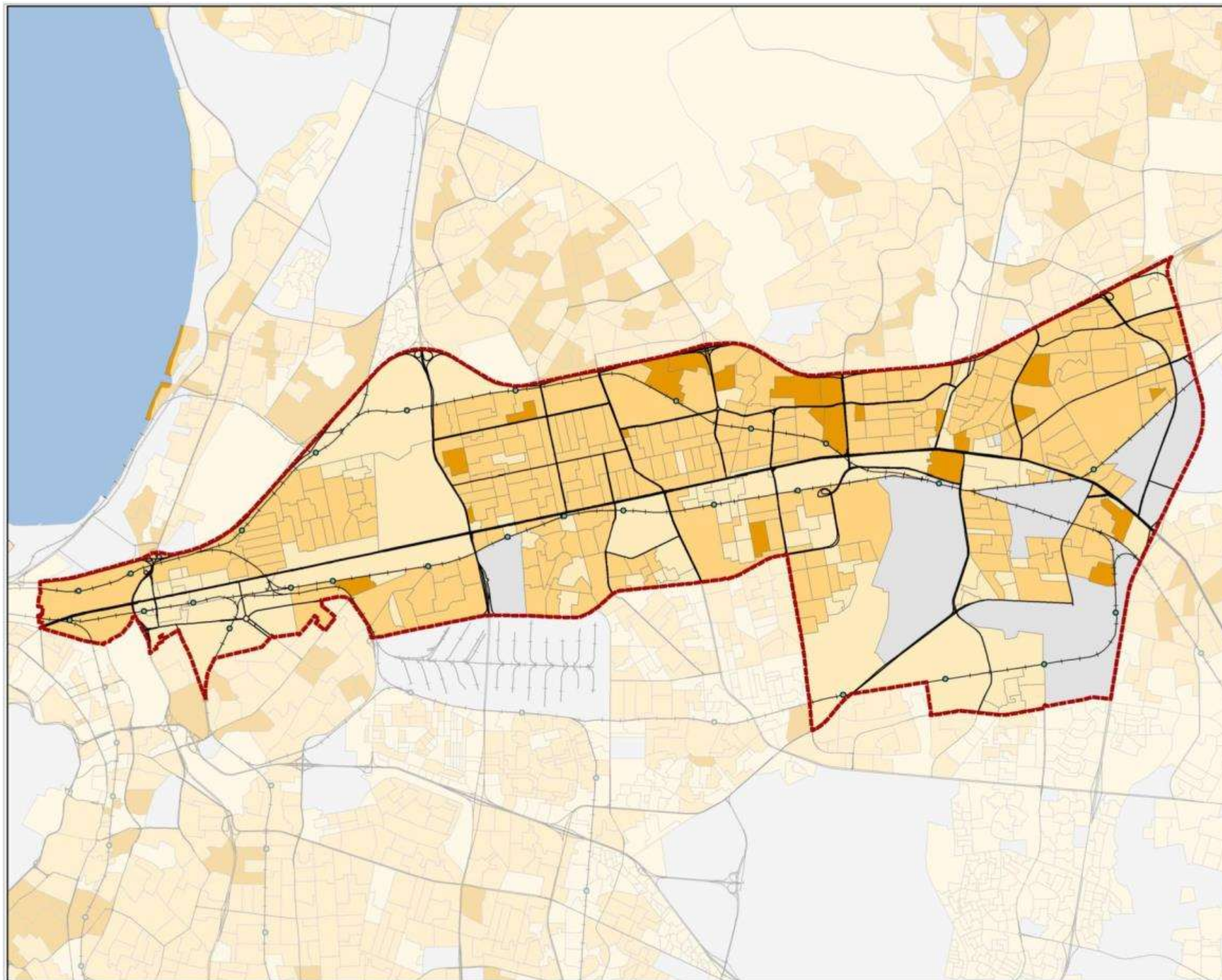
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**STAD KAAPSTAD**



## VRC IZ

Age: 65 and over  
2011

### Legend

% in age group  
above City median

- < 50 persons
- 0.0% to 5.55%
- 5.551% to 15.55%
- 15.551% to 97.05%

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data



0 200 400 600 800 1000 1200 1400 1600 1800 2000 Meters

1:60 000

Transverse Mercator Projection  
Central Meridian: 18° East  
WGS84 datum using the  
South African S-AD datum

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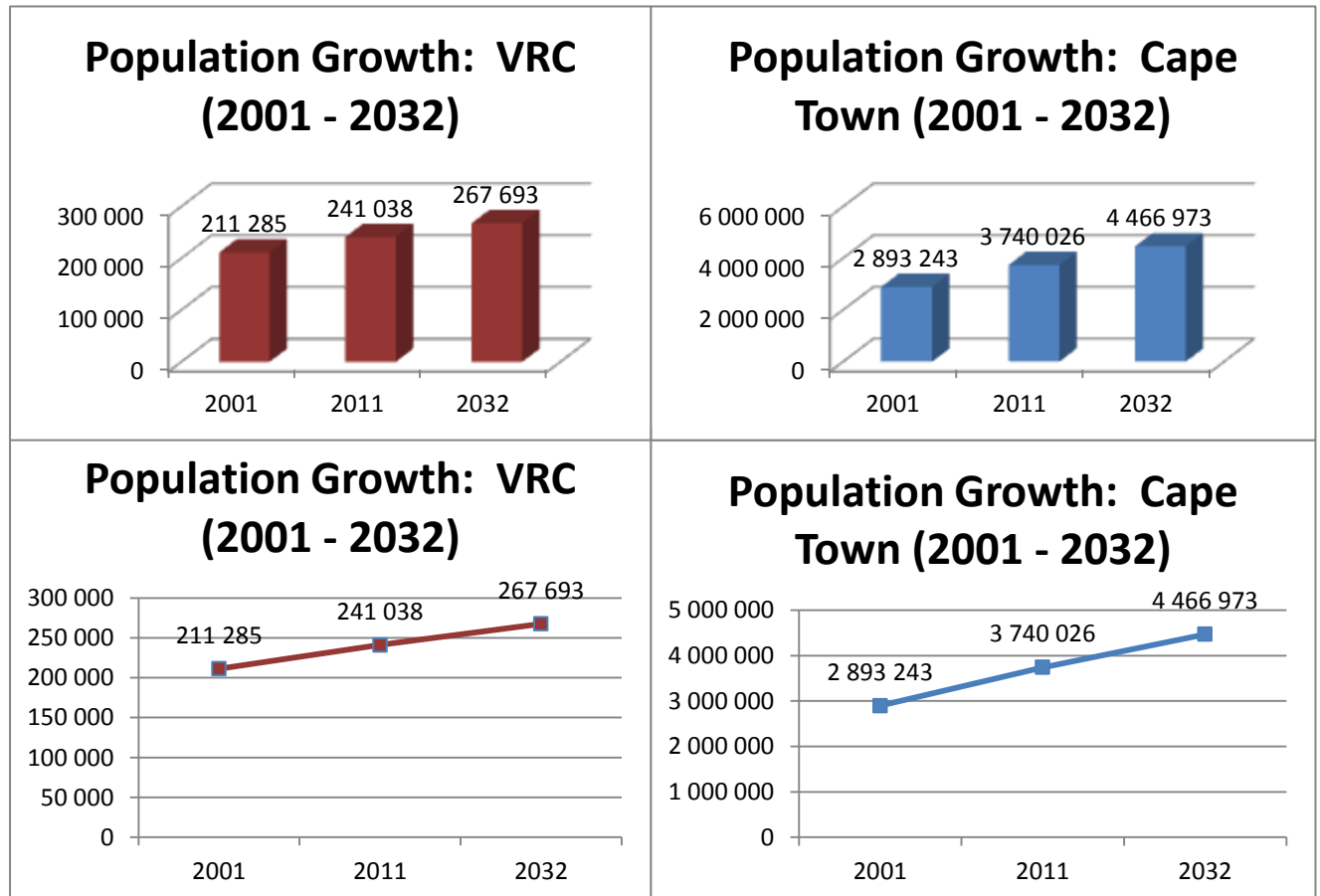


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**ISIXEKO SASEKAPA**  
**STAD KAAPSTAD**



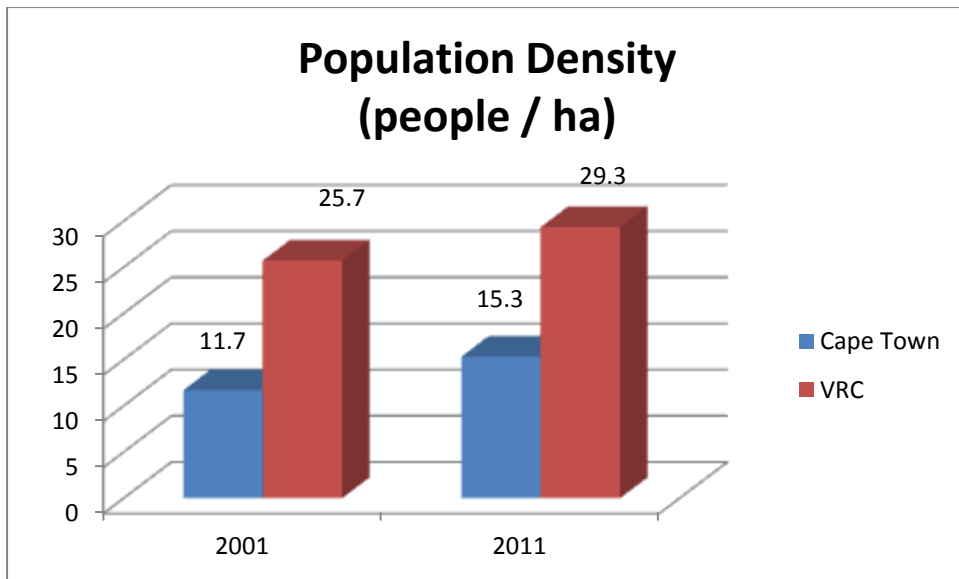
### 3.2.4 Population Projections

Census data is available for both the 2001 census and the 2011 census. This data (with numerous other informants) has been used to project the population growth towards 2022 and 2032.

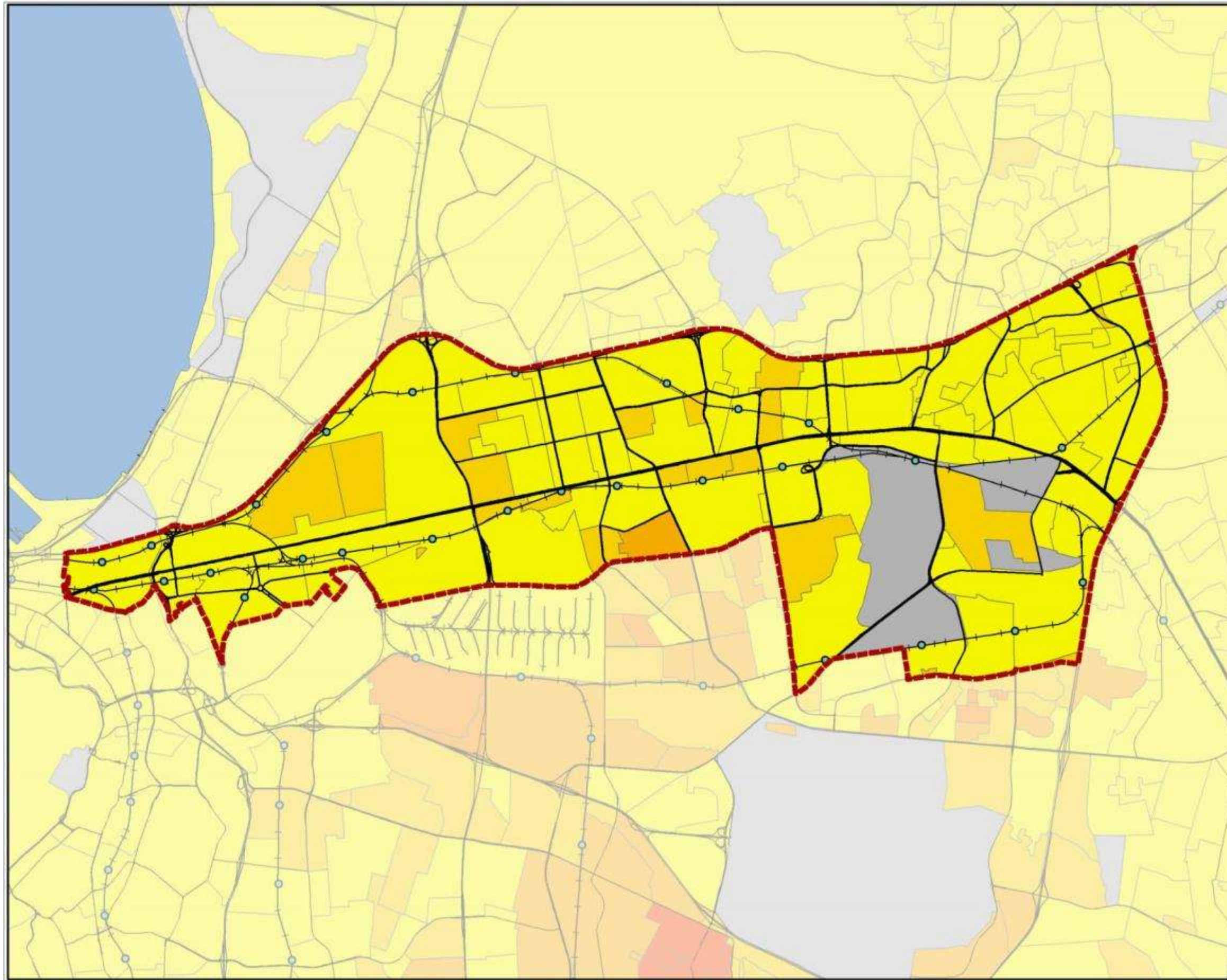


### 3.2.5 Population Density

Based on the abovementioned population projections, which specifically considers the City's 'pragmatic densification' scenario (as described above), population density maps have been prepared for 2001, 2011, 2022 and 2032 to illustrate the anticipated change in density across the Metro.



	Population Density		Area	Population	
	2001	2011		2001	2011
<b>VRC</b>	25.7	29.3	8 218.3	211 285	241 038
<b>Cape Town</b>	11.7	15.3	244 370.3	2 893 243	3 739 935



**VRC IZ**  
Population Density  
2001

Legend  
**Persons / ha**

- 0
- < 50
- 50 - 100
- 100 - 175
- 175 - 250
- 250 - 350
- 350 - 500
- 500 - 700
- 700 - 1200

- VRC Integration Zone
- Census Subplaces
- Roads
- Rail Stations
- Railway

Source:  
2001 census data



1:0

Transverse Mercator Projection,  
Central Meridian: 18° East,  
False Origin using the  
WGS84 datum

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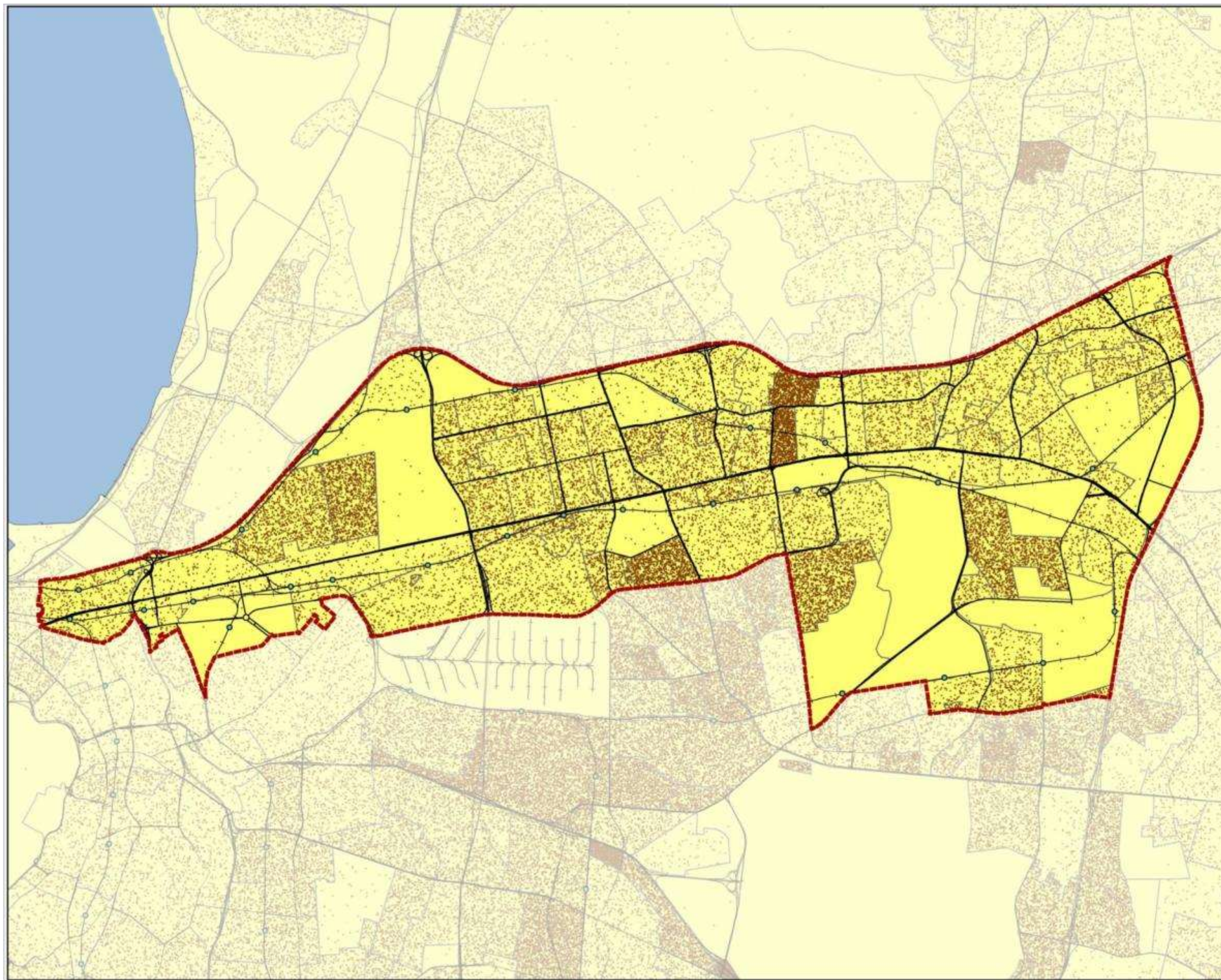
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Date: March 2014



**CITY OF CAPE TOWN**  
**ISIXEKO SASEKAPA**  
**STAD KAAPSTAD**



**VRC IZ**  
Population Density  
2001

**Legend**

- 1 Dot = 10 persons
- VRC Integration Zone
- Census Subplaces
- Roads
- Rail Stations
- Railway

Source:  
2001 census data


0 200 400 600 800 1000 1200 1400 1600 1800 2000  
Metres

**1:60 000**  
Transverse Mercator Projection,  
Cape Town Zone 19 East,  
WGS84 Ellipsoid using the  
NAD2011 datum

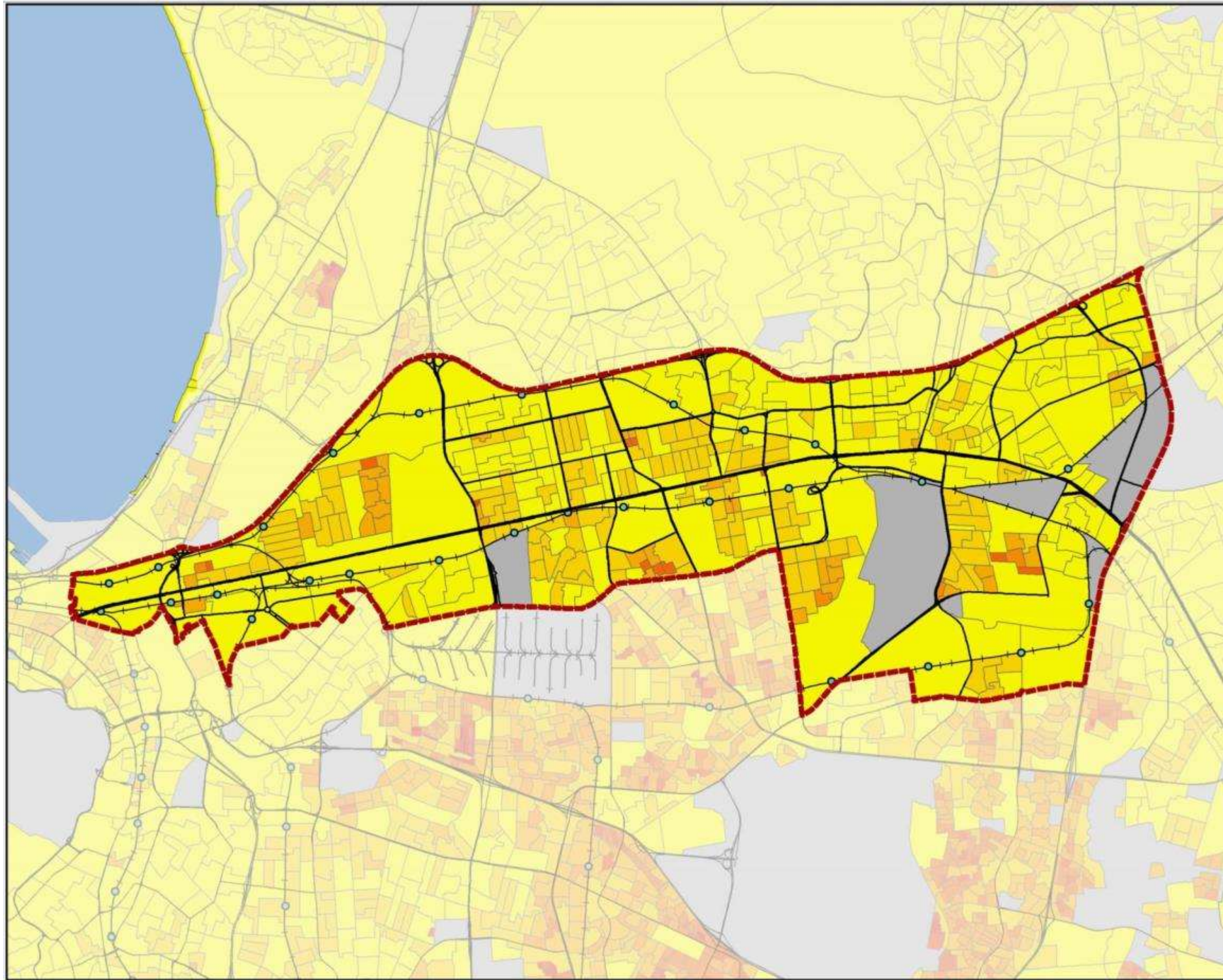
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**VRC IZ**  
Population Density  
2011

Legend  
**Persons / ha**

- 0
- < 50
- 50 - 100
- 100 - 175
- 175 - 250
- 250 - 350
- 350 - 500
- 500 - 700
- 700 - 1200

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
2011 census data

0 15 30 45 90 120  
Metres  
1:0

Transverse Mercator Projection,  
Central Meridian 19° East,  
WGS84 Ellipsoid using the  
Meters/second System.

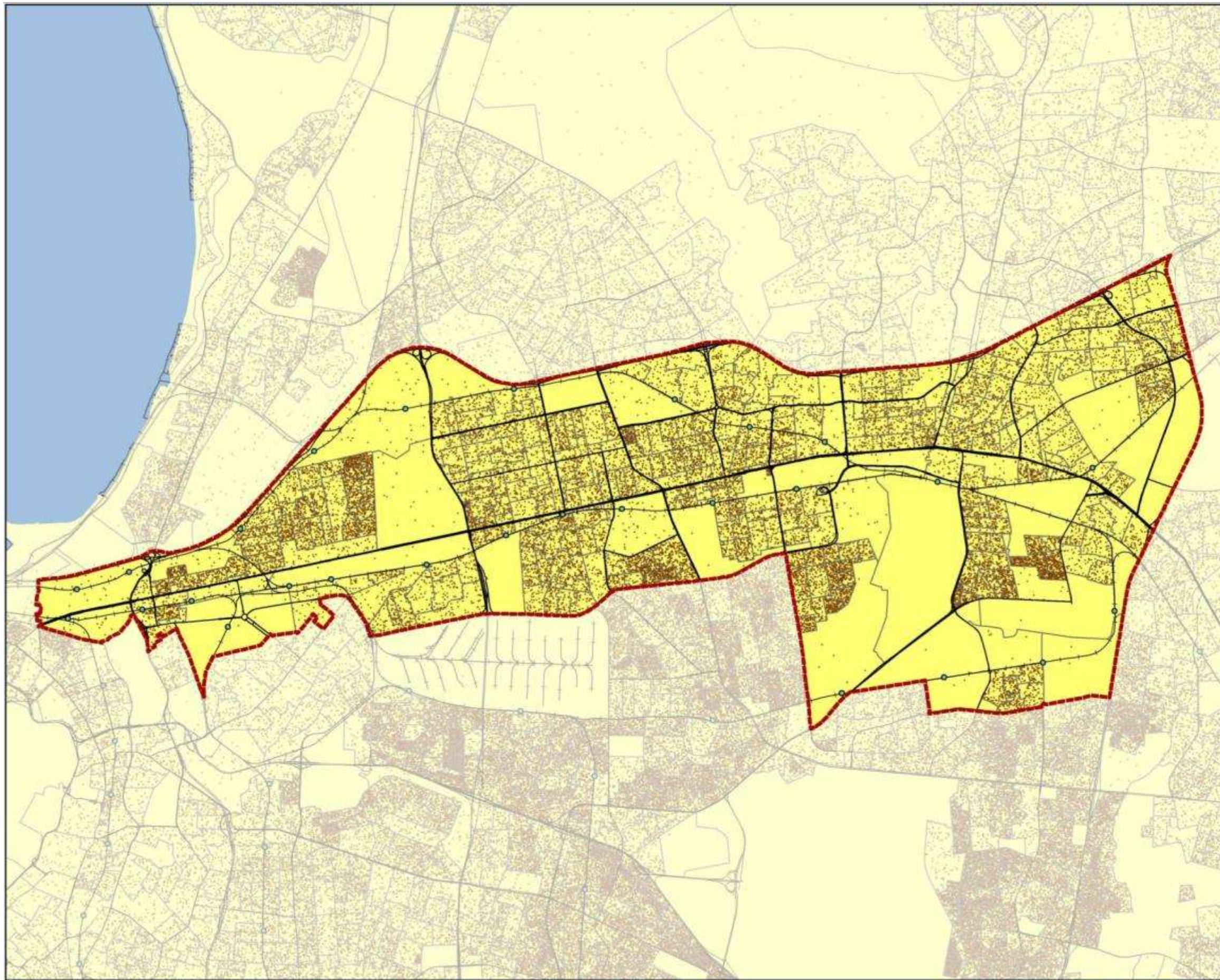
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**VRC IZ**  
Population Density  
2011

**Legend**

- 1 Dot = 10 persons
- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
2011 census data

Scale: 1:60 000

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### 3.2.2 Migration

The 2011 census collected some data around migration by asking respondents whether they have moved since the previous census, and if so, where they have moved from. The tables below summarize the City-wide response, as well as an extracted response for the Voortrekker Road Corridor.

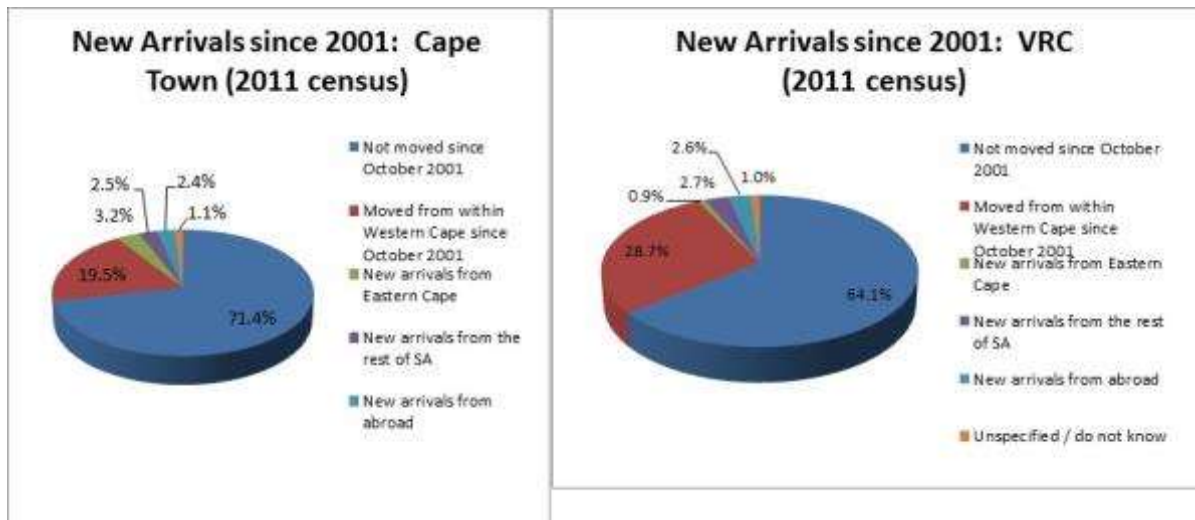
**Table 5: Migration patterns (citywide response)**

<b>Cape Town</b>	<b>Not moved since October 2001</b>	<b>Have moved since October 2001</b>	<b>Total</b>	<b>Not moved since October 2001</b>	<b>Have moved since October 2001</b>	<b>Total</b>
Western Cape	2 613 876	713 514	3 327 390	71.38%	19.48%	90.86%
Eastern Cape	0	115 569	115 569		3.16%	3.16%
Northern Cape	0	7 617	7 617		0.21%	0.21%
Free state	0	6 417	6 417		0.18%	0.18%
Kwazulu-Natal	0	16 470	16 470		0.45%	0.45%
North west	0	2 973	2 973		0.08%	0.08%
Gauteng	0	50 448	50 448		1.38%	1.38%
Mpumalanga	0	4 086	4 086		0.11%	0.11%
Limpopo	0	3 480	3 480		0.10%	0.10%
Outside RSA	0	86 412	86 412		2.36%	2.36%
Do not know	0	717	717		0.02%	0.02%
Unspecified	0	40 479	40 479		1.11%	1.11%
<b>Cape Town Total</b>	<b>2 613 876</b>	<b>1 048 182</b>	<b>3 662 058</b>	<b>71.38%</b>	<b>28.62%</b>	<b>100.00%</b>

**Table 6: Migration patterns (VRC response)**

<b>Voortrekker Road Corridor</b>	<b>Not moved since October 2001</b>	<b>Have moved since October 2001</b>	<b>Total</b>	<b>Not moved since October 2001</b>	<b>Have moved since October 2001</b>	<b>Total</b>
Western Cape	144 270	64 680	208 950	64.08%	28.73%	92.80%
Eastern Cape	0	1 992	1 992		0.88%	0.88%
Northern Cape	0	897	897		0.40%	0.40%
Free state	0	471	471		0.21%	0.21%
Kwazulu-Natal	0	1 026	1 026		0.46%	0.46%
North west	0	255	255		0.11%	0.11%
Gauteng	0	2 853	2 853		1.27%	1.27%
Mpumalanga	0	306	306		0.14%	0.14%
Limpopo	0	264	264		0.12%	0.12%
Outside South Africa	0	5 862	5 862		2.60%	2.60%
Do not know	0	48	48		0.02%	0.02%
Unspecified	0	2 226	2 226		0.99%	0.99%
<b>VRC Total</b>	<b>144 270</b>	<b>80 880</b>	<b>225 150</b>	<b>64.08%</b>	<b>35.92%</b>	<b>100.00 %</b>





### **VRC vs Metro**

The following is clear from the above tables:

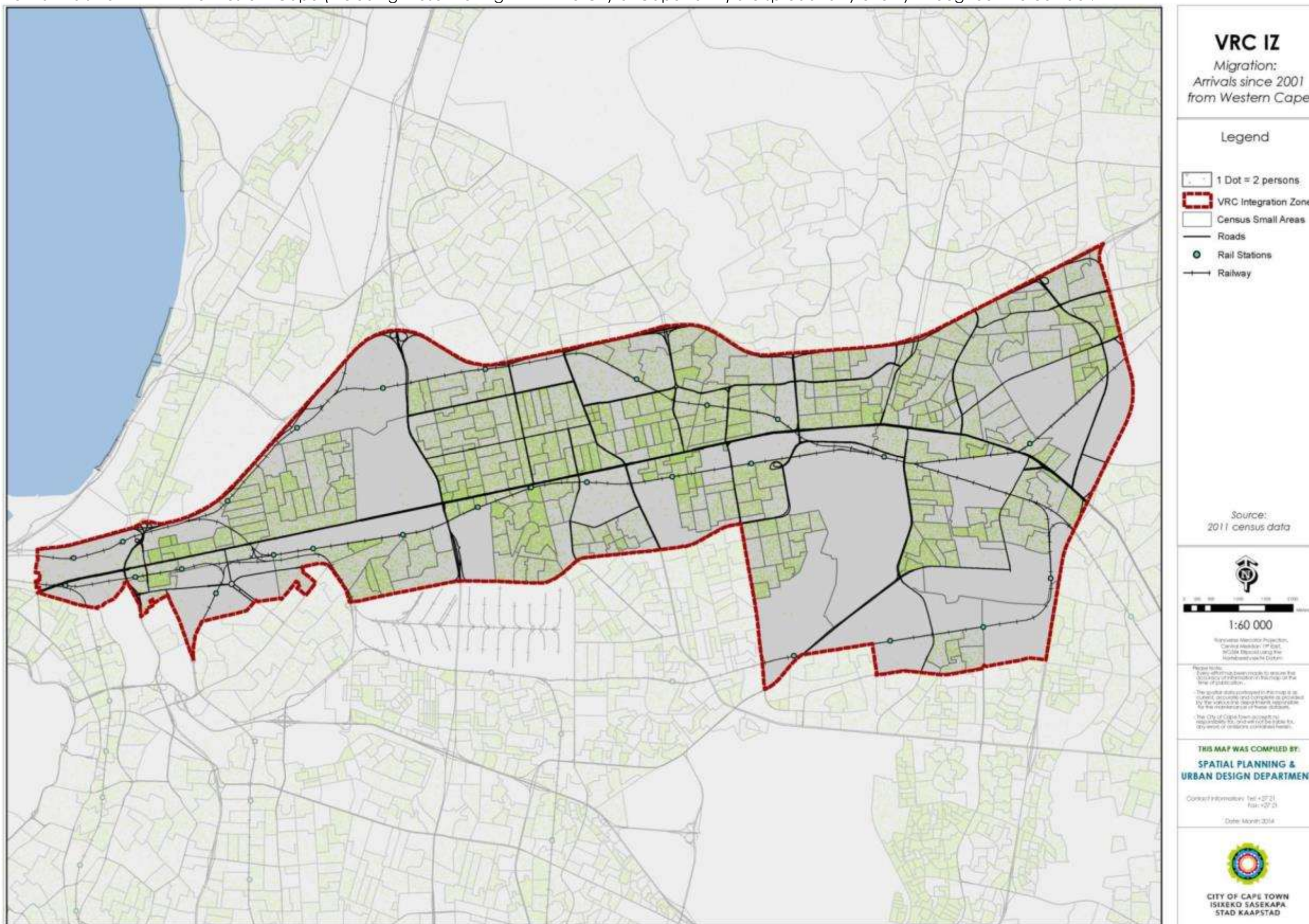
- The VRC population appears to be more mobile, with 35.9% of the total population within the VRC having moved since 2001, as opposed to only 28.6% of the City's total population that have moved since 2001.
- A large portion (28.7%) of the migration into the VRC stems from within the Western Cape (versus 19.5% for Cape Town).
- The VRC absorbs a much smaller portion of the migrants from the Eastern Cape (only approximately 0.88%)

### **Trends and patterns**

An analysis of intra-corridor variations was made, with the findings summarised under the following headings:

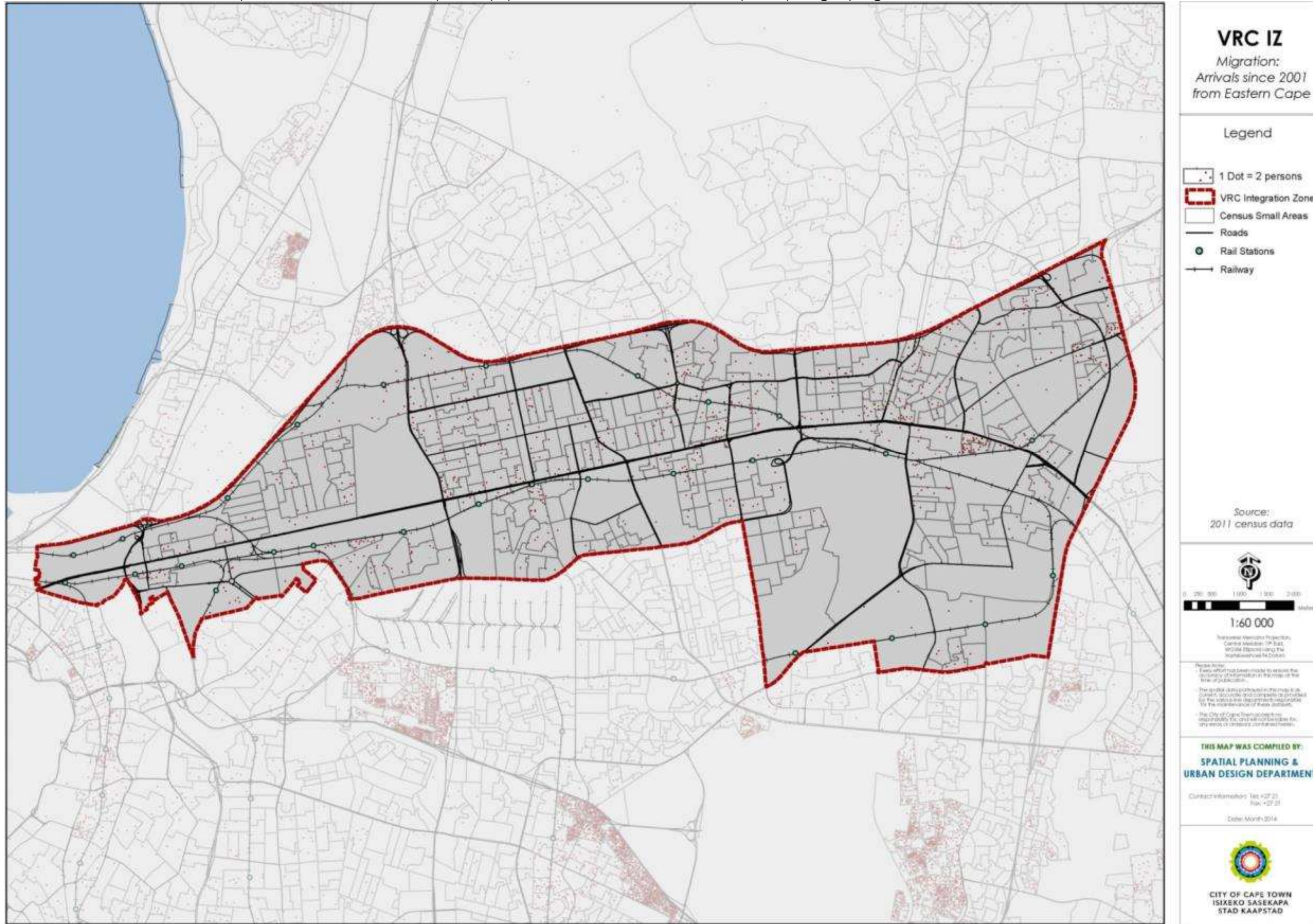
### 3.2.2.1 New Arrivals from within the Western Cape

New arrivals from within the Western Cape (including those moving within the City of Cape Town) are spread fairly evenly throughout the corridor.



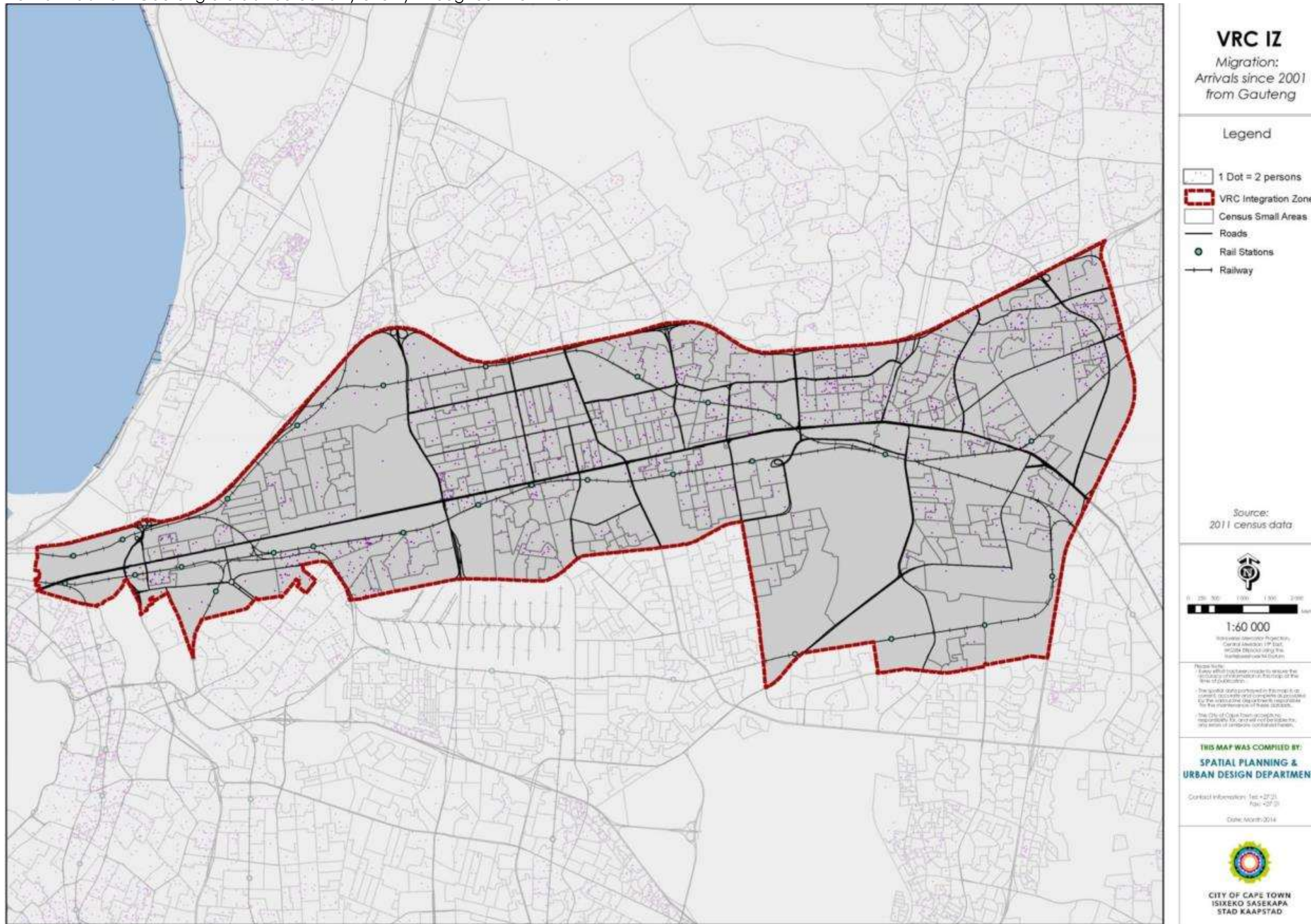
### 3.2.2.2 New Arrivals from Eastern Cape

The arrivals from the Eastern Cape within the VRC are fairly evenly spread across the corridor, with perhaps slightly higher concentrations around the Bellville CBD and Ndabeni (2)\*\*\* areas.



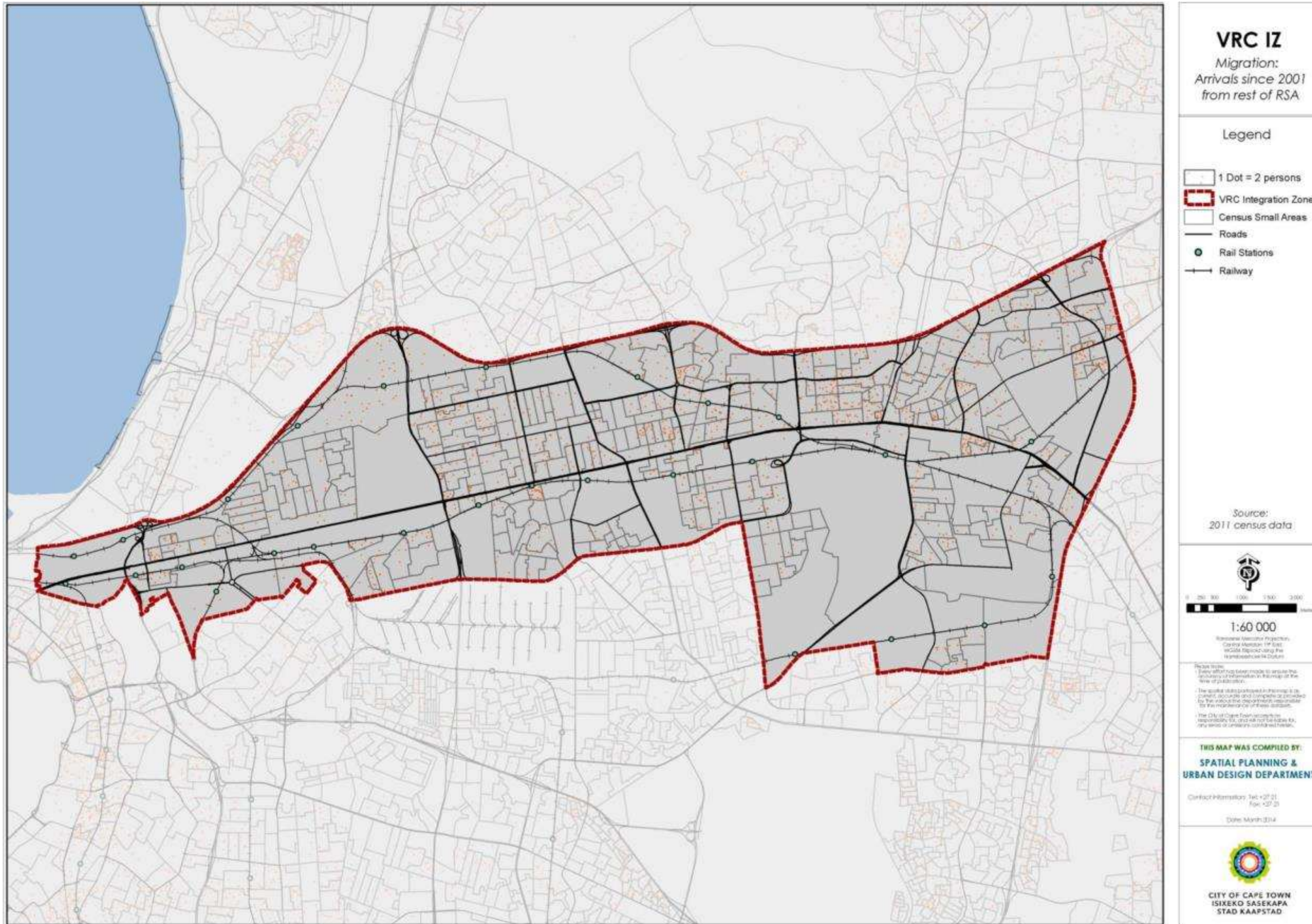
### 3.2.2.3 New Arrivals from Gauteng

New arrivals from Gauteng are distributed fairly evenly throughout the VRC.



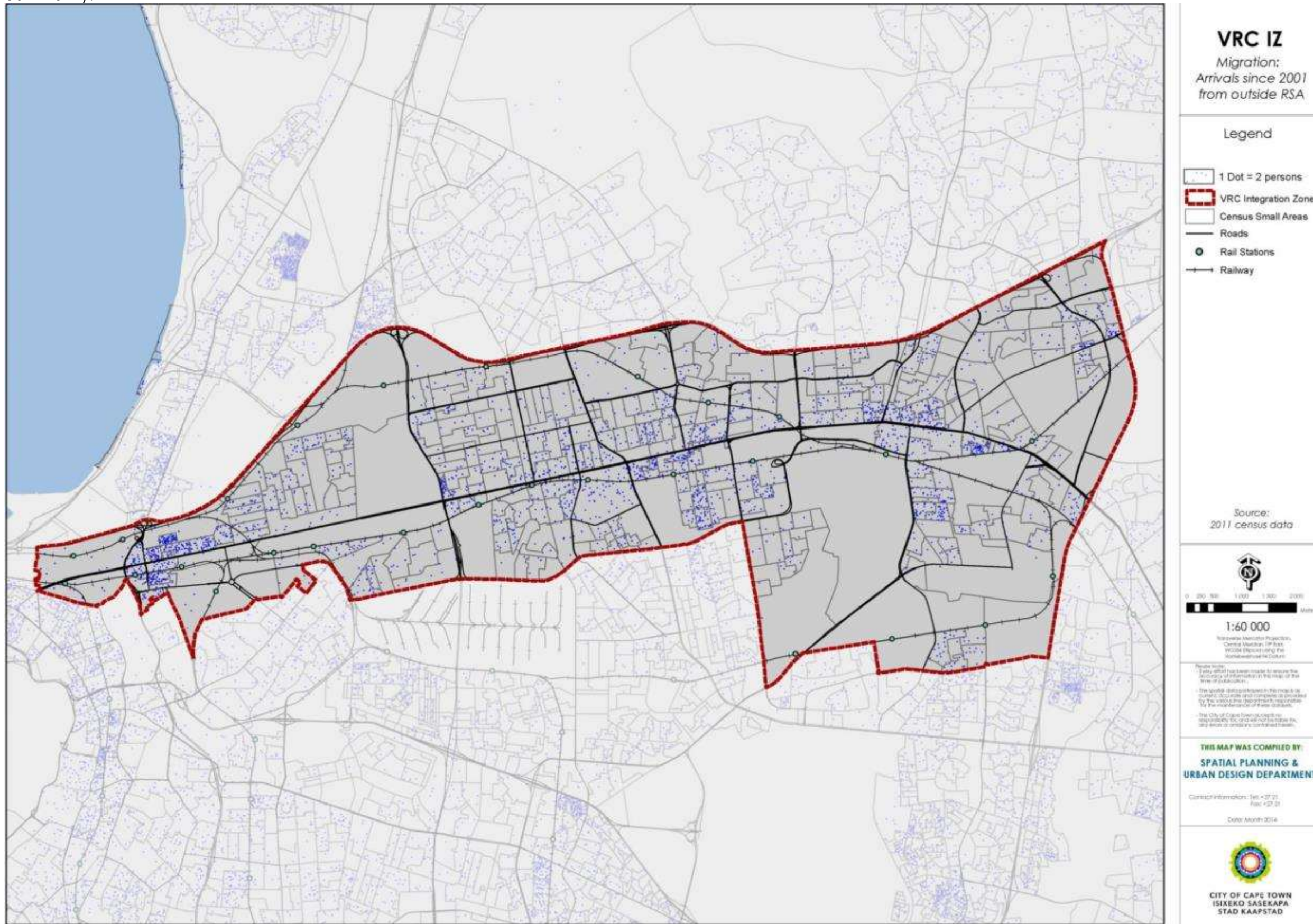
**3.2.2.4 New Arrivals from the rest of South Africa**

New arrivals from the rest of South Africa are also fairly evenly distributed, with slightly higher concentrations around the Bellville CBD area, and in established residential areas to the north of Voortrekker Road.



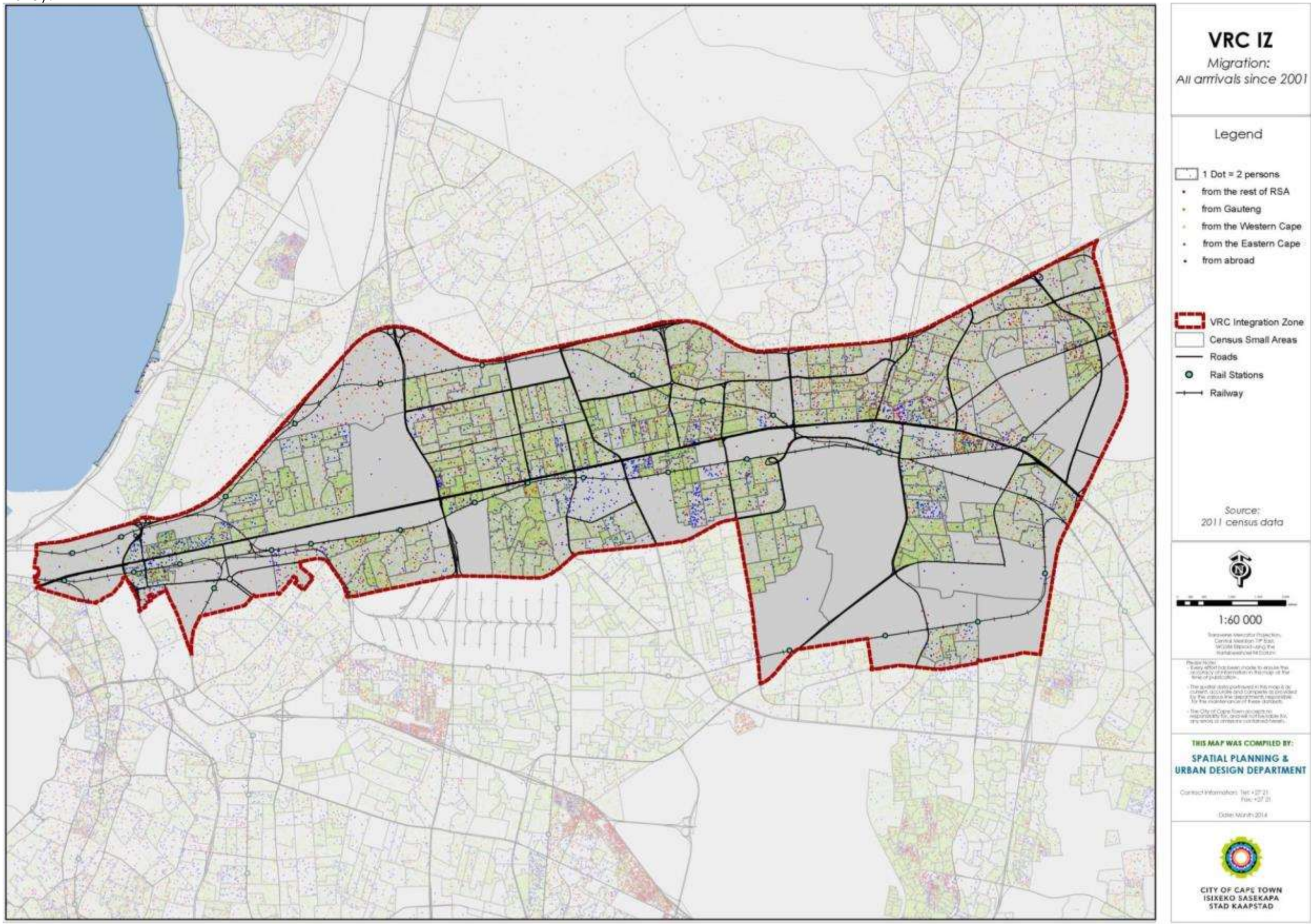
### 3.2.2.5 New Arrivals from outside South Africa

New arrivals from outside South Africa appear to favour locations in close proximity to the Voortrekker Road spine, in particular in the Maitland Area, which accommodates a large migrant community.



**3.2.2.6 Total New Arrivals**

The locations within the VRC most favoured by migrants appear to be the Bellville CBD area and its wider catchment area, Stikland, parts of Bellville South, Maitland, Elsie's River, Parow, and Parow Valley.

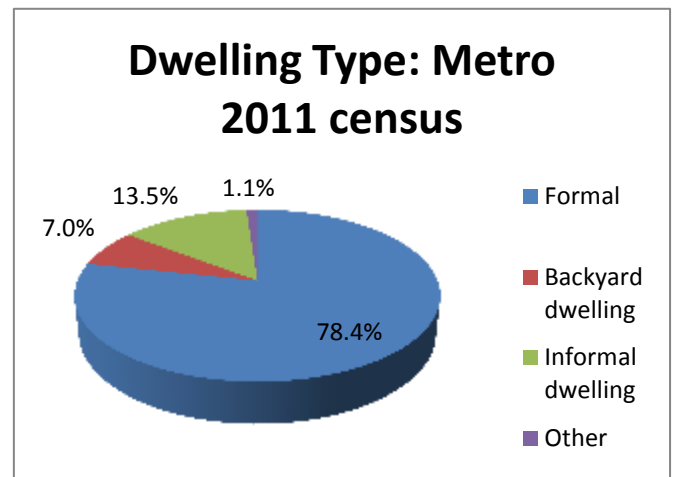
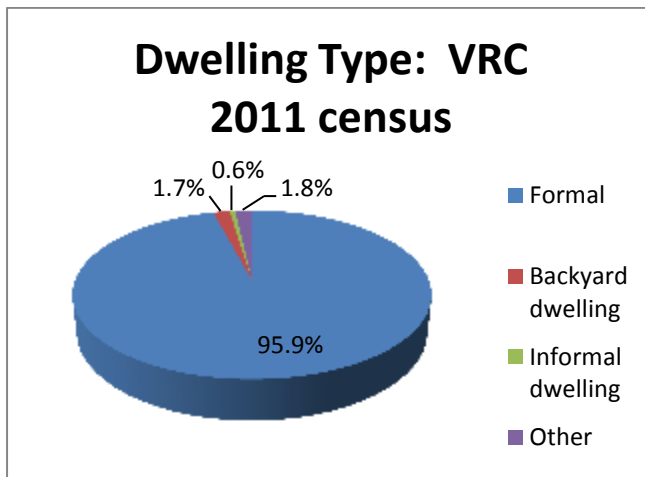


### 3.2.3 Households

#### 3.2.3.1 Dwelling Types

Census 2011 differentiates between the following dwelling types:

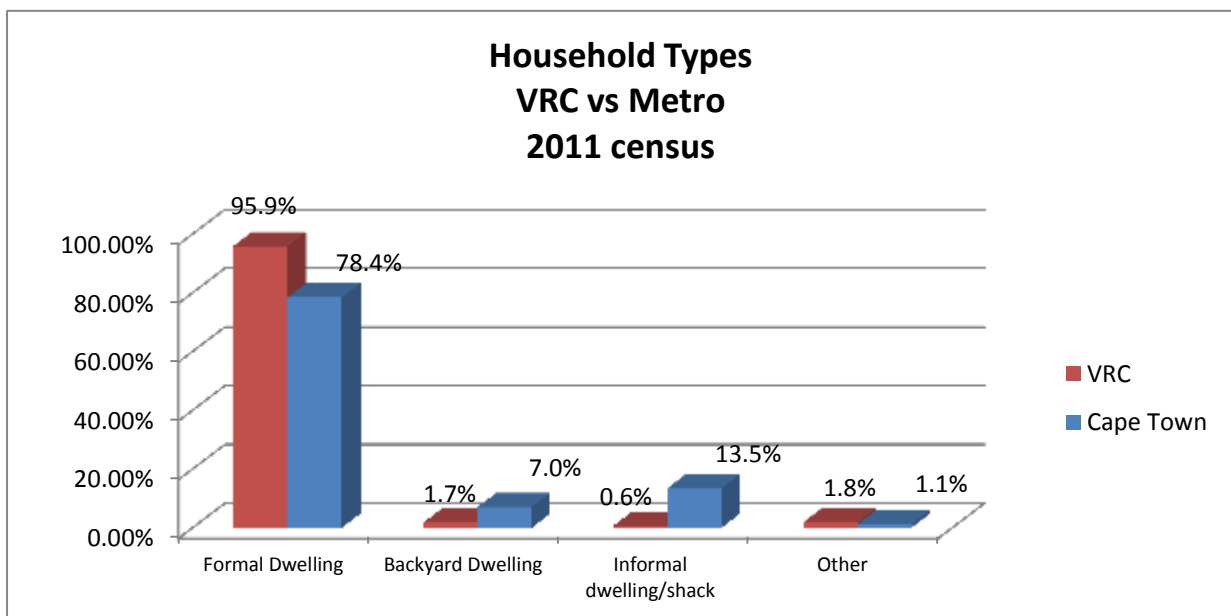
- Formal dwellings
- Informal dwellings (in backyards)
- Informal dwellings (not in backyards, i.e. informal settlements)
- Other



#### VRC vs Metro

The following is clear from the figures:

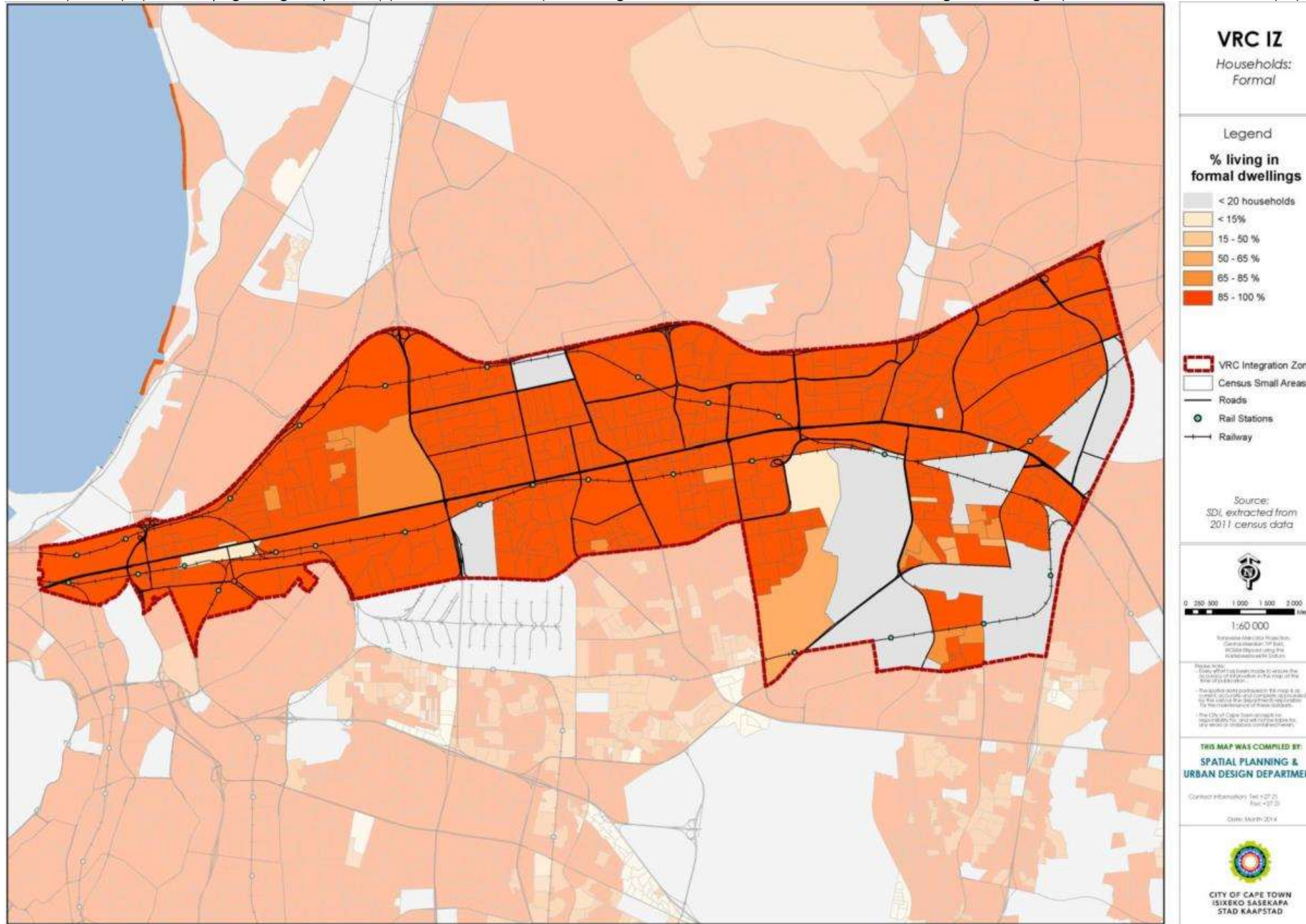
- A very large percentage (95.9%) of the VRC population is accommodated in formal dwellings (vs. 78.4% of the City population)
- The VRC accommodates a much smaller portion of backyard dwellings and informal dwellings than the Metro average.



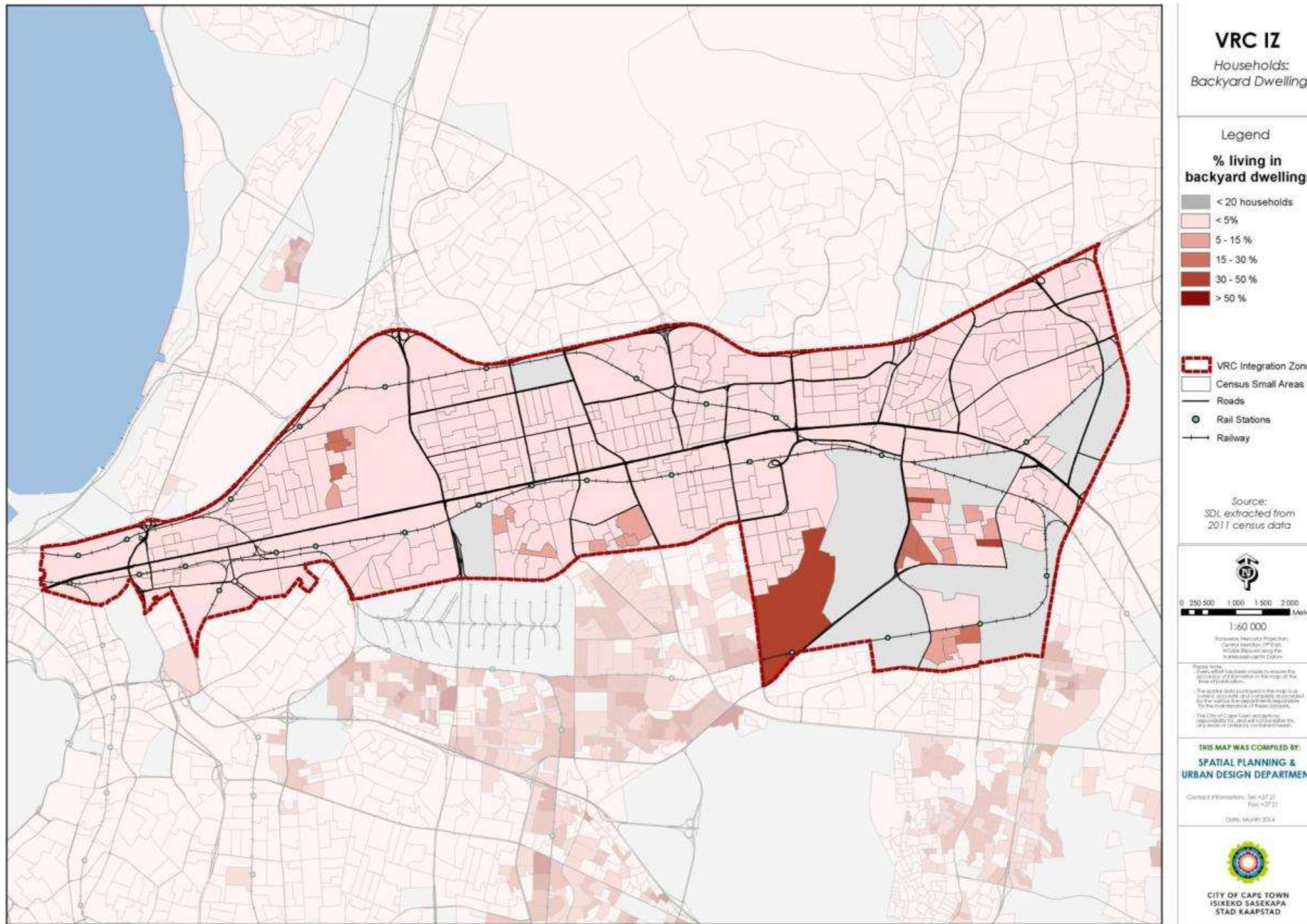


### Intra-corridor trends and patterns

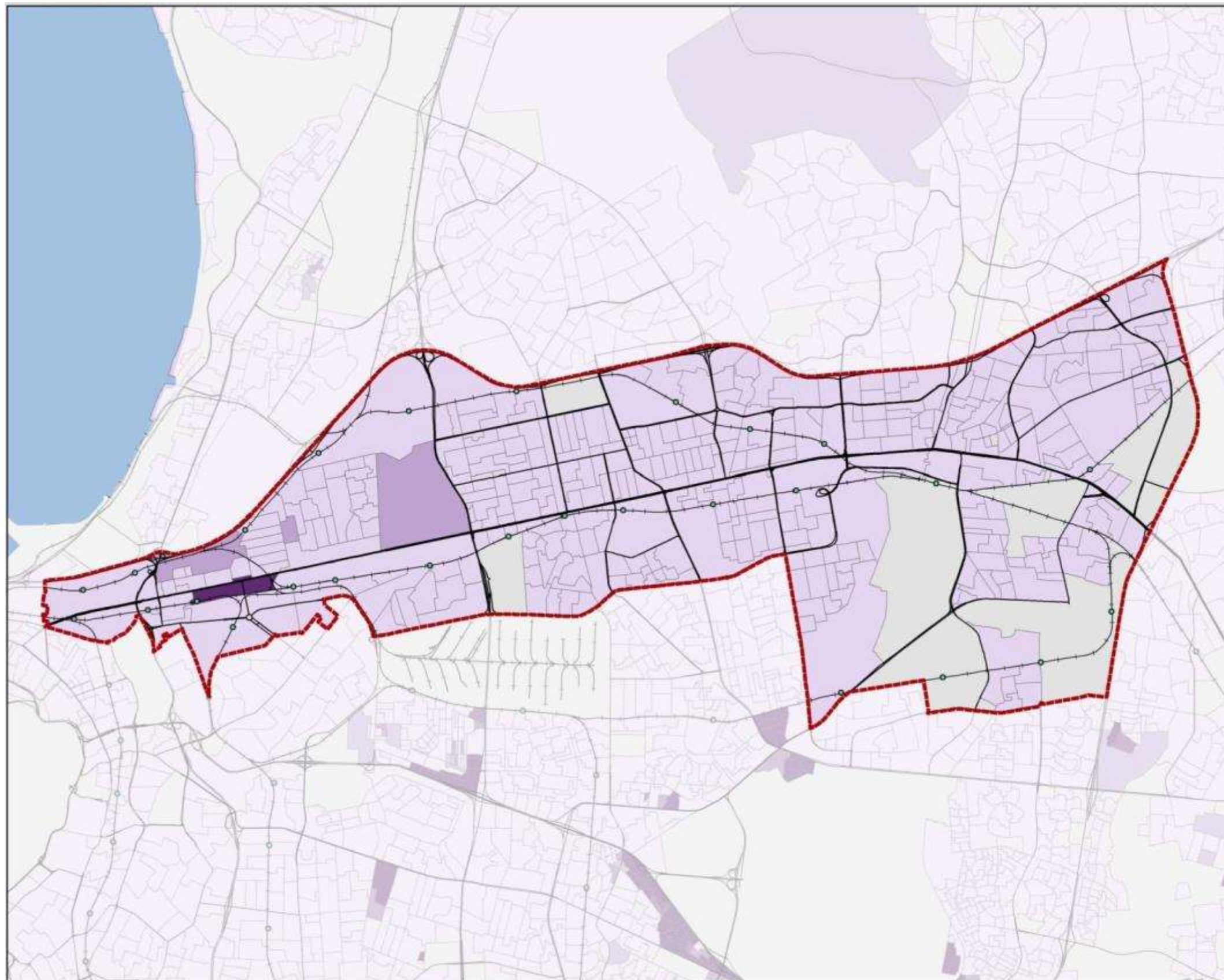
An analysis of intra-corridor variations was made. The only areas with lower percentages of persons accommodated in **formal dwellings** are found in the Bellville South area. Some other areas with relatively small population (e.g. Wingfield) also appear to have a low percentage of formal accommodation, but these figures are slightly distorted due to the small population sizes.



The areas within the VRC with the highest percentage of **backyard dwellings** are Parow Industrial (where the small number of households size distorts the representation significantly), and a number of small areas dotted throughout Bellville South, Elsie's River and Windermere.



An area in Maitland between Voortrekker Road and the railway line is the only small area within the VRC with a very high percentage of informal dwellings. However, this area has a very small total population, which can almost exclusively be attributed to the small informal settlement in the easternmost portion of this small area.



**VRC IZ**  
Households:  
Informal Dwellings

Legend

**% living in informal dwellings**

- < 20 households
- < 10 %
- 10 - 30 %
- 30 - 60 %
- 60 - 85 %
- > 85 %

  VRC Integration Zone  
  Census Small Areas  
 — Roads  
 ● Rail Stations  
 — Railway

Source:  
SDL extracted from  
2011 census data

0 500 1 000 1 500 2 000 Meters  
 1:60 000  
Revised Master Plan for  
Central Business District  
in Cape Town using the  
Worldwide Urban Design  
Process  
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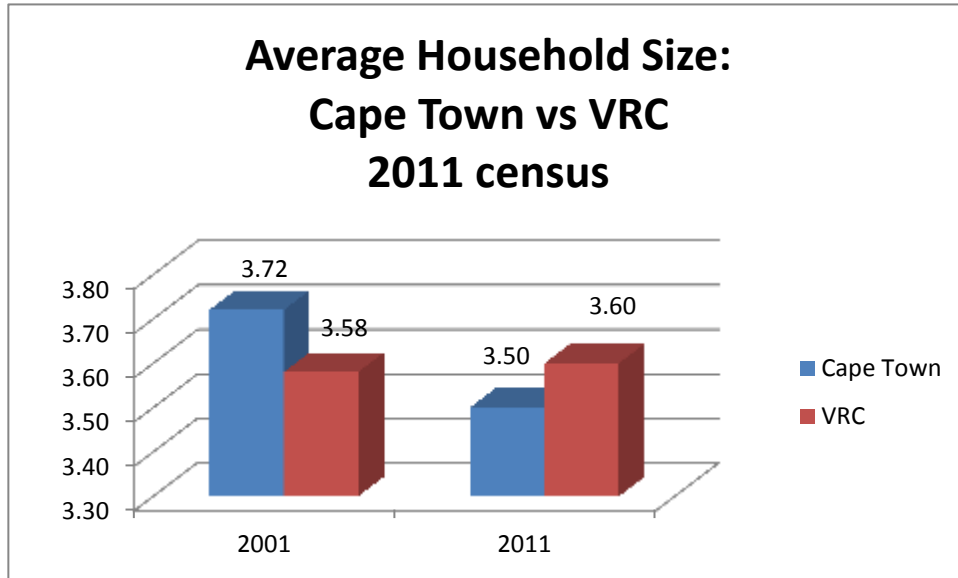
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### 3.2.3.2 Household Sizes

#### **VRC vs Metro**

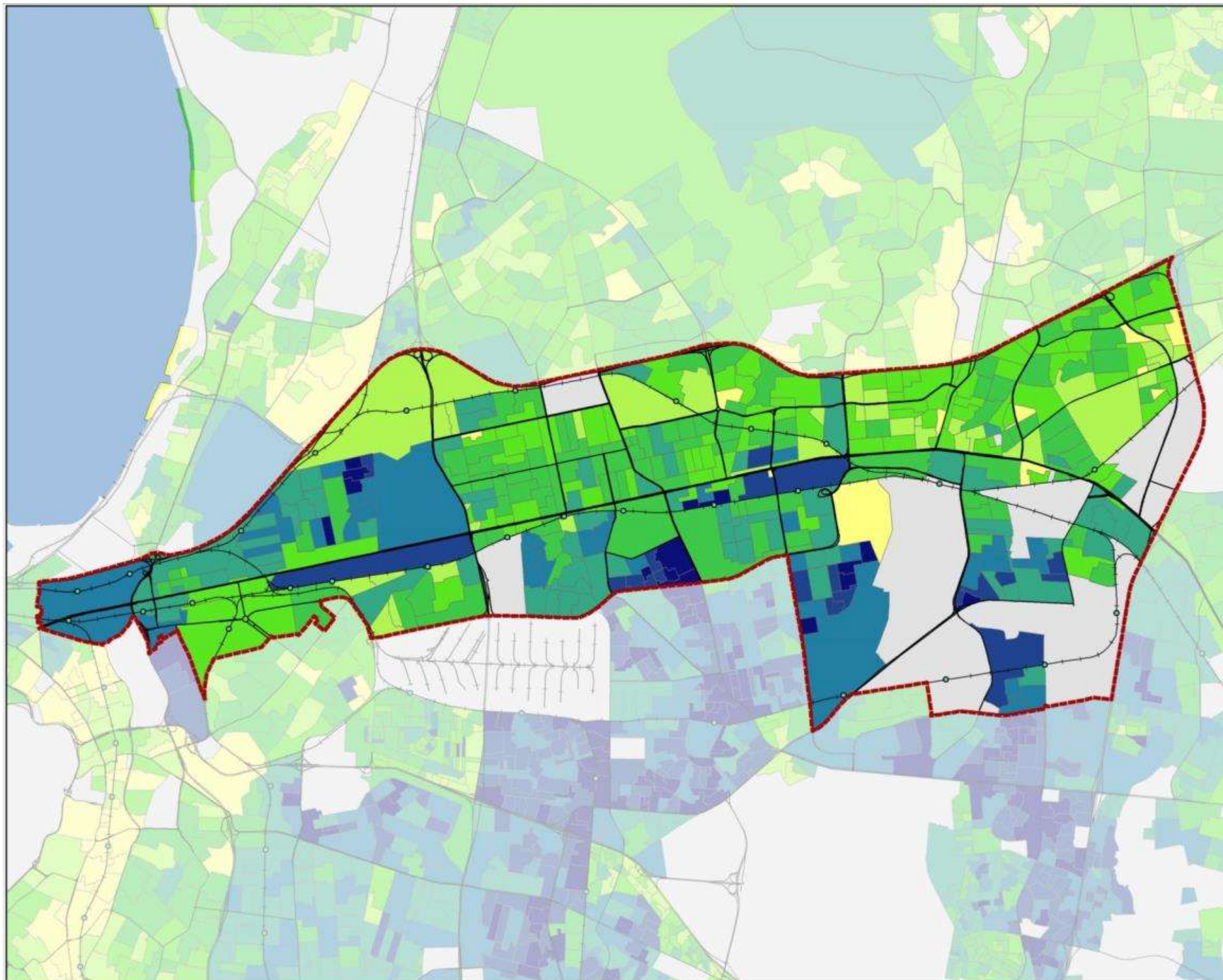
The average household size within the VRC has stayed fairly stable (3.6 persons per dwelling unit), and is slightly higher than that of the Metro (3.5 persons per dwelling unit, down from 3.72 persons per dwelling unit in 2001).



#### **Intra-corridor trends and patterns**

The average household size appears to be slightly higher south of Voortrekker Road than to the north. The areas with the highest average household sizes are located in Ravensmead (6 persons per household), Leonsdale (5.4), Parow (south of Voortrekker Road, 6.2), and Kensington (5.9).

Although Bellville South Industrial also appears to have a high average household size, the population of this entire small area is only 53 people, therefore distorting the representation.



**VRC IZ**  
Average Household Size

Legend  
**Persons / dwelling**

- < 50 persons
- 0 - 2.0
- 2.0 - 2.5
- 2.5 - 3.0
- 3.0 - 3.5
- 3.5 - 4.0
- 4.0 - 4.5
- 4.5 - 5.0
- > 5

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI, extracted from  
2011 census data



0 250 500 1 000 1 500 2 000  
Metres  
1:60 000

Transverse Mercator Projection,  
Cape Town 1983,  
WGS 84 Datum using the  
NAD 1983 datum

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### 3.2.3.3 Household Densities

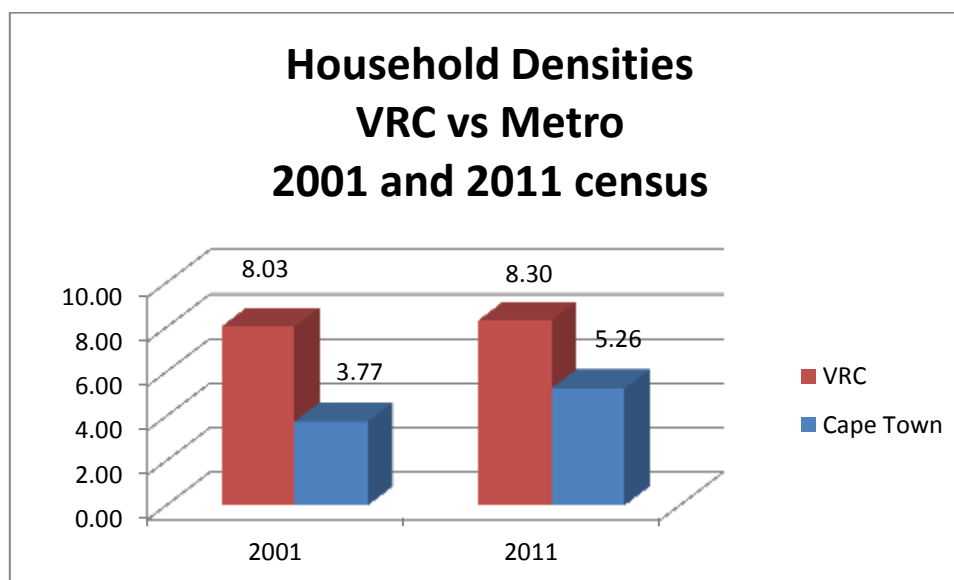
Household densities (number of households per hectare) were calculated for each of the census small areas (2011 census data) and census sub-places (2001 census data).

#### VRC vs Metro

Although the average household density in the Metro is lower (5.26 du / ha) than that of the VRC (8.3 du / ha), this is a gross density and therefore takes into account all the large vacant, natural and agricultural areas within the Metro. It is however noticeable that the gross household density in the Metro has increased considerably over the last 10 years.

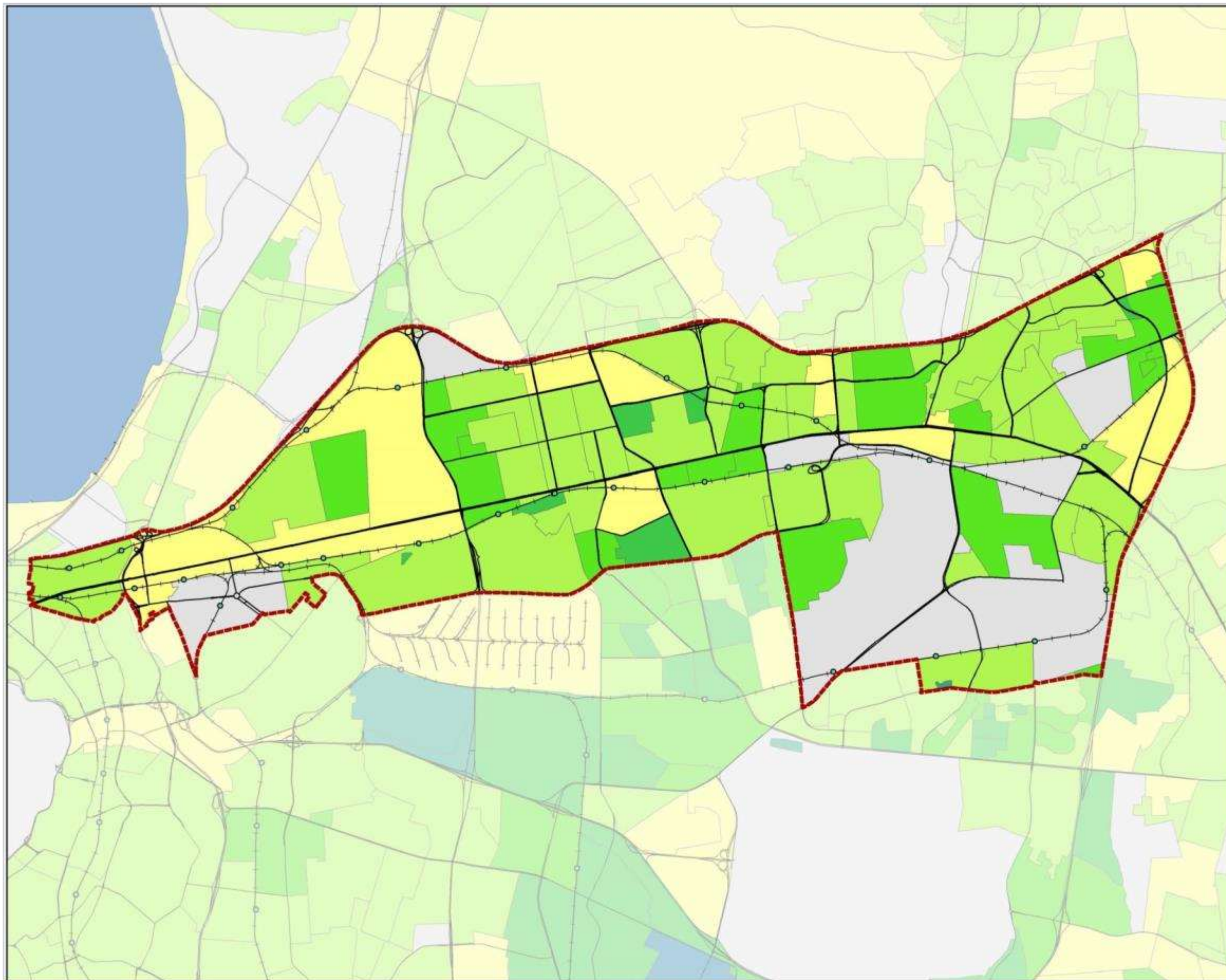
In contrast, the average household density within the VRC has stayed fairly stable (from 8.03 dwelling units per hectare in 2001 to 8.3 dwelling units per hectare in 2011). This may be as a result of the fairly built-up nature of the area – densification does not appear to be taking place at scale, and there are not many greenfield sites available for development.

	Household Density		Area HA	Dwelling Units	
	2001	2011		2001	2011
<b>VRC</b>	7.87	8.14	8 218.30	64 690	66 871
<b>Cape Town</b>	3.13	4.37	244 370.26	764 241	1 067 029



#### Intra-corridor trends and patterns

The intra-corridor variations in household densities are displayed on the maps below.




**VRC IZ**  
Household Density  
2001

**Legend**  
**Households / ha**

- < 20 households
- < 5
- 6 - 15
- 16 - 25
- 26 - 50
- 51 - 100
- 101 - 150
- 151 - 250
- > 250

- VRC Integration Zone
- Census Subplaces
- Roads
- Rail Stations
- + Railway

Source:  
2001 census data


  
 0 250 500 1 000 1 500 2 000 Meters  
 1:60 000  
Mapwise Mercator Projection  
Central Meridian: 18° East  
WGS84 Datum using the  
Numbertoetsveld datum

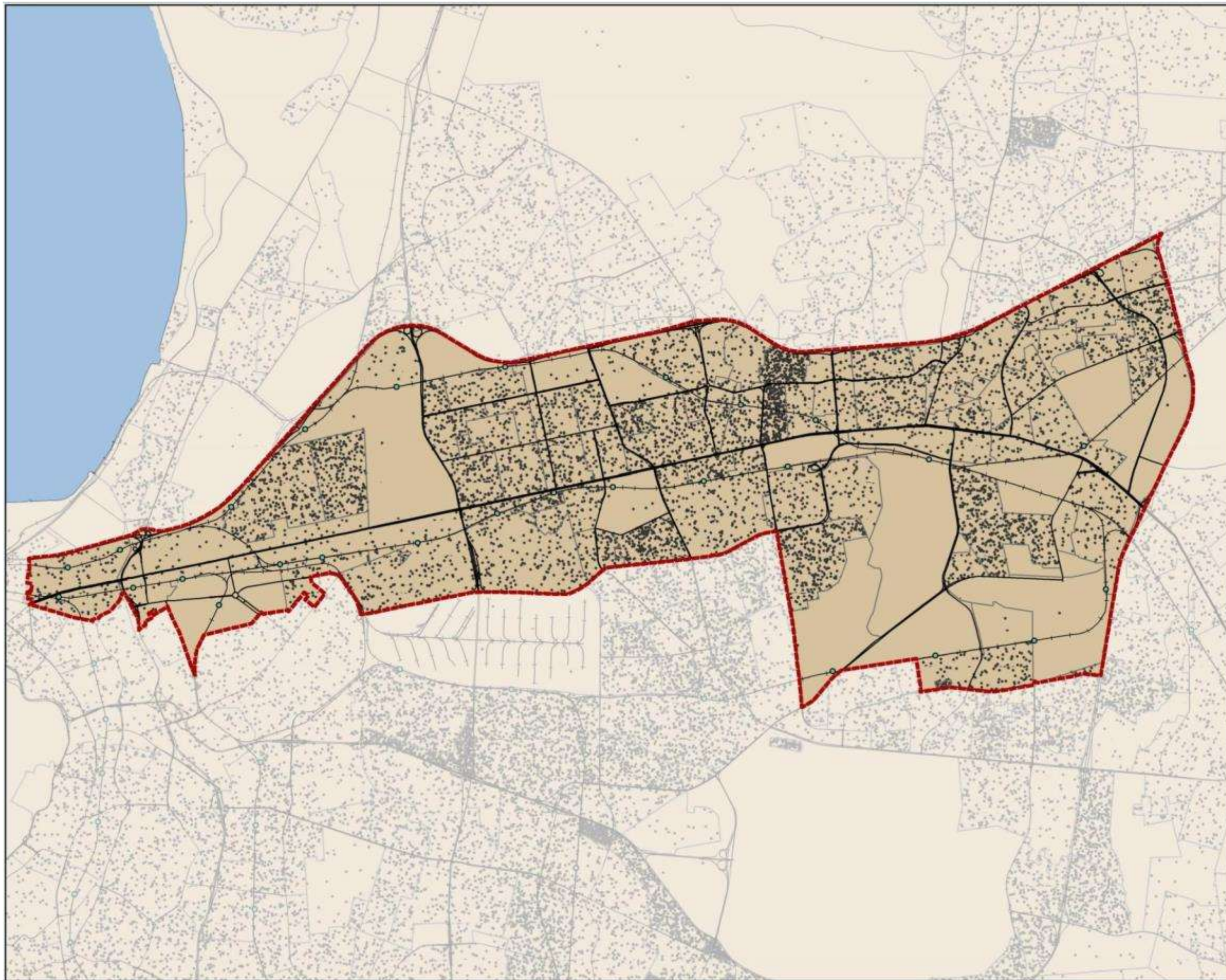
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**STAD KAAPSTAD**



**VRC IZ**  
Household Density  
2001

**Legend**  
**Households / ha**

- 0
- 1 Dot = 10 households
- VRC Integration Zone
- Census Subplaces
- Roads
- Rail Stations
- Railway

Source:  
2001 census data

1:60 000

Transverse Mercator Projection,  
Central Meridian: 18° East,  
False Easting: 1000000m using the  
NAD 1954 datum.

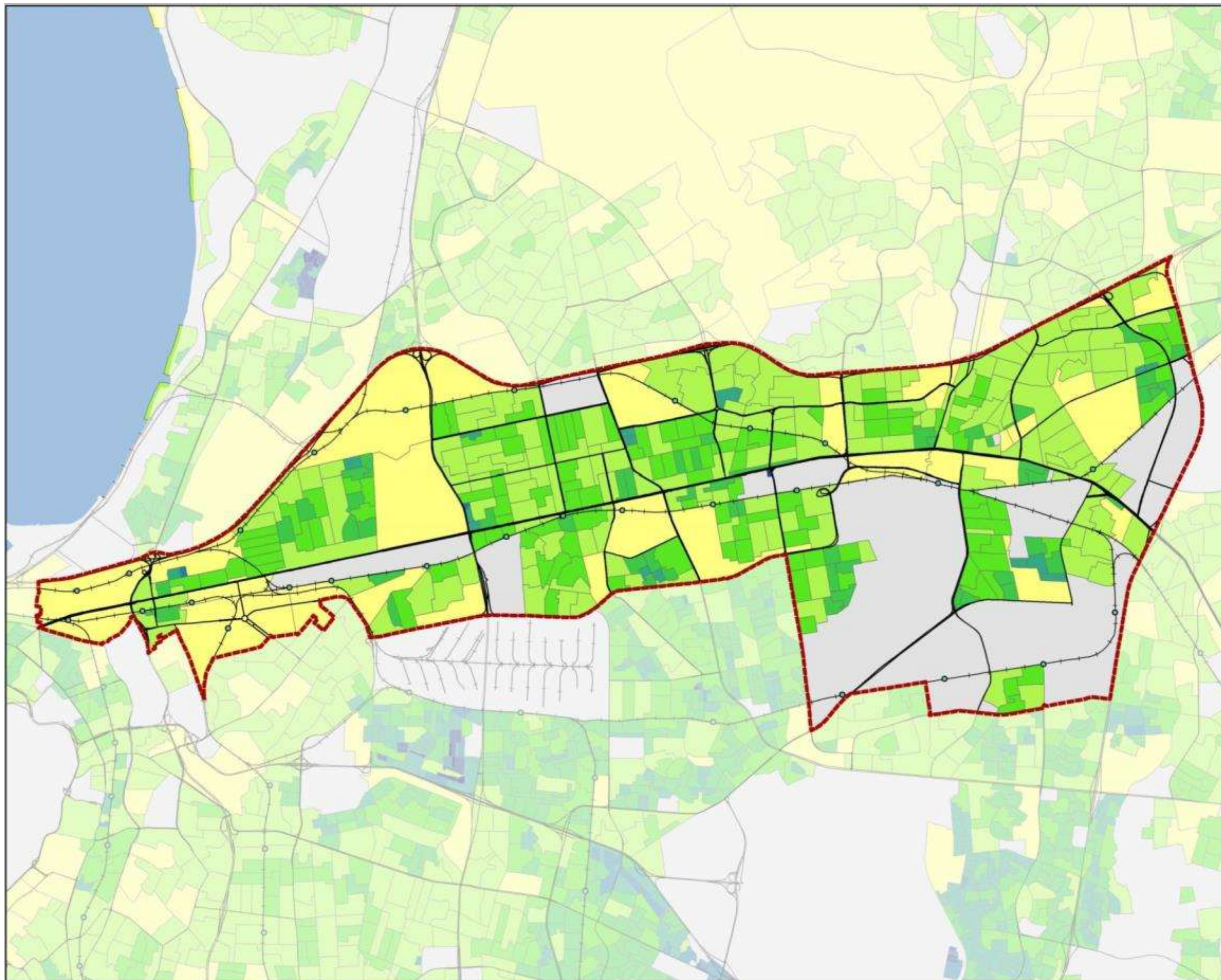
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**VRC IZ**  
Household Density  
2011

Legend  
**Dwelling Units / ha**

- < 20 households
- 0 - 5
- 6 - 15
- 16 - 25
- 26 - 50
- 51 - 100
- 101 - 150
- 151 - 250
- 251 - 500

VRC Integration Zone  
Census Small Areas  
Roads  
Rail Stations  
Railway

Source:  
2011 census data

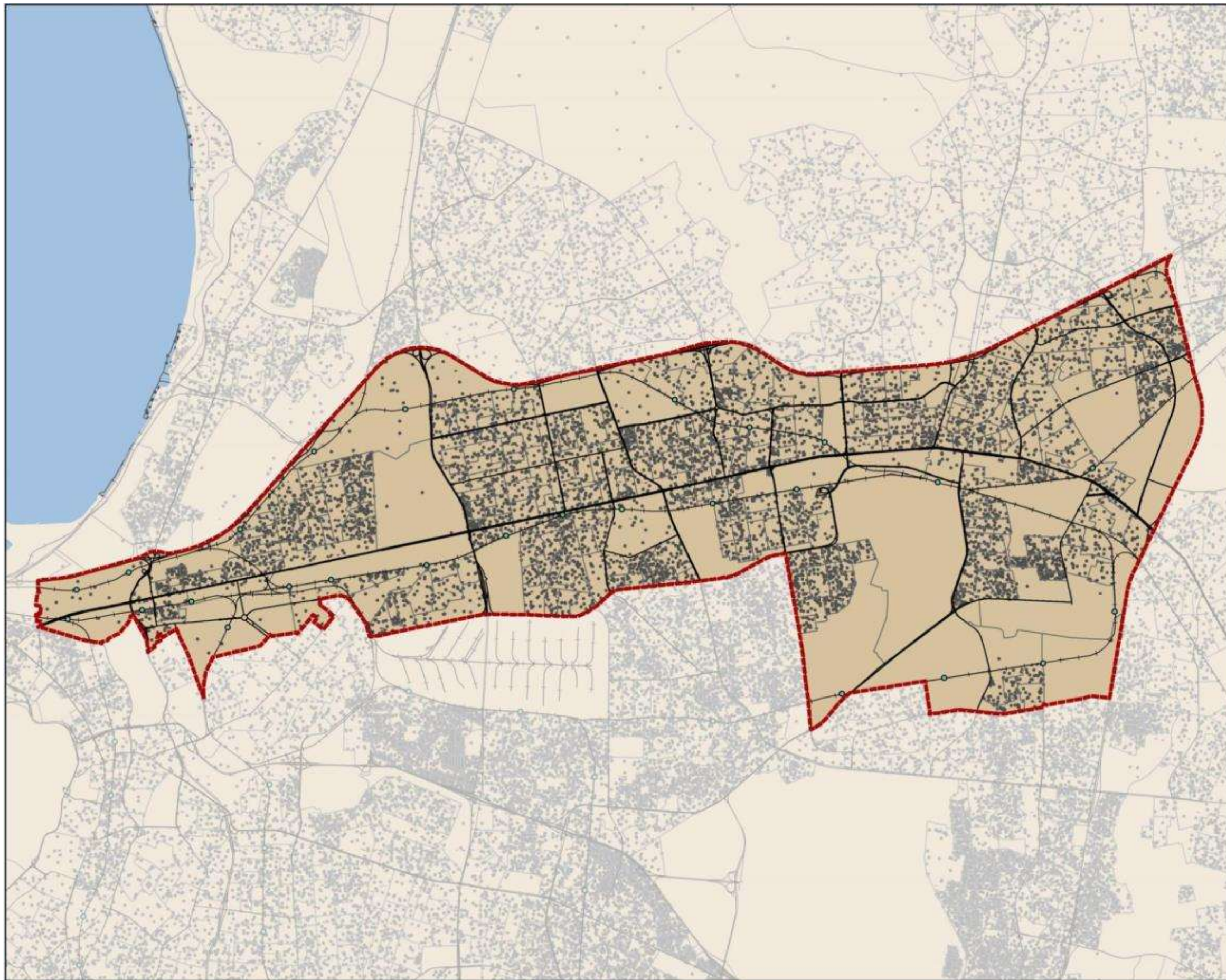
1:60 000  
Standard Mercator Projection,  
Central African Time Zone,  
WGS84 datum using the  
South African Datum

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Date: March 2014

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ISIXEKO SASEKAPA  
STAD KAAPSTAD



**VRC IZ**  
Household Density  
2011

- Legend**
- Dwelling Units**
- 1 Dot = 10 households
  - VRC Integration Zone
  - Census Small Areas
  - Roads
  - Rail Stations
  - Railway

Source:  
2011 census data



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The 2001 census data is only available at sub-place level, making it difficult to compare with the 2011 data, which is available for census small areas. Furthermore, the dot density maps give a slightly distorted representation of household densities, as they do not accurately portray exactly where (within the small areas) the households are located.

Some concentrations of higher household densities occur in the Oak Glen, Bellville South, Parow East, Parow North, Leonsdale, Churchill Estate and Townsend Estate areas.

### 3.2.3.4 Overcrowding

A dwelling is considered to be overcrowded if there are more than two persons per habitable room. Habitable rooms exclude kitchens, bathrooms and toilets.

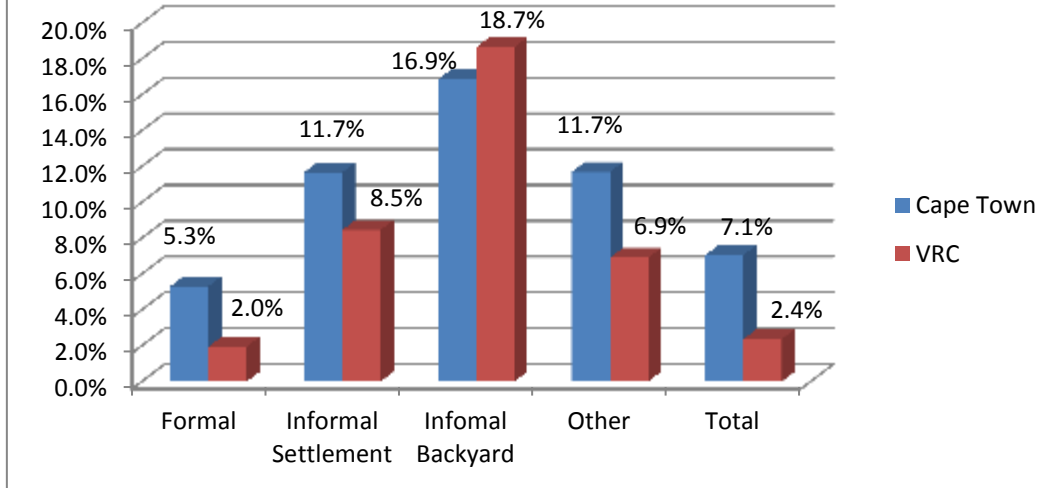
#### **VRC vs Metro**

Although the average household density in the Metro is lower (5.26 du / ha) than that of the VRC (8.3 du / ha), this is a gross density and therefore takes into account all the large vacant, natural and agricultural areas within the Metro

<b>CAPE TOWN</b>	<b>Cape Town Total Households</b>	<b>Cape Town Overcrowded Households</b>	<b>Cape Town % Overcrowded</b>	<b>VRC Total Households</b>	<b>VRC Overcrowded Households</b>	<b>VRC% Overcrowded</b>
Formal	837 526	44 581	5.3%	64 143	1 255	2.0%
Informal Settlement	143 826	16 793	11.7%	402	34	8.5%
Informal Backyard	74 961	12 637	16.9%	1 158	216	18.7%
Other	12 256	1 433	11.7%	1 188	82	6.9%
<b>Total</b>	<b>1 068 569</b>	<b>75 444</b>	<b>7.1%</b>	<b>66 891</b>	<b>1 587</b>	<b>2.4%</b>

It is clear from the tables above that the VRC is much less overcrowded than the rest of the Metro, as only 2% of the formal dwellings (which contribute almost all the households in the VRC) are overcrowded.

## Overcrowding: VRC vs METRO 2011 census

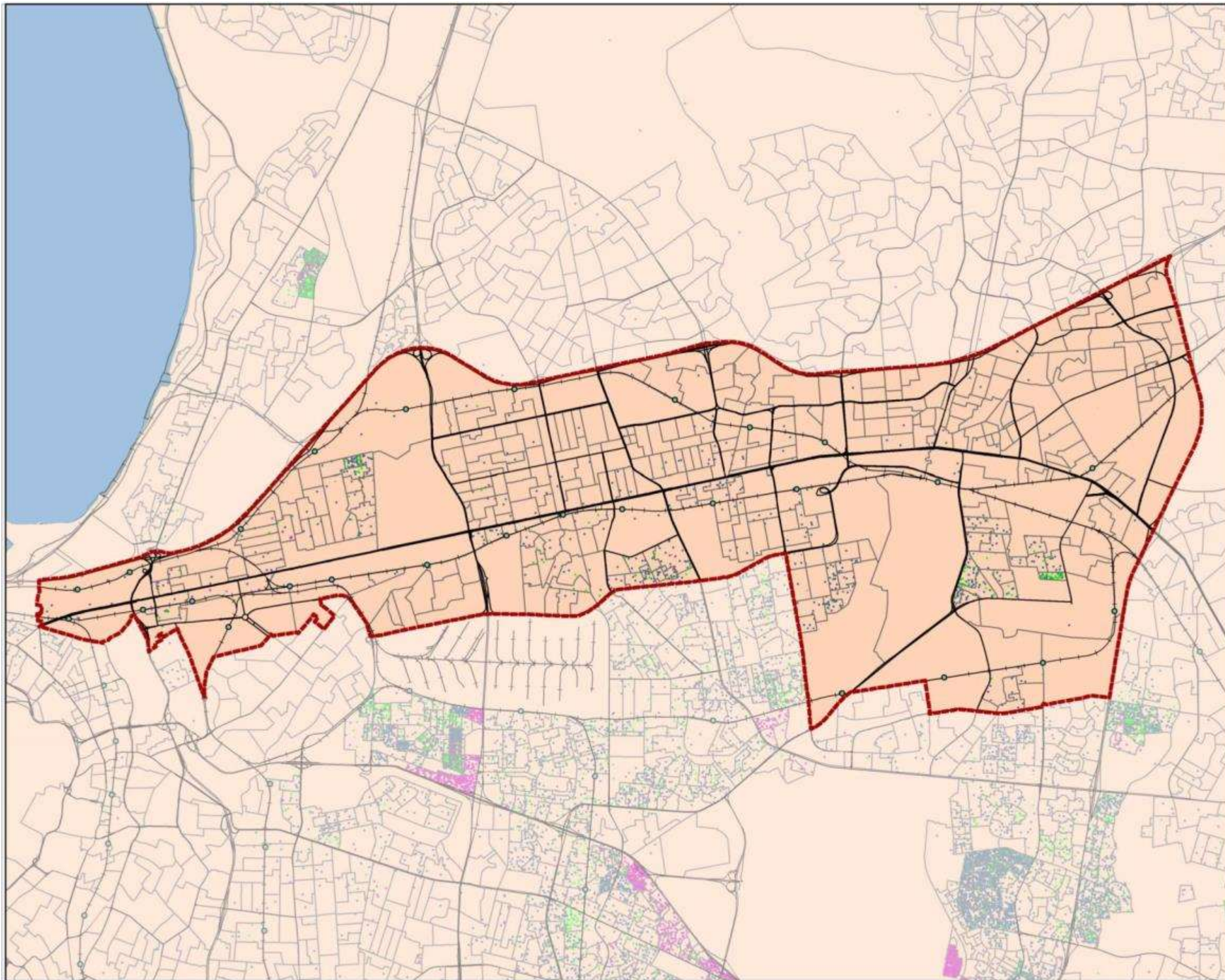


### **Intra-corridor trends and patterns**

Some intra-corridor variations are noticeable:

For formal dwellings, overcrowding appears to be prevalent in the northern parts of Maitland, Elsies River / Leonsdale, Ravensmead, and parts of Bellville South.

Backyard dwellings appear to be mostly overcrowded in the Maitland north and Bellville South areas.



**VRC IZ**  
Overcrowding:  
All dwellings

Legend

**Number of dwellings with more than 2 persons per habitable room**

- 1 Dot = 2 households
- Formal households
- Informal dwellings
- Backyard dwellings
- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data



0 200 300 1 000 1 500 2 000  
meters

1:60 000

Horizontal Mercator Projection  
Cape Town 1983  
WGS84 Ellipsoid using the  
South African Datum

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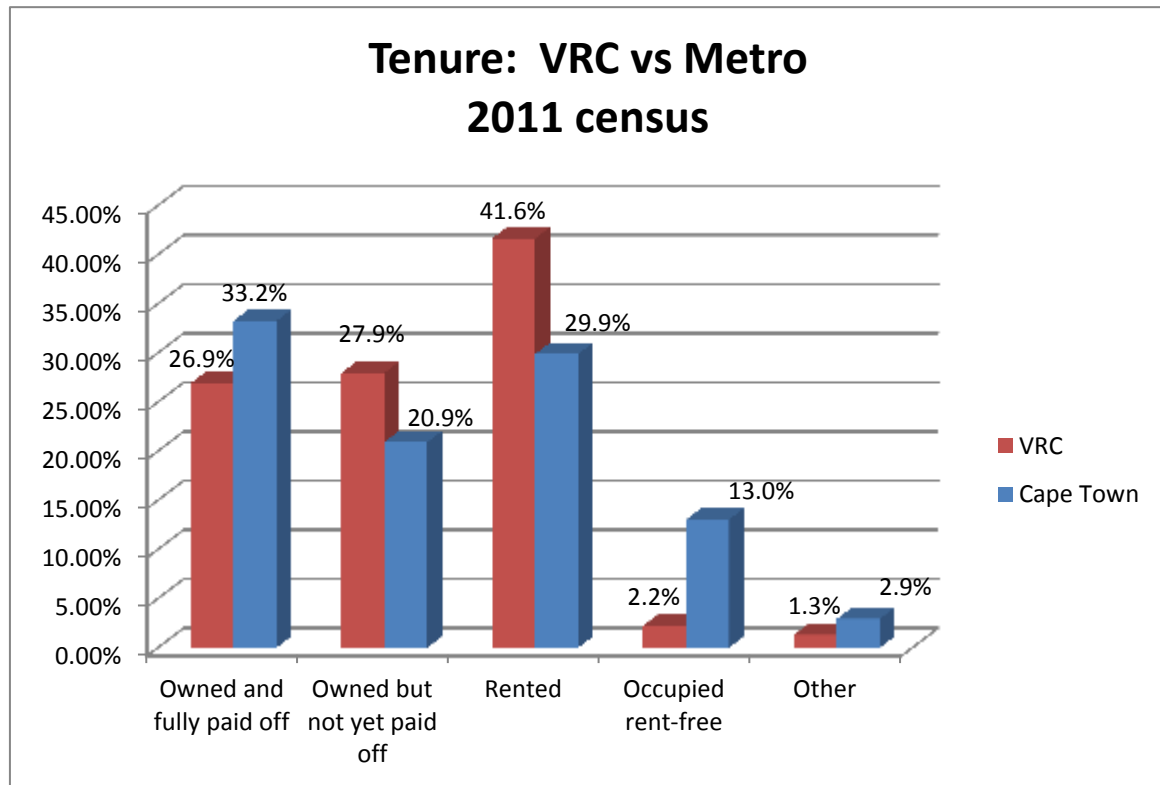


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### 3.2.3.5 Tenure

The 2011 census provides information relating to property tenure in the following categories:

- Properties that are owned and fully paid off
- Properties that are owned but not yet fully paid off
- Properties that are rented
- Properties that are occupied rent-free
- Other



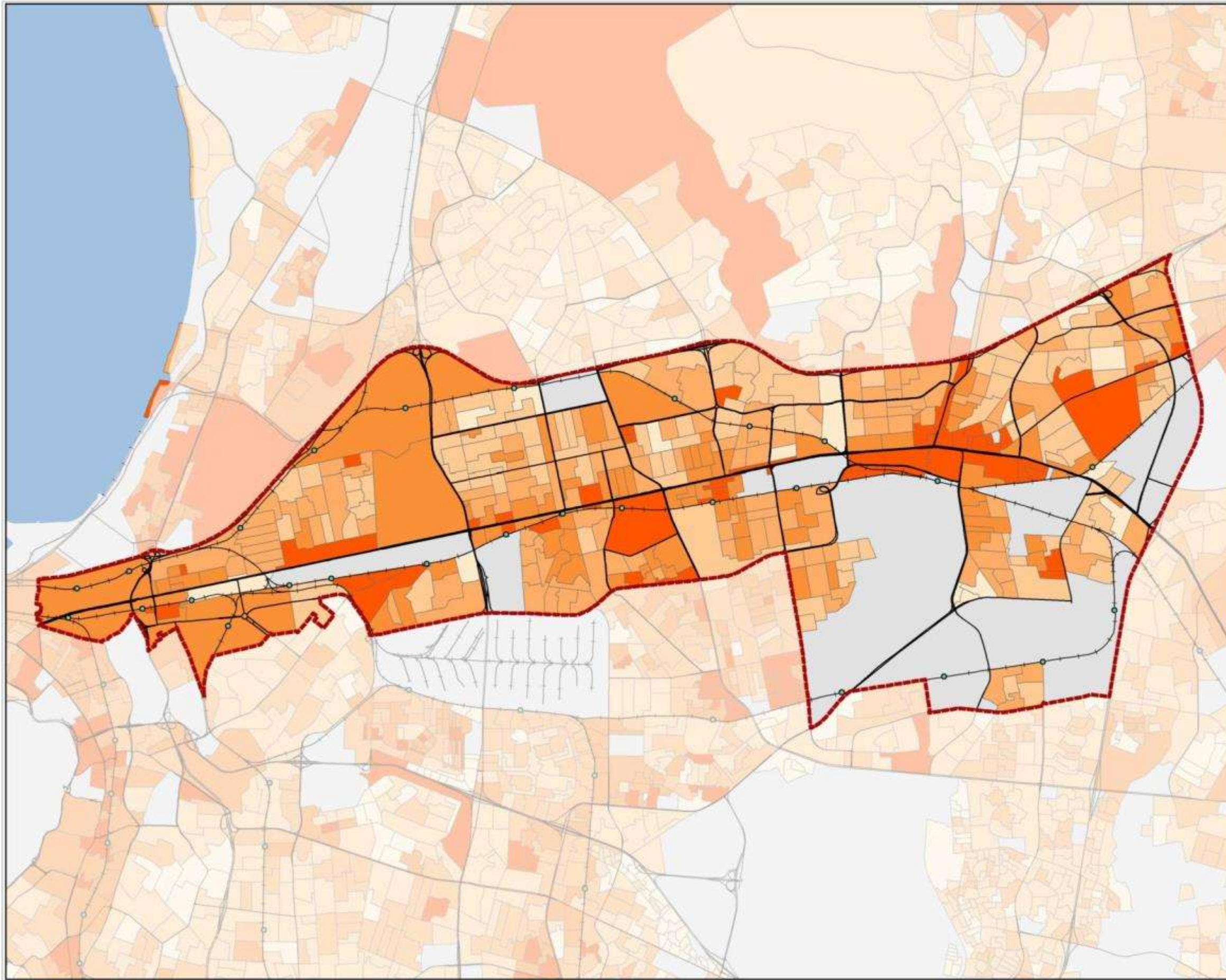
### VRC vs Metro

It is clear from the bar chart above that a large portion of residential properties in the VRC (41.6%) are rented (significantly more than the 29.9% City-wide average), while 54.8% of properties in the VRC are owned (vs. 54.1% City-wide).

### Intra-corridor trends and patterns

Some intra-corridor variations are noticeable:

Property ownership percentages increase further away from Voortrekker Road, while rental property percentages are (not surprisingly) highest along Voortrekker Road.



### VRC IZ

Tenure:  
Rented Properties

#### Legend

#### % renting property

- < 20 households
- < 10 %
- 10 - 25 %
- 25 - 45 %
- 45 - 70 %
- > 70 %

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- ← Railway

Source:  
SDI, extracted from  
2011 census data



0 250 500 1 000 1 500 2 000  
Metres

1:60 000

National Map of South Africa  
Cartographic 1P file  
WGS84 datum using the  
Spheroid: Everest Datum

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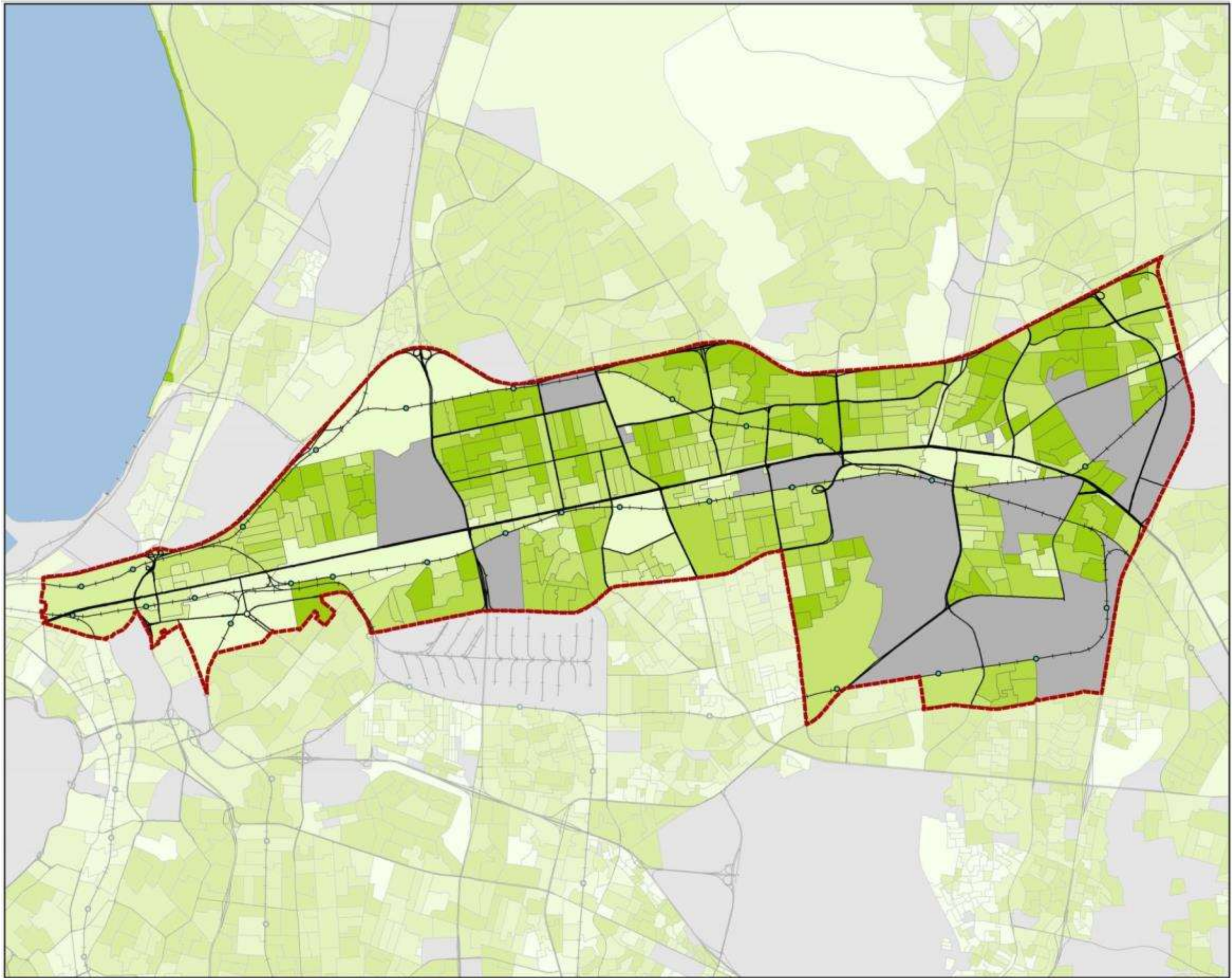
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**VRC IZ**  
 Tenure:  
 Owned Properties

Legend

**% owning property**

- No home owners
- < 15 %
- 15 - 40 %
- 40 - 60 %
- 60 - 75 %
- > 75 %

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
 SDI, extracted from  
 2011 census data



0 250 500 1 000 1 500 2 000  
 Meters

1:60 000

Horizontal Mercator Projection,  
 GCS: Africa South of Sahara,  
 WGS84 Ellipsoid using the  
 Worldwide World Fund of Data

Disclaimer:  
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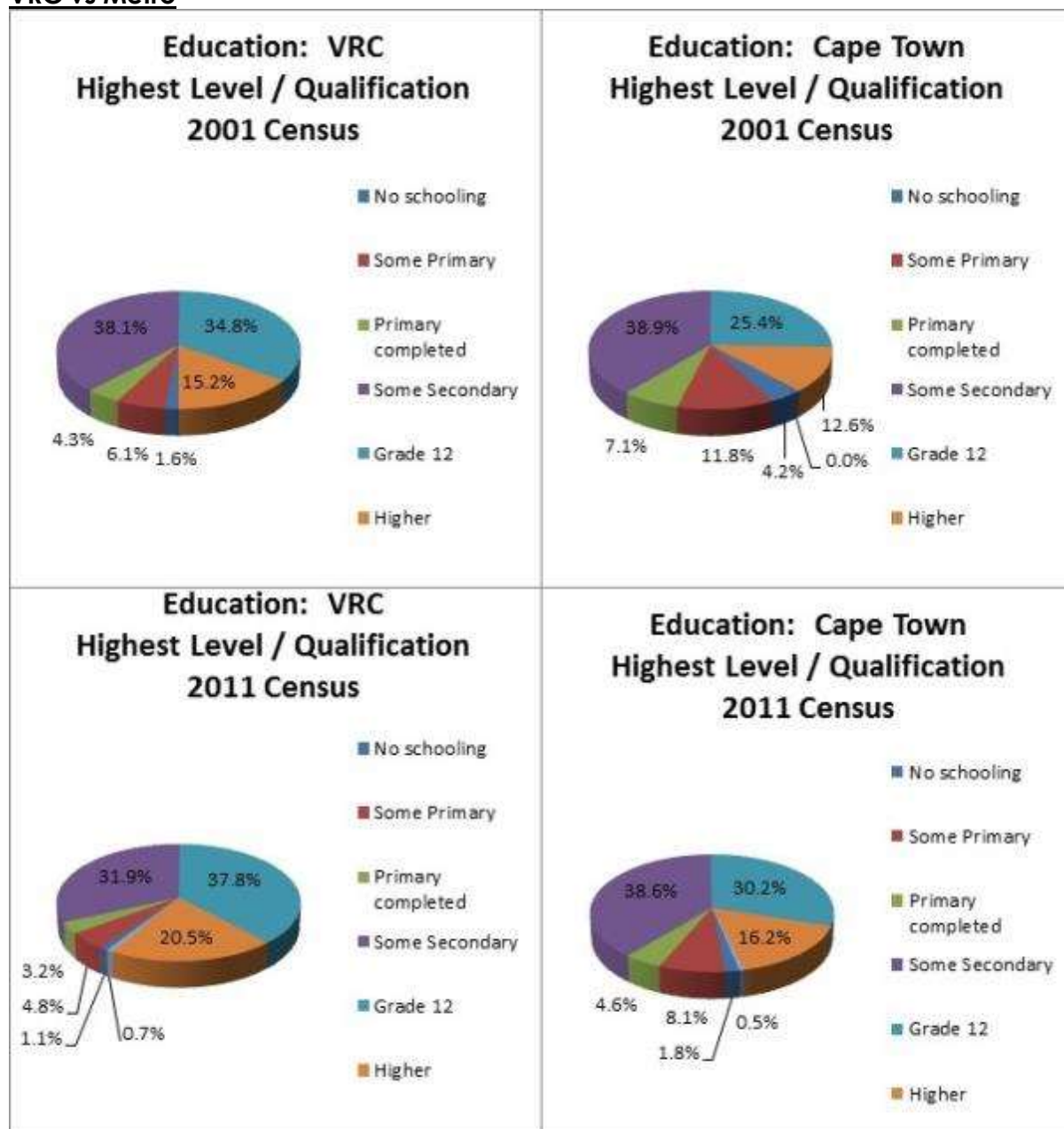
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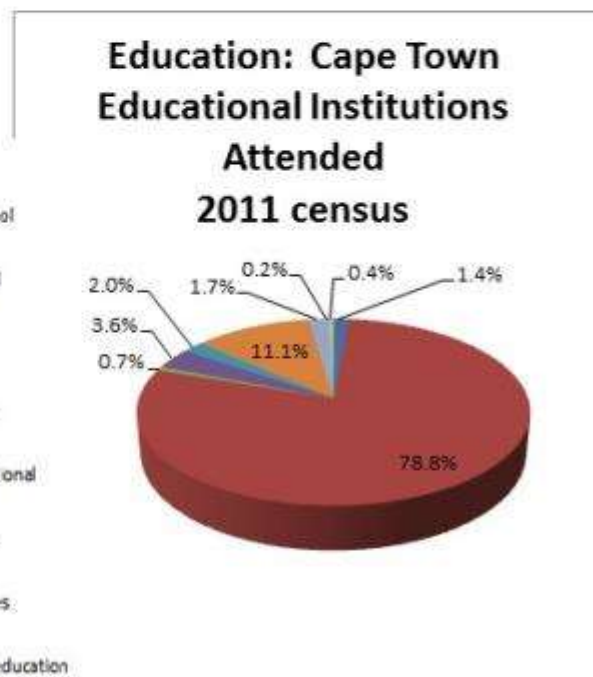
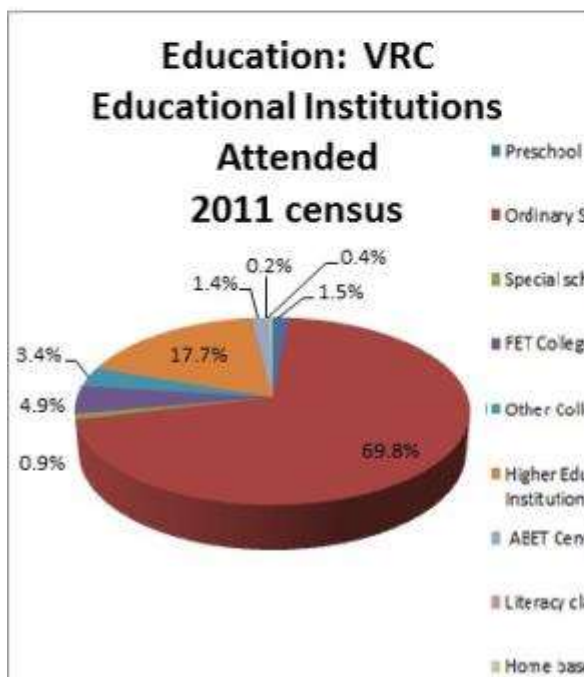
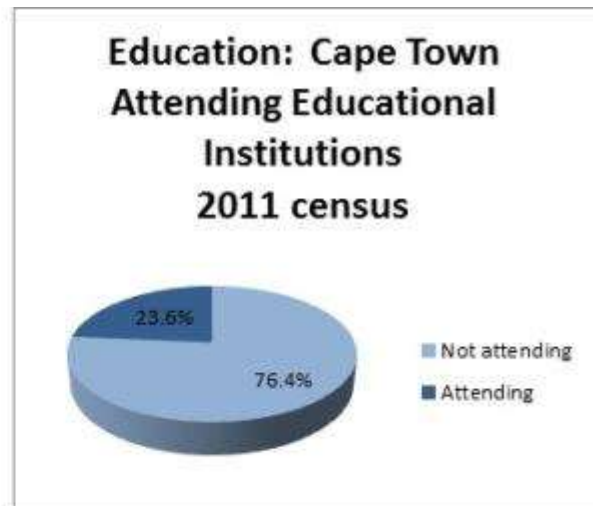
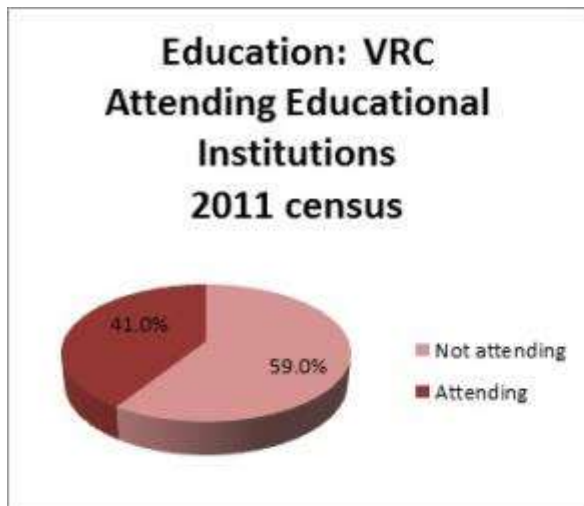
### 3.2.4 Adult Education

Adult Education levels were analysed using both the 2001 and 2011 census data.

#### VRC vs Metro

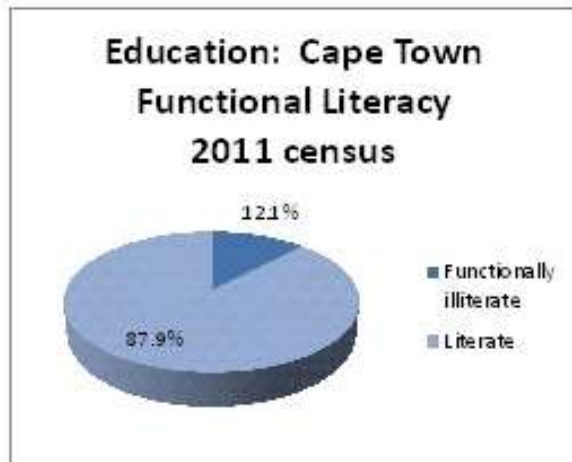
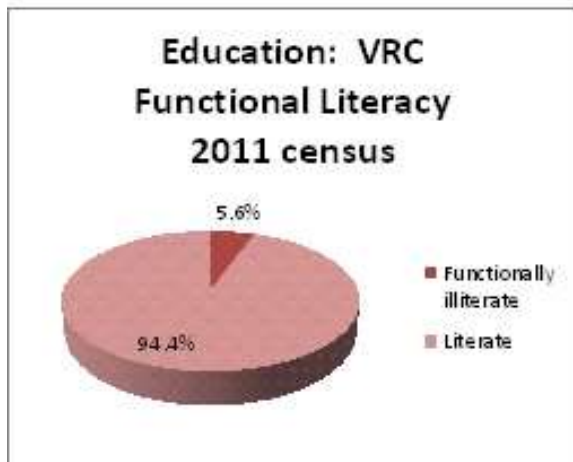
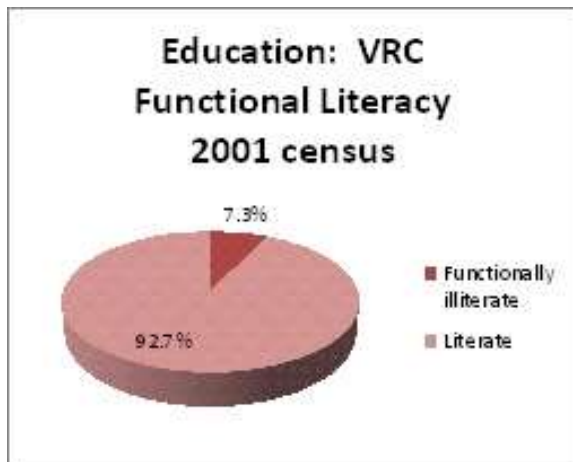


For both the VRC and the City, **levels of adult education** improved significantly from 2001 to 2011. The percentage of adults with at least Matric increased from 50% in 2001 to 58.3% in 2011 in the VRC, and from 38% to 46.4% in the City. It is also clear that the VRC has a significantly larger percentage of adults who completed Grade 12, and adults with higher qualifications, than the Citywide averages.



The percentage of the total population over 4 years of age **attending educational institutions** is higher for the VRC (41%) than for the City (23.6%). Of those attending educational institutions, a higher percentage of the VRC population (17.7% vs. 11.1% for the City) are attending higher educational institutions.

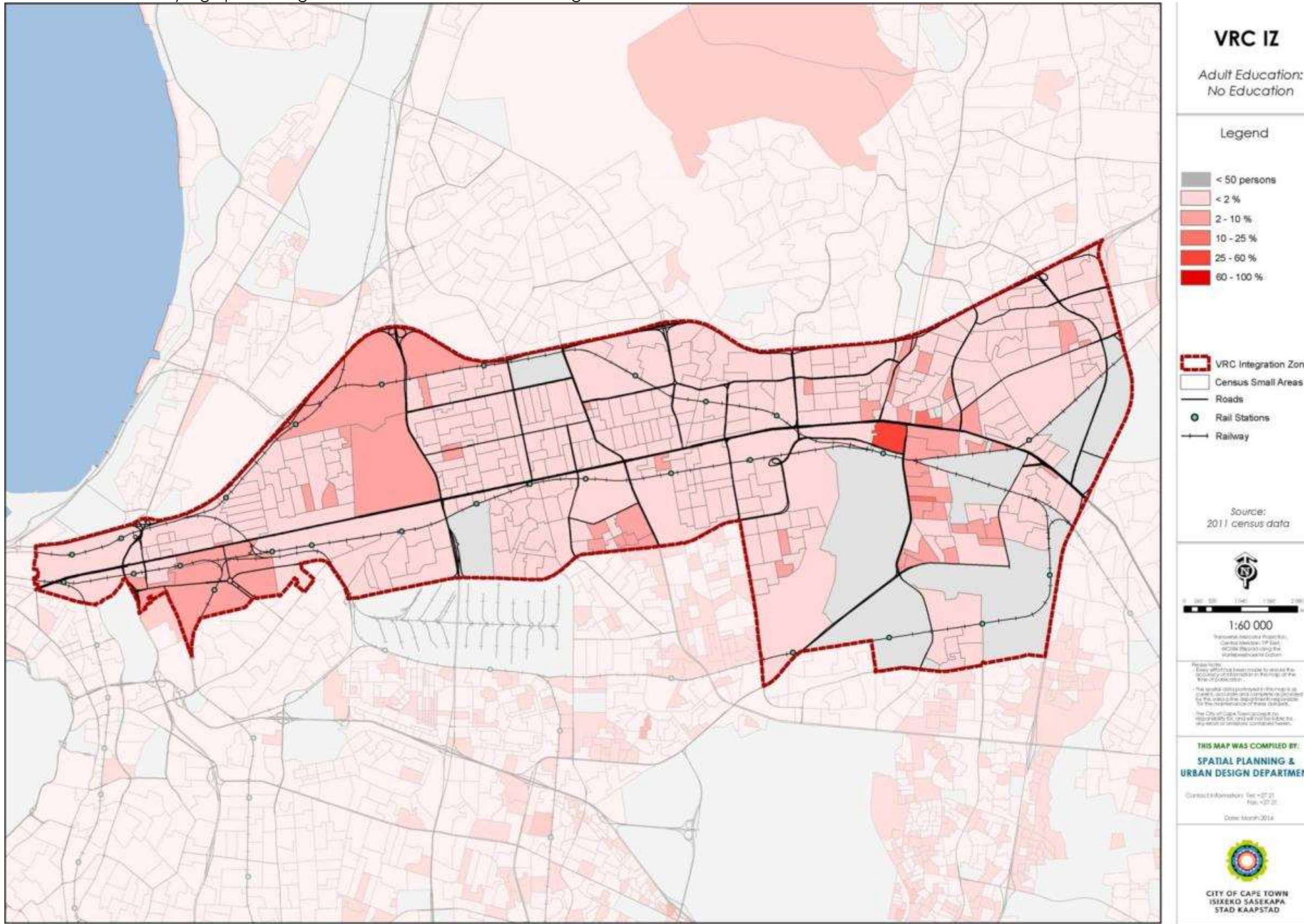
The percentage of people aged 15 years and older that are **functionally illiterate** (i.e. with only primary or no schooling) decreased from 7.7% in 2001 to 5.9% in 2011 for the VRC, and from 16% to 9.9% in the City. The VRC population has higher levels of functional literacy than the City.



**Intra-corridor Trends and patterns**

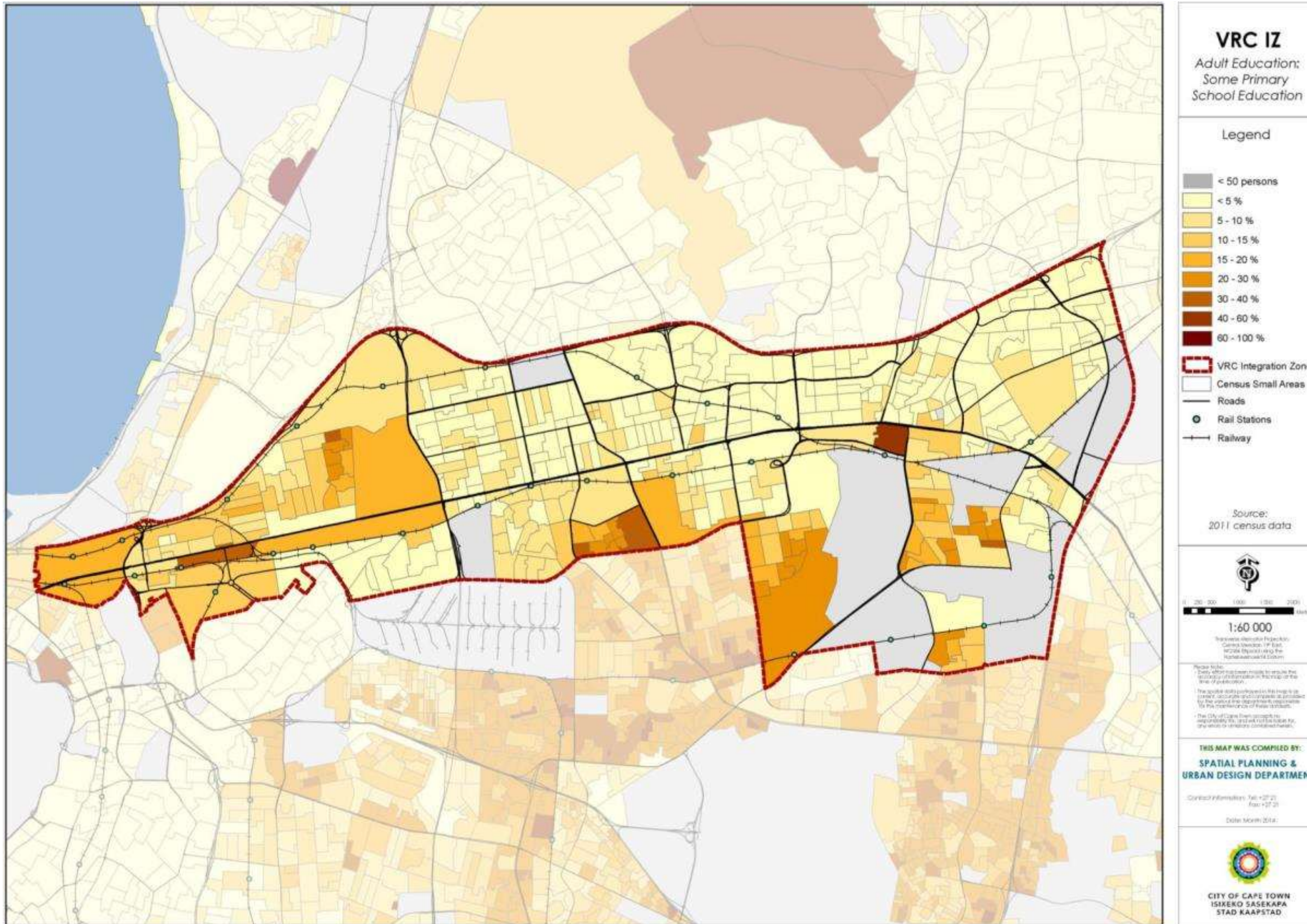
**3.2.4.1 Adults with no formal schooling**

There appears to be a concentration of areas with a large percentage of the population having no formal schooling around the Bellville Central area. The Wingfield, Acacia Park and Ndabeni areas also have a fairly high percentage of adults with no formal schooling.



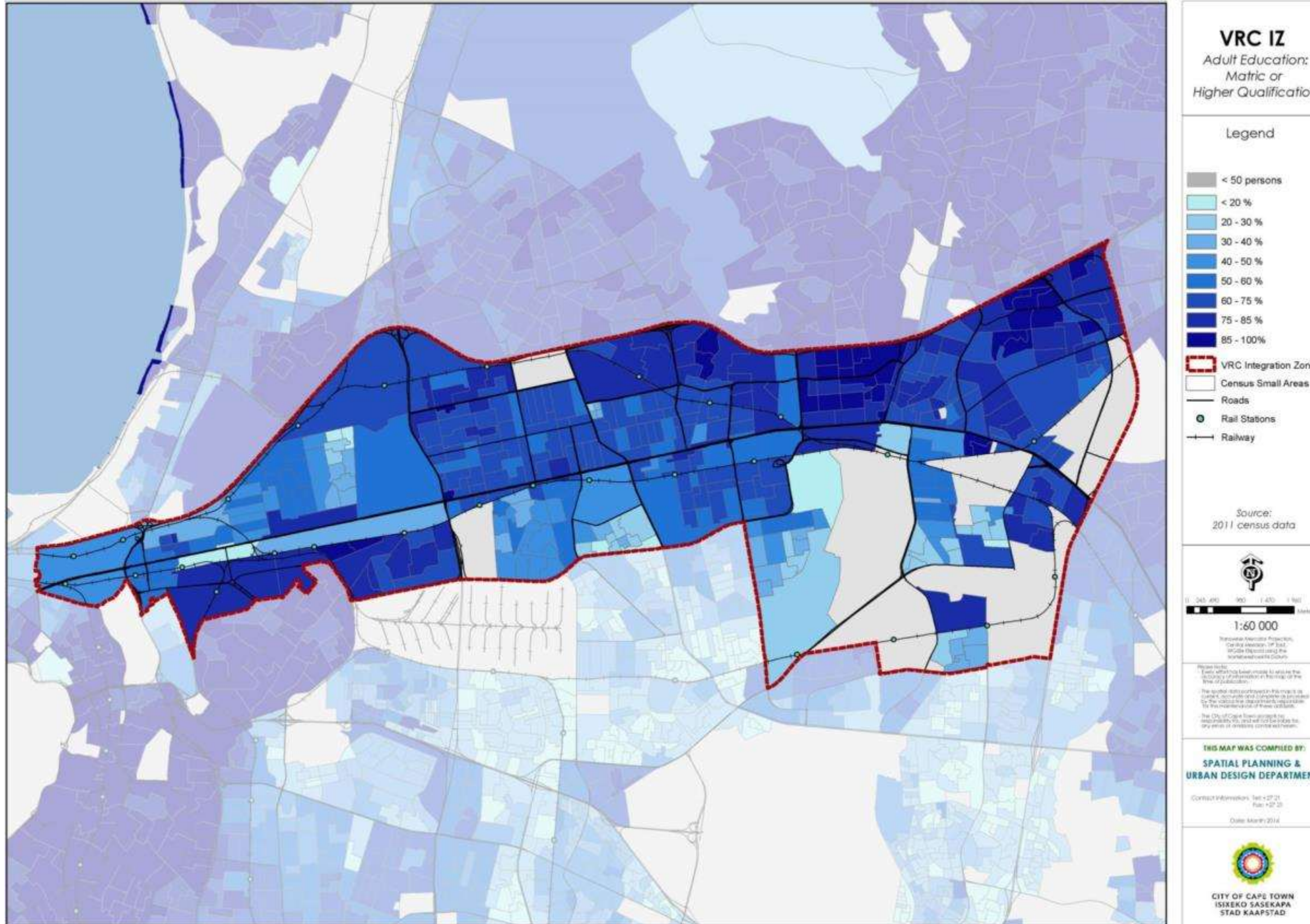
**3.2.4.2 Adults with some / primary schooling**

The biggest concentrations of adult populations that have at most some primary school education, are located south of Voortrekker Road, particularly in the Bellville Central, Bellville South, Bellville South Industrial and Elsies River areas.



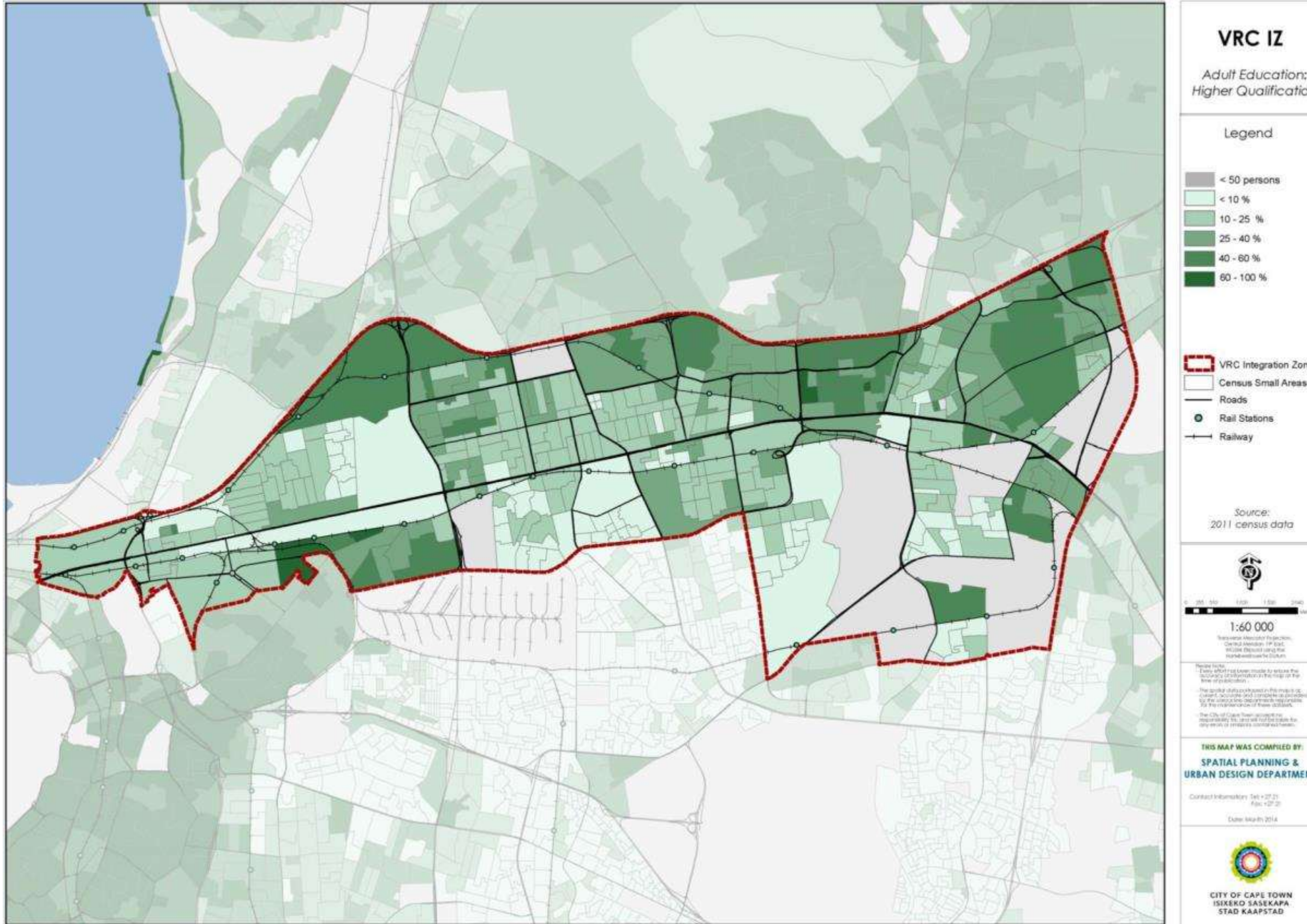
### 3.2.4.3 Adults with at least Matric

The areas south of Voortrekker Road generally appear to have a somewhat lower percentage of adults with at least a Matric qualification, with noticeable concentrations of lower percentages in the Elsies River, Ravensmead and Bellville South areas. As expected, the University of the Western Cape and Pentech precincts contain a high percentage of people who have obtained at least Matric.



**3.2.4.4 Adults with Higher Qualifications**

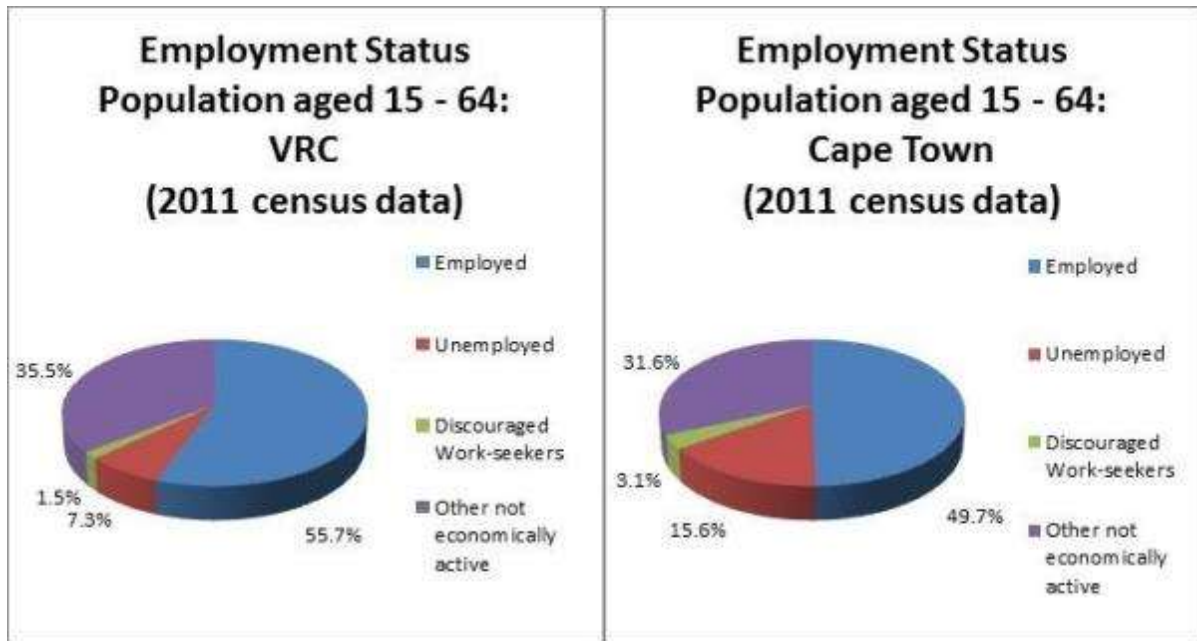
The University of the Western Cape and Pentech precincts contain a high percentage of people who have obtained higher qualifications, as could be expected.



### 3.2.5 Employment Status

Employment status was analysed using the 2011 census data.

#### 3.2.5.1 Overall Employment Status



#### VRC vs Metro

The VRC has a higher percentage of adults that are employed.



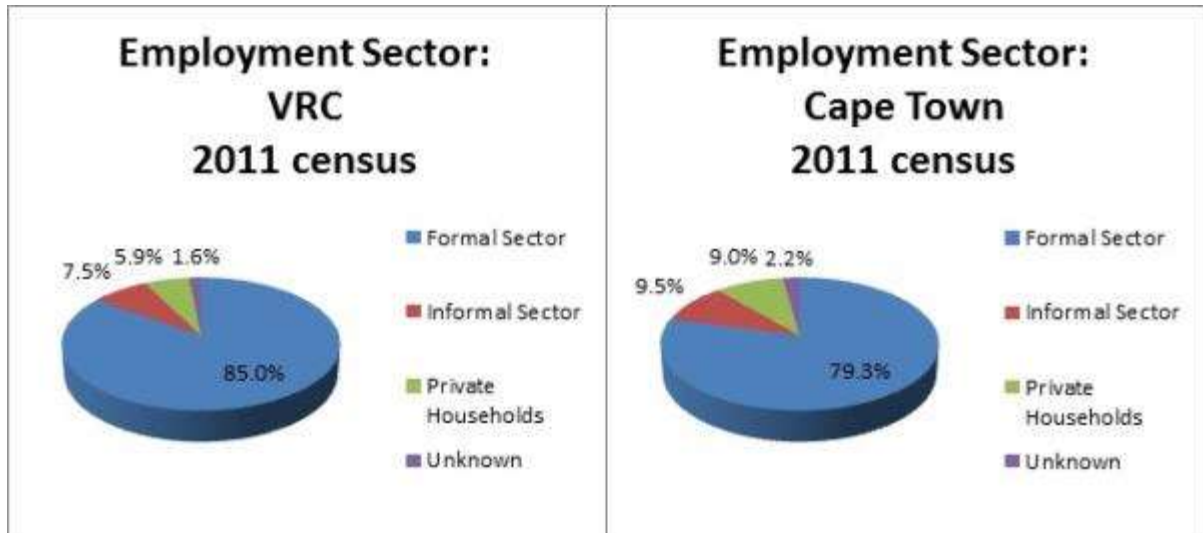
### 3.2.5.2 Employment by Sector

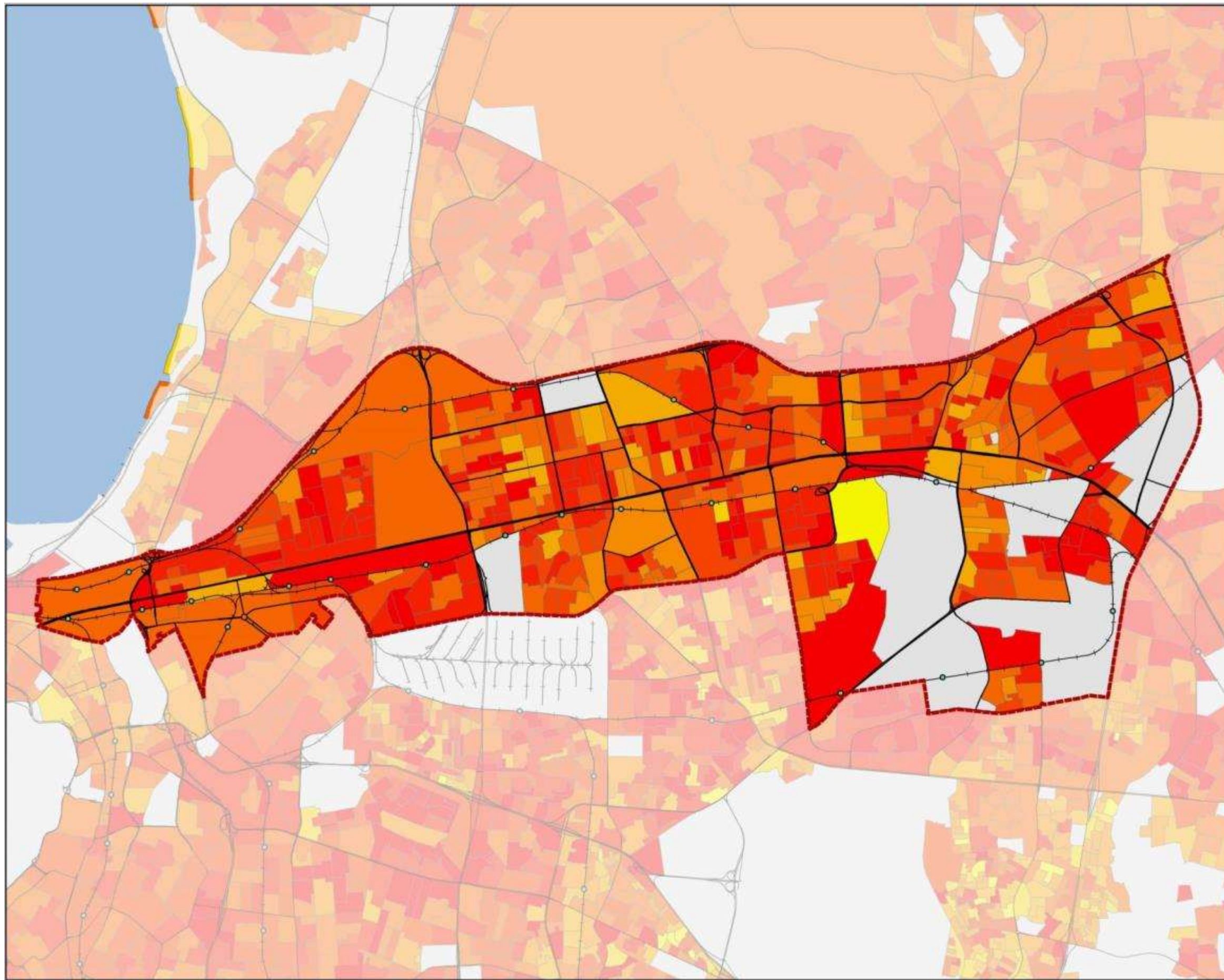
#### VRC vs Metro

The VRC has a higher percentage of adults that are employed in the formal sector.

#### Intra-corridor trends and patterns

An analysis of intra-corridor variations was made, but no specific patterns or trends could be discerned.






**VRC IZ**  
 Employment Status  
 Formal vs Informal  
 2011

**Legend**  
**% employed in Formal Sector**

- < 50 persons
- < 25 %
- 25 - 40 %
- 40 - 60 %
- 60 - 75 %
- 75 - 85 %
- 85 - 90 %
- 90 - 95 %
- 95 - 100 %

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway


Source:  
 2011 census data

  
 0 200 400 600 800 1000  
 1:60 000  
 Transkei Vector Projection  
 GCS Africa South Africa  
 WGS84 Ellipsoid using the  
 Earth-Spheroid Datum

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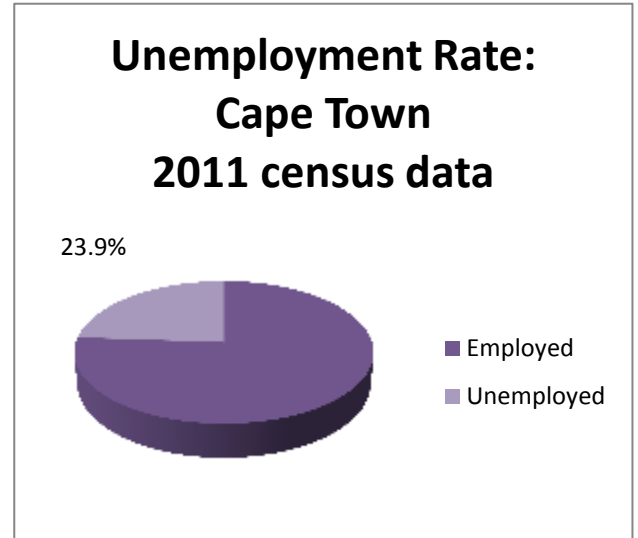
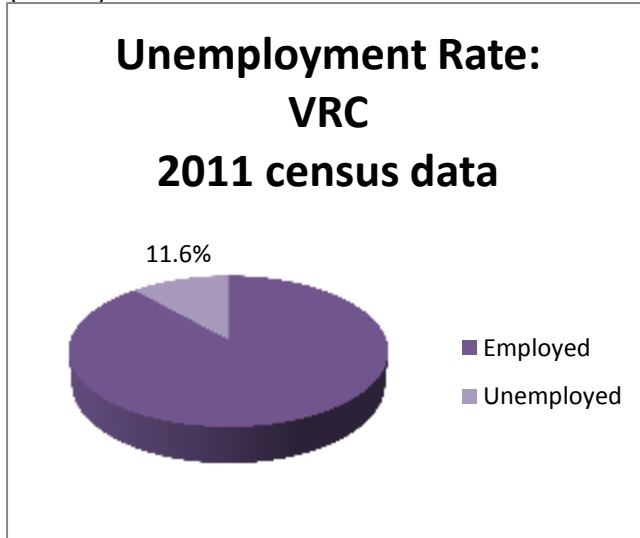
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### 3.2.5.3 Unemployment Rate

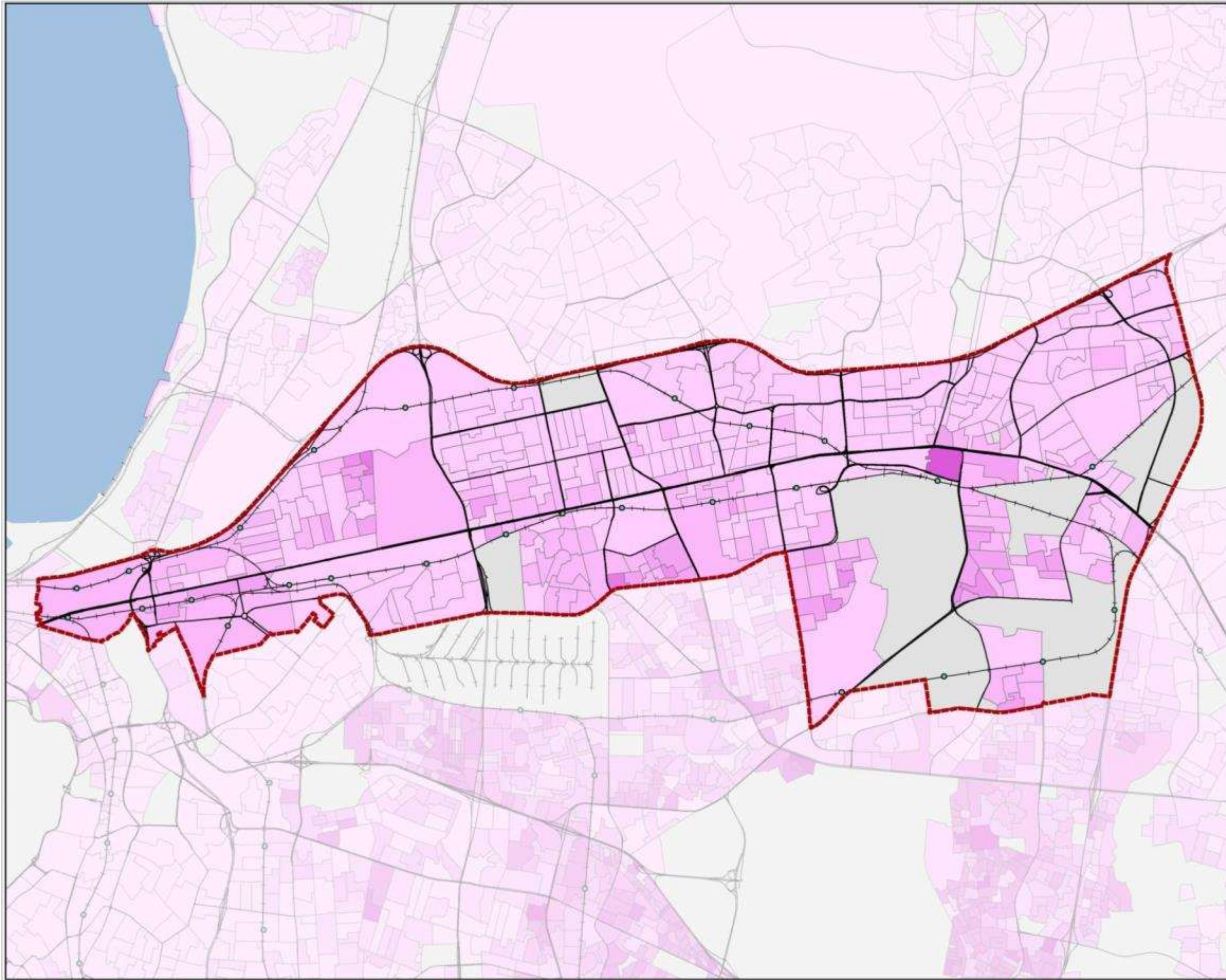
#### **VRC vs Metro**

The VRC has a significantly lower unemployment rate (11.6%) than that of the Metro (23.9%).



#### **Intra-corridor trends and patterns**

The areas with the highest unemployment rates are the Bellville CBD area, Bellville South, Ravensmead, Elsie's River / Leonsdale, and Windermere.



**VRC IZ**  
Unemployment Rate  
2011

**Legend**

- < 50 persons
- < 10%
- 10 - 20 %
- 20 - 30 %
- 30 - 40 %
- 40 - 50 %
- 50 - 60 %
- 60 - 70 %
- 70 - 80 %
- 80 - 90 %
- 90 - 100 %

  VRC Integration Zone


  Census Small Areas

Roads

Rail Stations

Railway


Source:  
SDI, calculated from  
2011 census data

  
 0 200 400 600 800 1 000  
 Metres  
**1:60 000**  
South African Projection,  
Central Meridian 19° East,  
WGS84 Ellipsoid using the  
NAD2011 datum

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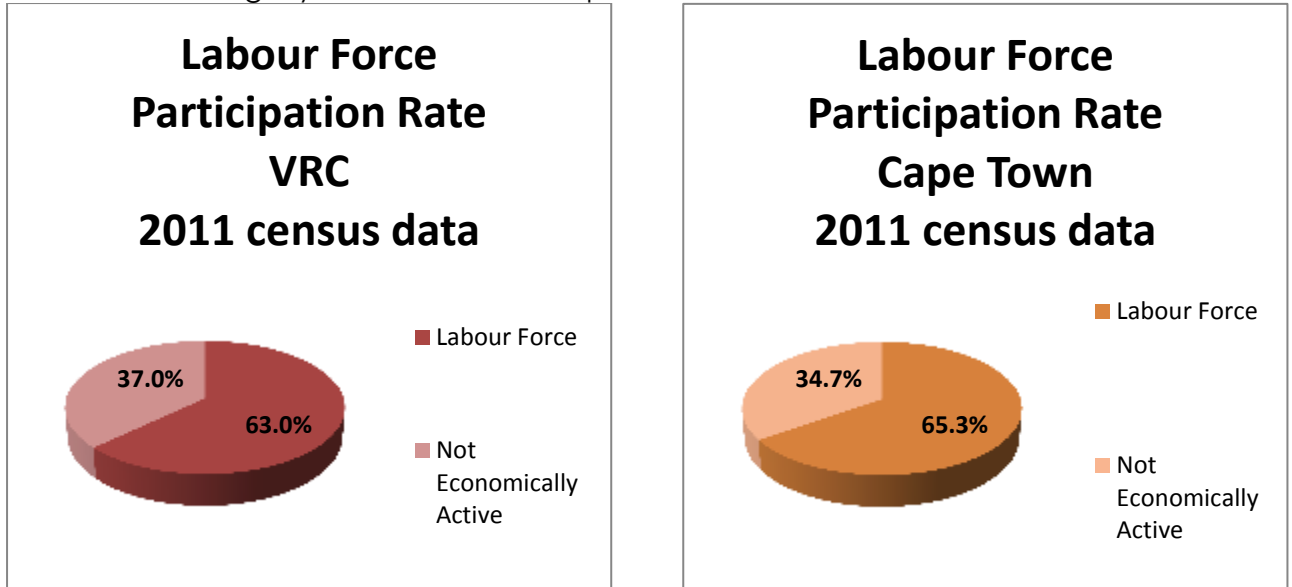
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### 3.2.5.4 Labour Absorption Rate

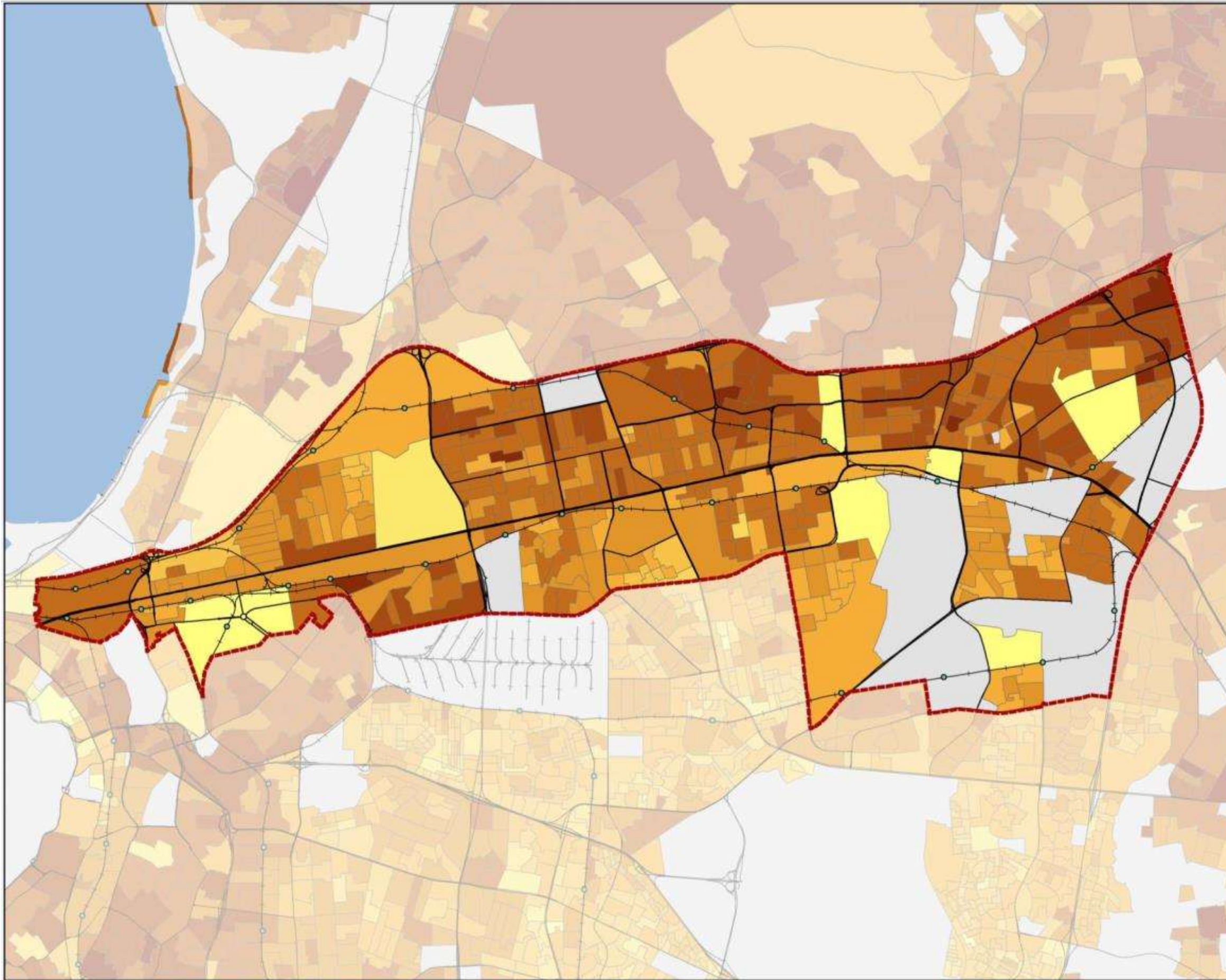
#### VRC vs Metro

The VRC has a slightly lower labour absorption rate than that of the Metro.



#### Intra-corridor trends and patterns

No specific trends or patterns could be discerned.





**VRC IZ**  
Labour Absorption Rate  
2011

Legend

- < 50 persons
- < 10%
- 10 - 20 %
- 20 - 30 %
- 30 - 40 %
- 40 - 50 %
- 50 - 60 %
- 60 - 70 %
- 70 - 80 %
- 80 - 90 %
- 90 - 100 %

- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI, calculated from  
2011 census data


  
  
**1:60 000**  
 Transverse Mercator Projection,  
 GCS Africa 1961 East,  
 WGS84 Ellipsoid using the  
 African Spheroid Datum

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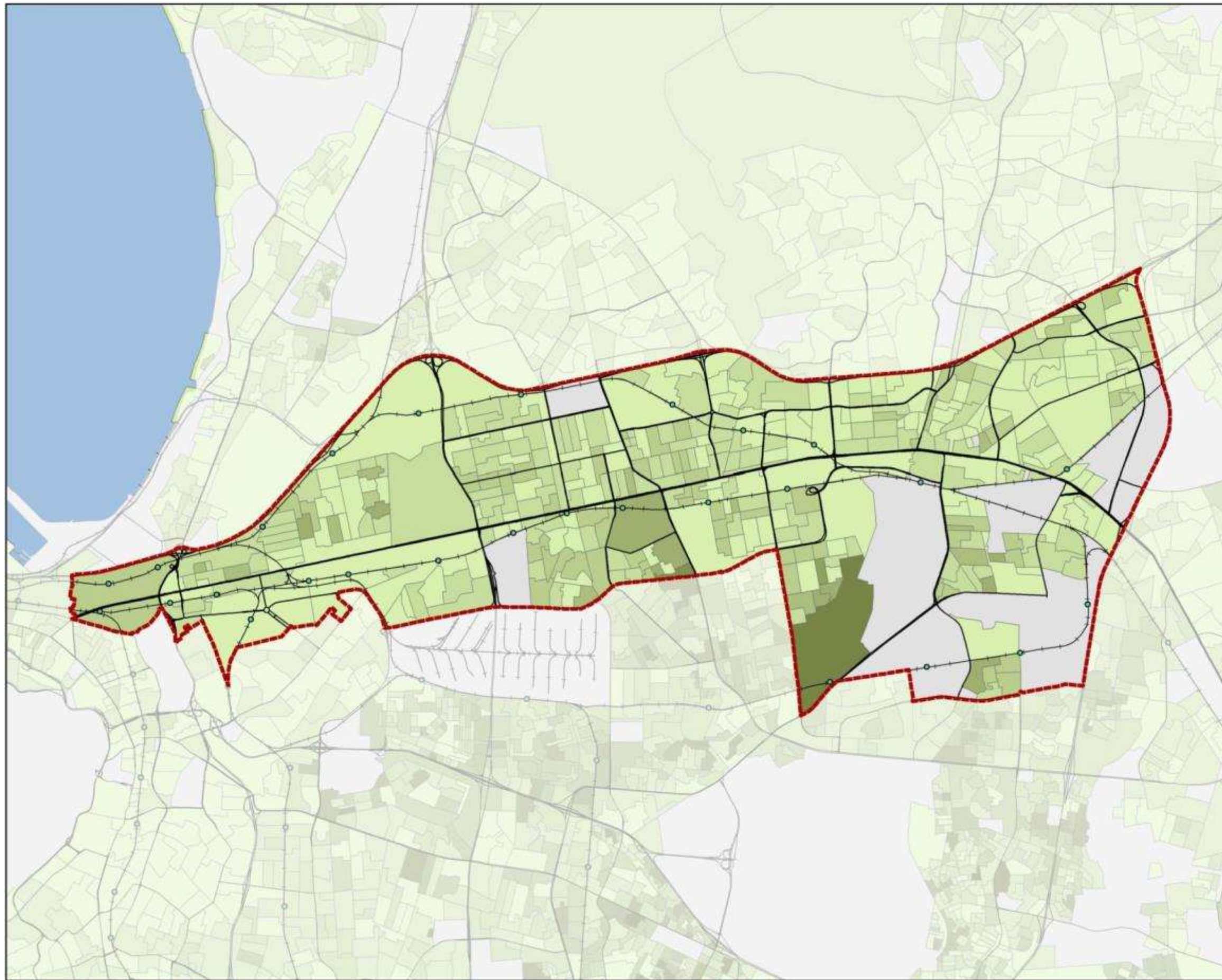
### **3.2.5.5 Discouraged Work Seekers**

#### **VRC vs Metro**

No comparative analysis was carried out.

#### **Intra-corridor trends and patterns**

The Parow Industrial area appears to have a high percentage of discouraged workseekers. However, this area has a relatively small population and the representation is therefore slightly misleading. The Elsie's River area, and portions of Bellville South, Kensington and Windermere also have a fairly high percentage of discouraged work seekers.



**VRC IZ**  
Discouraged  
Workseekers  
2011

- Legend**  
%
- Discouraged Workseekers**
- < 50 persons
  - < 0.5 %
  - 0.5 - 2 %
  - 2 - 4 %
  - 4 - 6 %
  - 6 - 9 %
  - 9 - 12 %
  - 12 - 18 %
  - 18 - 24 %
  - 24 - 36 %
  - > 36 %
- VRC Integration Zone**
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI, calculated from  
2011 census data



1:60 000  
Savannah Mercator Projection,  
Central African TP East,  
WGS84 Ellipsoid using the  
WGS84 datum

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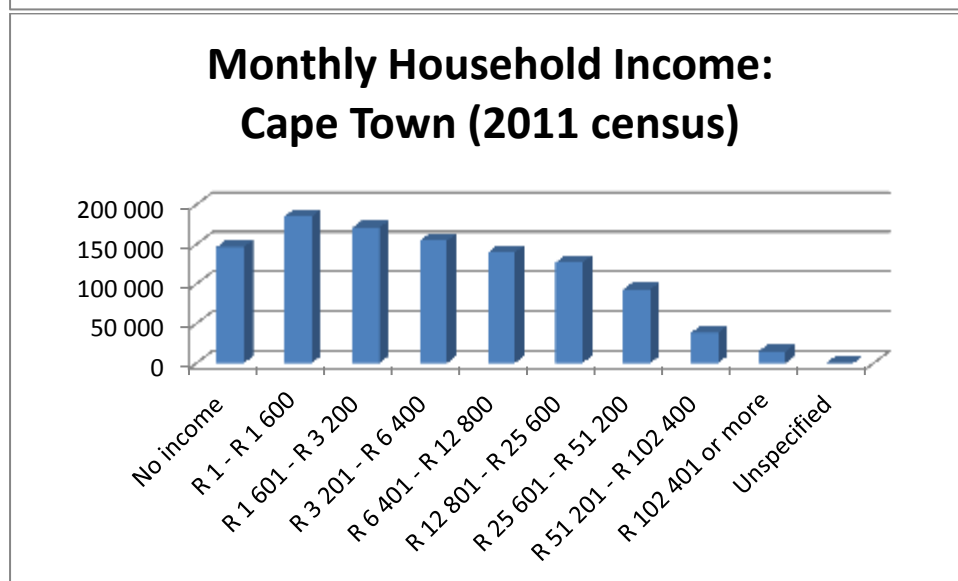
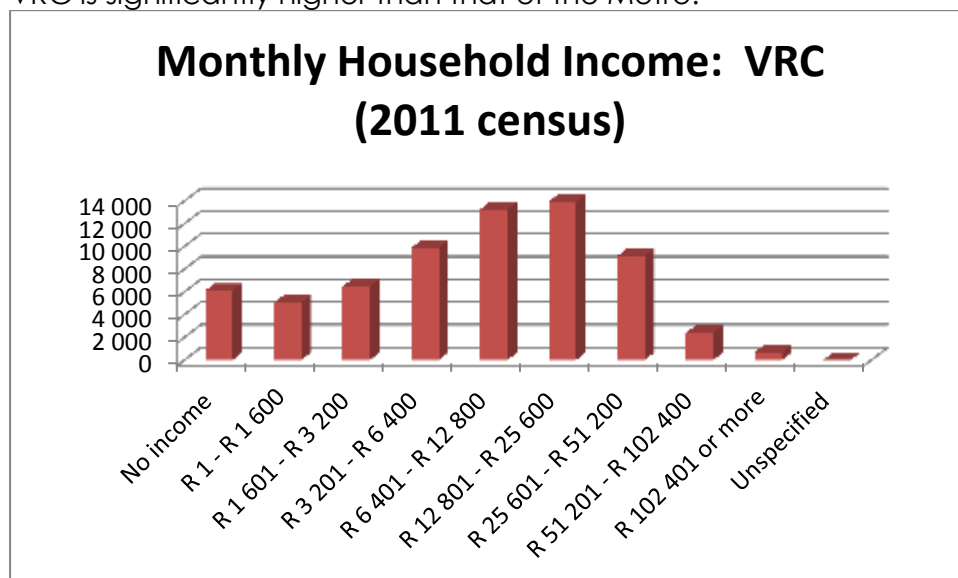


### 3.2.6 Household Income

The 2011 census data for monthly household income was analysed.

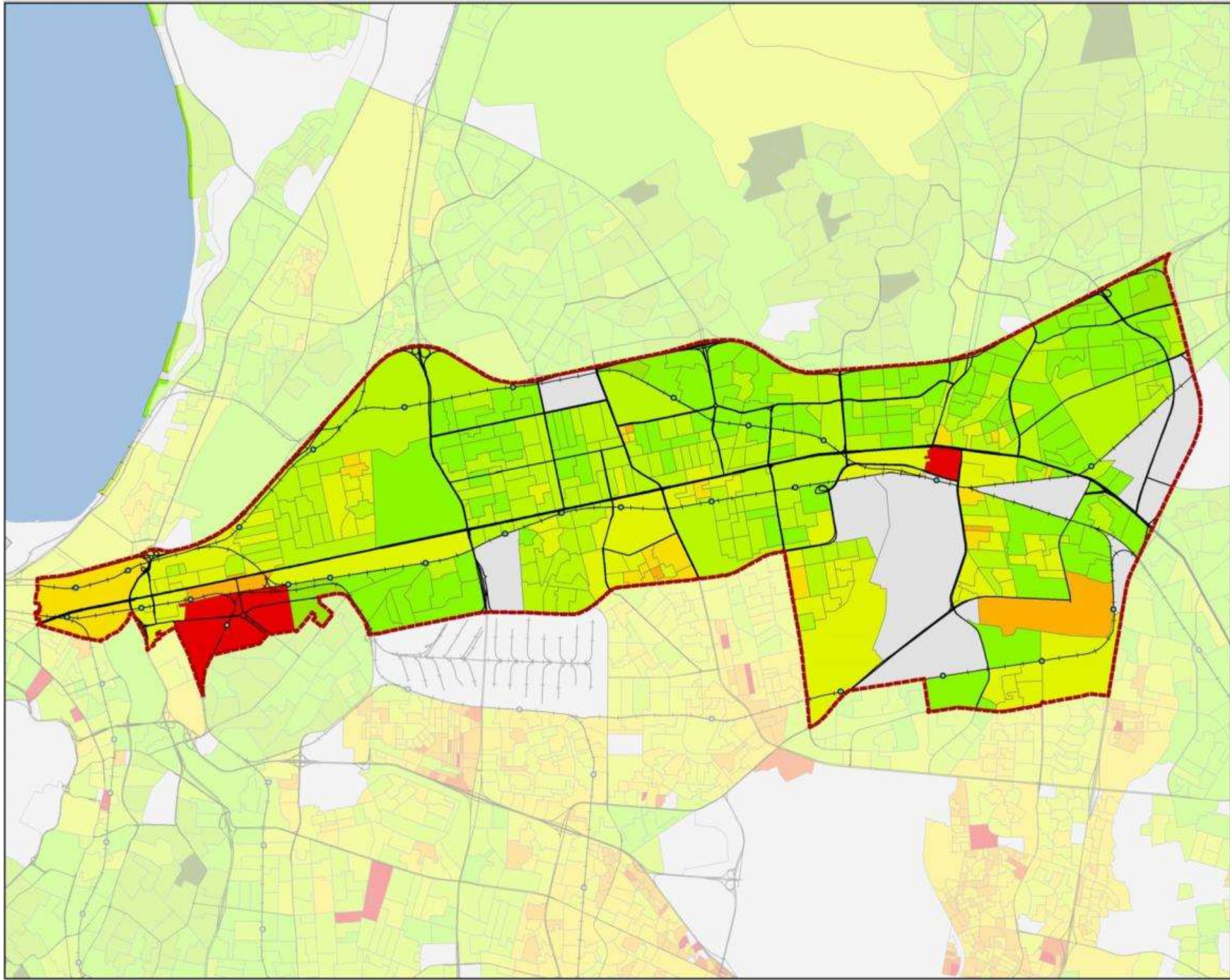
#### VRC vs Metro

It is clear from the bar charts below that the average (and median) income in the VRC is significantly higher than that of the Metro.



#### Intra-corridor trends and patterns

The median monthly household incomes are generally higher north of Voortrekker Road. The areas with the lowest median monthly household incomes are Bellville CBD, and Ndabeni. However, Ndabeni's relatively small population distorts the representation. It is also clear that the income levels of Elsie's River / Leonsdale, Windermere, and Bellville South, are relatively low.



**VRC IZ**  
Household Income  
(Median)  
2011

**Legend**

- < 20 households
- R0 to R400
- R401 to R800
- R801 to R1 600
- R1601 to R3 200
- R3 201 to R6 400
- R5 401 to R12 800
- R12 801 to R25 600
- R25 601 to R51 200
- R51 201 and more
- VRC Integration Zone
- Census Small Areas
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data

Scale: 1:60 000  
Transverse Mercator Projection,  
Datum: African 1961 East,  
WGS84 ellipsoid using the  
WGS84 datum.

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## 4 Socio-economic Trends

### 4.1 Methodology

#### 4.1.2 Information gathering

The socio-economic information was obtained from work that was carried out by the City's Strategic Development Information (SDI) team to develop a Socio-Economic Index for the City (extracted from the Census 2011 data published by StatsSA). Where available and usable in its existing format, this data (in spreadsheet, database or shapefile form) was downloaded from the City's database.

The methodology and full explanation of assumptions etc. used to compile the Socio-Economic index is contained in \*\*\*\*\*

#### 4.1.3 Representation of Information

Information is represented in the form most appropriate for illustration of specific trends, mostly as GIS maps to illustrate spatial variances

Details of the spatial representation methodology for each informant are contained in Annexure \*\*\*

#### 4.1.4 Reporting of Information

This report provides the following interpretations for each of the demographic informants:

- A high level comparison between the VRC Integration Zone and the entire Metro
- Identification of any trends / patterns / outliers within the VRC.

### 4.2 Information to Be Obtained

Information was obtained for the following socio-economic indicators:

- Household Services
- Economy
- Housing
- Education
- Composite Socio-Economic Index

### 4.3 List of Informants / Engagements

Targeted engagements were held with the following persons:

- Carol Wright: City of Cape Town Strategic Development Information
- Karen Small: City of Cape Town Strategic Development Information

## 4.4 Information Obtained

The Socio-Economic Index was compiled using four separate indexes that were weighted to produce the final index. Each index were then categorised in one of five categories:

- Very Good
- Good
- Average
- Needy
- Very Needy

The following information was obtained:

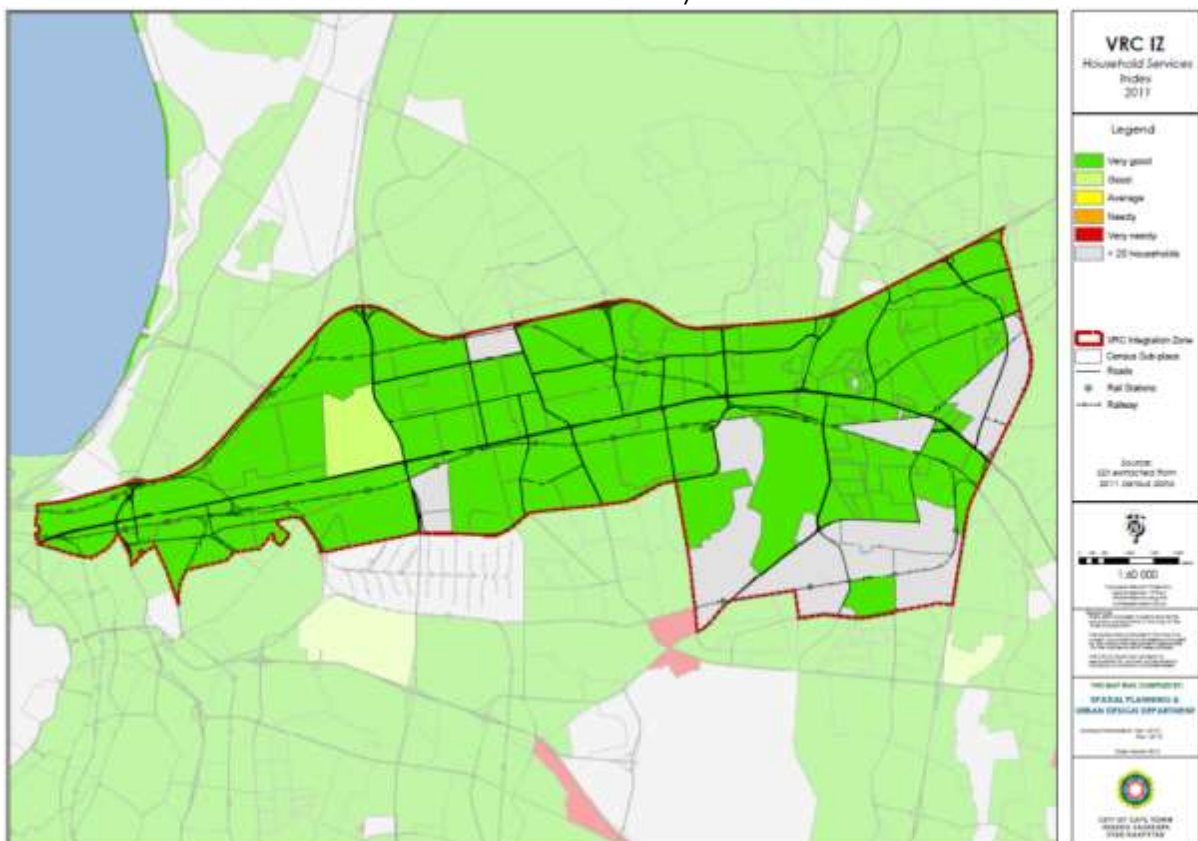
### 4.4.2 Household Services Index

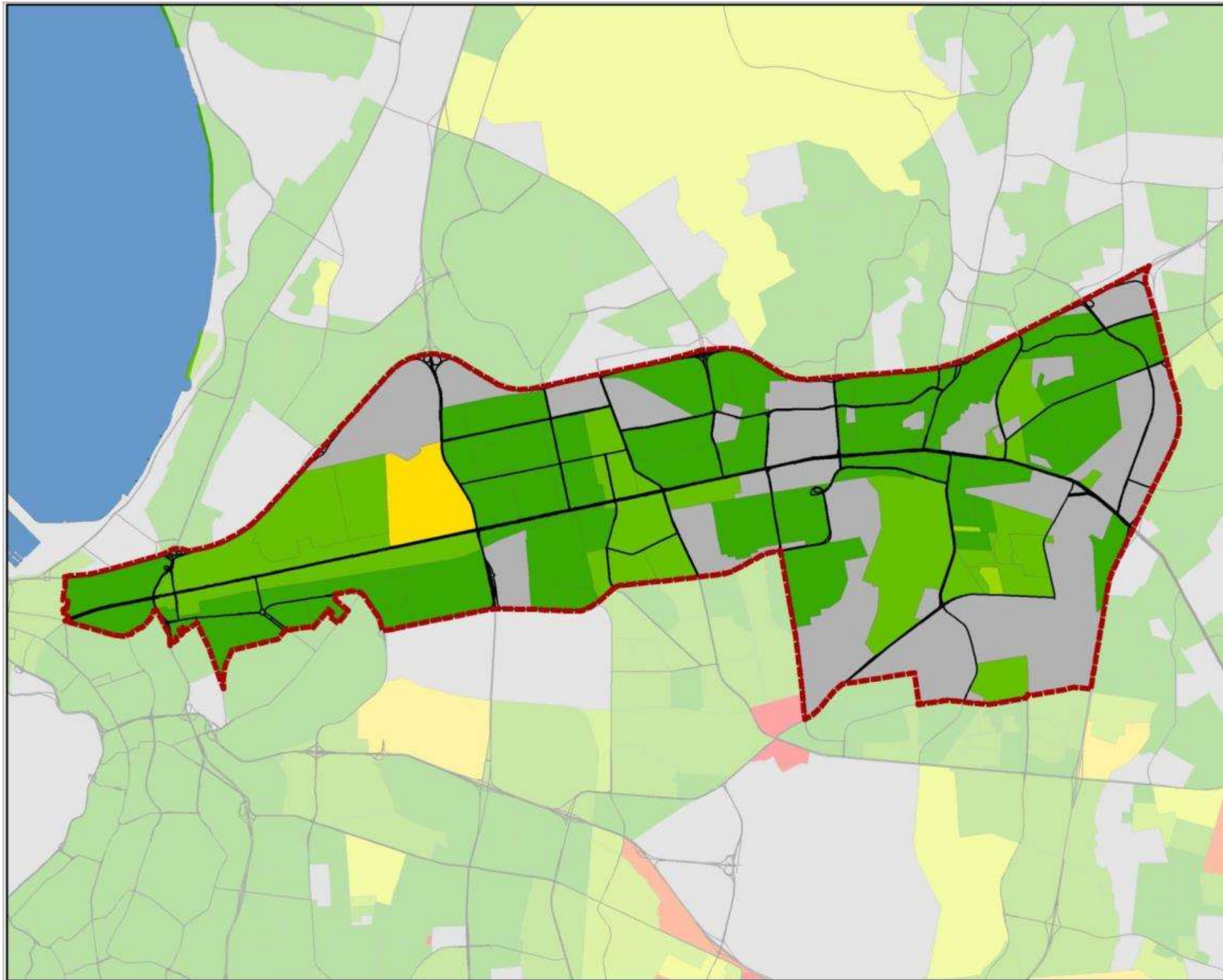
The Household Services Index combined 4 weighted variables:

- Do not use electricity for lighting
- Have no piped water in dwelling
- Have no refuse removal by local authority
- Have no access to a flush toilet

### VRC vs Metro

The VRC is one of the best rated areas in the City w.r.t. the Household Services Index.





**VRC IZ**  
Household Services Index

Legend

0.000122 - 0.010000
0.010001 - 0.040000
0.040001 - 0.080000
0.080001 - 0.160000
0.160001 - 0.300000
0.300001 - 0.550000
0.550001 - 0.800000
0.800001 - 1.000000

Scale: 1:50  
Meters

Projection: Transverse Mercator Projection, Central Meridian 18° East, False Easting using the Hartebeekstam Datum

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#### **4.4.3 Education Index**

The Education Index combines 4 weighted variables:

- Illiteracy (number of people over 14 years that have completed less than Grade 7)
- No Schooling (number of people over 14 years that have no schooling)
- Adults without grade 12
- Adults without tertiary education

#### **VRC vs Metro**

The VRC is not quite as well-rated in terms of education as the north eastern and south western parts of the Metro, but is significantly better off than the Metro South East.

#### **Intra-corridor Trends and patterns**

The Bellville Central area is categorised as 'very needy', while the entire area south of Bellville is either 'average' or 'needy'. The Elsie's River / Leonsdale area is also needy.

#### **4.4.4 Housing Index**

The Housing Index combines 2 weighted variables:

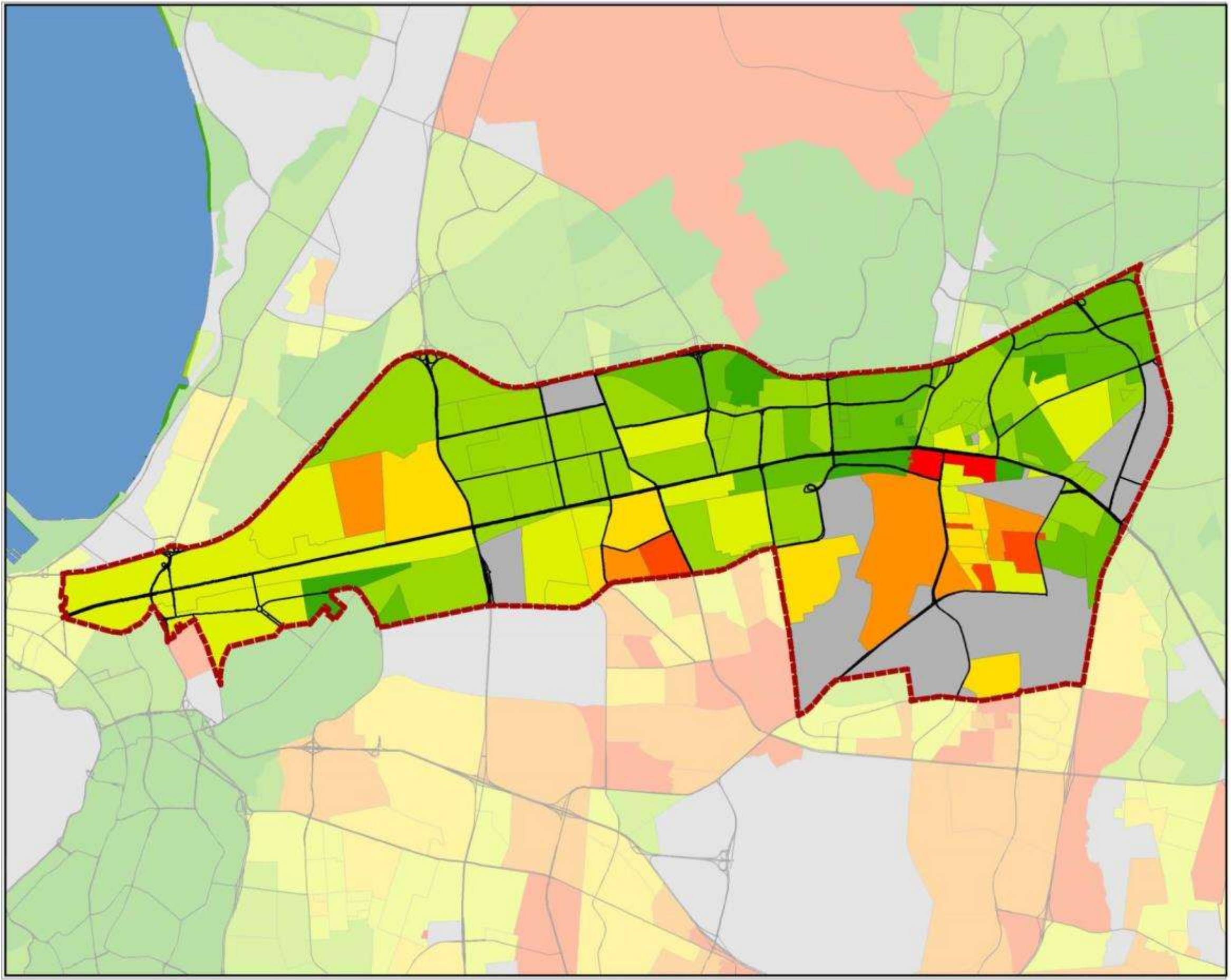
- Dwelling type (number of households with an annual income below R38 401 that do not live in a formal dwelling)
- Room Density

#### **VRC vs Metro**

The VRC is one of the best rated areas in the City w.r.t. the Housing Index.

#### **Intra-corridor Trends and patterns**

Most areas in the VRC are rated 'very good', with the exception of the Transnet / Bellcon area south of Bellville Central.



# VRC IZ

Education Index

## Legend

- 0.022302 - 0.140000
- 0.140001 - 0.190000
- 0.190001 - 0.260000
- 0.260001 - 0.340000
- 0.340001 - 0.430000
- 0.430001 - 0.520000
- 0.520001 - 0.680000
- 0.680001 - 1.000000



0 15 30 45 60 75 90 105 120  
Meters  
1:0

Source: Municipal Projection, Central Meridian: 18° East, WGS84 Ellipsoid using the Transverse Mercator Datum

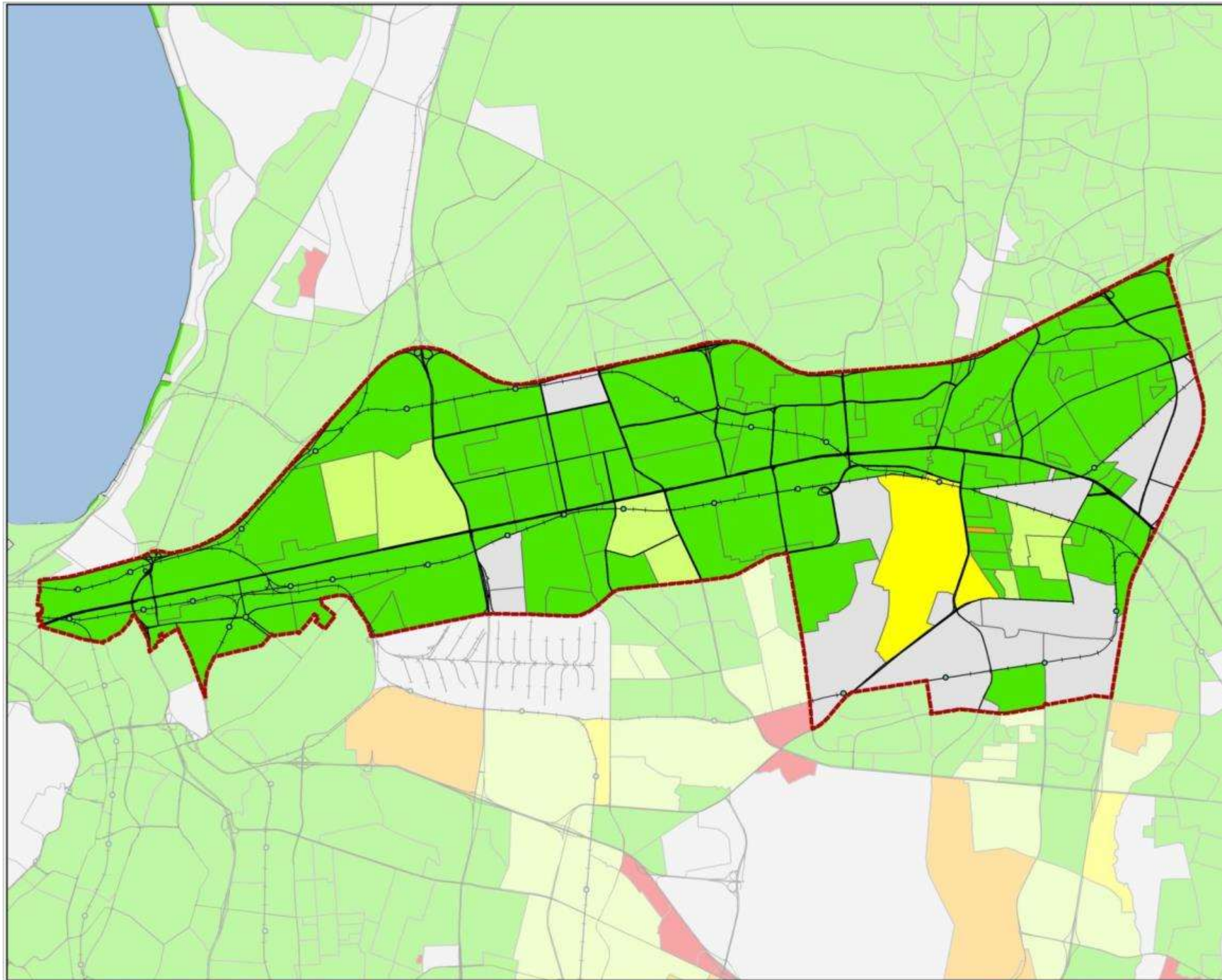
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**STAD KAAPSTAD**



## VRC IZ

Housing Index  
2011

### Legend

- Very good
- Good
- Average
- Needy
- Very needy
- < 20 households

- VRC Integration Zone
- Census Sub-place
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data



1:60 000

Southern African Projection,  
Central Meridian: 18° East,  
False Easting using the  
WGS84 datum

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#### **4.4.5 Economic Index**

The Economic Index combines 3 weighted variables:

- Employment (the number of people that are officially unemployed, and that are discouraged job-seekers)
- Income
- Economic Dependency Ratio

#### **VRC vs Metro**

Economically, the VRC appears to form a transition zone between the deprived Metro South East, and the better economic opportunities in the north eastern area.

#### **Intra-corridor Trends and patterns**

The north eastern portion of the VRC is rated 'good', while most of the remainder of the VRC is rated either 'average' or 'needy'. Areas that are of particular concern is the Bellville Central area, the Bellville South area, and the Elsie River / Leonsdale area.

### **4.5 Assessment of Trends**

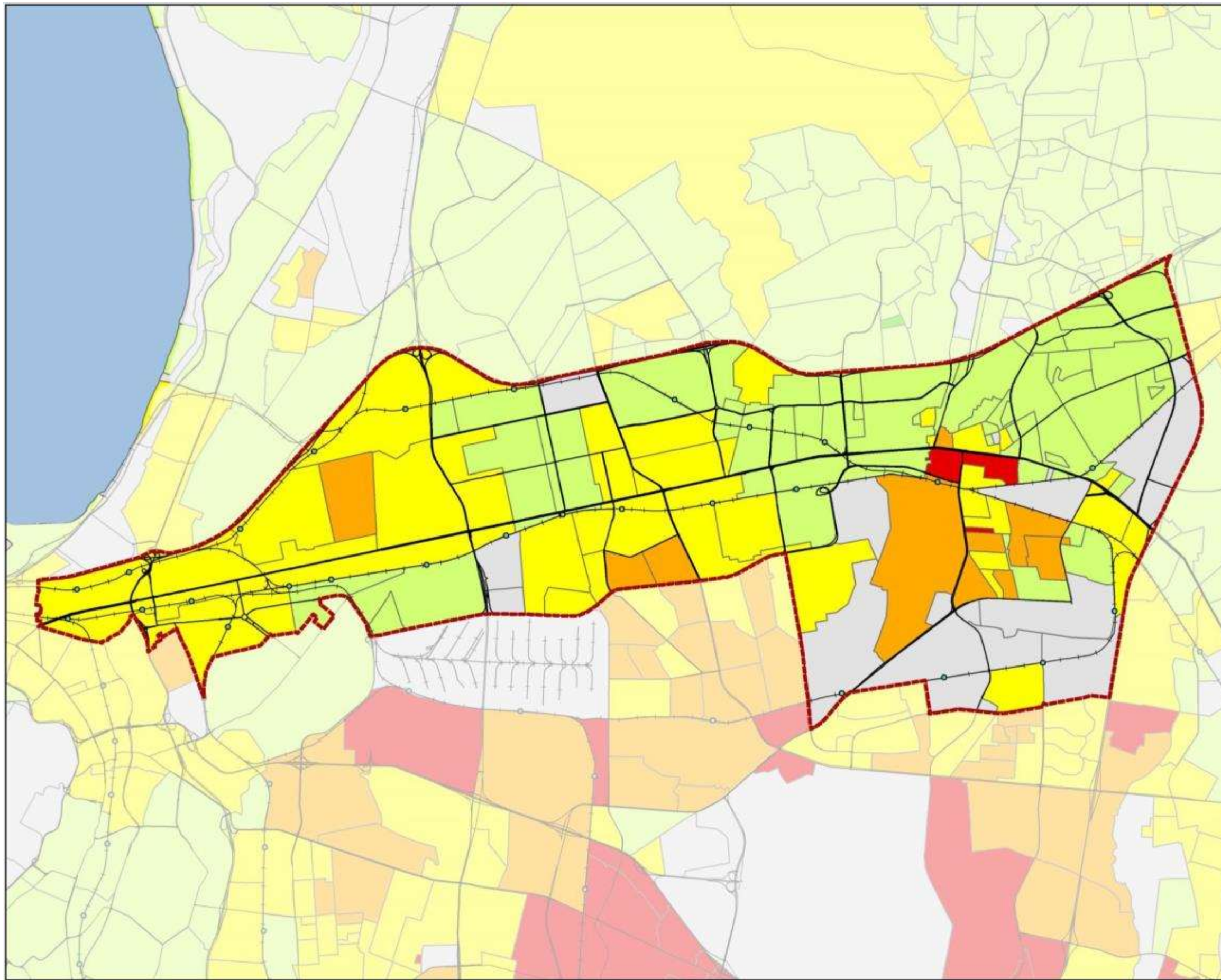
The Socio-Economic Index combines the abovementioned indexes to provide a holistic view.

#### **VRC vs Metro**

Overall, the VRC compares favourably to the remainder of the Metro.

#### **Intra-corridor Trends and patterns**

The north eastern portion of the VRC is mostly rated 'very good', while most of the remainder of the VRC is rated 'good'. Areas of concern are the areas to the south of Bellville CBD, as well as the Elsie River / Leonsdale area.



## VRC IZ

Economic Index  
2011

### Legend

- Very good
- Good
- Average
- Needy
- Very needy
- < 20 households

- VRC Integration Zone
- Census Sub-place
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data



0 200 400 600 800 1000 1200 1400  
Metres

1:60 000

Non-linear Mercator Projection  
Cape Town IP East  
WGS84 datum using the  
South African datum

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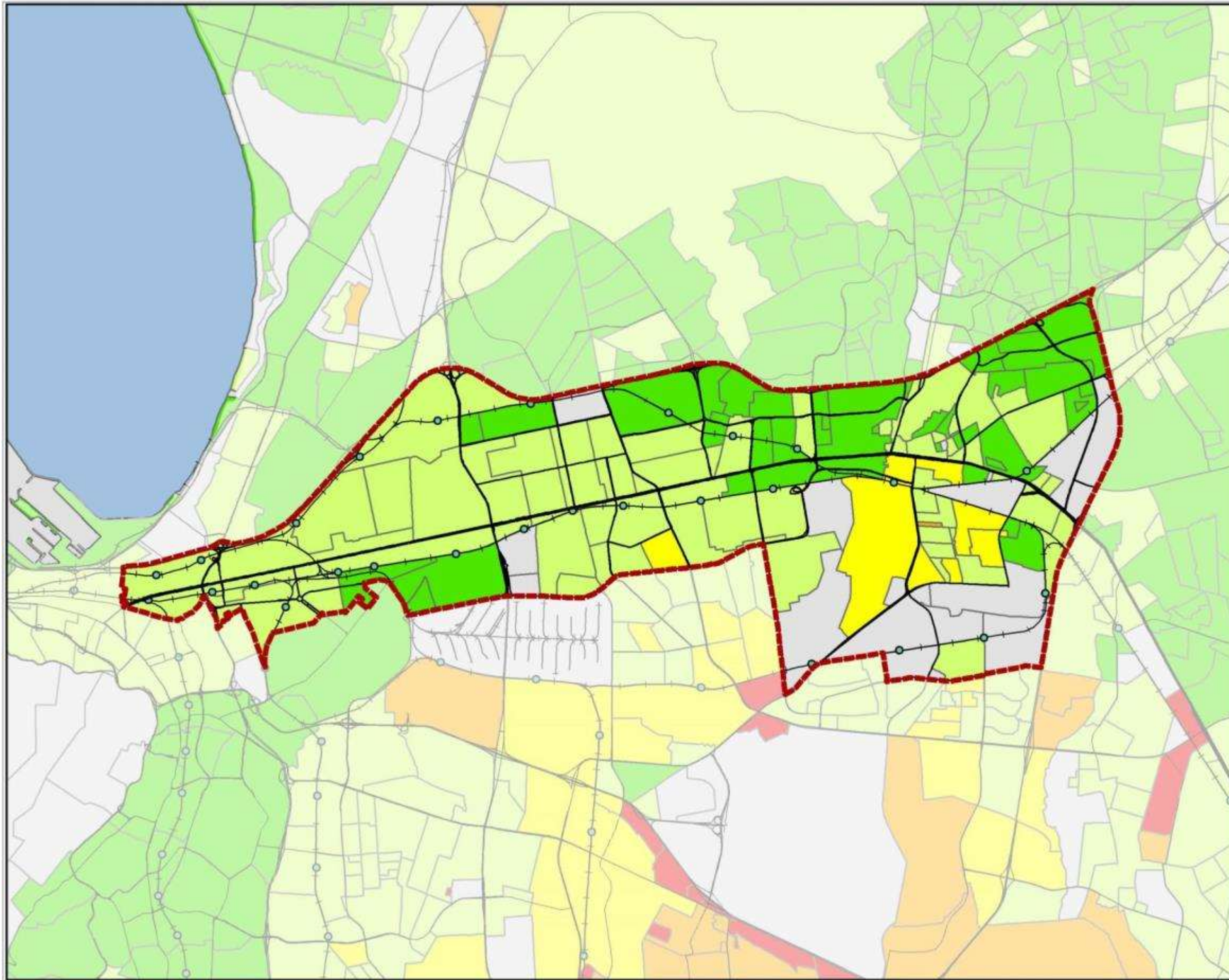
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## VRC IZ

Socio-economic  
Index  
2011

### Legend

- Very good
- Good
- Average
- Needy
- Very needy
- < 20 households

- VRC Integration Zone
- Census Sub-place
- Roads
- Rail Stations
- Railway

Source:  
SDI extracted from  
2011 census data



0 10 20 30 40 50 60 70 80 90 100 110 120

Meters

1:0

Transverse Mercator Projection,  
Central Meridian 17° East,  
False Start using the  
WGS84 datum

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## 5. Residential and property analysis

### 5.1 Existing Public housing stock and informal settlements

There are four main areas within the VRC where public housing is predominantly focused. These include Factreton, Upper Elsie's River (Avon and Leonsdale), Ravensmead and Bellville South.

#### 5.1.1 Public housing stock and Backyarding

Table 7 indicates the counts of single residential properties in these areas (valuations use codes for single residential) and the proportion of backyarders (ISIS corporate GIS) to single residential properties. The backyarder factor in these contexts is used as a measurement of housing demand and overcrowding in areas of public housing.

##### Factreton

Factreton derived its name from the section of the Windermere area between the present 13<sup>th</sup> Avenue and Wingfield Aerodrome that was surveyed for industrial purposes in the 1930's, which at the time was called "Factory Town". This area was also prone to quite substantial squatting in this time with in excess of 20 000 persons concentrated within this area, mostly serving as industrial labourers in its vicinity. To date, Factreton remains a residential suburb with a substantial proportion of public housing for the City's blue collar workers. However, the proportion of backyarding, at a ratio of 0,35 of formal single residential dwellings to backyard dwellings in this transport zone, is not as large as compared with the other public housing areas within the VRC.

##### Upper Elsie's River

Of these four public housing areas, the Upper Elsie's River area has the highest proportion of council flats, which contributes to significant densification and arguable overcrowded conditions in the area. As a result, the remaining open spaces are under severe threat due to the need for additional housing. It remains a significant challenge to maintain an adequate level of public facilities provision within this area. Although the Upper Elsie's River area has a lower count of single residential properties, its average backyarder factor of 0.94 is as high. Ravensmead, with an average backyarder factor of 0.75, also has a high proportion of backyarding.

##### Ravensmead

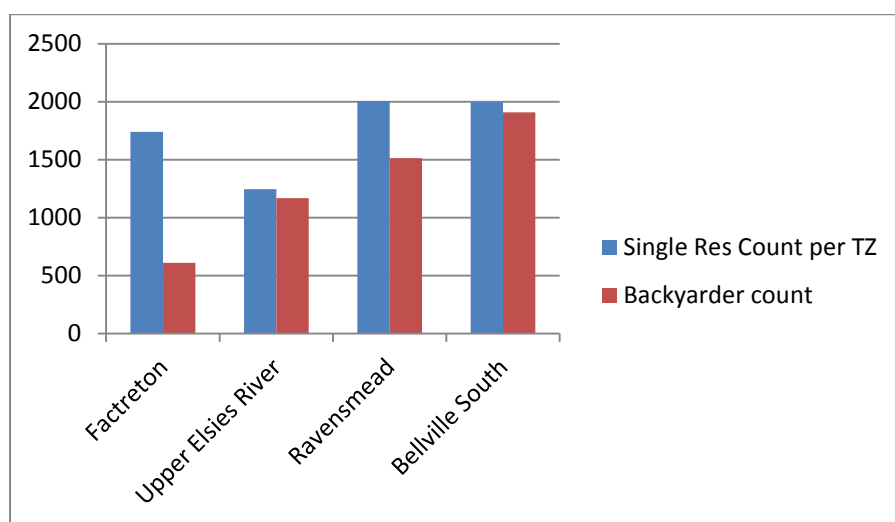
The proportion of backyarding in Ravensmead is relatively high at a ratio of 0,75 of formal single residential dwellings to backyard dwellings in this transport zone. Its location in proximity to several economic areas in the surrounding area could explain this response to the demand for housing within this area.

## Bellville South

Bellville South has the highest proportion of backyarding at a ratio of 0.95 of formal single residential dwellings to backyard dwellings in this transport zone. This indicates the high demand for housing in these areas.

**Table 7: Ratio of single residential dwellings to backyarders in public housing areas**

	Single Res Count per Transport Zone (TZ)	Backyarder count	Backyard ratio
Factreton	1738	610	0.35
Upper Elsie River	1245	1167	0.94
Ravensmead	2004	1513	0.75
Bellville South	1996	1908	0.95



**Figure 11: Proportion of backyarding vs Single Residential counts per transport zone (TZ)**

### 5.1.2 Informal Settlements

There are 7 identified informal settlements of varying extents within the VRC.

**Table 8: Informal settlements and roof counts**

Settlement Name	Area	Roof Count
Koekoe Town	Kensington	98
Maitland Cemetery	Maitland	113
Royal Plakkers Kamp	Maitland	172
6th Avenue, Kensington	Kensington	189
Wingfield Camp	Wingfield	235
Appelboord	Ravensmead	359
Gaza	Leonsdale	378
Total		1544

According to the last available roof counts on the City of Cape Town ISIS Corporate GIS, the number of households in informal settlements is approximately 1544 (see Table 8).

There seems to be a marked concentration of informal settlements within the Maitland and Kensington areas. This could be attributed to the desire for job seekers of lower income backgrounds to be located closer to employment opportunities as well as access to public transport in a multitude of directions. This highlights the need for affordable housing in this part of the corridor.

Wingfield Camp is located on private land and is not managed by the City of Cape Town. The Appelboord and Gaza informal settlements are the largest informal settlements in the VRC, and contribute to substantial overcrowding in Leonsdale and Ravensmead.

Public housing provision in the VRC comes predominantly in the following forms

- Subsidized housing
- Community Rental Units (CRU)
- Social housing projects

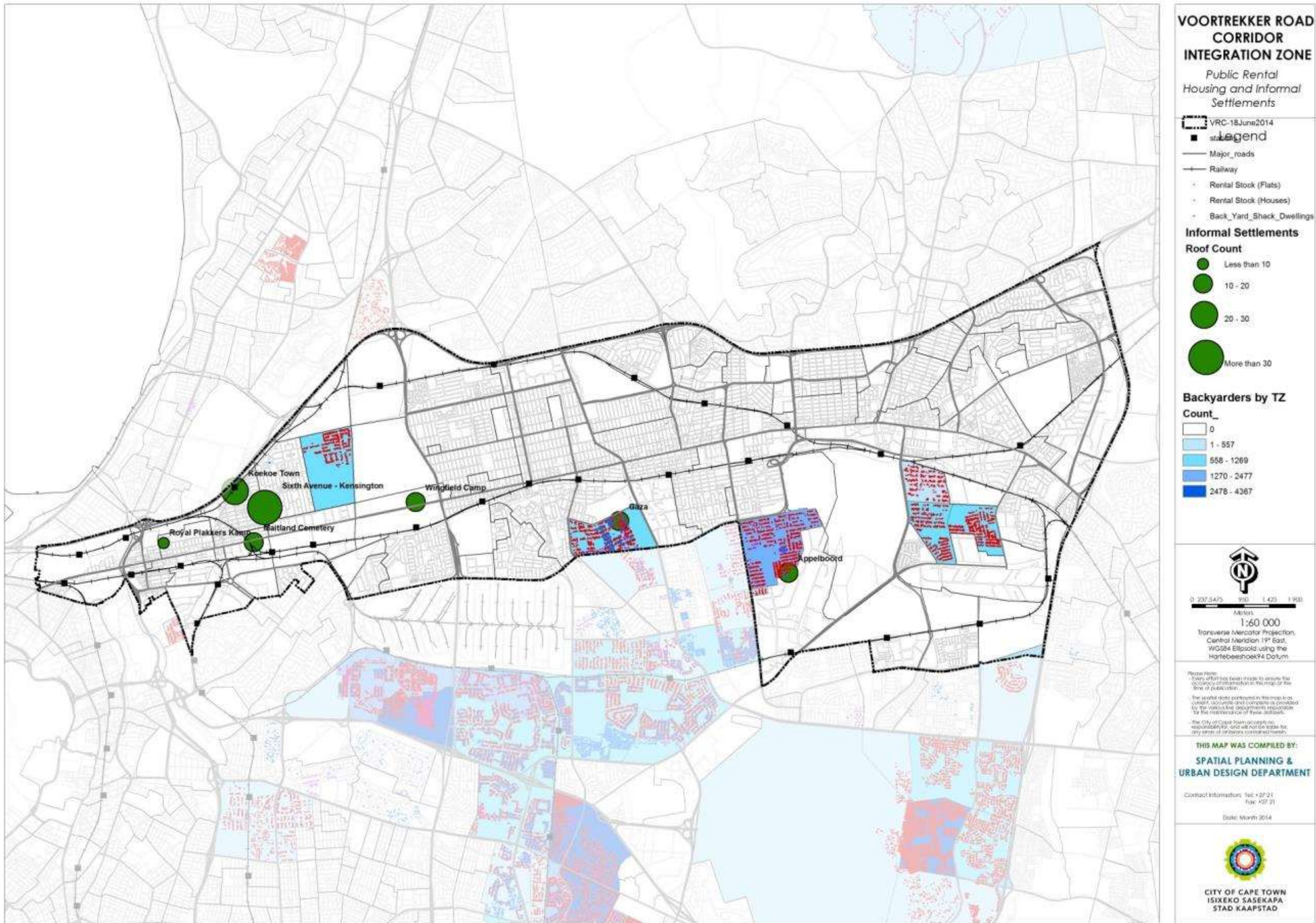


Figure 12: Public rental housing areas and informal settlements

## 5.2 Budgeted and planned public housing projects

### 5.2.1 Subsidized Housing

The number of subsidized housing projects within the VRC is relatively limited. This is attributed to the scarcity of City-owned land available and challenges around developing such housing stock at scale in a generally more affluent area compared with the Cape Flats and Metro Southeast.

The few subsidized housing projects, either planned or underway, are located in Upper Elsies River and the eastern section of Belhar. The vacant school sites abutting Jan Van Riebeeck Road in Leonsdale offer the most promising opportunity for development of public housing (inclusive of subsidized housing) at scale within this part of the VRC.

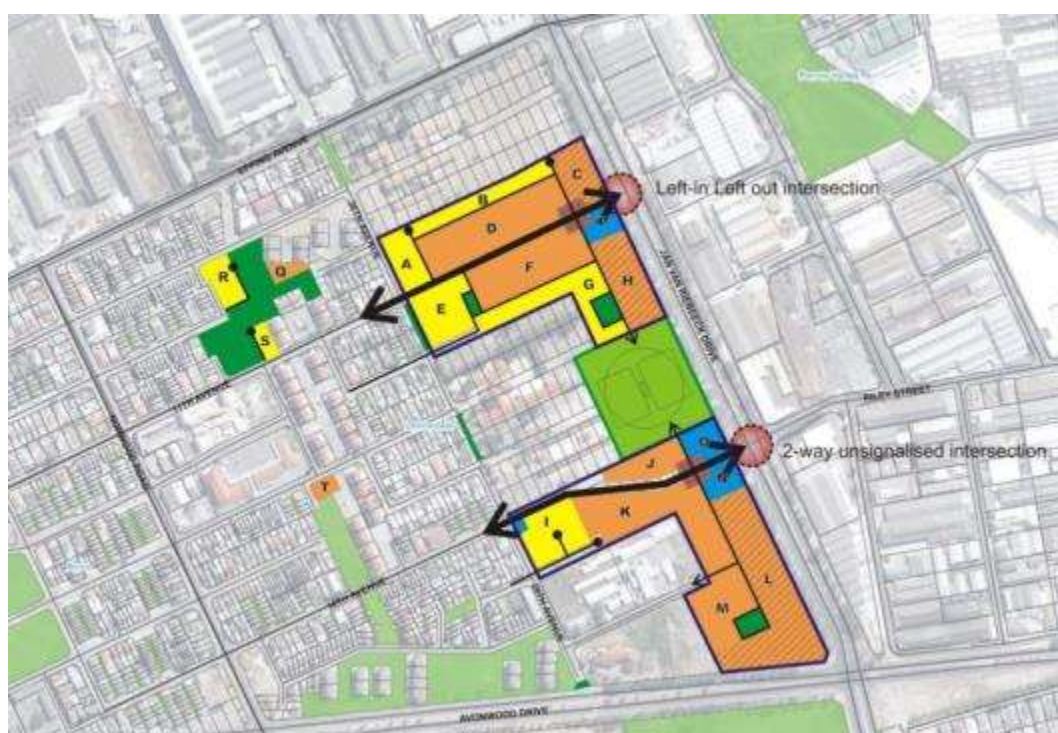


Figure 13: Leonsdale public housing project

### 5.2.2 CRU housing provision

CRU housing has been a source of significant rollout of public housing stock in the past in order to develop public housing at an appropriate density. However, various financial challenges associated with this typology of public housing make it difficult to roll out in the current public housing landscape.

These financial challenges include the disproportionate cost of construction (which can be up to 4 times as much per unit as conventional single residential housing typologies), and limited housing subsidy, but more importantly, the operation and maintenance requirements are far higher than the rental income received from tenants. This compromises the long term sustainability of rental housing stock due to an ever-increasing maintenance burden on the City.



Those CRU projects identified for implementation within the VRC are once again located predominantly in the Upper Elsie River area.

### **5.2.3 Social housing provision**

The VRC is almost entirely identified as a Social Housing Restructuring Zone. After a relatively slow start, social housing projects have been on a steady increase within the VRC, with up to 16 social housing projects in various stages of pipelining, expected to be brought to the market by several Social Housing Partners of the City that are registered with the Social Housing Regulatory Authority (SHRA). These current projects are likely to generate approximately 8500 social housing units within the VRC (see Figure 15).

Historically social housing has been provided in the corridor in the past:

- Parow Park (c/o Giel Basson & Frans Conradie Drive) was constructed in the mid 90's
- Joubert Park and Groenvallei, Bellville East

Social housing provision is increasingly being seen as a vehicle for providing affordable housing in areas of high employment and social opportunity, and is likely to gain even more traction as demand in the GAP and social housing bracket increases. It is also being viewed more favourably as a mechanism for protecting lower socio-economic brackets against external market forces that come with regeneration, such as gentrification, without undermining the private sector.

The Woodstock and Salt River areas are key examples of the occurrence of this trend, with several social housing projects being initiated in this area. Other areas where social and affordable housing provision is on the increase include Ruyterwacht/Goodwood where Communicare owns several land holdings. In addition, areas within walkable distance from rail stations and public transport are also being targeted for social housing projects.

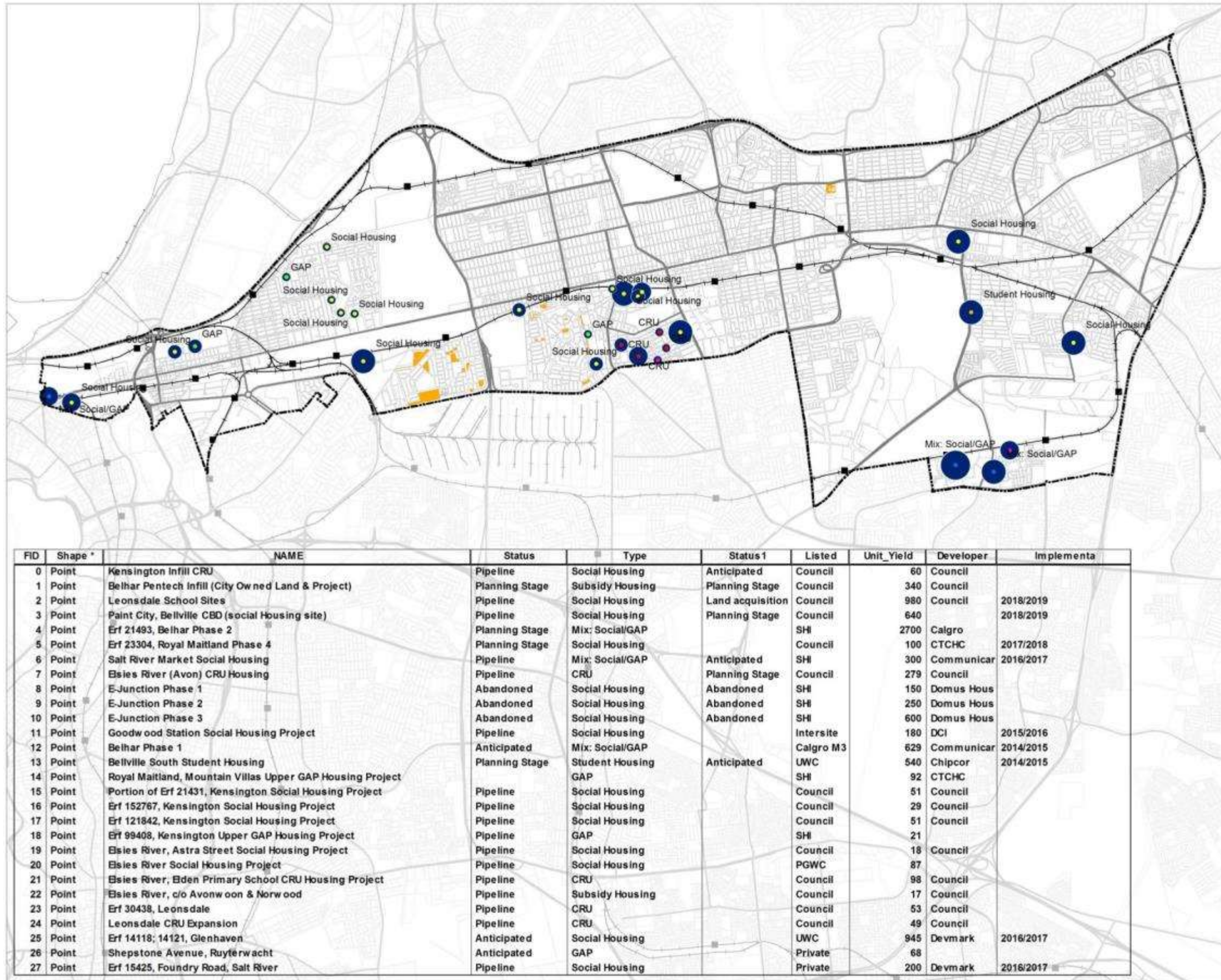
In addition to the abovementioned areas, Belhar CBD (the vacant land below Unibell Station) is anticipating substantial investment. Adjacent to the University of the Western Cape and the Cape Peninsula University of Technology, Belhar is a mixed-use, high density residential project valued at R1,03 billion. The phased development will consist of approximately 3 600 units of mixed tenure accommodation, including social housing (subsidised rental), open market rental units, student residence, open market GAP units as well as bonded affordable housing units.

This proposal represents a significant 'student village' type development that will assist in integrating the university and station precincts into the surrounding urban fabric to the south of the railway line.



**Figure 14: Belhar CBD precinct development plan**

Phase 1 of the project has town planning approval. Phase 2 of this project (depicted in Figure 14 above) received its Environmental Impact Assessment (EIA) Record of Decision at the end of 2010. Town planning approval for phase 2 is currently pending.



### VOORTREKKER ROAD CORRIDOR INTEGRATION ZONE

Budgeted and planned housing projects

**Legend**

VRC-18 June 2014

**Housing projects**

**Type**

- CRU
- GAP
- Mix: Social/GAP
- Social Housing
- Student Housing
- Subsidy Housing

**Unit\_Yield**

- 17 - 68
- 69 - 180
- 181 - 340
- 341 - 980
- 981 - 2700

stations

Major roads

Railway

Communicare Ownership

Potential housing sites

North Arrow

0 250 500 1000 1500 2000

Meters

1:60 000

Transverse Mercator Projection,  
Central Meridian 19° East,  
WGS84 Ellipsoid using the  
NAD83 datum

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Figure 15: Budgeted and planned social housing projects

#### 5.2.4 The student housing sector

Latest general student market trends:

- As education levels improve and larger numbers of students gain access to tertiary institutions, student accommodation as a sub-sector of commercial property is gaining traction with forward-thinking investors looking to service this increase in demand.
- According to the Department of Higher Education statistics, out of a student population of 530 000, there is currently only enough student accommodation for 100 000 students, meeting just 18 percent of the demand.

Generic challenges affecting the student housing sector include:

- **Shorter Leasing Cycle:** Most student housing is leased during a narrow window of time prior to class commencement in the following year, which puts pressure on early marketing and leasing efforts to ensure a fully rented building.
- **Higher Turnover Rate:** Unit turnover is low during the academic year, but less than half of the students typically renew leases, creating high annual turnover that occurs in a concentrated period of time.
- **Development/Redevelopment:** Development or redevelopment projects have a very narrow delivery window (the fall semester). If a project misses the beginning of the new school year, it could potentially experience high vacancy until the next school year.
- **Management Intensive:** Compared to conventional apartments, student housing presents significant operational challenges, including high turnover, risk management issues and intense marketing, which require a highly experienced operator. Often students are hired as on-site assistants to facilitate property management. Maintenance costs are normally greater for student housing.
- These unique challenges coupled with increased demand and limited operating budgets have led institutions to outsourcing their accommodation to private developers and building managers, thus allowing institutions to focus more on the core function of education.
- The increasing demand for safe, secure and affordable student accommodation provides excellent investment opportunities regardless of macroeconomic conditions affecting the broader property market.
- A shortage of student accommodation and funds to build new residences has led institutions to outsourcing their accommodation to private developers and building managers.
- Urban renewal and inner city regeneration being driven by student accommodation.
- Shortages of student accommodation has seen old office blocks converted to trendy student homes.

#### UWC

UWC houses an average of 3300 students across 13 residences (8 on campus and 5 off campus). Kovacs UWC Student Village is the latest on-campus student residence to be constructed.

- Phase 1 was opened for 2012 intake

- Phase 2 was opened for 2013 intake
- It is expected that 1100 units will become available for the 2015 intake

Bellville South Student Housing Development, located at the intersection of Symphony Way and Kasselsvlei Road is anticipated to provide up to 540 additional student units. The land use application has been approved and construction is expected soon.

### **Stellenbosch University – Medical Campus**

Stellenbosch University's Medical Campus has a combined student capacity of 870 students.

This is distributed amongst the following residences:

- Huis Francie Van Zijl
  - 299 females
- Hippokrates
  - 182 males and 96 females
- Huis Kerkenberg
  - 77 females and 30 males
- Meerhof
  - Type A and B: 144 co-ed students (6 buildings x 24 students) – 3 floors
  - Type C: 42 co-ed students

### **Other Student Residential Facilities**

StudentCrib Private student residence

- Private residence in Parow and Bellville
- Close to train stations and public transport
- Residence locations:
  - Old Mutual Building (c/o Voortrekker & Durban Roads, Bellville)
    - 74 student capacity
    - Mainly focused on Northlink and CTI College
  - Sheriff Student Res (208 Voortrekker Road, Parow)
    - 108 student capacity
    - Focused on UWC, CPUT, Northlink College, Healthicon Nursing College, Net Care Nursing College, Prestige Academy & UNICA (Parow)
  - A third residence is currently under construction.

Sources:

<http://www.property24.com/articles/sa-investors-cash-in-on-student-homes/14632>

<http://www.sacommercialpropnews.co.za/property-types/housing-residential-property/5650-emerging-market-student-accommodation-attracts-investors-attention.html>

<http://www.studentcrib.co.za/>

## 5.3 Residential valuations

The Residential Use Codes were extracted from the City of Cape Town Valuations 2012 data taken from the ISIS Corporate GIS Server in order to analyse the residential valuations within the VRC.

### 5.3.1 Average Single Residential values

In general, average property values increase from west to east across the corridor. Higher value areas are typically located in pockets which are isolated from the surrounding urban fabric, with limited accessibility. Such areas include Parow North, Pinelands, De Tijger, La Rochelle, Blommendal/Bellair, Thornton, and Tygerdal.

This trend starts to suggest that average property value changes occur across spatial boundaries where geographic markers, such as high order roads or land extensive buffers, contribute to shaping of perceptions of local amenity, desirability and ultimately exclusivity of such contained areas. These contained residential areas start to delineate residential catchment areas based on property values (see Figure 16).

Figure 17 illustrates the average single residential values across the VRC calculated at Enumerator Area level.

Other, more linear spatial boundaries marking average residential value changes include:

- 13<sup>th</sup> Avenue Kensington, which represents the boundary between Kensington and Factreton. The newer Factreton area is more densely populated, with a lower overall socio-economic status, and where a greater proportion of public housing exists.
- Milton Road in Goodwood. In Goodwood, the general perspective is that single residential property values decrease the closer one moves to Voortrekker Road. This area is also a transitional area where traditional residential typologies give way to higher density, multi-storey buildings. The residential properties to the north of Milton Road, could be more sought after because these areas may enjoy more stability in terms of changing residential and land use character.

### 5.3.2 Average Sectional title residential values

- Sectional title schemes within the VRC are relatively sparsely distributed.
- Higher income ranges are concentrated towards the northern parts of Goodwood as well as Oakglen and La Rochelle in Bellville East.
- There is no clear correlation between the location of higher density sectional title schemes and public transport access



Figure 16: Single residential catchments based on property values



Figure 17: Average single residential values to Enumerator Area





Figure 18: Average residential property values to Enumerator Area (consolidated)

## 5.4 Residential Dwelling Densities

Residential dwelling densities are based on counts of residential units extracted from the City of Cape Town Valuations 2012 roll using use codes, and calculated using the Enumerator area extents.

Density trends within the VRC (see Figure 19):

- Average residential dwelling densities within the VRC are generally low, with an average gross density of 9du/ha across the corridor. The corridor has significant densification potential, especially considering the extent of public transport accessibility covering the corridor.
- A few higher density areas exist where sectional title developments cause spikes within the corridor. However, these are few and far between.
- The residential desirability of the Parow CBD area could be attributed to the following elements:
  - Parow Mall and surrounding economic activities are highly attractive for residential uses to be located around;
  - In addition to economic opportunities in Parow, as well as high accessibility to Cape Town and Bellville CBD, one is able to gain access to economic opportunities in the Blaauwberg area along McIntyre/Platteklouf Road from Parow Station.
- Oakglen has accommodated a number of residential cluster developments and sectionalized housing typologies over time. This area is highly desirable for homeowners in the middle to higher end housing brackets due to its close proximity to a number of economic areas in the vicinity, including Tyger Valley, Stikland and the BrackenGate area. This trend also indicates that there is increasing demand for medium density residential typologies in traditionally single residential neighbourhoods. One possible negative concern is the fact that these areas do not necessarily constitute TOD-type development since private transport remains the primary form of transportation, albeit with a greater frequency of shorter trips being generated.
- While not on the same scale, similar trends to those in Oakglen can be experienced towards the northern parts of Goodwood in the vicinity of Alice Street.
- The lack of residential density abutting vast lengths of Voortrekker Road is particularly concerning, with commercial land use not readily accommodating residential use above ground floor. In general there seems to be a lack of willingness of property owners to enter into the mixed use residential market. This could be attributed to a combination of the following:
  - Poor financial viability: The ability to develop such residential products within the VRC context is limited by affordability of target markets.
  - Optimising vs. Maximizing: Given that existing owners are long-term owners with no immediate need to sell, it appears that the rental

received from existing commercial tenants is more appealing than maximising development rights of properties within the corridor.

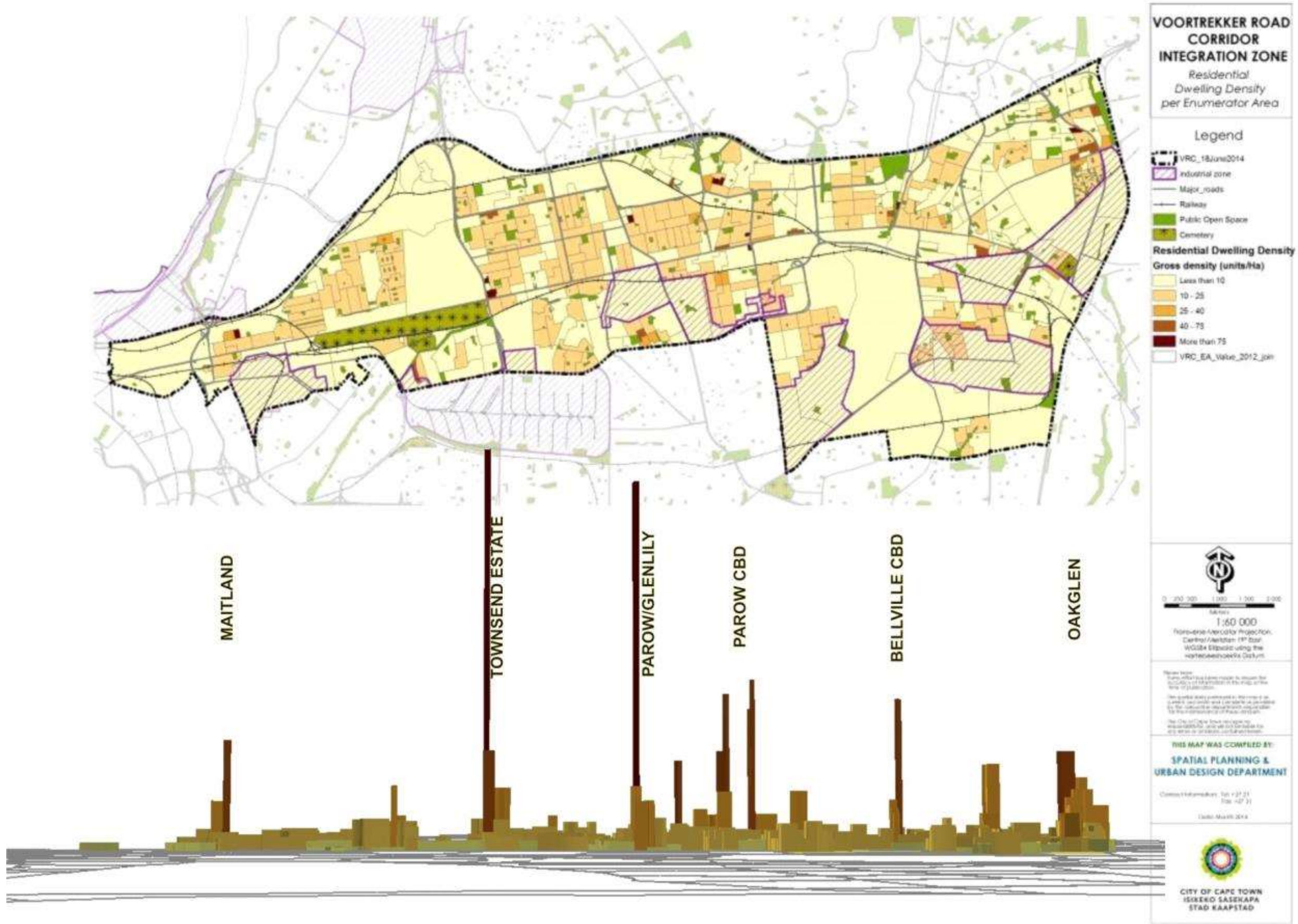


Figure 19: Average residential dwelling density per Enumerator Area

## 5.5 Residential sales

Residential sales were analysed for the VRC over a 5-year period from 2009 to 2014 using the latest sales information from the City of Cape Town ISIS corporate GIS database, and were averaged to Subplace Area.

### 5.5.1 Change in residential sale price between 2010 and 2013

Figure 20 indicates the average price of single residential property in the VRC has increased from R552 457 in 2010 to R779 307 in 2013, which represents a 29% growth in this section of the housing market in the VRC in this period.

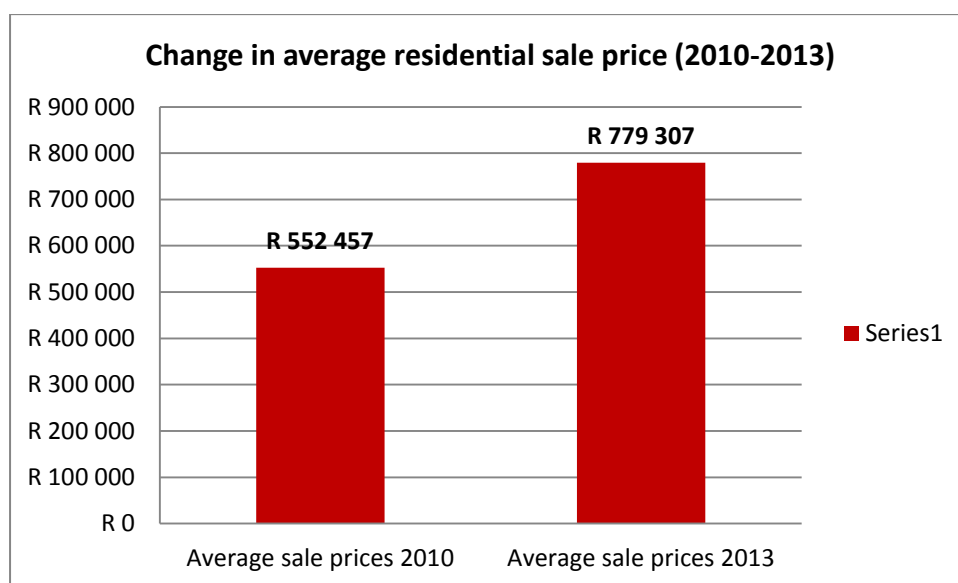


Figure 20: Change in average single residential sale price (2010-2013)

Table 9 provides a summary of how the various residential suburbs (by enumerator area) performed in terms of single residential sales in 2010.

Table 9: Single residential property sales in the VRC as at 2010

Single residential property sales in the VRC as at 2010:			
<R250k	R250k-R500k	R500k-R800k	R800k-R1200k
Factreton	Maitland	Thornton	Tygerdal
Riverton	Kensington	Townsend Estate	Parow North
Avon	Alexandra	Goodwood Estate	De Tijger
Leonsdale	Parow Valley	Vasco Estate	Vredelust/Boston
Ravensmead	Groenvallei	Glenlily	De La Haye
Greenlands	Joubert Park	Oostersee	Blommendal
Belhar Extention 23	Bellville South	Oakdale	La Rochelle
		Oakglen, Bellair	Loumar/Meyerhof
		Labiance	
		Glenhaven	

Trends in Single residential property sales in the VRC as at 2013 (see Figure 21 and Figure 22):

Areas in the lower-middle price bands (R250 000 to R800 000) have generally increased in sale value since 2010, with most single residential suburbs moving into a higher average sale bracket.

- Average residential sale prices have more than tripled in Avon in Upper Elsie's River and has seen average sale prices move into the R250 000 to R500 000 price bracket. However, it must be noted that this growth has been off a low base. This suggests strong growth in demand for affordable housing in close proximity to the VRC to minimize transport costs to access economic and social opportunities.
- Other areas such as Ravensmead and Factreton (Windermere), which have similar socio-economic and residential characteristics, have also experienced strong growth in this period at 73% and 42% increase in sale prices respectively.
- Average sale prices have doubled in Kensington since 2010, with an average single residential sales prices of above R500 000 (102% growth).
- Maitland, although not to the same extent, has grown in value by 42% since 2010. This needs to be interrogated further.
- The areas of Thornton (44%), Goodwood (53%), Avondale (63%), Fairfield Estate (76%), and Oakdale (39%) have all experienced very strong growth, and have moved from a previous middle income bracket in 2010 (R500 000 – R800 000) into the upper-middle income bracket (R800 000 – R1 200 000) in 2013. This segment of the residential market has enjoyed high demand due to the quality of housing stock and the central location of the area to proximate local economic attractors.
- Other areas which are consistent performers in terms of average sale prices are Tygerdal, Boston and Oakglen.
- Areas such as De Tijger, Vredelust and Blommendal have increased in desirability with average single residential sales increasing to above R1 200 000 in 2013. These areas also display relatively low levels of sales churn, thus further emphasizing the exclusivity of these areas.

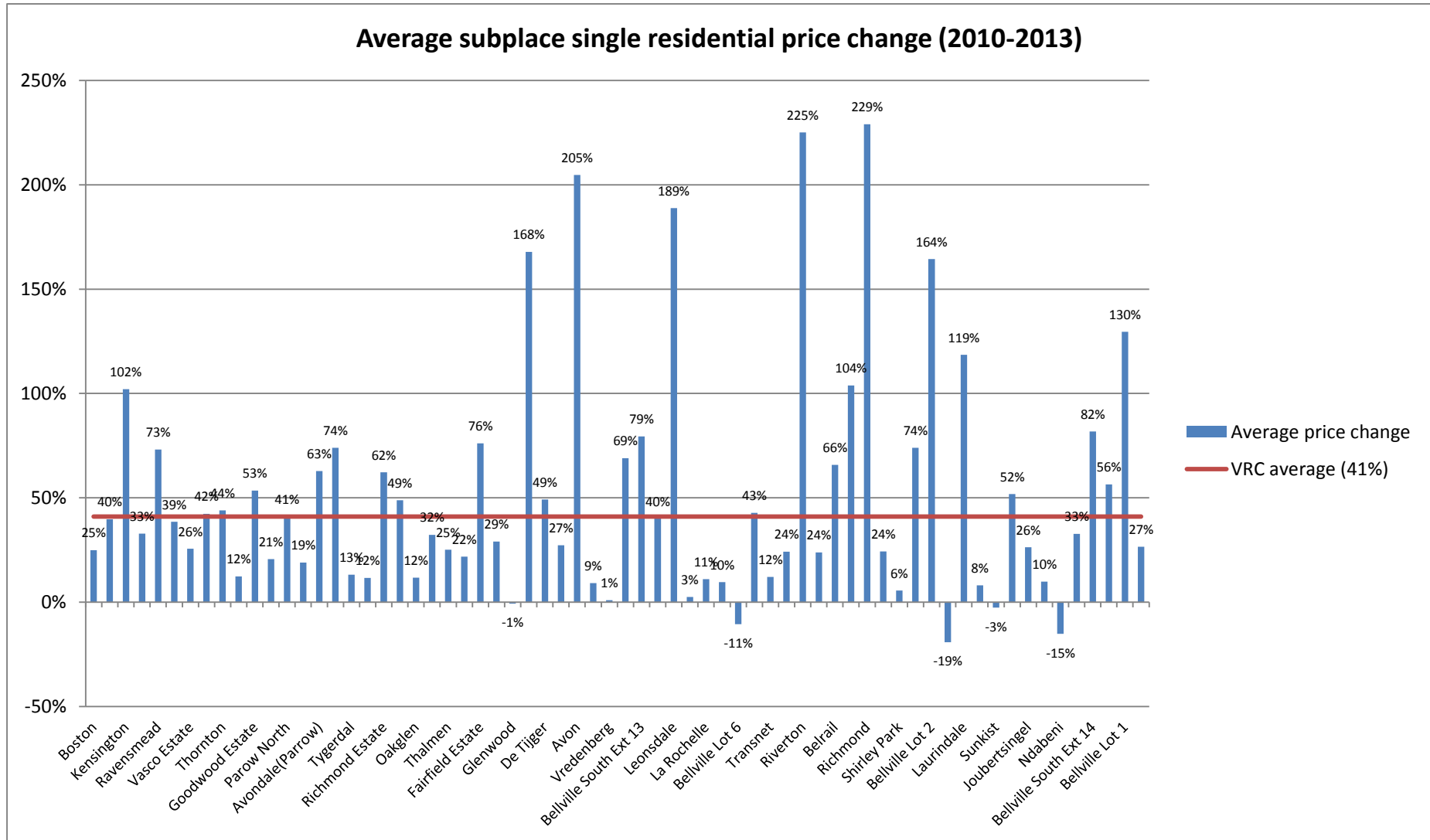
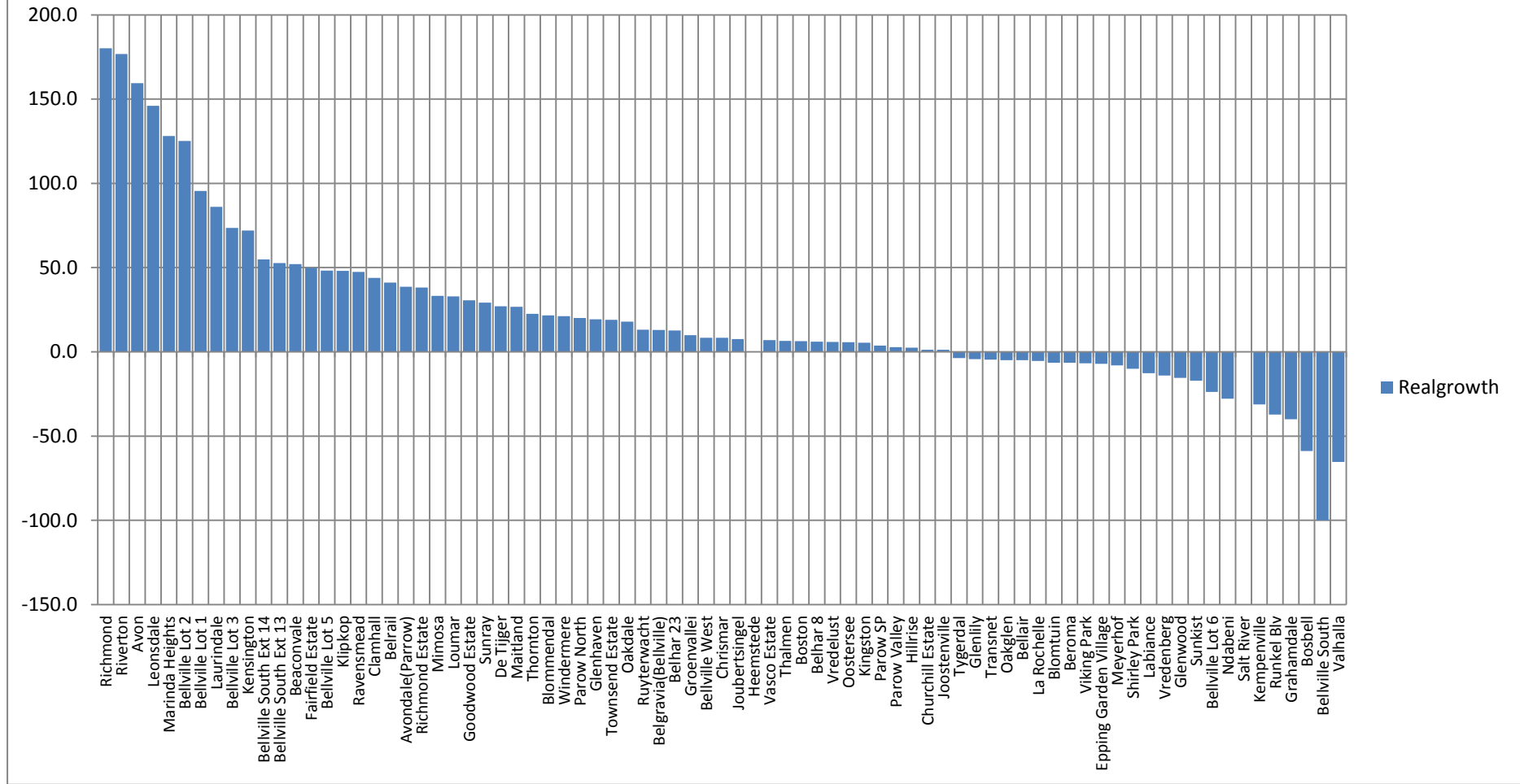


Figure 21: Average change in subplace single residential sale prices (2010-2013)

### Average subplace real price growth (%)





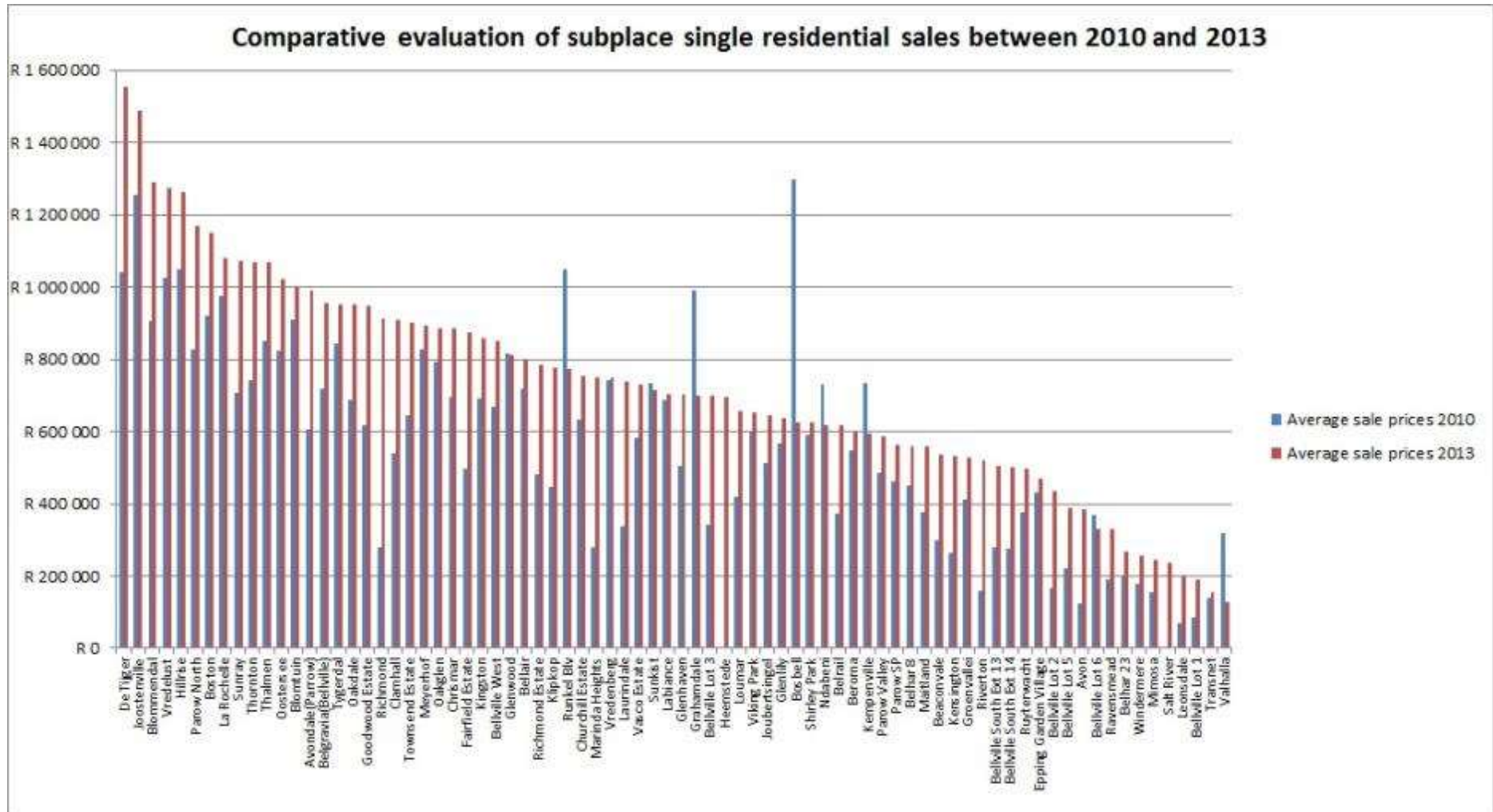


Figure 22: Comparative evaluation of subplace single residential sales between 2010 and 2013

## 5.5.2 Sales Churn

The change in single residential sales counts between 2010 and 2013 has been calculated for individual subplaces in the VRC as a standard measurement of sales churn in the corridor. The change in single residential sale counts for the VRC between 2010 and 2013 was 42%.

This means that a corridor average of 42% of single residential property the corridor has changed hands between 2010 and 2013. This includes multiple sales of the same property during this time.

Above average trends in sales churn	Below average trends in sales churn
<ul style="list-style-type: none"> <li>• Boston, while having the highest frequency of single residential sales in 2010 and 2013, has also experienced a 60% increase in sales churn in this period. The highest churn seems to be taking place closer to Voortrekker Road.</li> <li>• Goodwood Estate and Richmond Estate in Goodwood have experienced a noticeably high increase in sales churn at approximately 90%.</li> <li>• Suburbs in Parow such as Glenlily, Churchill Estate, Alexandra Estate, as well as Parow Valley have also experienced high increases in sales churn at between 70% and 95%.</li> </ul>	<ul style="list-style-type: none"> <li>• Areas such as Townsend Estate, Churchill Estate, Kensington, Ruyterwacht, Tygerdal, Fairfield Estate and Thalmen have less than 30% increase in sales churn. This could be attributed to gradual increase in desirability and exclusivity to reside in these areas</li> <li>• Shortage of saleable housing stock due to high proportion of rental stock, such as in Ruyterwacht (Communicare rental stock), could suppress sales churn. This is also true for areas with a high proportion of public housing stock, such as Factreton, Leonsdale, Ravensmead and Bellville South.</li> <li>• Oakdale has seen a very limited increase in sales churn at 11% within this period. This could be due to speculative reasons given the long term planning vision for mixed use intensification between Durban Road and the proposed realignment, which is planned to extend through the western section of Oakdale.</li> <li>• Areas such as Bellair and Avondale, which are highly desirable and comprise some of the most expensive single residential property within the</li> </ul>

	VRC, have experienced the lowest sales churn at 7% and 9% respectively.
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Figure 23 below indicates the change in single residential subplace sale counts for the VRC between 2010 and 2013, while Figure 24 provides a comparative view of subplace single residential sale counts between 2010 and 2013.

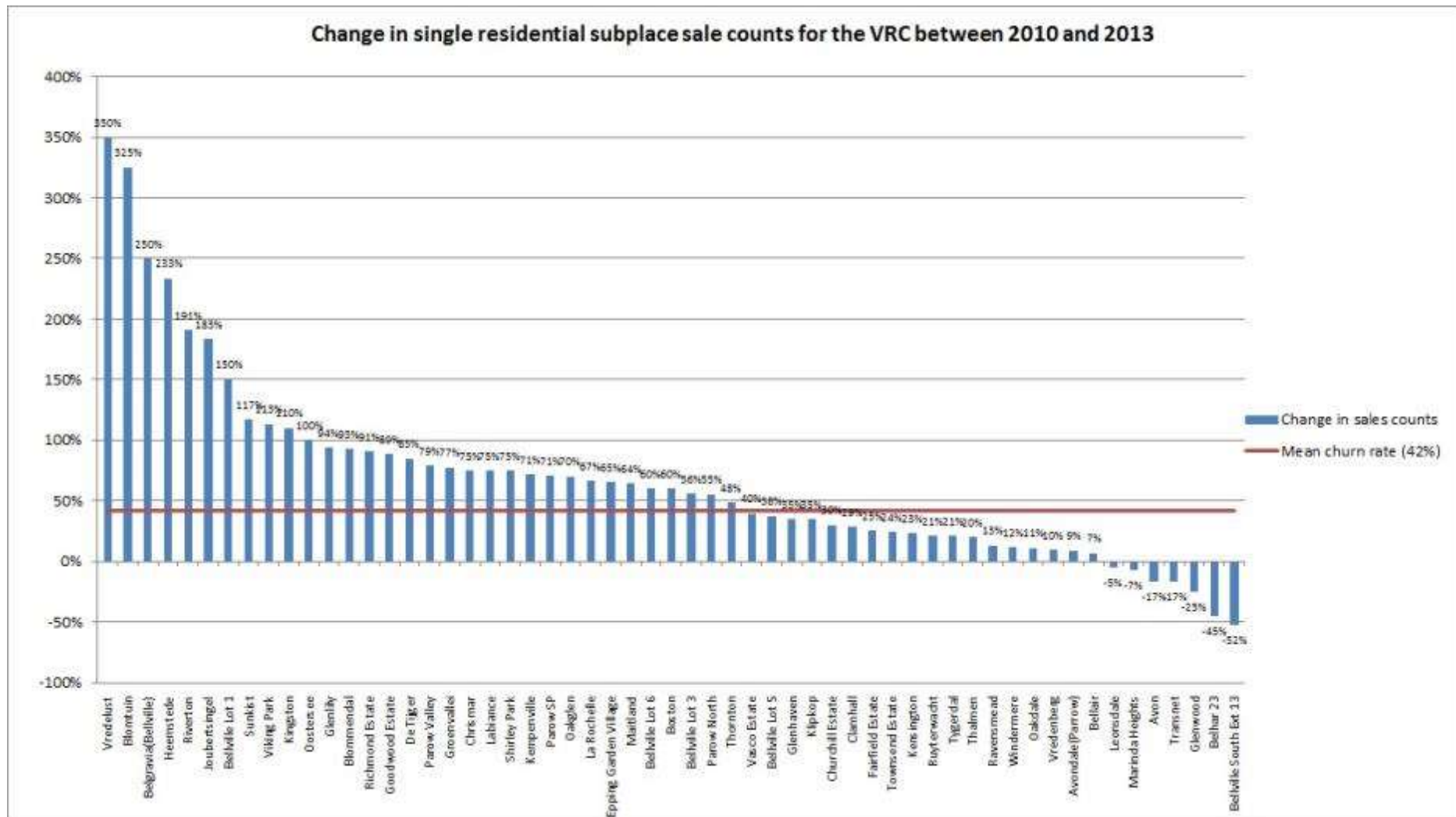


Figure 23: Change in average subplace single residential sale counts between 2010 and 2013

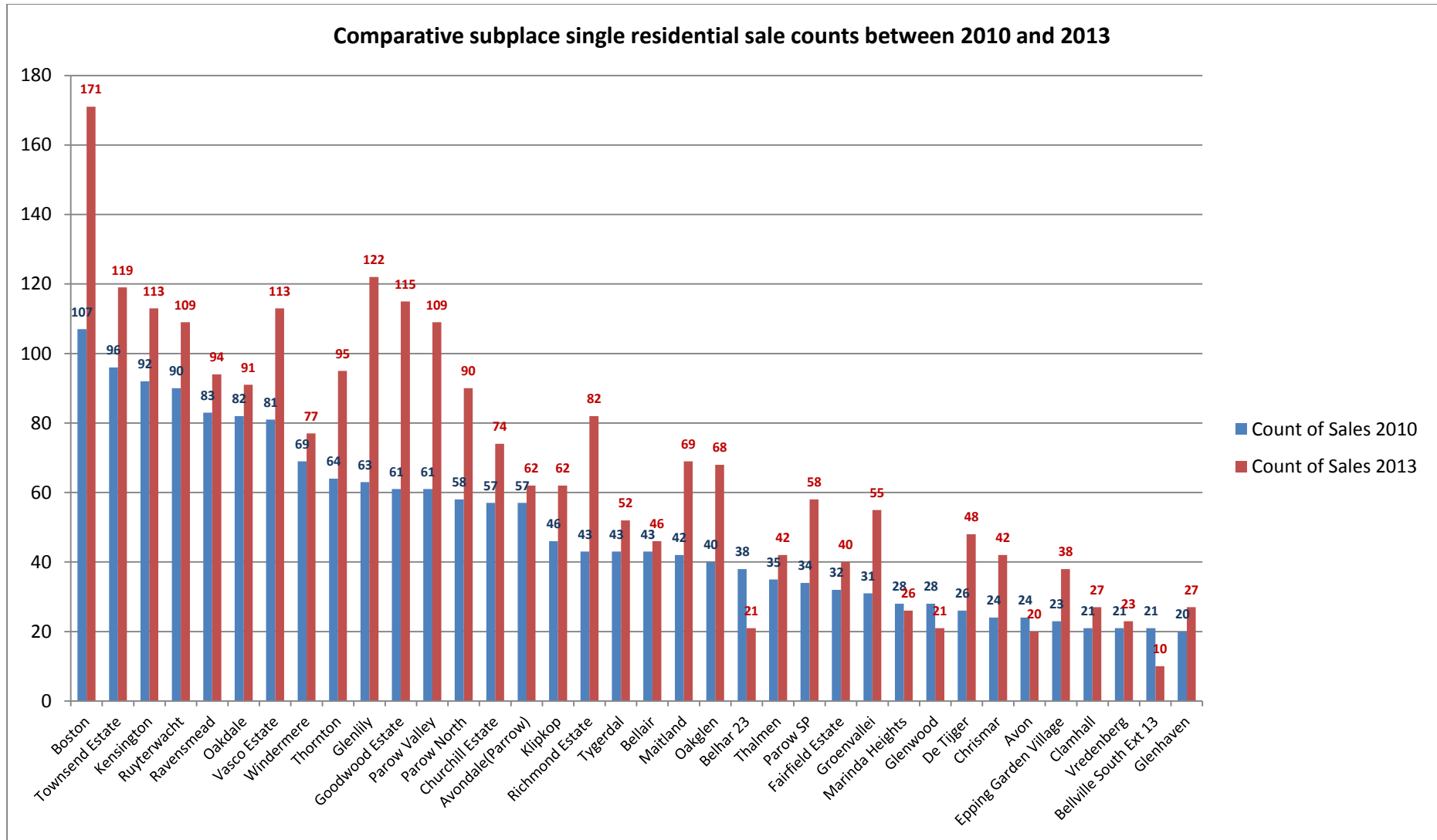


Figure 24: Comparative subplace single residential sale counts between 2010 and 2013



Figure 25: Average subplace single residential sale prices in 2010



Figure 26: Average Subplace single residential sale prices in 2013/14

## 5.6 Potential residential demand and supply

In order to determine the potential residential supply within the VRC the following analysis was conducted:

### 5.6.1 The citywide housing need projections as per the draft Integrated Human Settlement Framework

The draft Integrated Human Settlement Framework (IHSF) reviews the housing need in various income segments of the housing market (see Table 10). The figures generated are based on a pragmatic city densification scenario, which is based on Census 2011 population figures, and takes into account:

- Informal settlements;
- Backyard dwellings;
- Hostels;
- Households living in overcrowded conditions; and
- New family formation (number of households), including growth and in-migration.

These figures were then projected to 2022 and 2032 using Dorrington's medium growth scenario, which assumes that Cape Town's population growth rate will decrease over the next 20-30 years. The limitation to this scenario is that it does not take into account in-migration from outside of South Africa, which is known to constitute a significant proportion of in-migration to Cape Town. Furthermore, it does not assume mobility between income levels.

**Table 10: IHSF projections of housing need in Cape Town**

<i>Monthly Income</i>		<b>R0 - R 3200</b>	<b>R3200 - R 6400</b>	<b>R6400 - R13000</b>	<b>R13000 - R26000</b>	<b>R26000 plus</b>	<b>Total</b>
C: Informal settlement - regardless of whether it is owned or rented		121 812	15 979	4 156	1 017	858	143 823
D: Backyard dwelling - regardless of whether it is owned or rented		57 259	12 105	4 142	999	451	74 957
F: Hostels		7 747	2 090	1 353	738	369	12 297
Households living in overcrowded conditions in formal owned or rented		61 933	26 157	16 684	6 515	2 801	114 384
New family formation ( <i>growth and in-migration</i> ) # of Households	2011-2022	107 466	32 673	29 180	26 404	28 789	224 512
	2022-2032	90 373	29 696	28 001	25 833	29 622	203 525
<b>Overall total (Households) in need</b>	<b>2011</b>	<b>248 751</b>	<b>56 331</b>	<b>26 335</b>	<b>9 269</b>	<b>4 479</b>	<b>345 461</b>
		72%	16%	8%	3%	1%	100%
	<b>2022</b>	<b>356 217</b>	<b>89 004</b>	<b>55 515</b>	<b>35 673</b>	<b>33 268</b>	<b>569 973</b>
		62%	16%	10%	6%	6%	100%
	<b>2032</b>	<b>446 590</b>	<b>118 700</b>	<b>83 516</b>	<b>61 506</b>	<b>62 890</b>	<b>773 498</b>
		58%	15%	11%	8%	8%	100%

For the purposes of the VRC analysis the monthly income groups between R3200 and R26000 were considered:

- As at 2011 the demand for new housing in Cape Town within the R3200-R26000 monthly income brackets amounted to 91 935 households.



- The combined number of households in need of housing in Cape Town within these monthly income groupings is 263 722 households by the year 2032.
- This constitutes a 187% increase in housing demand within this income group from 2011 to 2032, and would require an annual housing delivery rate of 14651 residential units per annum.

### 5.6.2 VRC residential potential analysis

The Rode Residential Potential study was consulted to obtain a broad understanding of the potential supply of residential units within the VRC over the next 20 years. Various supply scenarios for the corridor were generated by applying a range of gross base densities. Table 11 below provides a snapshot of these scenarios.

In developing these scenarios the following assumptions were made:

- Dorrington's 1999 medium growth scenario was projected to 2040. This assumed that Cape Town's population growth rate would taper off post 2035 as a result of absolute decline in population numbers after 2030.
- A decrease in average household size is expected as a result of increased household formation and increased demand for residential dwellings. Household size adapted for the VRC is likely to drop from 3.55 persons/HH in 2011 to 3.3 in 2022, and a further 2.9 by 2040.
- The VRC is likely to house a greater proportion of emerging residential dwellers (students, young professionals and small families).

**Table 11: Rode Residential Study: Potential supply scenarios for the VRC by 2040**

Rode Residential Study: Potential supply scenarios for VRC by 2040						
	Status Quo	(1) Current growth trajectory	(2) Sustainable City	(3) Aggressive Densification	Net Buffer (1,2km)	VRC Infill Sites
Area (Ha)	7433	7433	7433	7433	1531	876
Gross Base Density (du/ha)	9	15	25	37	75	100
Dwelling yield	70000	111495	185825	275021	114825	87600
Excess supply (2040)		41495	<b>115825</b>	205021	44825	17600
Total popn. (2.9) - Total	259153	323335.5	538892.5	797560.9	332992.5	254040
New popn. (2.9) - Net	56153	120335.5	335892.5	594560.9	129992.5	51040

The scenarios from Table 11 are described below:

- The status quo in the VRC is a current residential dwelling stock of 7000 units at a gross base density of 9du/ha.
- Scenario 1 comprises the current growth trajectory, which applies a gross base density of 15du/ha. This scenario would produce a total dwelling yield of 111495 units by 2040, which produces an excess supply of 41495 additional units. This would require a residential delivery rate of 1596 units per annum.
- Scenario 2 comprises the minimum growth scenario for the development of a sustainable city, which applies a gross base density of 25du/ha. This density

constitutes an appropriate level of intensification to justify scheduled public transport services. This scenario would produce a total dwelling yield of 185825 units by 2040, which produces an excess supply of 115825 additional units. This would require a residential delivery rate of 4455 units per annum.

- Scenario 3 comprises an aggressive densification scenario, which applies a gross base density of 37 du/ha. This density starts to justify frequent bus services such as BRT. This scenario would produce a total dwelling yield of 275021 units by 2040, which produces an excess supply of 205021 additional units. This would require a residential delivery rate of 7885 units per annum.
- Other scenarios were included as additional options:
  - Extreme densification of up to 75du/ha within a band of 1,2km (600m on either side) around Voortrekker Road, which constitutes a basic TOD densification scenario.
  - Infill development of strategic sites within the VRC such as Wingfield, Tygerberg Hospital and Stikland Hospital

The Rode report puts forward the following recommends:

- Scenario 2: Sustainable City (25 du/ha by 2040) represents the most realistic density target.
- Scenario 3: Aggressive Densification (37 du/ha by 2040), while ambitious, should be strongly encouraged should this be achievable.
- The implementation of these scenarios would obviously be dependent on market affordability and desirable typologies.
- The achievement of residential densification is likely to occur through a composite of the scenarios mentioned rather than a single scenario (see Table 12)

**Table 12: Matrix of target densities**

<b>Structure of target scenarios (du/ha gross)</b>			
<b>Area</b>	Low	Mid	High
<b>VCR (incremental densification)</b>	25	37	50
<b>Buffer (PT 1&amp;2 Zones)</b>	37	50	75
<b>Infill</b>	50	75	100

### **5.6.3 Absorption of residential demand within the VRC**

The recommendations of the Rode Residential Potential Analysis were then compared with the citywide housing demand projections from the IHSF (see section 7.1.1) to determine what proportion of this demand within the various income groupings can be absorbed within the VRC.

Table 13 below indicates the potential for absorption of the citywide housing demand into the VRC distributed by income grouping and using an indicative percentage split of total dwellings between these groupings. This distribution is based on the 2040 Sustainable City scenario as recommended by Rode above. The 2040 Aggressive Densification scenario is also provided for additional context.

What is evident is that the bulk of the estimated excess supply of residential households to be accommodated in the VRC will cater to the GAP and social housing, as well as middle income brackets. Percentage-wise the proportion of absorption of the citywide housing need is relatively evenly split between the income groupings from R3200-R26000/month.

However, accommodation of households in the living under minimum wage and indigent households segment within the VRC remains relatively poor. Reasons for this are assumed to be due to lack of available land within the corridor, as well as unfavourable conditions for establishment of subsidized housing projects. The primary delivery mechanism for accommodation of the lowest income grouping in the VRC is through the development of social housing projects as an inclusionary housing component, usually around 30% of the total development yield.

**Table 13: Proportional absorption of citywide housing demand into the VRC by income grouping**

<b>Rode Residential Study: Distribution of dwellings in VRC by monthly household income (2040)</b>					
<b>Monthly household income</b>	<b>% of total dwellings</b>	<b>2040 Sustainable City 25du/ha</b>	<b>% absorption of citywide housing need</b>	<b>2040 Aggressive Densification - 37 du/ha</b>	<b>% absorption of citywide housing need</b>
Excess supply		115825		205021	
R0 – R3200	30	<b>34748</b>	<b>8</b>	<b>61506</b>	<b>14</b>
R3200 – R6400	25	28956	24	51255	43
R6400 – R13000	17	19690	23	34854	42
R13000 – R26000	13	15057	24	26653	43
+R26000	15	17375	28	30753	49
Total	100				

In order to reach these supply projections within the VRC, a certain typology of housing is required to be developed at scale. To this end, the question to be answered in response to the potential supply of residential units in the corridor is the following:

- Can the necessary form of residential development be provided at scale within the corridor?
- Can developers make the necessary financial returns to start justify continued delivery in this sector of the housing market?
- Can the target market afford the type of product required to be rolled out in order to achieve such density targets?

## 5.7 Housing affordability

This chapter aims to investigate the obstacles to residential development within the VRC for both the developer and the end user by attempting the questions posed at the end of chapter 7.

### 5.7.1 Constraints for developers achieving initial returns

Investigations into the financial viability of residential developments indicate that developers need to make a return of 10% of the minimum cost of development financing in year 1. Also, rates of return has a large degree of correlation with market affordability. The following constraints have a marked impact on the ability for a development to make this minimum return.

- Land Costs
  - One of the largest constraints to developers in the social and GAP housing sectors is access to land that is well serviced by public transport. A key focus of the City of Cape Town is the targeting of vacant City-owned land to leverage social housing projects linked to public transport.
  - The City's social housing partners receive favourable purchase rates that are well below market value for City-owned sites identified for social housing in order to improve financial viability for social housing provision in the VRC.
  - However, apart from increasing its rates base, the City does not receive any added value from the development of its land holdings. The use of long leases is an alternative being considered more often as a mechanism for the City to capture the value of development over time.
- Development charges (DCs)
  - DCs represent a significant challenge to developers in the City. This is especially problematic in parts of the VRC where developers find difficulty in making a viable return on investment.
  - Furthermore, DCs make densification difficult to achieve because development at scale pushes the overall costs of development up quite substantially. Therefore, the difference between the optimum bulk threshold and the maximum bulk threshold of a particular site is often quite vast.
  - A further drawback to the City's DC's policy is that the costs cannot be offset against contingency plans for services (e.g. energy efficient; sustainable buildings). The logic behind this is that developments still need connections to municipal infrastructure services to be used in the event that on-site services fail.
  - However, the DC's policy does make provision for exemption of an applicant on condition that an alternative funding source is made available. This is particularly relevant to current and future social housing projects within the VRC.

- Parking requirements
  - Parking provision as a percentage of development costs amounts to up to 30%. This then impacts substantially on the initial return of for a developer in year 1.
  - Parking requirements specified in the City of Cape Town's Integrated Zoning Scheme make provision for reductions in parking ratios as low as 0.5 bays/unit for developments located in designated Public Transport (PT) Zones.
  - In certain instances however, such as social housing and other affordable housing developments, these reductions remain insufficient considering the low vehicle ownership of the market type and the relative proximity to public transport.
  - Examples of social housing projects in Cape Town, such as Steenberg Village (Steenberg) and Drommedaris Housing Project (Milnerton) have prescribed parking ratios of 0.55 and 1.25 bays/unit respectively. However, the surveyed parking ratios of these developments once established for some time indicate an average utilisation of 0.3 bays/unit.
  - This level of inflexibility also manifests in privatized developments where bulk maximization within areas where public transport is encouraged is constrained by parking requirements.
  - Basement parking is hugely expensive, and could potentially increase building costs by up to 68%.
  
- Costs of materials
  - Externalities such as costs of material (e.g. cement, steel, etc.) have quite substantial impacts on what is considered the optimal bulk take-up of a site.
  - This situation plays itself out regularly when making a decision to develop a building of up to 4 storeys or a building of more than 4 storeys, as concrete-framed construction would then apply. This would significantly affect the financial viability of multi-storey development.

## 5.7.2 New Builds vs refurbishments in the VRC

### **New build summary**

Analysis of new builds in the VRC indicate that the best initial returns of 5,5% occur in 3 storey builds. This includes:

- A 50% parking departure (PT2 Parking ratios);
- Smaller residential unit sizes; and
- Significantly written down land costs

The worst returns occur at 6 floors as this form does not have large enough GLA/bulk to take advantage of economies of scale. The best returns occur at 10 floors as a result of a critical mass of residential units being provided to justify investment in concrete-reinforced builds.

### **Refurbishment summary**

Building refurbishments were analysed on the basis of a 6 storey building, which is the general height of buildings in the Bellville Area. The key difference to new builds is the fact that the land value on refurbishments includes improvements, thus driving up the purpose price of land. However, the building costs per m<sup>2</sup> are substantially lower than new builds.

Refurbishments tend to be more attractive within the developed context such as the VRC, with between 22-38% savings on total redevelopment costs as opposed to new development. Although smaller units and higher densities increase returns, particularly when coupled with low parking requirements.

## 5.8 Key trends/conclusions

The following points represent the main residential trends experienced within the VRC:

- The provision of public housing at scale is a significant challenge due to financial and management issues. This is mainly attributed to lack of available City-owned land within the corridor
- The level of overcrowding within the Leonsdale area is a big concern. Several public housing projects have been initiated within this area with little or no regard given to the existing lack of public facilities and poor quality open space within this area.
- The current densities within the corridor are unacceptably low considering the extent of public transport service provision within the corridor. However, densities need to be increased in appropriate locations within the VRC. To what extent does the corridor need to densify and where? Which densification scenario is the most realistic?
- Social housing provision is a potential mechanism with which to protect vulnerable socio economic bracket against market forces such as gentrification.
- The ability for the market to provide affordable housing stock in the VRC at a reasonable return remains a huge challenge. Financial viability remains an issue that needs to be addressed. This is largely attributed to the challenge of paying development charges to the City.
- Property values have substantially increased in Maitland and Kensington due to increased demand in the lower-middle income residential segment. Other evidence of strong demand for affordable housing within the corridor exists in the Avon and Ruyterwacht areas, where residential property prices have also increased quite substantially.
- Incremental densification will be a strong contributor to the overall densification of the corridor, with small scale consolidations occurring to enable low-rise forms of residential development. This is quite evident in parts of Goodwood, Parow and Bellville.
- The primary housing need in the city is subsidized housing (<R3200). The ability and appropriateness of the VRC to absorb demand in this segment at scale is questioned.

## 6. Economic Status: Shadows and spill-overs

This chapter analyses the pattern of economic activity across the study area, and seeks to understand the functional role of its constituent element in relation to a broader regional economic system. The purpose of this analysis is to get a clearer understanding of the latent economic potential, so as to inform the identification and prioritisation of area-based interventions. Finally, we propose complementarities and conflicts by identifying dependencies and interactions with other urban development dynamics.

### 6.1 High-level findings

#### 6.1.1 High level questions

- Does the corridor have a single, coherent functional role in relation to the broader urban regional system, or does it instead comprise of distinct constituent elements that are not necessarily disproportionately interdependent in contrast to elements outside the corridor.
- What is the anticipated impact of medium-res (socially-driven) residential intensification on the ability of the area to attract and retain employment-generating activity?
- How would one describe the performance gradients across the area, and the implications for economic strategy?
- Should under-performing industrial pockets within the area be protected, or should alternative land uses be permitted and even encouraged?
- Are the principles of the Urban Village movement appropriate for the VRC, whereby segregation of urban areas into retail, industrial and living areas was abandoned, and cities reverted to mixed use development? See Birmingham for example of how this approach led to large-scale loss of jobs<sup>1</sup>.

#### 6.1.2 High level conclusions

- VRC sandwiched between 'N1 Office Boom Belt' along north and 'Resilient Rust Belt' along south
- Shadow effects have largely run their course
- Local economy is now almost entirely localised and largely insulated from competition
- But lack of upward mobility within local market caps potential for endogenous growth

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<sup>1</sup> "The doughnut effect", Economist, January 17, 2002



- 5-10 year employment growth likely to centre on 'managed' green field areas
- So, how does VRC use its prime location, artisanal skills and low property costs to enhance economic spill overs?

## 6.2 Regional context

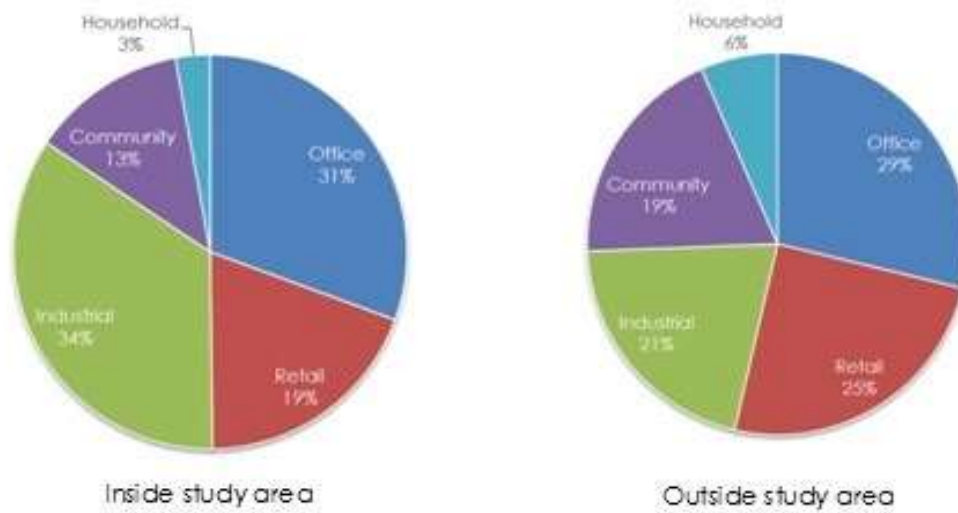
This section investigates the study area within the context of a regional economic system. We reflect on whether it makes sense to view the study area as a forward planning construct or rather a coherent, non-random sub-system within the broader space economy: in short, a true functional economic corridor. We look at the spatial articulation of formal employment and non-residential building development, and gauge its relative significance as a revenue-generating asset for the City. By depicting the regional economy as a network of interdependent nodes, we (a) establish a consistent analytical language for the remainder of the economic chapter, (b) enrich our understanding of the economic drivers behind spatial change, (c) allow us to incorporate firm-level/sector data, (d) anticipate the impact of transport upgrades and area-based interventions.

### 6.2.1 Composition and distribution of formal employment

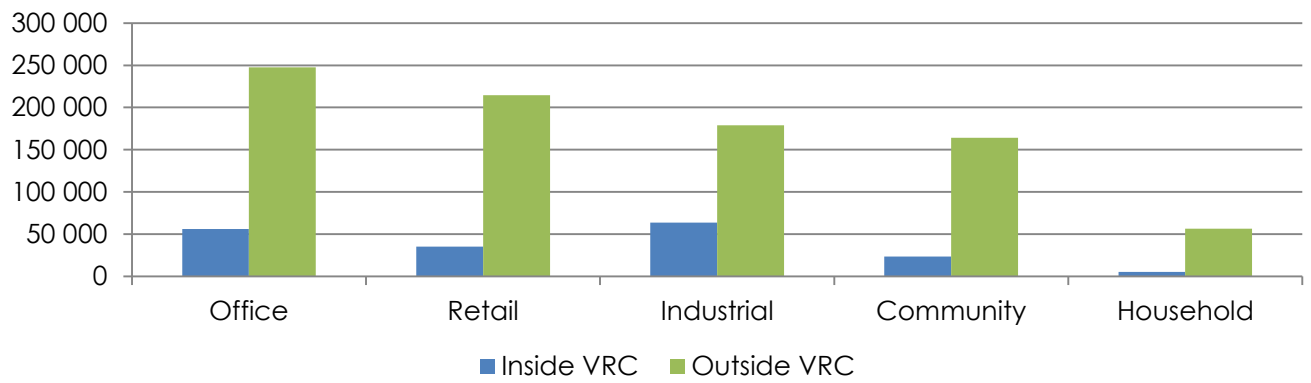
Nearly one out of five formal jobs<sup>2</sup> in Cape Town is located within the study area. A significant proportion (34%) of the 183,000 jobs located here are attributable to the industrial sector, compared to 21% for the remainder of the metropolitan region. Relative to other parts of the city, it may be concluded that the local economy shows a high reliance on industrial incomes, and a corresponding sensitivity towards both local business conditions and exogenous shocks shaping the sector's prospects. At the same time, the data suggests a below-average reliance on employment linked to social facilities and retail.

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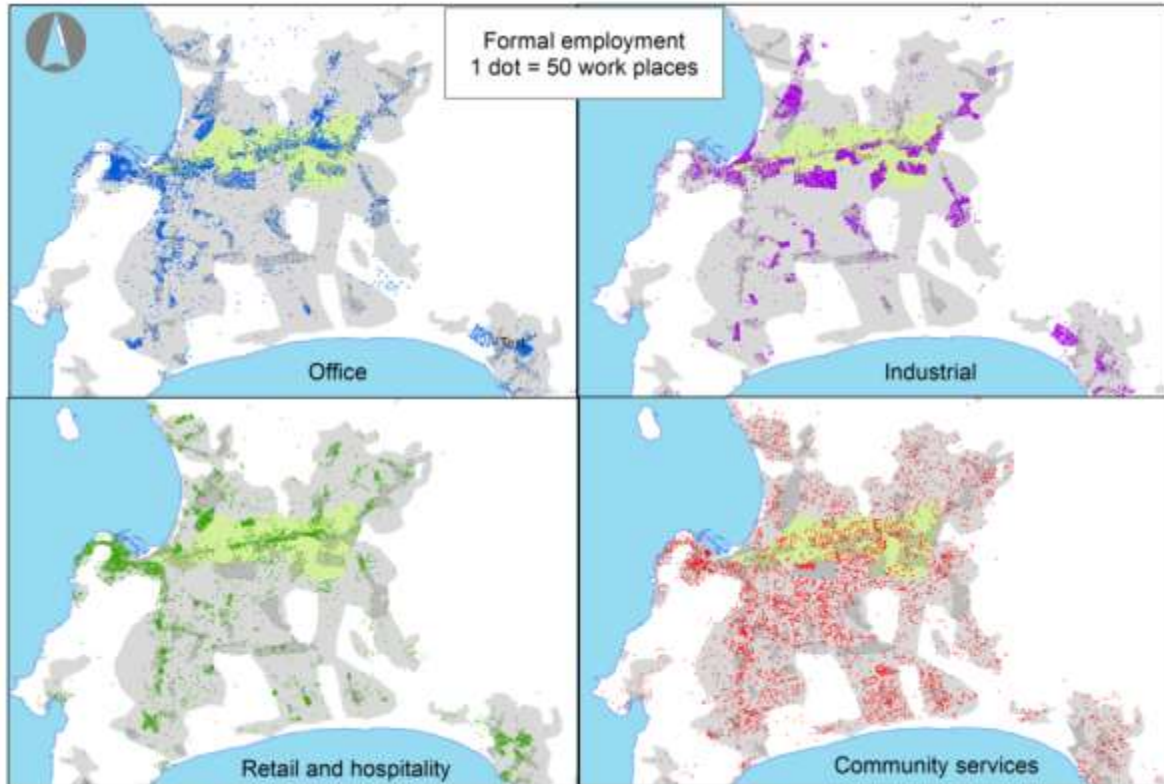
<sup>2</sup> Approximately 15% of overall employment in Cape Town is informal in nature.



**Figure 27: Composition of formal employment**



**Figure 28: Formal employment within study area**



**Figure 29: Spatial distribution of formal employment<sup>3</sup>**

These findings raise difficult questions about the suitability of conventional urban regeneration principles, specifically its emphasis on promoting mixed use development instead of the segregation of land uses. If an identified objective of an intervention strategy is 'jobs', should the retention and protection of dedicated industrial land uses receive precedence over strategies aimed at reducing commuter trips at a micro-scale, creating a vibrant public environment and generally raising consumer amenity as a means to attract skilled workers and higher-end shoppers? What are the unintended external costs of creating small pockets of high-quality urban environments on the sustainability of industrial activity (e.g. via rising land values, nuisance laws, etc.).

At the same time, there are a number of factors which raises questions about the prudence of relying on industrial employment as a main strategic pillar: (a) while unquantified, there are early signs that deteriorating levels of law enforcement is precipitating an exodus of higher-order industrial activity from established industrial areas towards gated industrial estates to the north; (b) the displacement of higher-order with lower-order industrial activities is reinforcing declining business conditions by attracting crime (e.g. scrap metal dealers, wholesalers in counterfeit goods, etc.)

<sup>3</sup> We track the spatial distribution of work places across transport zones based on internal floor space and employment density functions.

As each source has its own limitations (i.e. the attribution of particular economic sectors to corresponding land uses), employment density ratios are derived by triangulating international and local case studies with a citywide analysis of overall employment by sector and internal floor space.

and shedding jobs (displacement of manufacturing with warehousing); and (c) the long-term regional trend of de-industrialisation and mechanisation as a result of the so-called 'middle income' trap.

## 6.2.2 Regional building development

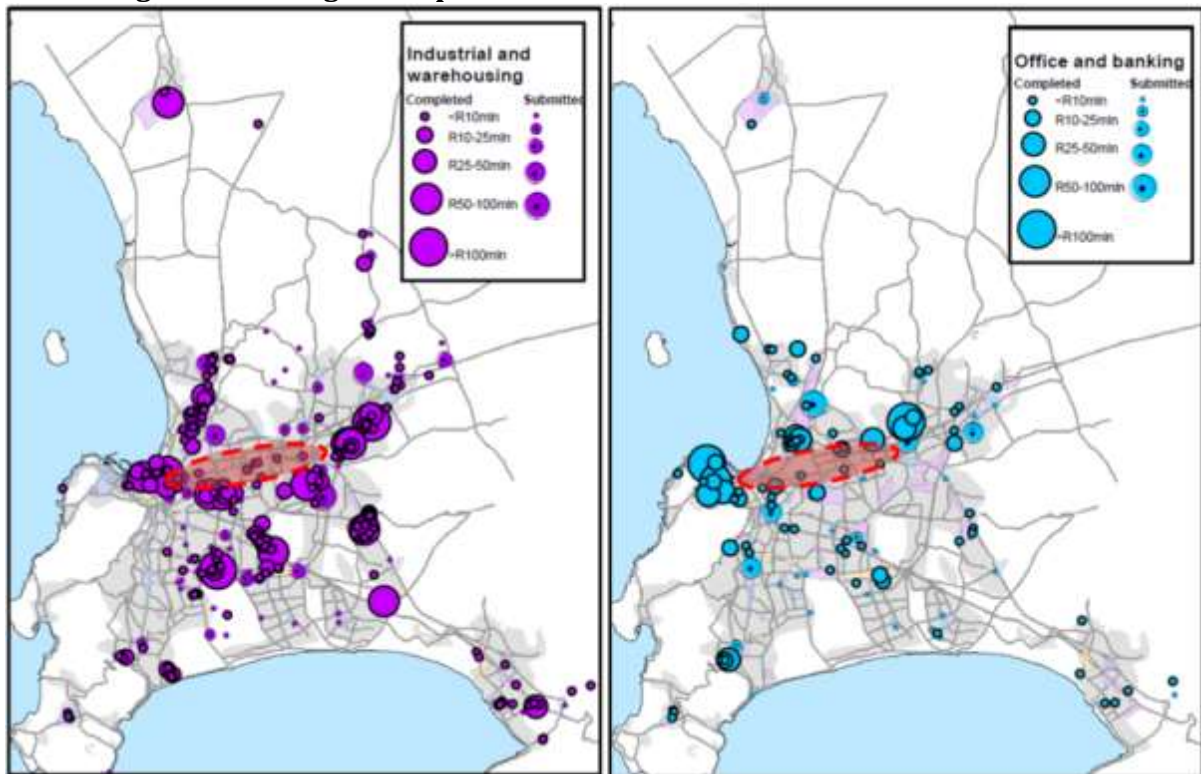


Figure 30: Building development between 2010 and 2013

### The 'donut' effect

The spatial pattern of new employment-generating activities – as suggested by building development - forms a visible 'envelope' around the study area. It is immediately adjacent to the corridor of fast-growing office nodes running along its full northern extent, whereas the southern boundary of the study area corresponds with an industrial belt running its southern periphery.

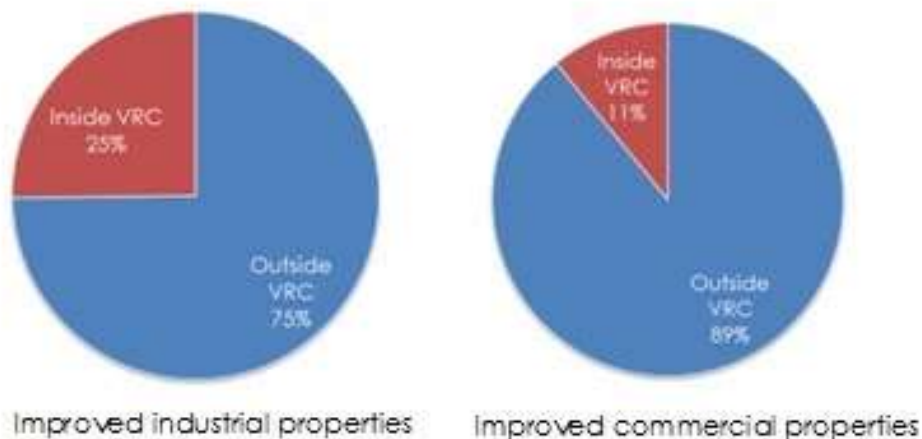
The avoidance of the study area by the property market – whether explicit or not – resonates with a global urban phenomenon known as the 'donut effect': a concentration of urban activity along mobility corridors corresponding with a dissipation of economic energy in the less accessible inner city brought about by an accelerated process of functional and physical obsolescence.

Although this state of suspended animation may be said to have started in the late 1980s, its persistence in recent years (as shown in Figure 30 above) may only partially be attributed to the impact of limited vacant land on greenfield development opportunities. This point will be explored more fully in the nodal analysis.

### 6.2.3 Fiscal significance



With the combined municipal value of improved business properties estimated at R20.8 billion as of 2012, the fiscal sustainability of the City is inextricably linked to the economic prospects of the study area's local economy. The study area is host to 25% of Cape Town's industrial and 11% of its commercial property base respectively. There is also some provisional evidence that suggest that despite serial avoidance by the property market, mounting urban management challenges and adverse macro-economic conditions, business properties have – in aggregate – increased in value since 2009 from R17bln<sup>4</sup>.



<sup>4</sup> Constant 2012 prices.

### 6.3 The study area as a true functional corridor

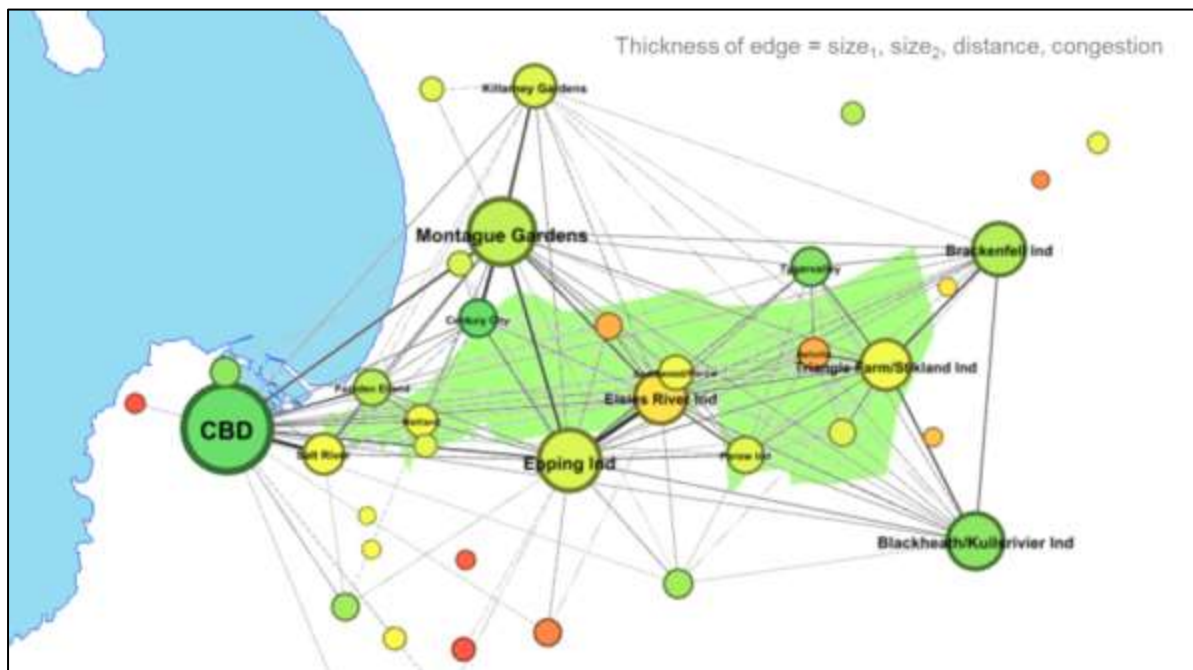


Figure 31: Network analysis of economic interdependencies<sup>5</sup>

#### 6.3.1 The intensity of links: the city as a network

Figure 31 depicts the urban region as a network of interdependent nodes, offering a glimpse into a 'deep structure' whereby collaborative and competitive activities are structured to secure resources. It allows us to account for local economic performance in relation to a larger network. The formula is theoretically premised on the governing hypothesis that agglomeration effects (i.e. spill-overs and shadows) attenuate over geographic distance, and is mediated by movement networks. In principle, these interdependencies contribute to towards greater overall system efficiency and resilience; however, this perspective also implies that the development trajectory of particular nodes or clusters may be adversely affected as a result of relative locational disadvantage on the one hand, and transport costs on the other.

#### 6.3.2 The nature of links: shadows and spill-overs

The visualisation suggests that - notwithstanding path dependencies such as movement networks - the study area is spatially correlated to the most intense linkages in the regional economy: not only do the constituent nodes within the study area exhibit a high level of interdependency, but that these nodes are outwardly integrated into the surrounding nodes. It is clear that these ties differ: two nodes may mutually reinforce one another, or compete. As will be shown in the following section, the links internal to the study area appear to be mutually reinforcing,

<sup>5</sup> The thickness of the edge represents the hypothesised intensity of economic interdependency between nodes, and is based on the product of the scale of economic activity per node (+), the geographic distance between the node (-), and the average level of congestion across nodes (-).

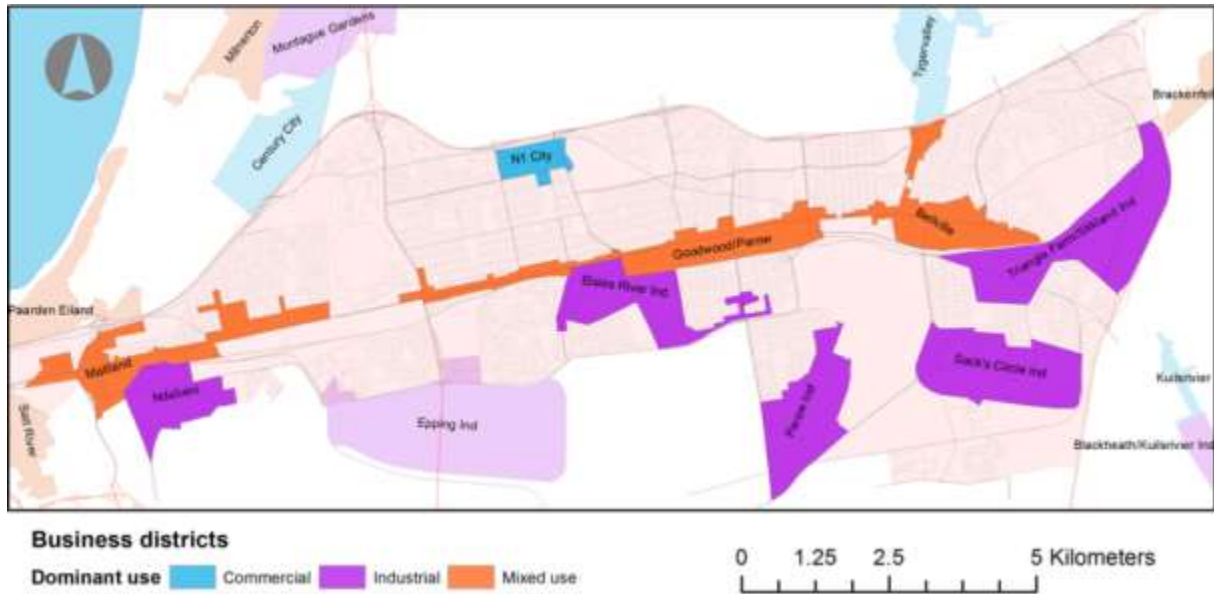
whereas those outward links to peripheral nodes appear to be largely competitive (i.e. characterised by shadows). This is supported by the finding that the nodes inside the study area show very similar levels of relative economic performance with one another, but starkly different levels of performance relative to nodes immediately outside the study area. This in turn suggests that the corridor is not merely a design object but indeed representative of a functional economic sub-system. The implication for strategy? It may thus be anticipated that intervention (or lack thereof) in one part of the corridor is likely to have consequences (intended or otherwise) in the rest of the corridor.

### **6.3.3 Building networks into strategy**

The study area is bounded on all sides by fast-growing office nodes to the north, and large agglomerations of industrial activity to the south. The stark difference in the performance of nodes within and directly outside the study area has led to a problematisation in a preceding section (see Figure 30 as a 'donut effect'). However, in conjunction with the network lens, we may in fact have identified a positive informant to strategy: whereas this geographic proximity have induced shadow effects across the study area – historically characterised by the capture of local shoppers and skilled workers in search for greater amenity and mobility ('pull factors') – there may be medium- to long-term potential for the study area to accommodate positive spill-over effects once push effects such as rising rentals and road congestion begin to crowd out those economic activities that exhibit greater sensitivity towards such factors. Local case studies of this dynamic include office activities being pushed out of the CBD into Salt River, and land extensive warehousing activities being pushed out of Airport Industrial towards the northern edge of Philippi. The question thus arises as to which interventions will position the study area once the remaining bulk in Century City and Tyger Valley are fully developed within the next ten years?

## **6.4 Nodal analysis of business districts**

This section identifies the major business districts within the study area, and draws heavily on the Business Location Intelligence platform developed by the Economic Areas Management Programme (ECAMP). By applying the scale and data thresholds, and rules of delineation established by ECAMP, nine business districts were identified within the study area: We score the nine nodes in relation to citywide average in order to understand both the relative performance and location potential of each node. Detailed area profiles for each node including over seventy measures of performance and location potential has been attached as an annexure to this report. Within the main body of this report, we will only highlight and discuss some of the more salient measures and trends.



**Table 14: Classification of business districts within VRC**

Industrial	Commercial	Mixed Use
Ndabeni Parow Industrial Elsies River Industrial Sack's Circle Industrial Triangle Farm / Stikland	N1 City	Bellville Maitland Goodwood/Parow

## 6.5 Land values, rentals and vacancy

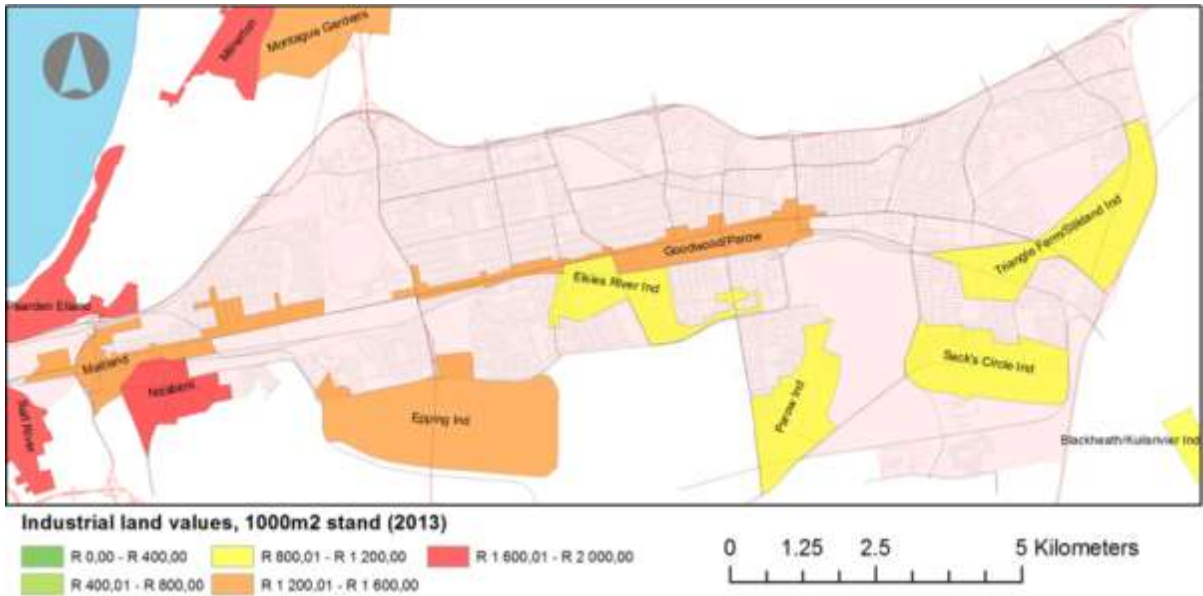
The performance of a business district can be measured in terms of its property market because, as rent is a function of the gross profit of an enterprise, the rents paid in a particular area reflects its ability to successfully support business operations. By tracking land values, rentals and vacancies, we thus gain insight into the drivers of demand which help account for the building development trends discussed in the next section.

### 6.5.1 Industrial land values and extent

We look at industrial land values specifically due to its fungibility<sup>6</sup> relative to commercial property, which is comparatively sensitive to site-specific factors. It is therefore more useful to compare industrial property values across nodes, and then relate them to gross rentals achieved.

<sup>6</sup> Fungibility is a property of a good or a commodity whose individual units are capable of mutual substitution. Fungibility refers only to the equivalence of each unit of a commodity with other units of the same commodity.

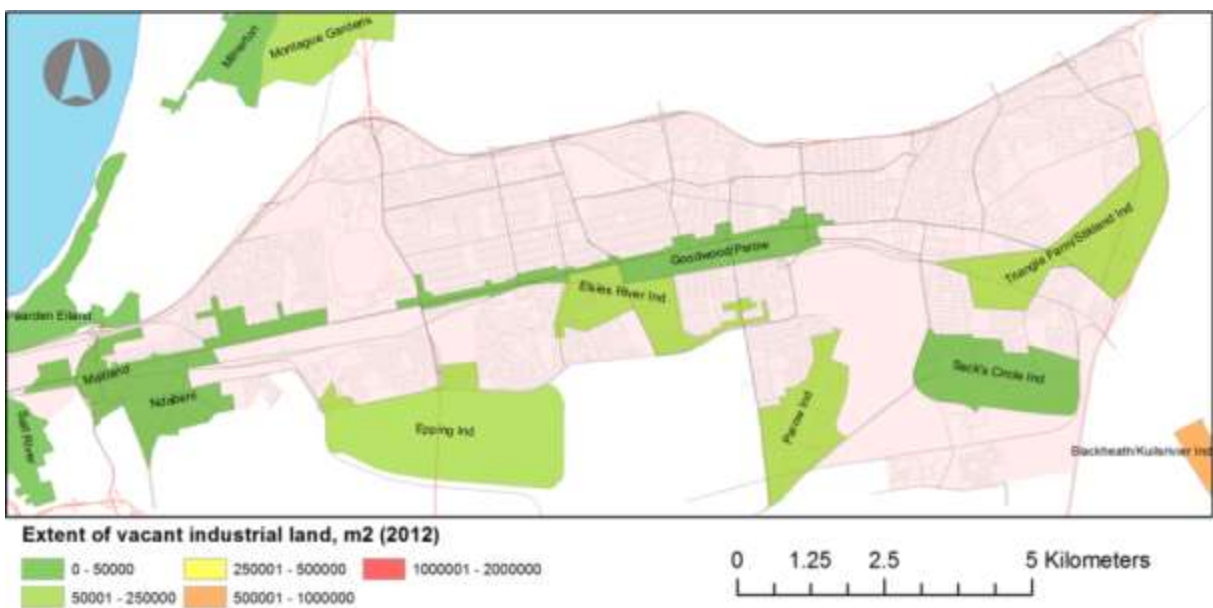




**Figure 32: Mean market values for serviced and level industrial stands**

Figure 32 shows that industrial land values range from comparatively expensive in the west, becoming gradually cheaper moving eastwards. Ndabeni is the most expensive (R1875/m<sup>2</sup>), whereas Sack's Circle Industrial and Elsie's River Industrial is the cheapest (R1000/m<sup>2</sup>). The latter is markedly cheaper than its immediate neighbours, suggesting that land values here are depressed for locational reasons.

As highlighted in the previous section, Figure 33 confirms that the supply of vacant industrial land is not a significant determinant of land values or building development: all industrial nodes are effectively fully-developed.



**Figure 33: Supply of vacant industrial land**

### 6.5.2 Rentals

Rentals, and specifically rental growth, is a key driver of new building development:

- Figure 34 shows that – citywide-rentals for large properties (2500m<sup>2</sup>) have been growing at a significantly higher rate than smaller properties (250m<sup>2</sup>). This may suggest a comparatively low level of demand for smaller properties, and in turn, a reflection of the lower level of gross profits by smaller industrial firms. In the study area specifically, we can see that rental growth for large properties have been lower than the citywide average – significantly so.
- For large properties, there is also a broad correlation between rental growth and proximity to the CBD. The same correlation does not hold for smaller properties: Maitland and Ndabeni have seen very strong increases, but similar trends are not evident in Salt River. This may be attributable to the repositioning of Salt River from industrial towards commercial, and the concomitant lack of reinvestment in industrial building stock.
- Both office and street front retail rentals are significantly lower in the study area, even when compared to more poorly located nodes such as Somerset West and Mitchell's Plain. This confirms a lack of demand of space in this area, which is confirmed by the high levels of office vacancy in Bellville.

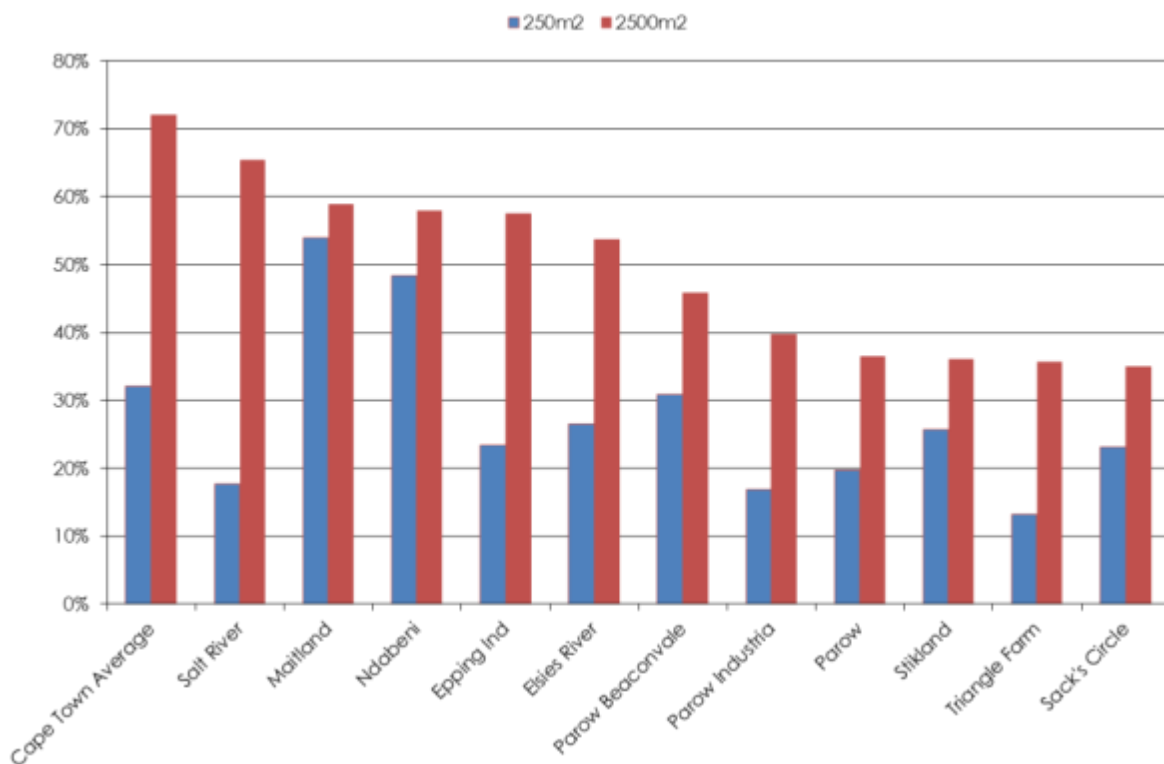


Figure 34: Cumulative real growth in industrial rentals (2004-2011)

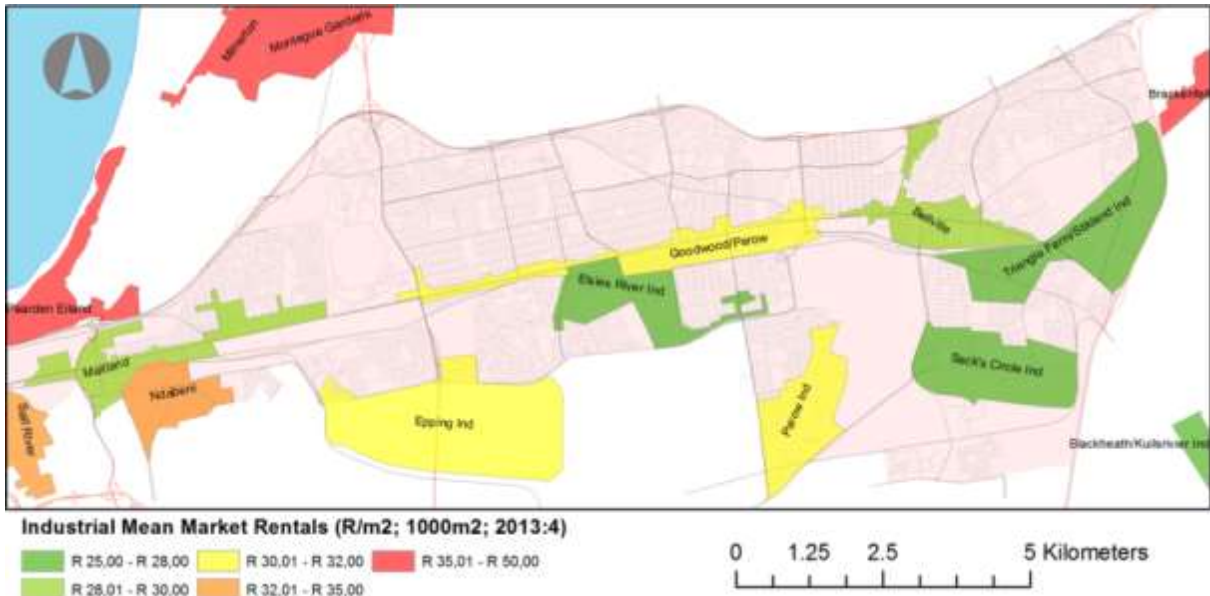


Figure 35: Industrial rentals (1000m2)

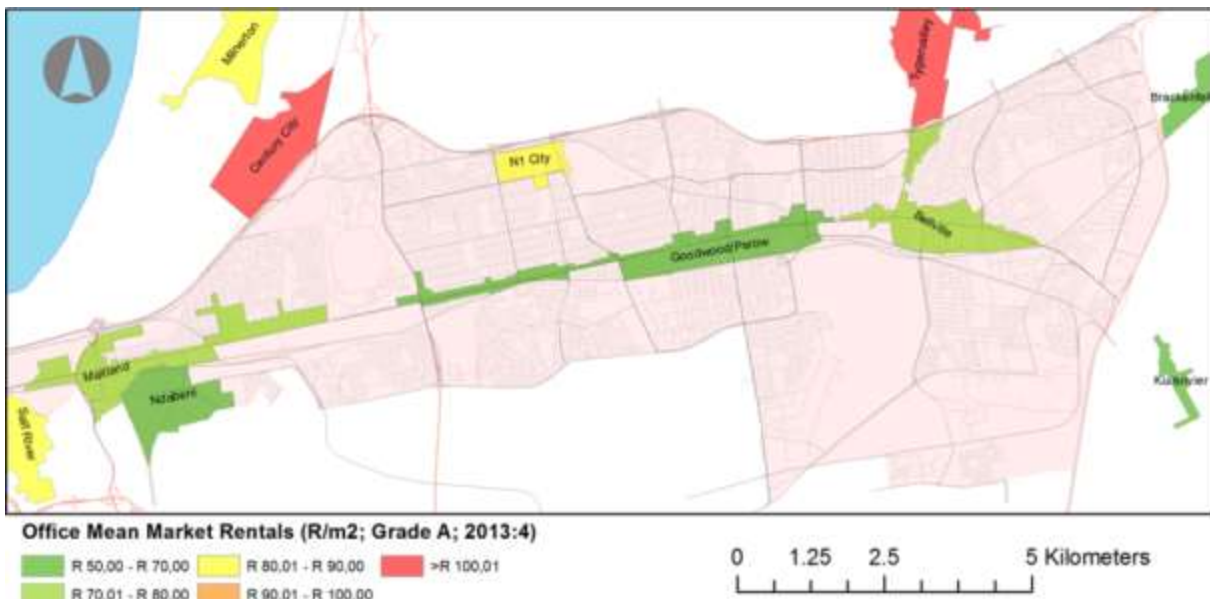


Figure 36: Office rentals (Grade A)

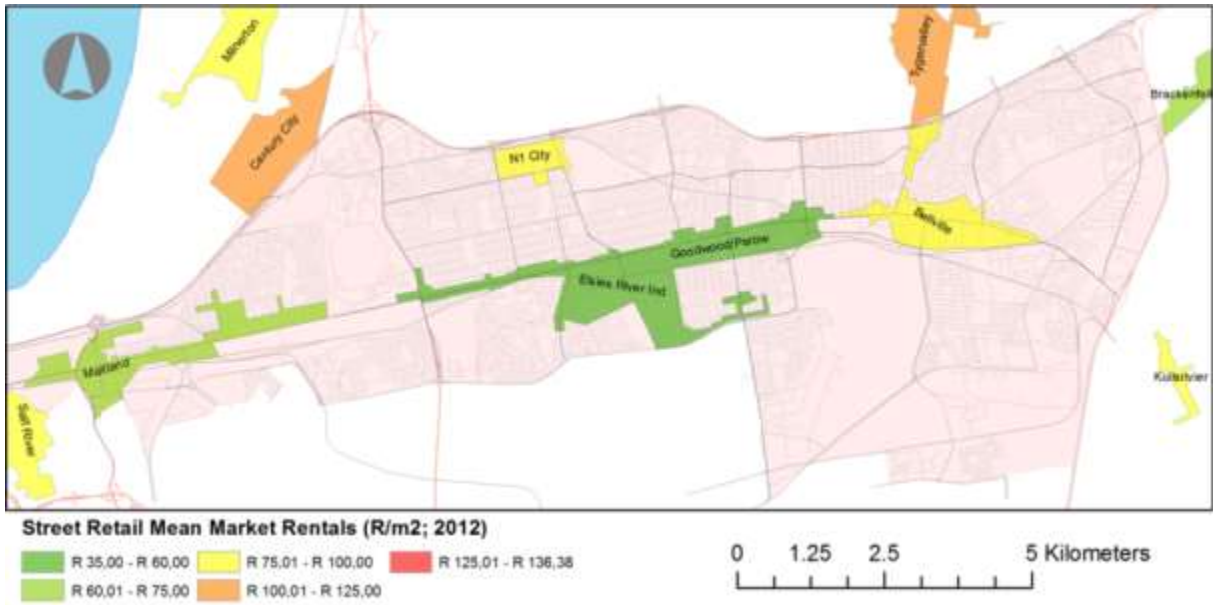


Figure 37: Street retail rentals

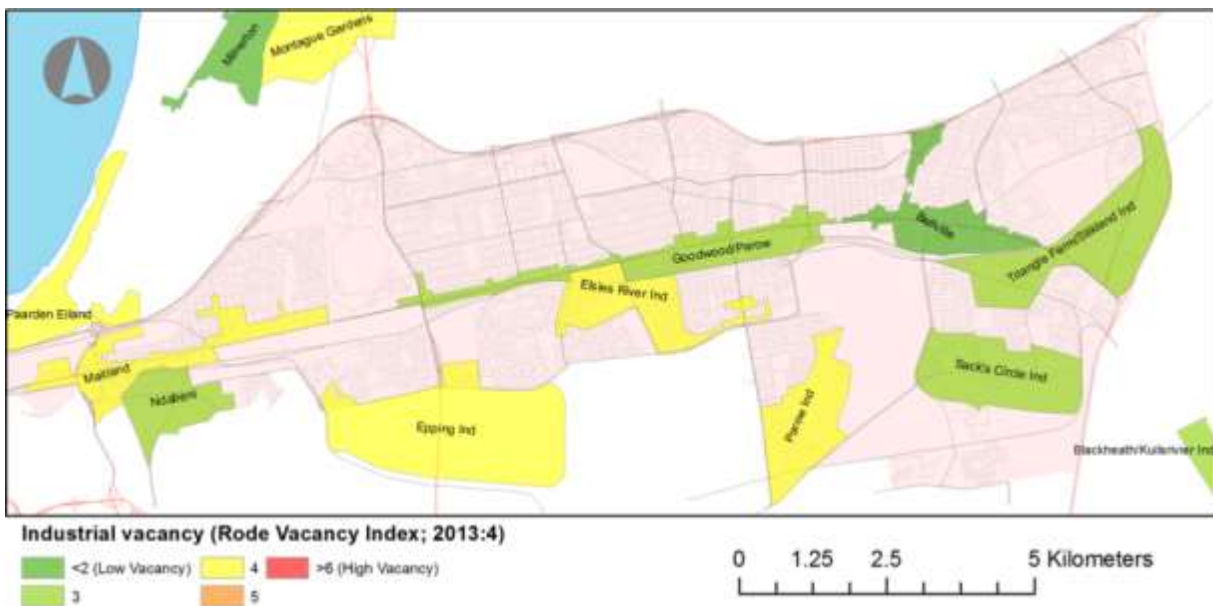
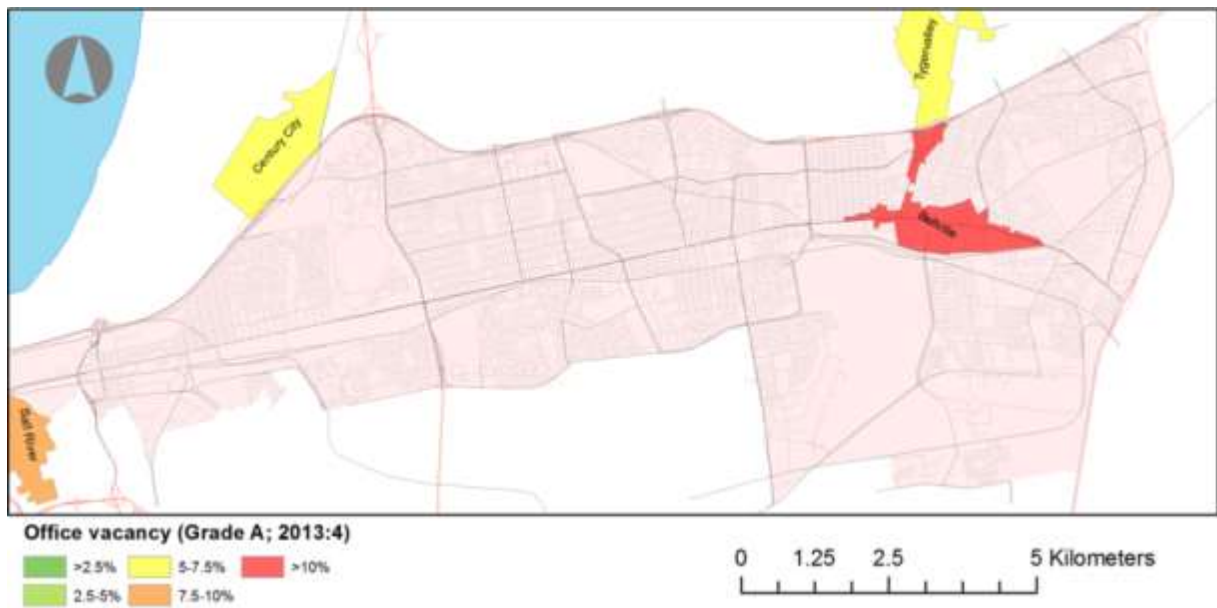


Figure 38: Industrial vacancy



**Figure 39: Office vacancy**

## 6.6 Building development

We know from the previous section that the study area has not attracted a significant proportion of citywide non-residential building development in recent years. This is confirmed by tracking the estimated building value of non-residential building plans completed since 2005. This indicates that building development varies greatly from year-to-year, slowing gradually from a peak at nearly R500mIn in 2007 to less than R200mIn in 2010 and 2011. However, we have seen some improvement in 2012 and 2013.

The large industrial areas have seen the bulk of development, but with a sustained contribution from the mixed use areas. The commercial centres have contributed least. Taken together, however, Figure 40 suggests that the variegated nature of the local economy has contributed towards its overall resilience: underperformance by one area is ameliorated by activity in another.

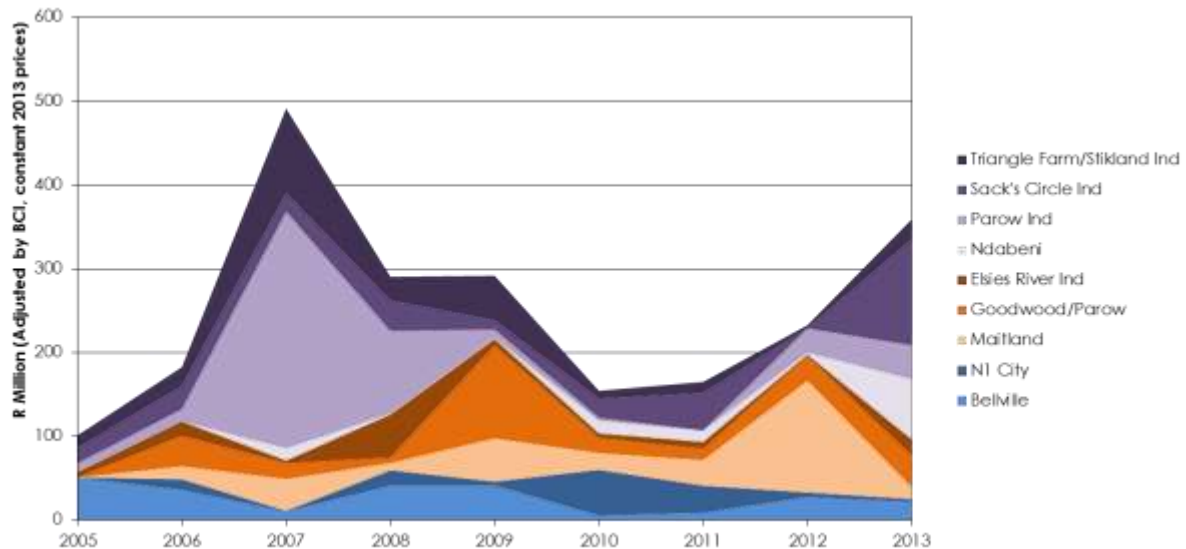


Figure 40: Non-residential building development across nodes

### 6.6.1 Building completion trends (2005-13)

A spatial perspective of various types of completed building development adds further nuance to this story:

- Although the three large industrial areas to the south east have performed relatively well, industrial property developers have generally avoided industrial and mixed use areas abutting Voortrekker Road (see Figure 41).
- New office building development continues to concentrate in a limited number of fast-growing nodes: Tyger Valley, Century City and Salt River<sup>7</sup>. There is no discernible activity within the study area, with only 48,700m<sup>2</sup> in total (see Figure 42).
- The development of new shopping space has flat lined, with the exception of Bellville (see Figure 43). These trends suggest that Bellville is being repositioned away from an office node and towards a retail node driven by commuter through-put.
- We are however witnessing some activity in the redevelopment of existing non-residential buildings along the main spine of the study area. When we compare new building development with redevelopment of existing buildings, our data suggests that the latter has consistently contributed towards overall development activity, whereas new building development has been more spasmodic (see Figure 44).

<sup>7</sup> Accounting for 578,000 out of a citywide total of 990,000m<sup>2</sup> added.

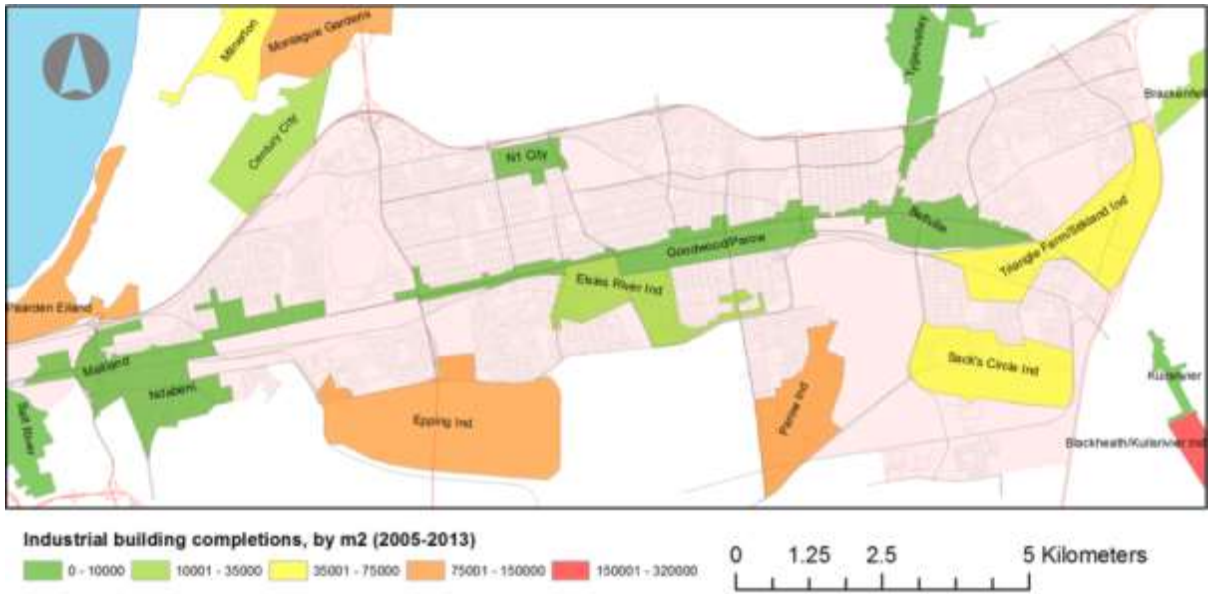


Figure 41: Industrial building completions

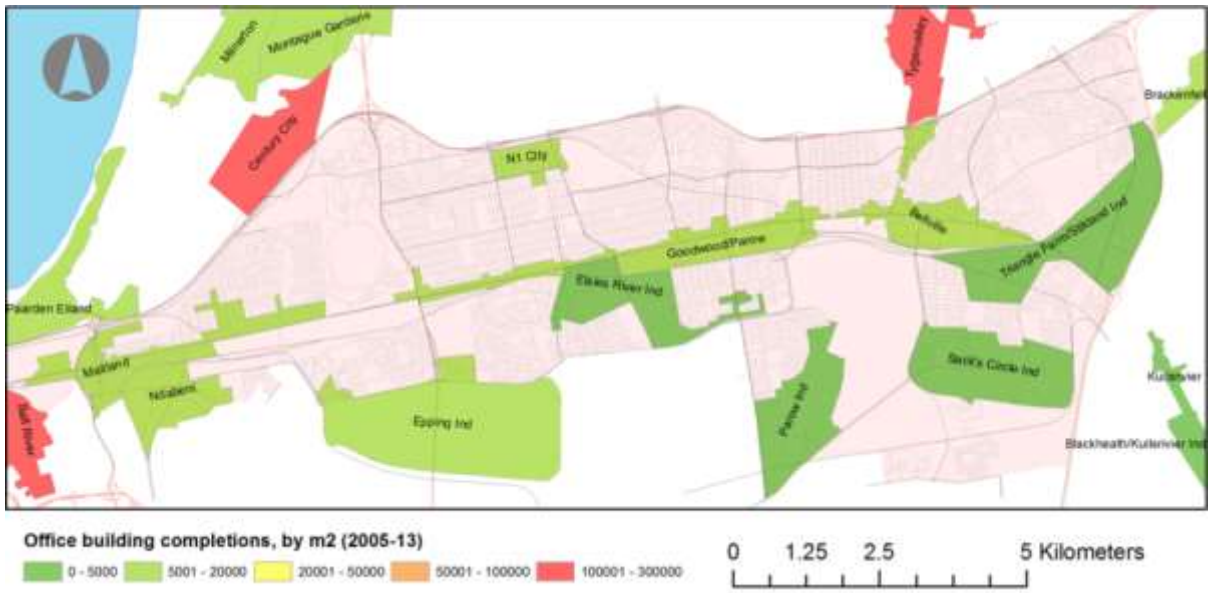


Figure 42: Office building completions

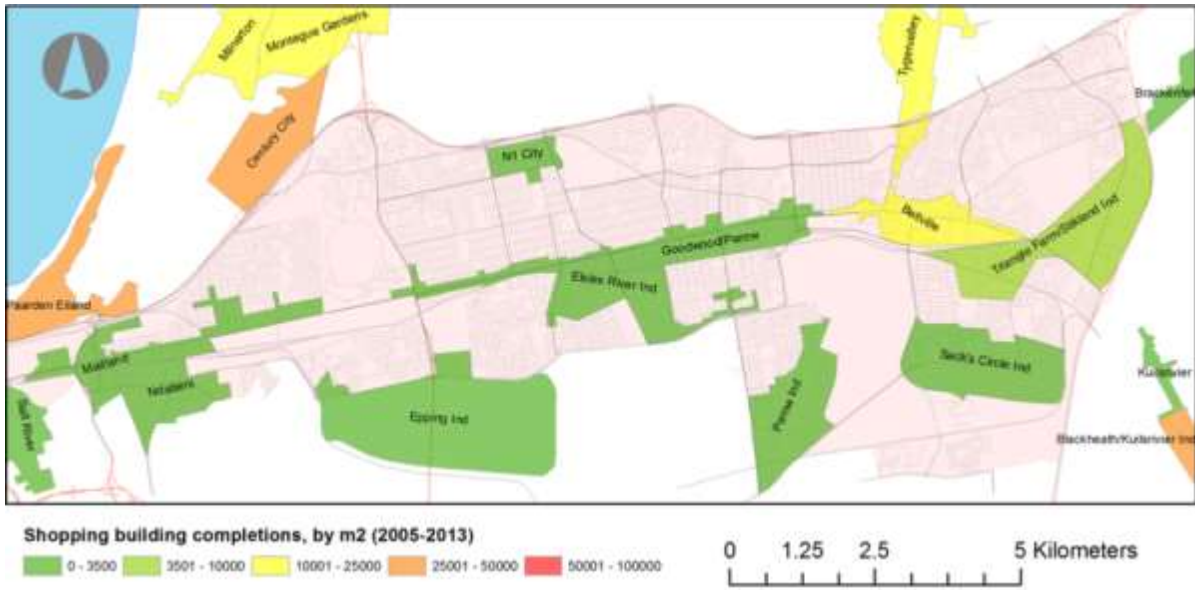


Figure 43: Shopping building completions

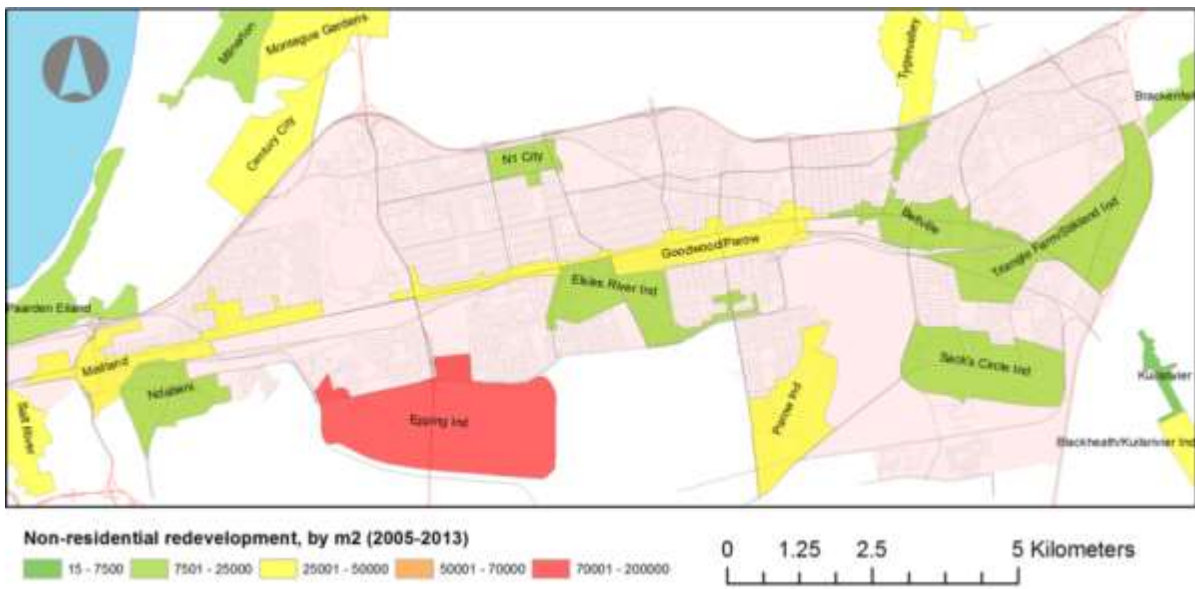


Figure 44: Additions and alterations to non-residential property

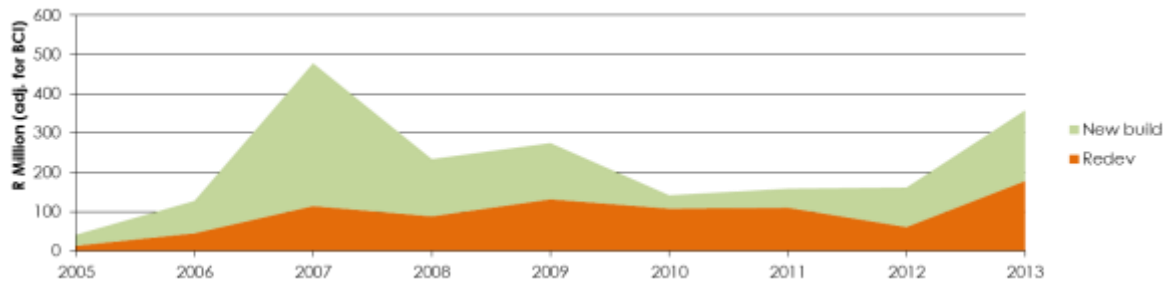


Figure 45: New non-residential building vs. additions and alterations



### 6.6.2 Building plan submission trends (2012-13)

The preceding analysis is complemented by looking at building plans received since 2012 (see Figure 46 - Figure 50). This offers a leading indicator as to forward-looking developer interest:

- Industrial development interest has strengthened in Parow Industria and Sack's Circle Industria. Except for Maitland, however, the data does not however suggest a demonstrable improvement in the industrial heart of the study area, Elsie's River Industria. The marked drop in activity in Triangle Farm and Stikland Industria may be related to the severe shortage of infrastructure capacity in these areas.
- While there is no discernible interest in the new office or retail sector, Goodwood and Parow has since 2012 received significant submissions for redeveloping existing buildings (32,000m<sup>2</sup>). Demolition permit data (Figure 50) further confirms the conclusion that the area is largely typified with functionally obsolete building stock, and that in some areas the underlying land values are greater than the improvements.

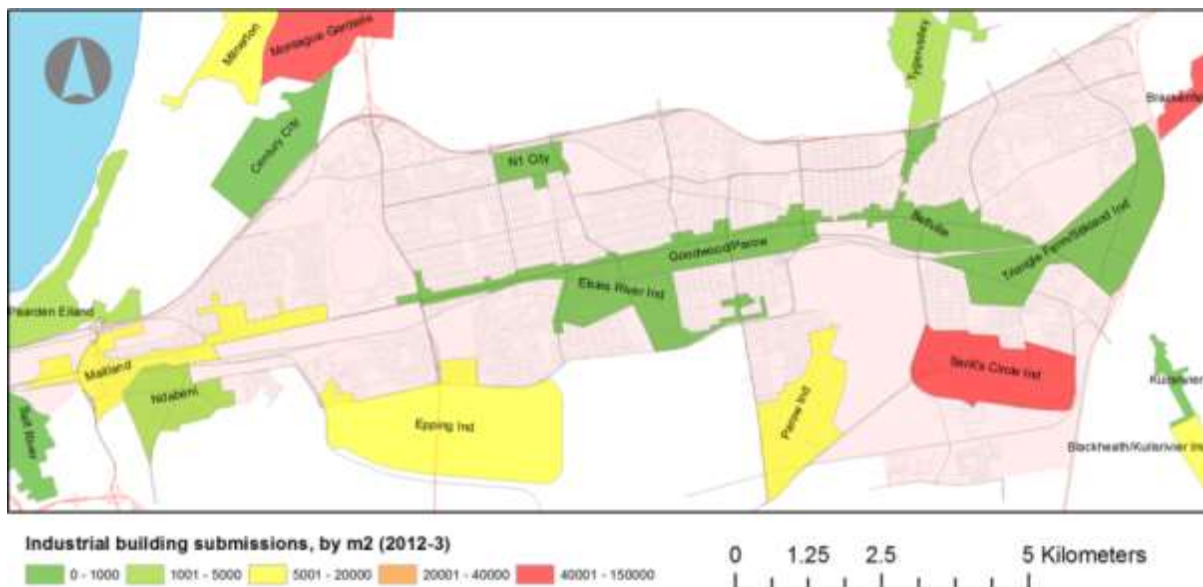


Figure 46: Industrial building submissions

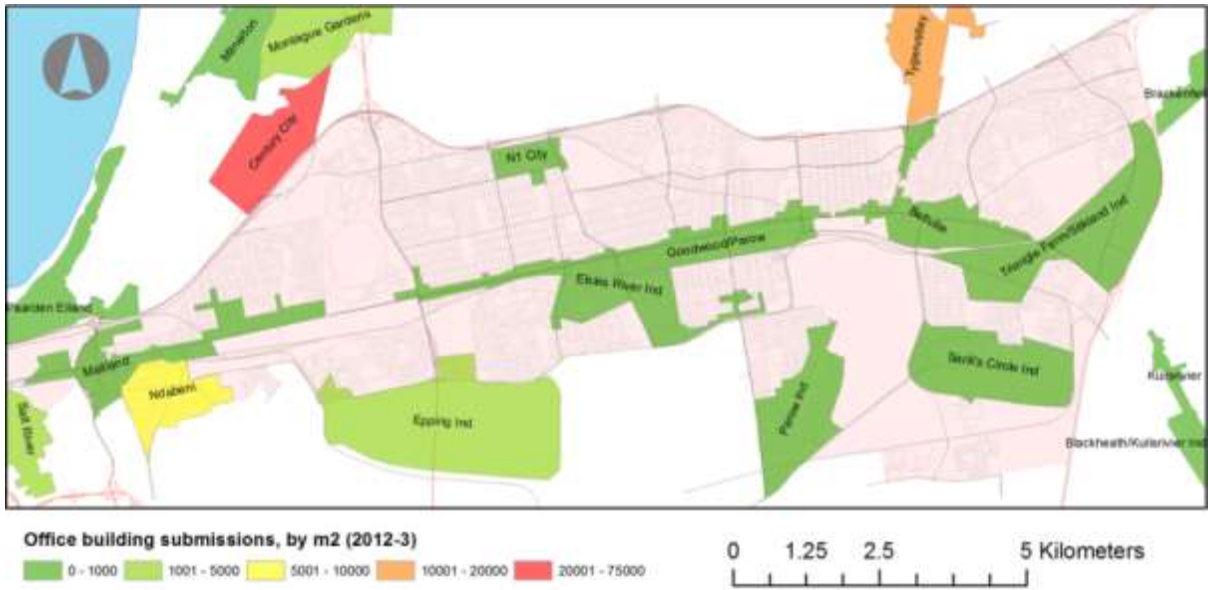


Figure 47: Office building submissions

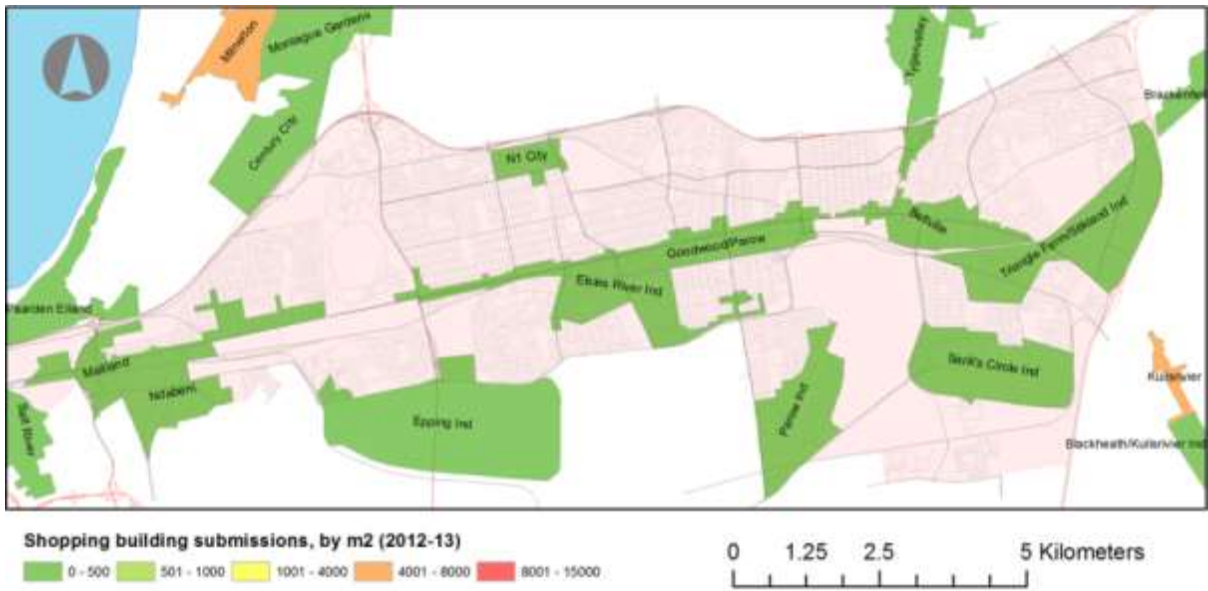


Figure 48: Shopping building submissions

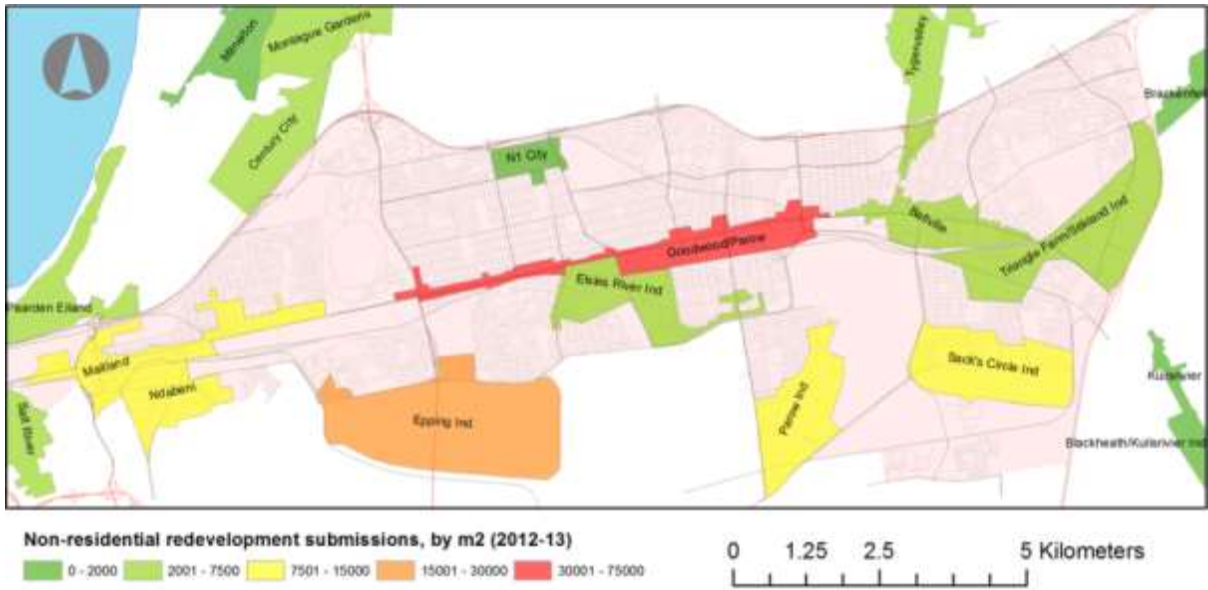


Figure 49: Redevelopment submissions

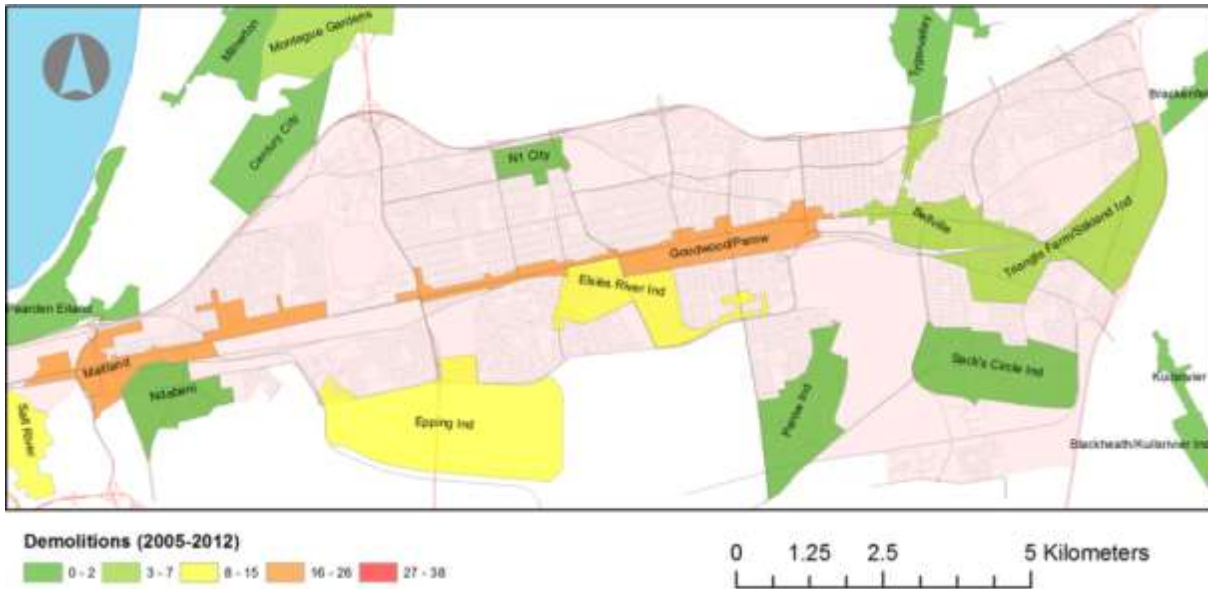


Figure 50: Demolition permits

## 6.7 Business environment

Although urban management is treated in another section, we look briefly towards some of the more salient and quantifiable indicators of business environment: reported business burglaries and robberies, and congestion. We find that the entire study area enjoys a relatively favourable level of accessibility to surrounding areas, and are only marginally affected by congestion. Instead - while by no means unique to the study area - we find that the very sudden increase in violent property crime

may represent the single biggest threat to the study area's potential for regeneration.

### 6.7.1 Crimes targeting businesses

In absolute terms, the number of business burglaries reported since 2004 has remained at a fairly high level, ranging between 1100 and 1300 per year, or 3-4 per day. The likelihood of a particular business being affected by a burglary in a given year is relatively low when compared to other nodes. By applying spatial apportionment techniques, we have estimated the incidence of events for each business node. However, a high number of businesses operating in the area may dilute the frequency and experience of criminality. We may roughly estimate that a particular business has about a one-in-three chance of being burgled in a given year.

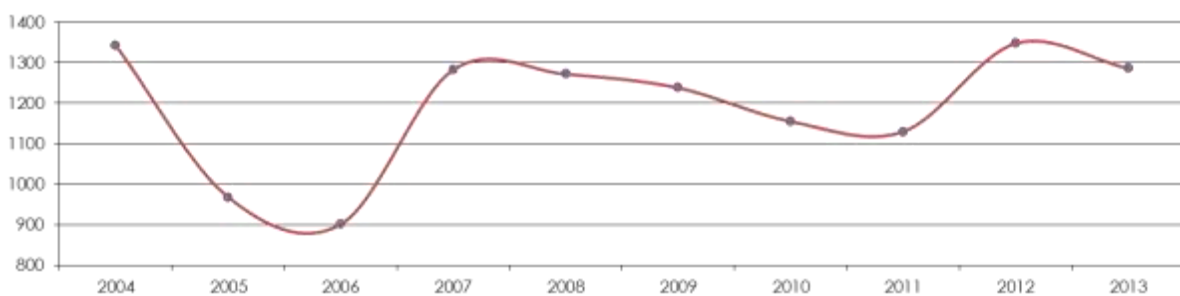


Figure 51: Reported burglaries targeting businesses in study area police districts<sup>8</sup>

As expected, the number of business robberies is significantly lower than burglaries. However, the severity of impact is amplified by its personal nature; it is also more likely to alter perceptions of the area by customers, workers and suppliers. For these reasons, the relatively low incidence of robberies in the study area may be of less significance than absolute numbers. As indicated Figure 52, the number of robberies are increasingly annually from close to zero to breaching 100 in 2013. There is a temporal relationship between burglaries and robberies: the shift from burglaries to robberies is normally precipitated by 'target hardening', whereby businesses improve physical security measures to the point where robberies are more likely to succeed.

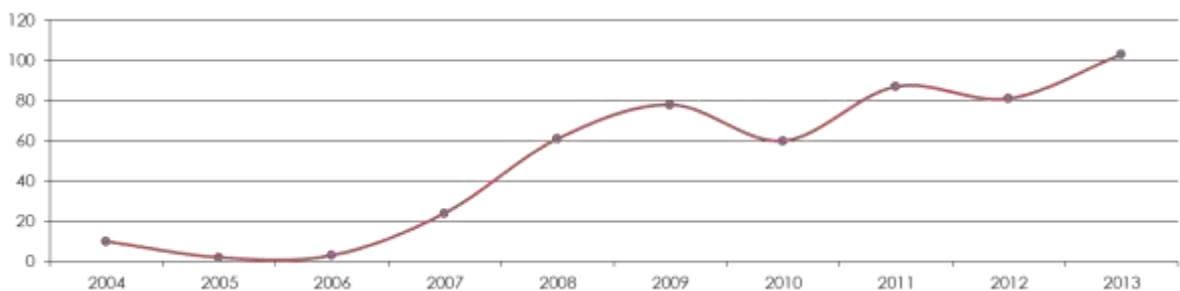


Figure 52: Reported business robberies in the study area police districts

<sup>8</sup> Bellville, Elsies River, Goodwood, Maitland, Parow police districts

There are mounting indications that this dramatic escalation in violent crime is having a grave impact on the study area's ability to retain higher-order economic activity. In many cases, industrial anchors are relocating to newly developed, managed security estates to the east and north. In some cases, firms are withdrawing from Cape Town altogether. We have even witnessed some properties being consolidated and re-engineered into fortress-like security structures (see Figure 55 below).

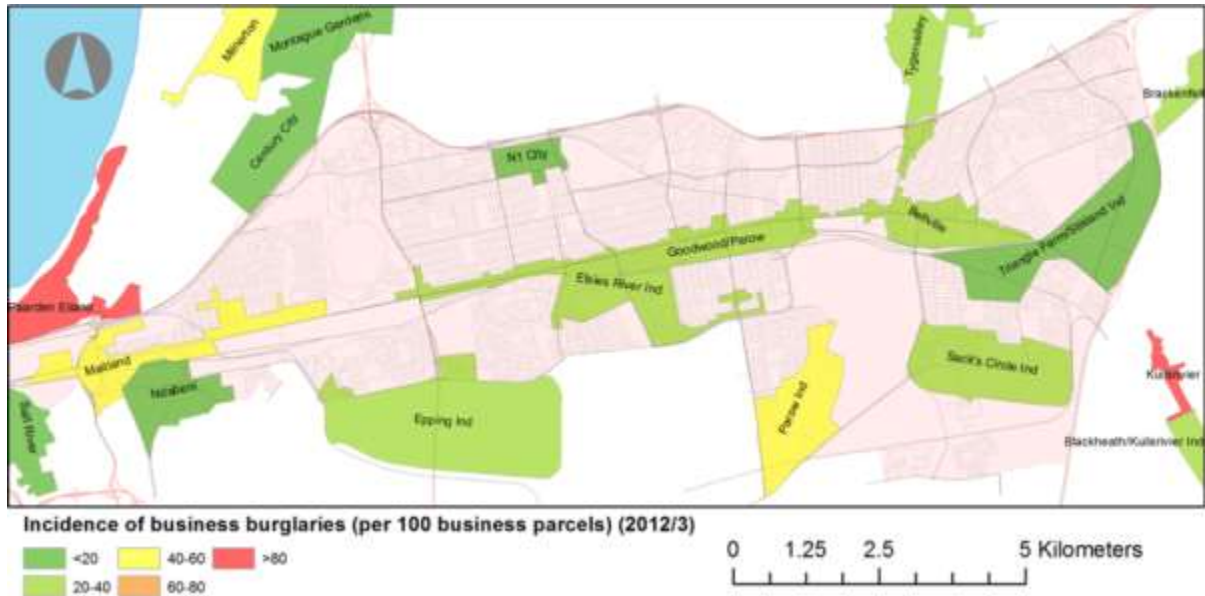


Figure 53: Business burglaries

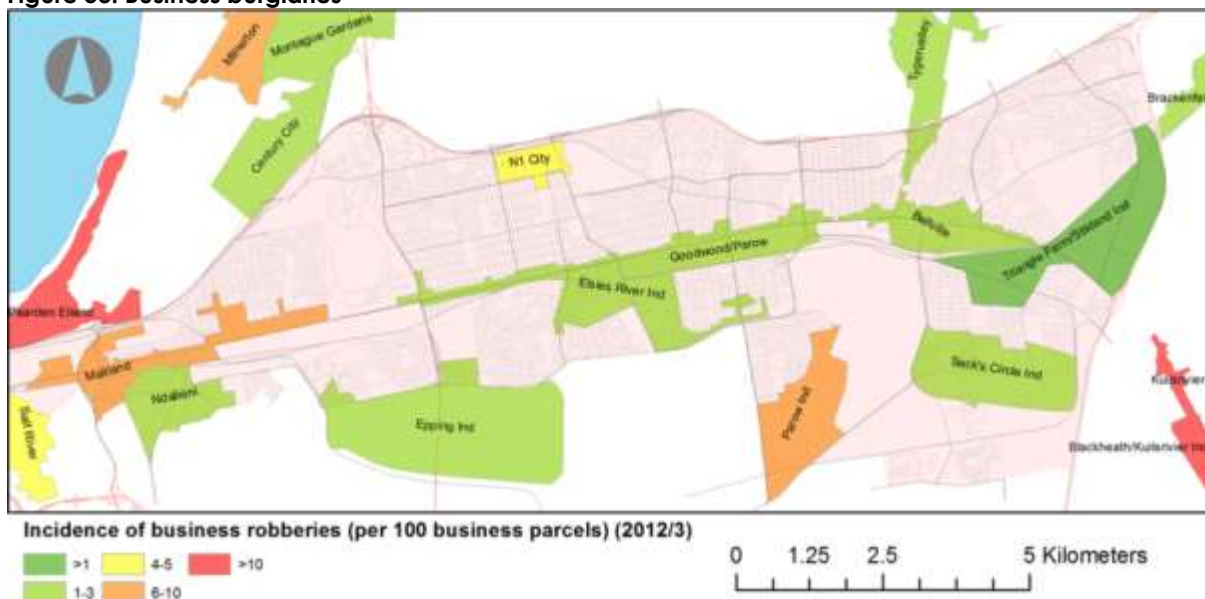


Figure 54: Business robberies



Figure 55: Industrial Park, Elsie River Industrial

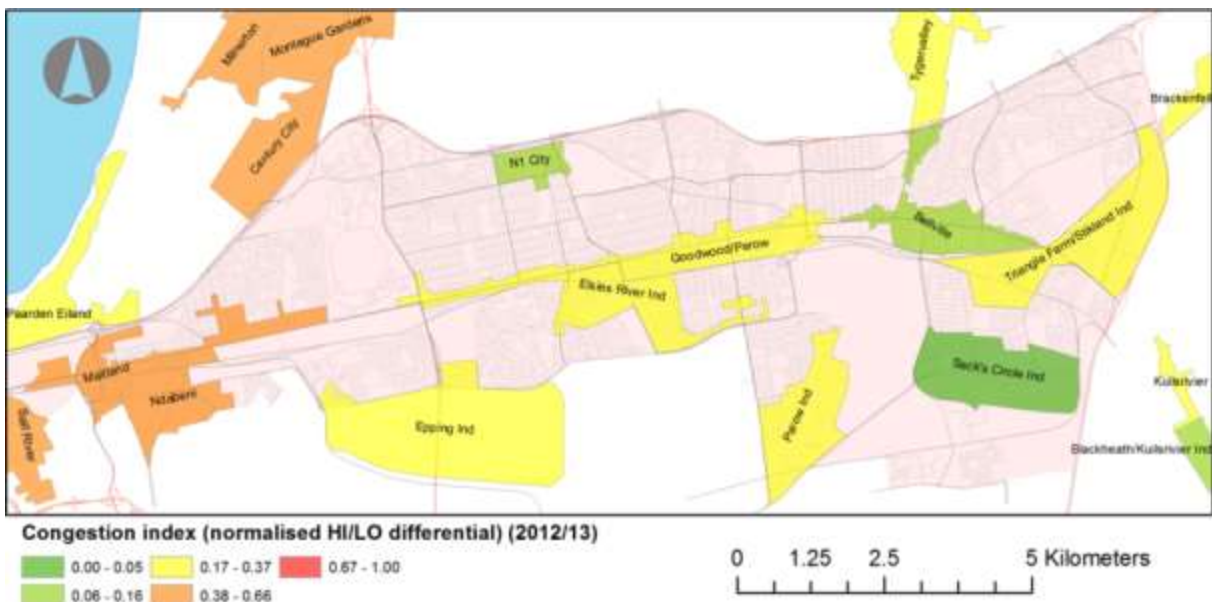
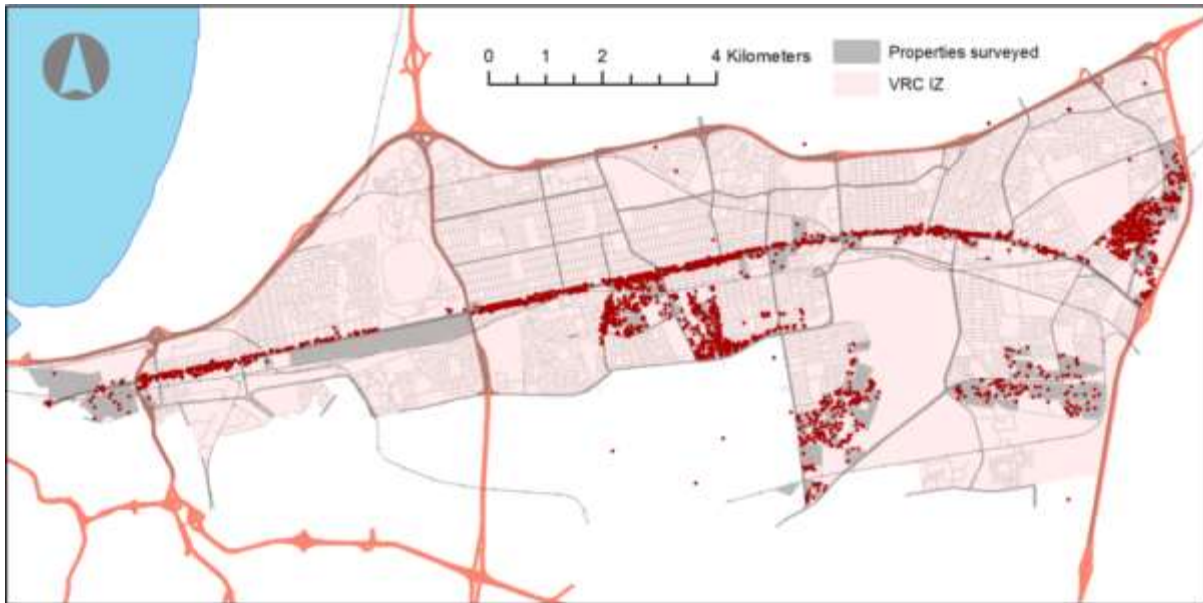


Figure 56: Business area congestion Index

## 6.8 Functional analysis

In this final section, we analyse the results of recent firm-level surveys across the study area<sup>9</sup>. The purpose of the functional analysis is to gain a bottom-up understand of the economic structure of the area, to identify possible economic clusters within the area, and how these may be understood in terms of internal and regional value-chains.

<sup>9</sup> Results of Maitland and Triangle Farm was not released in time for inclusion in this analysis.



**Figure 57: Firms surveyed in July-August 2014**

### 6.8.1 High level structure

We begin with an overview of the high-level categories, manufacturing (SIC 3), Retail (6), business services (8) and personal services (9). These account for the vast majority of firms surveyed. Figure 58 and Figure 59 show the distribution of firms in relation to these categories. The key patterns are:

- Except for Voortrekker Road, the greatest concentration of businesses is found in Elsie's River Industrial. This represents a formidable agglomeration of industrial and retail services.
- Although retail activities continue to be concentrated along Voortrekker Road, there is a notable presence of retail in nodes formally regarded as industrial. This is particularly noticeable in Elsie's River Industrial (see Figure 60) and Triangle Farm. While business services are relatively sparsely distributed, personal and social services predominate in established commercial nodes such as Bellville and Goodwood and Parow town centres.
- On a whole, firms located along the central spine of the study area are generally locally-oriented as opposed to integrated into regional value chains. With the possible exception of the automotive cluster, these firms draw on low land costs, accessibility to artisanal skills and a captive local consumer market. These firms usually have low scale economies, which prevent large-scale, vertically-integrated firms from taking business away from the cluster to some lower-cost area.
- In this sense, the remaining industrial and retail activity are relatively insulated and resilient from further encroachment by competing nodes.

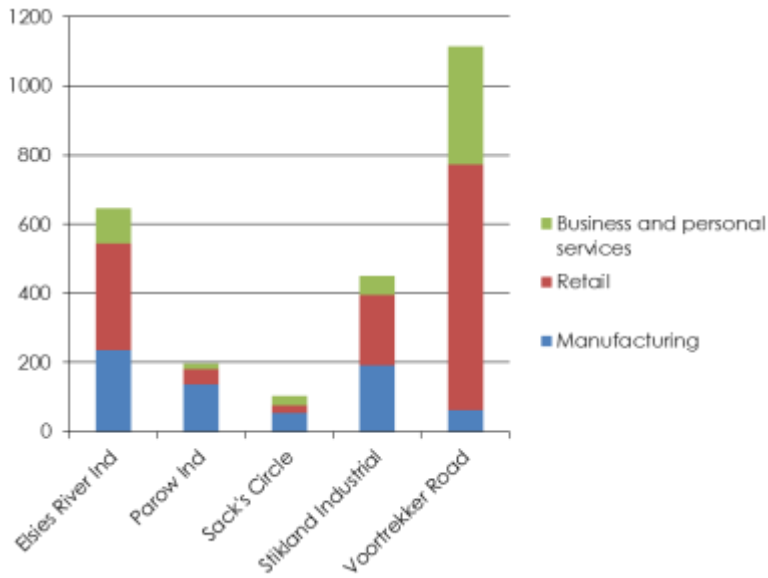
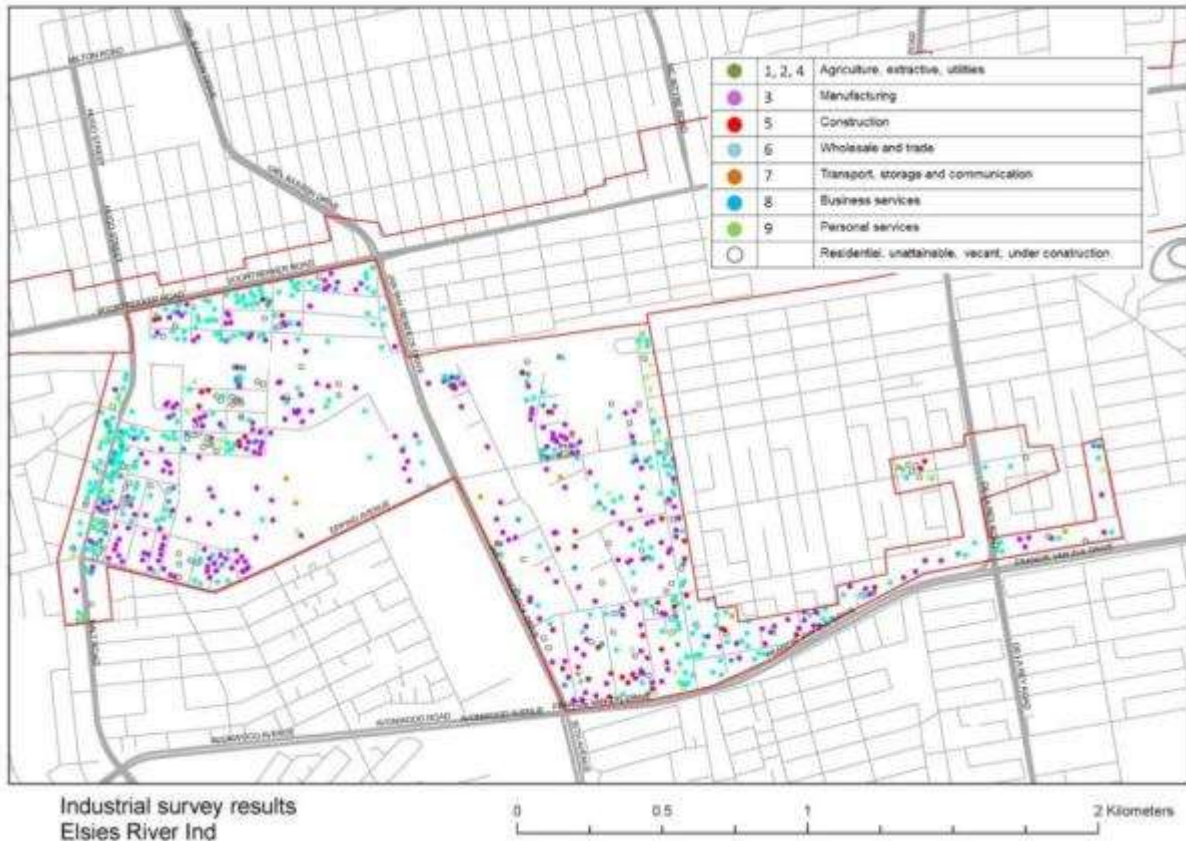


Figure 58: Number and composition of businesses surveyed



Figure 59: High-level structure





**Figure 60: Close-up of Elsie's River Industrial, showing retail intrusion**

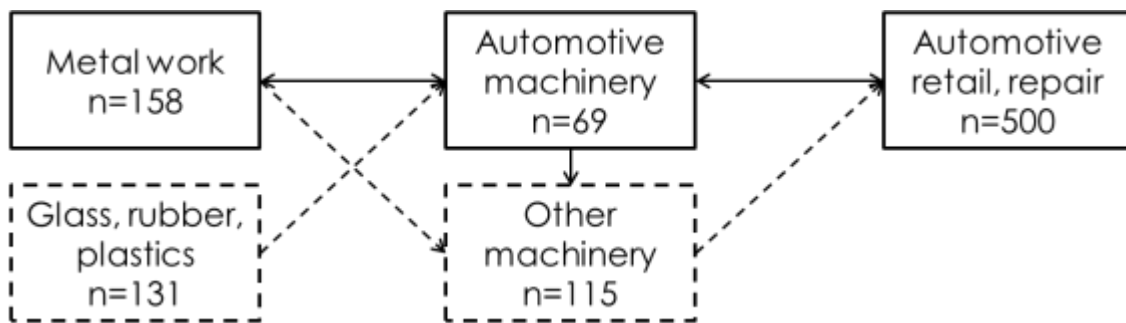
### 6.8.2 Clusters and value chains

We test for three types of clusters in the study area, and map the corresponding value chain.

- We find a very large number of firms engaged in automotive retail and repair. This is identified as perhaps the only cluster which draws consumers from outside the study area. This raises the question: to what extent is the customer-facing end of this activity linked to upstream activities in the study area. We find that there is indeed a significant concentration of upstream activities, such as automotive machinery and firms engaged in metal works clustered in close proximity to the automotive retail and repairs. Further investigation is suggested to indicate whether ancillary activities such as glass, rubber and plastics feed into this value chain.



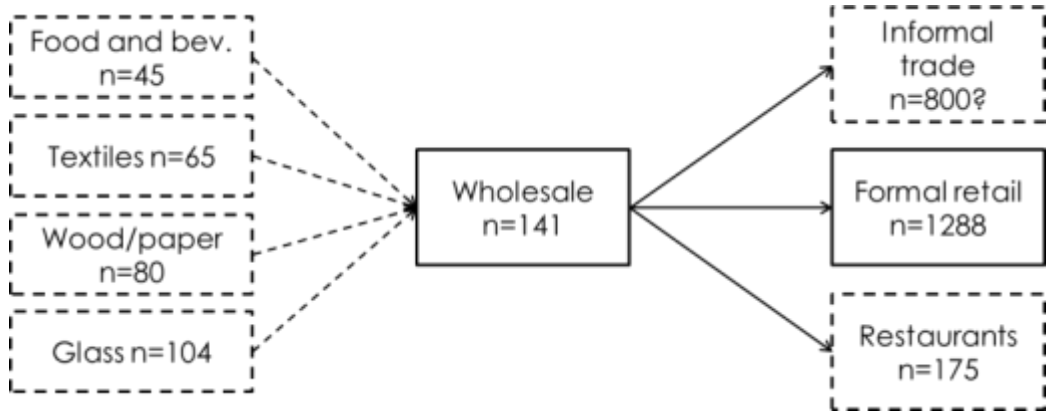
Figure 61: Automotive cluster



- On a whole, the study area is typified by extensive retail activity. We calculate that there are upwards of 1,200 formal and approximately 800 informal retail activities within the study area, and 141 wholesales. In light of our rental analysis in the preceding section, it is assumed that such retail is generally of a lower order and caters exclusively to the internal market rather than incidental commuter movements. This is in contradistinction with the depiction of retail along the length of the study area as a membrane capturing shoppers moving through the area.
- The question arises as to what extent traded goods are locally sourced, in relation to imported wholesale. This is particularly salient given the anecdotal concerns about the large-scale trading of counterfeit and grey market goods in the area.



Figure 62: Consumer economy



- We did not identify any significant clusters of a higher-end, outwardly oriented, value-added nature; the only exception being Stikland Industrial which enjoys a relatively high level of accessibility to mobility corridors.

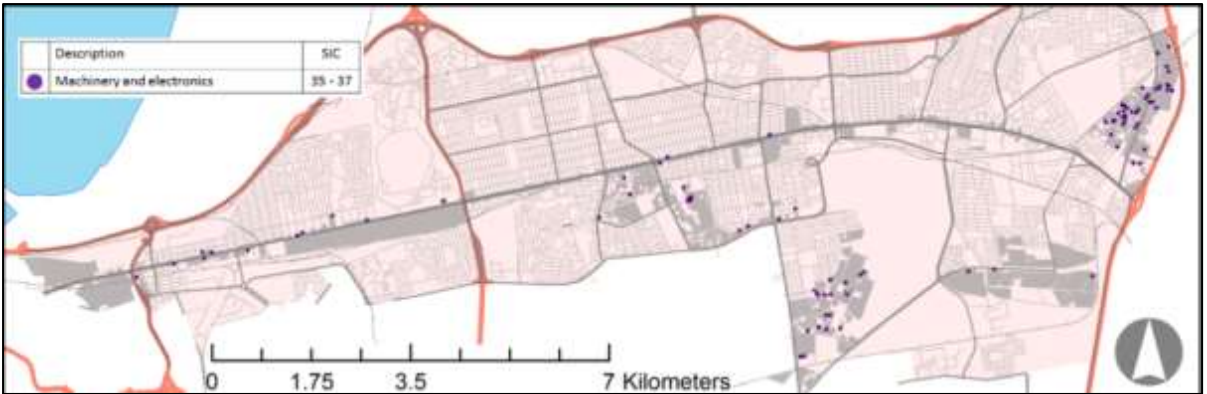


Figure 63: High-end, value-added clusters

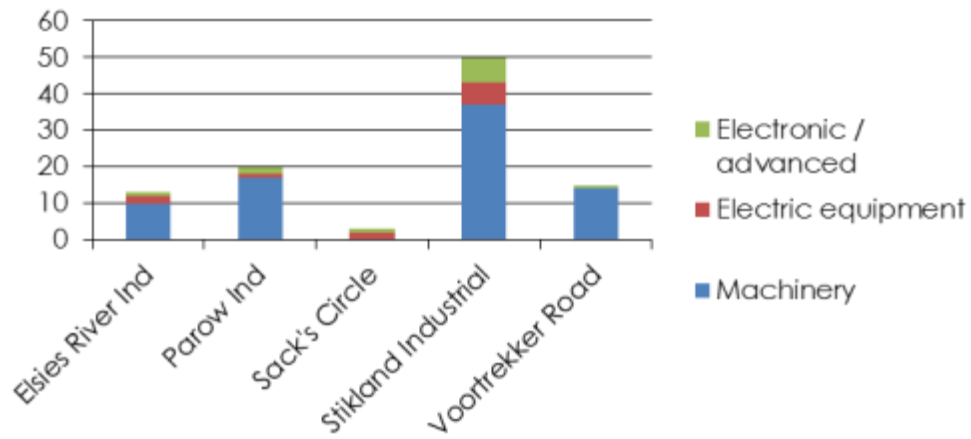
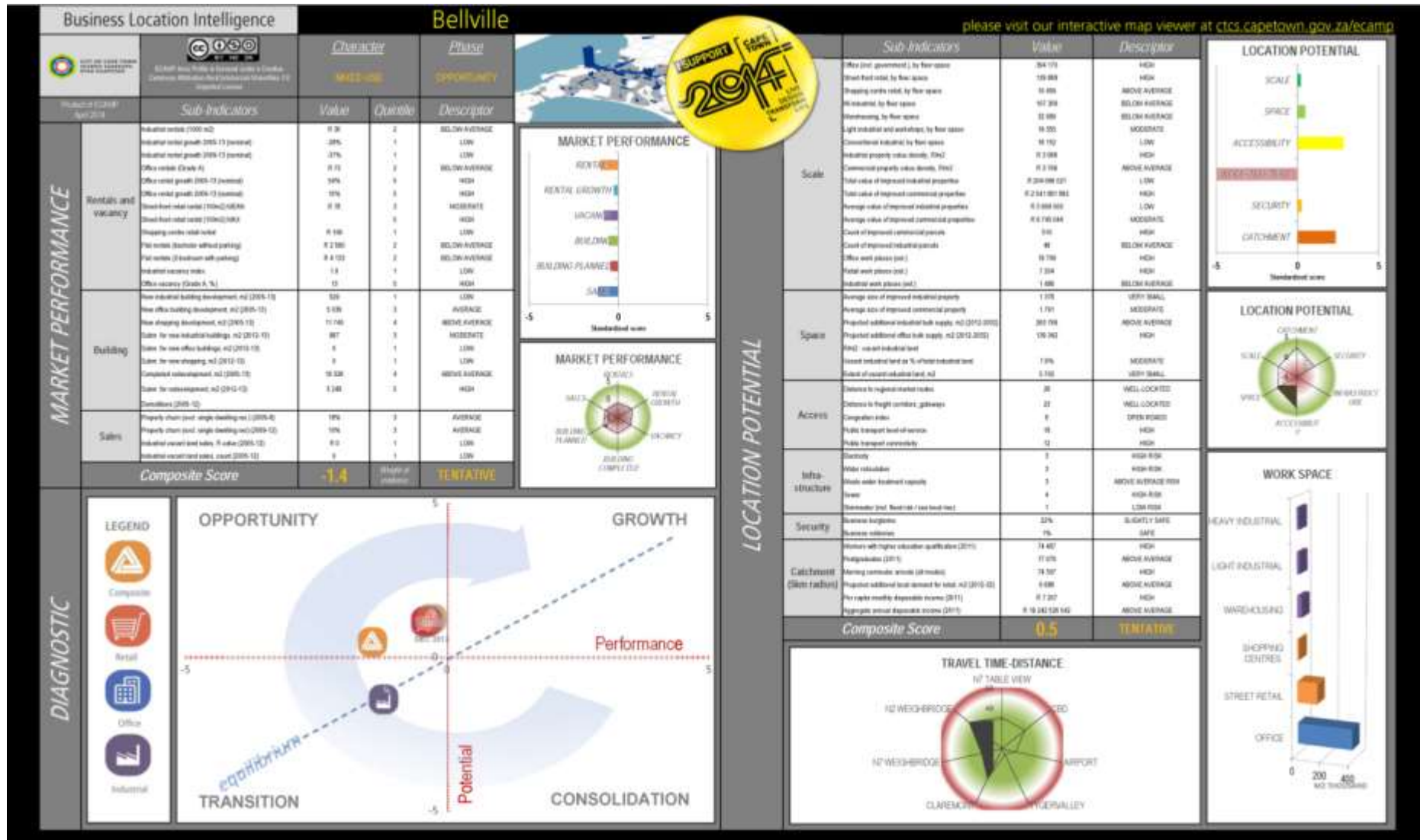
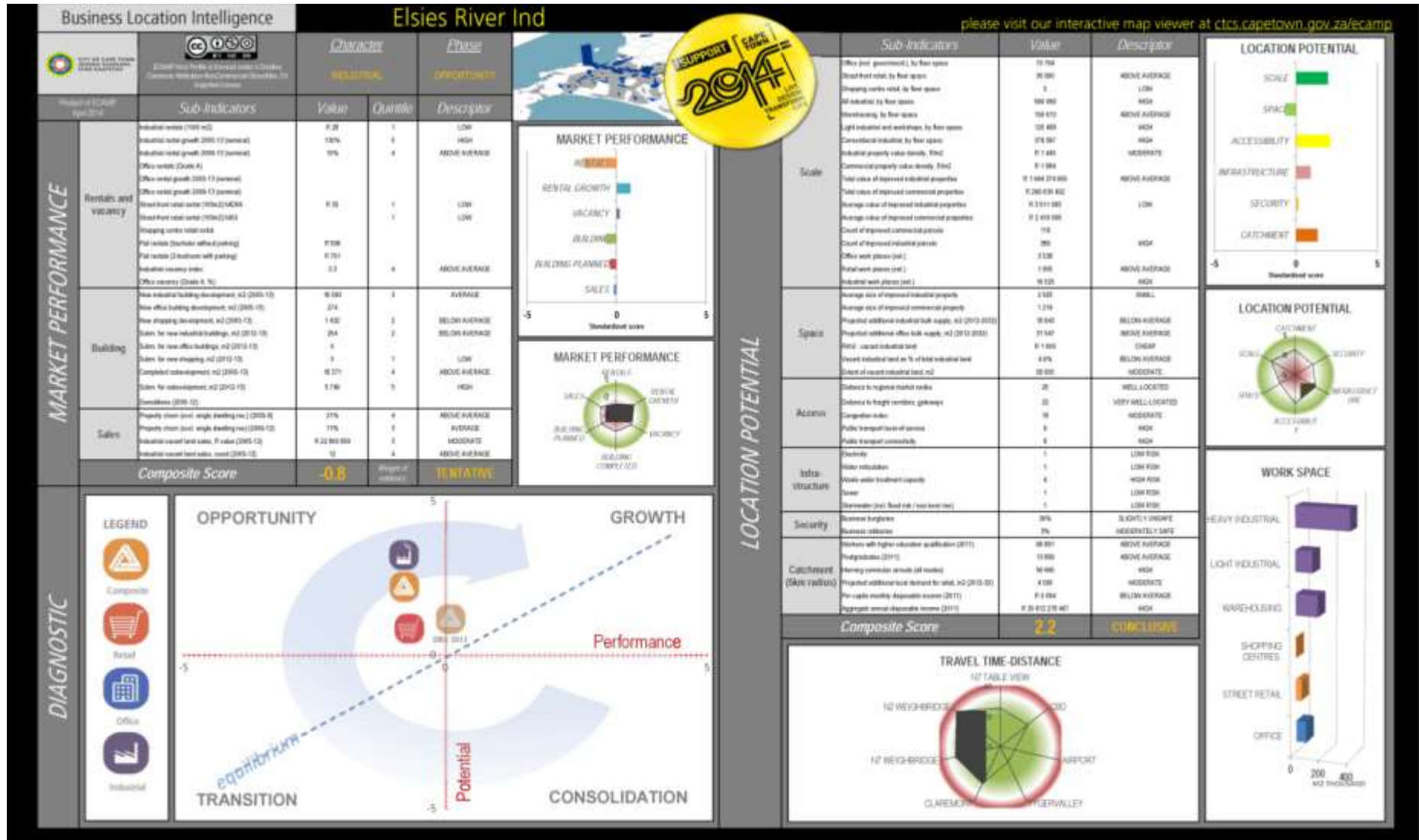
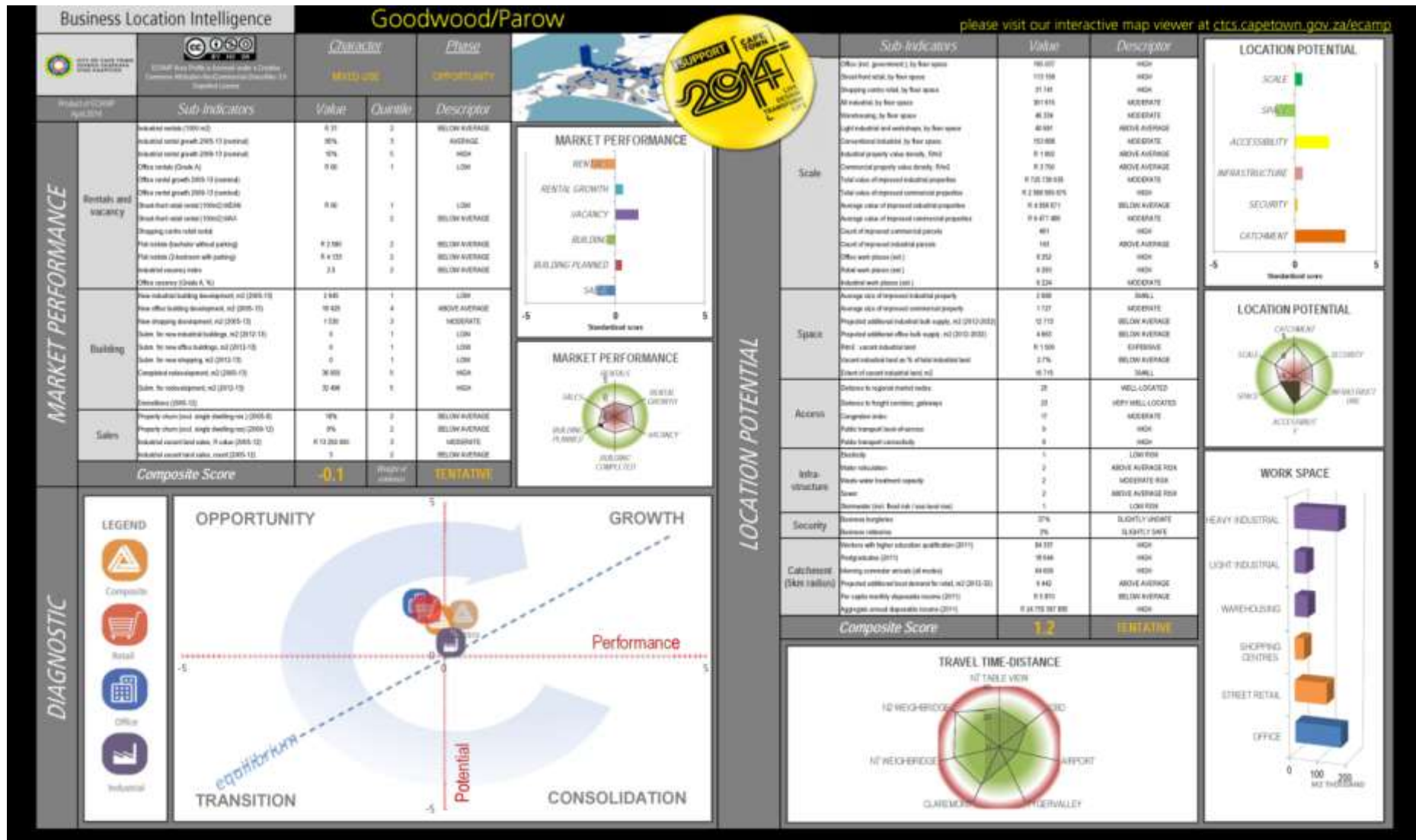


Figure 64: Testing for outwardly-linked activities

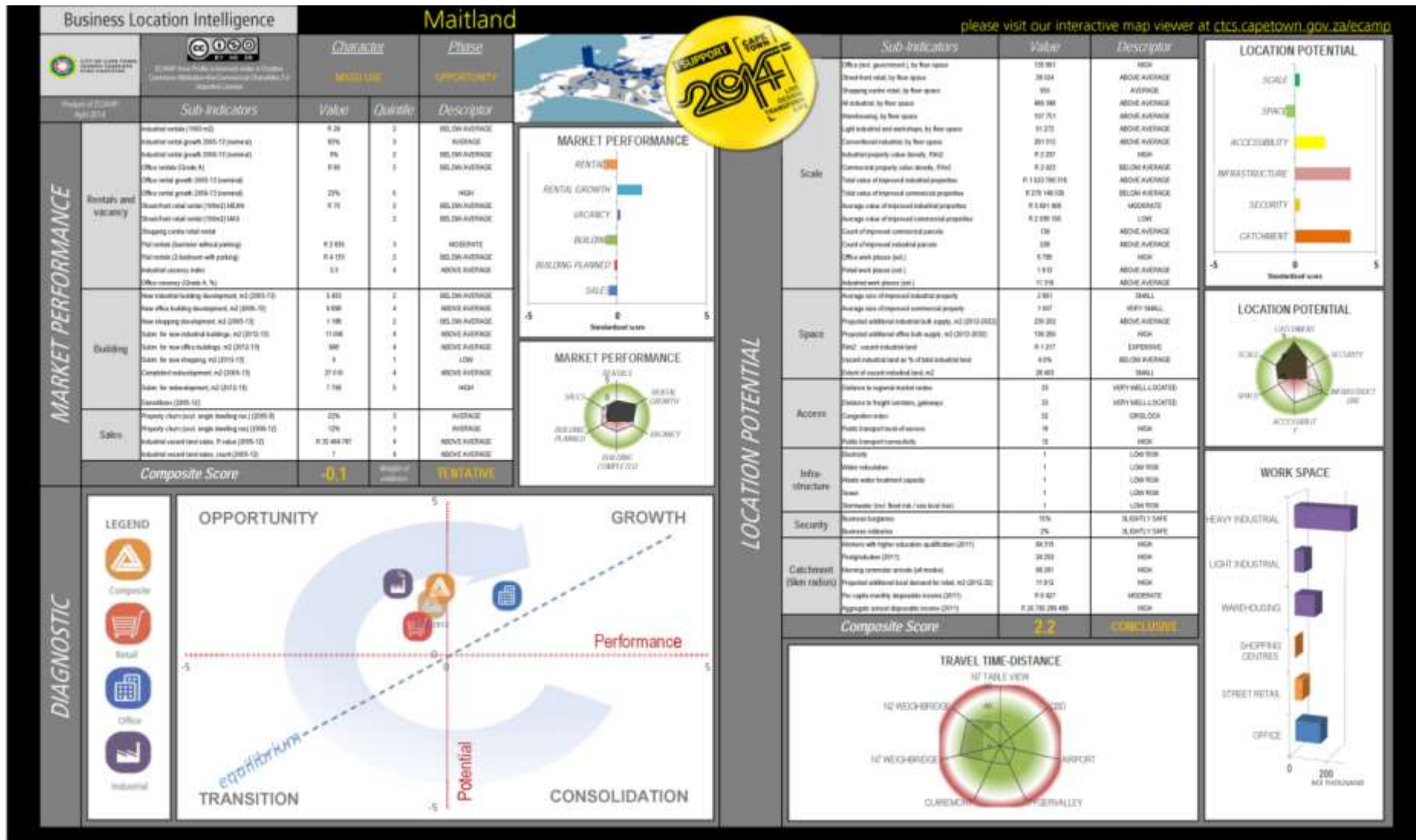
**6.9 Business Location Intelligence Profiles**





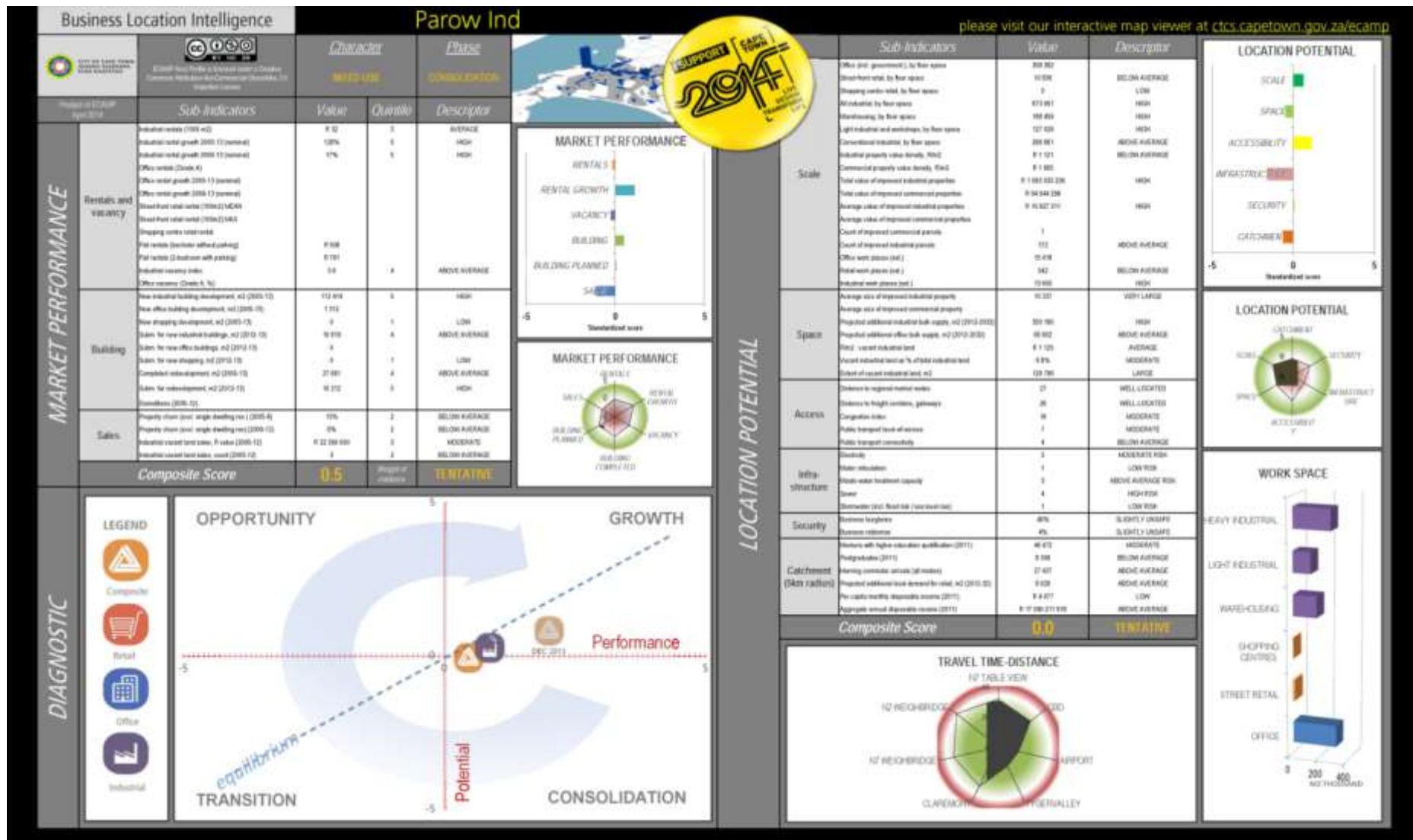


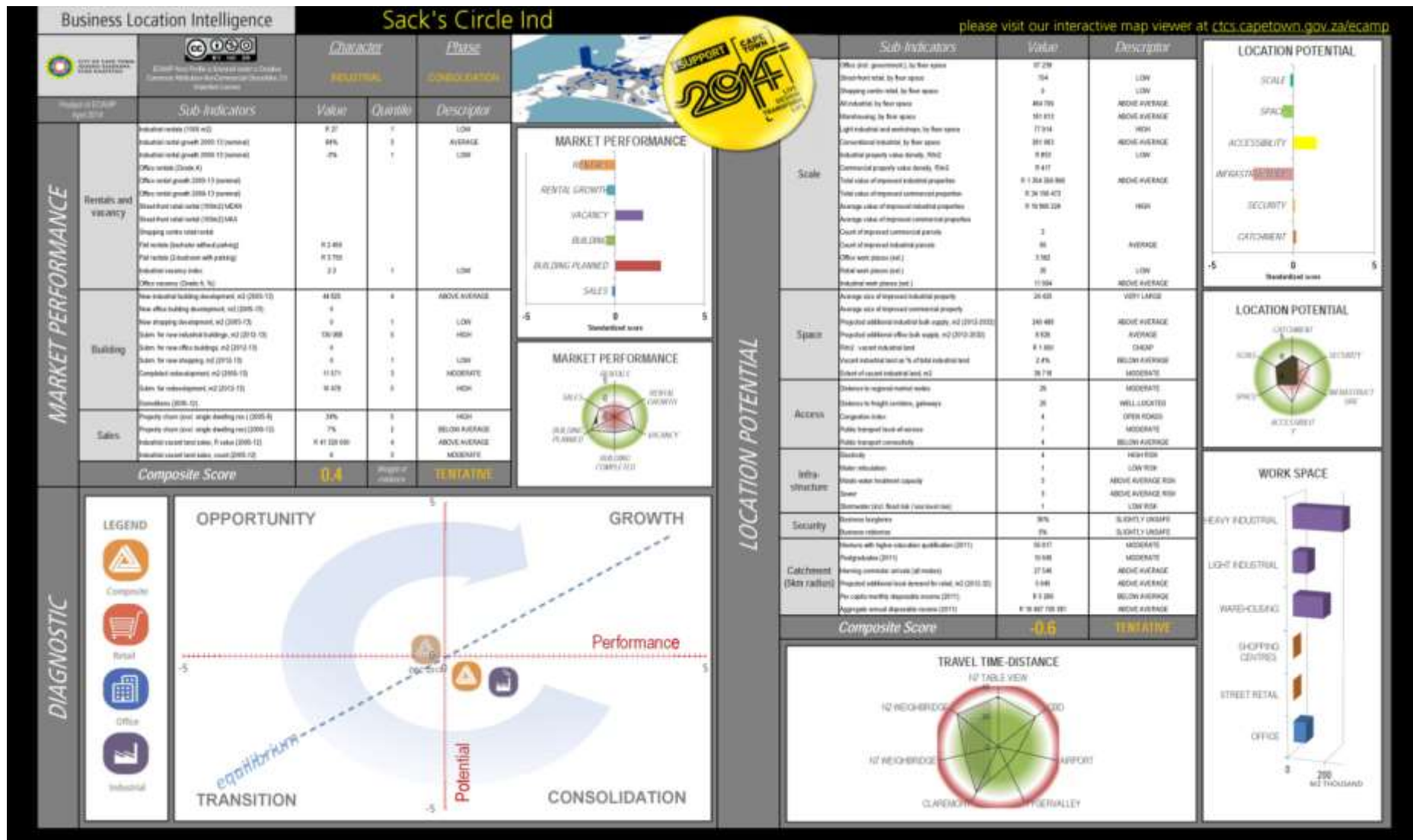


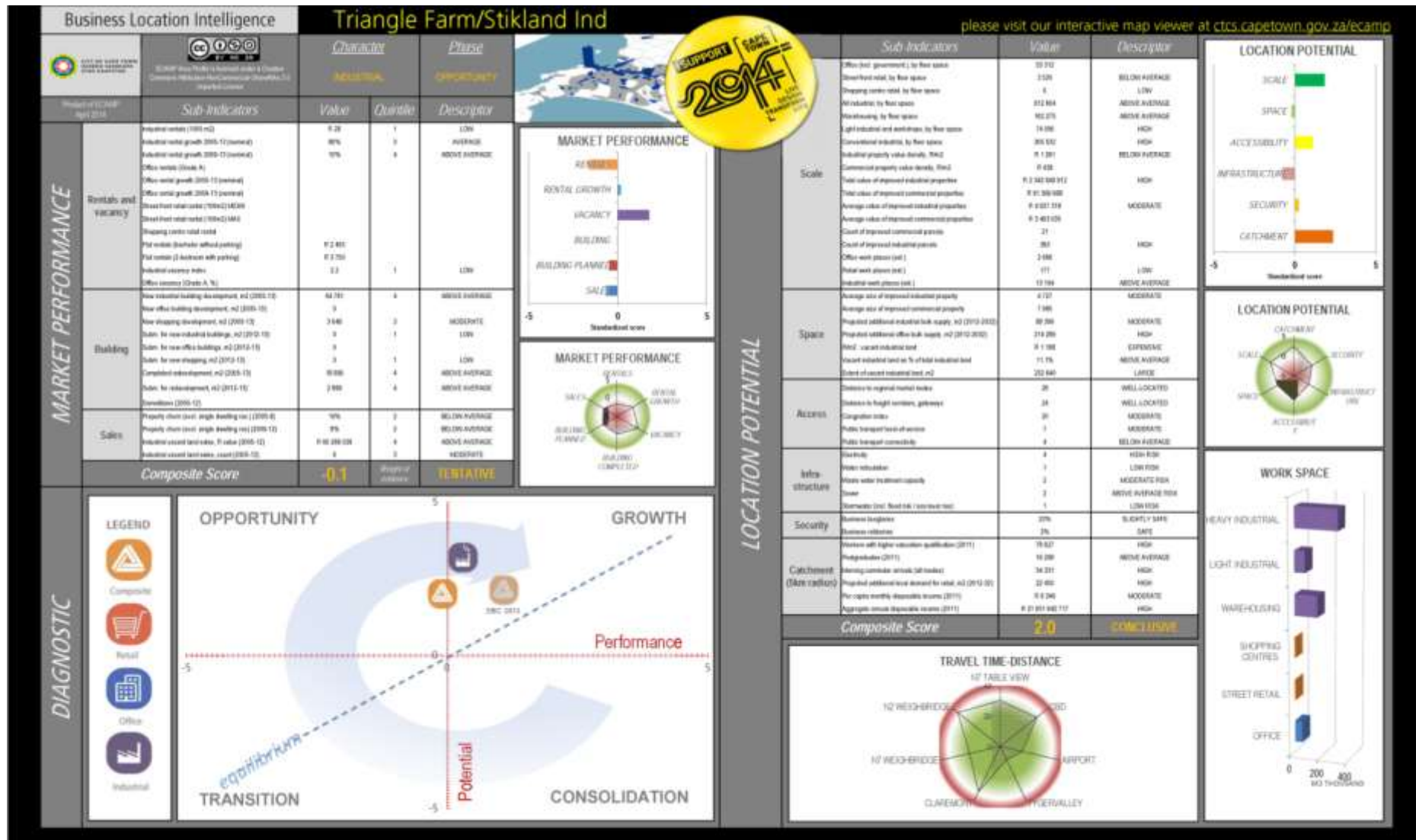












## 7. Transport Role and Function

The Scope of Works for the Transportation Baseline Study for the Voortrekker Road Corridor (VRC) requires a *high level overview* of the transportation system and refers to the following specific items that should be addressed:

- i) Compilation of a broad origin/destination matrix
- ii) The city's identified Public Transport Zones
- iii) Passenger Rail – capacity, passenger flows, stations (strategic, requiring intervention), quality of service, potential of stations as development nodes
- iv) Road Transport Systems
- v) Long-Distance Bus
- vi) Conventional Bus - bus routes/stops, bus capacity, bus passenger flows, taxi routes, taxi stops/interchanges of strategic importance, quality of service, BRT routes
- vii) Minibus-Taxis
- viii) Non-Motorised Systems – cycle lanes, pedestrian networks/routes, NMT infrastructure, planned NMT projects
- ix) Ports and Hubs
- x) Freight Rail
- xi) Freight by Road

These items are addressed below.

### 7.1 Current and Future Origins/Destinations

The most recent documentation related to land use, and approved by the City of Cape Town, includes the following:

- The Cape Town Spatial Development Framework (2012);
- The Cape Town Zoning Scheme (2012);
- The Cape Town Densification Policy (2012), and
- Cape Town Growth Options – Bulk Infrastructure Review Reports 1 & 2 (2012).

The recent (2013/14) modelling exercise completed for the Cape Town IPTN included the development of a new EMME/4 transportation demand model for the city. This included the development of a new land use model which updated the existing land uses (location of residences as well as employment opportunities), and which also considered future development scenarios.

Four future scenarios were identified and are referred to in the IPTN documentation. They are:

- Business as Usual (BAU) – historical growth patterns largely prevail with green field development of the north-eastern and north-western growth corridors.
- Pragmatic Densification (PD) – principles of Densification Policy applied at current trend densities, which were considered feasible densification by land use planners.

- Pragmatic Transit Orientated Development (PTOD) – densification with greater emphasis on transit orientated development locations.
- Transit Orientated Development Comprehensive (TODC) – a theoretical ideal transit orientated location of residential opportunities and employment opportunities, requiring very specific commitment to policy, decision making and transversal practices.

The city instructed that the PTOD land use scenario be used to test the IPTN transport (supply) alternatives. In the PTOD scenario it is assumed that (i) residential densities increase to higher values than presently achieved, and (ii) that it focuses on densification priority zones in support of transit orientated development (IPTN). The figures below show the concentration of present residential and non-residential developments, as well as the future developments according to this scenario. The following can inter alia be concluded:

- The Langa, Guguletu, Bishop Lavis, Heideveld, Nyanga, Mitchells Plain and Khayelitsha areas, currently have the highest residential densities and therefore trip origins, in the city.
- The PTOD land use scenario predicts that this pattern will be strengthened in future in all areas mentioned above, excluding Langa, Bishop Lavis and portions of Guguletu.
- Current non-residential development, i.e. work opportunities or trip destinations, are concentrated in three corridors which radiate from Cape Town CBD – towards the north-east (Montague Gardens area), towards the east (Voortrekker Road Corridor) and towards the south (Wynberg area). A fourth area with reasonably high work opportunities is the Claremont/ Lansdowne/ Wynberg area.
- Future residential development is shown to concentrate in metro south east, around the R300, and in the green fields areas to the northeast of Durbanville and to the north of Parklands (along West Coast).
- Future non-residential development is predicted to concentrate in the first two corridors mentioned above, and also in the south-east corridor towards the airport and also in a corridor between Bellville and Somerset West.
- Whilst the predicted increase in employment opportunities in the south-eastern corridor is excellent from a transportation viewpoint, the continued concentration in the other areas, further from the densest residential areas, is not ideal from a transportation viewpoint. Larger concentrations of employment in the vicinity of the airport, and along the N2, would be much more advantageous (to further reduced trip lengths).



The newly developed EMME/4 model of the city includes an origin/destination matrix for all trip productions and attractions in the 1791 zones of the model. A matrix for selected zones in the VRC area can be developed from the full model if required.

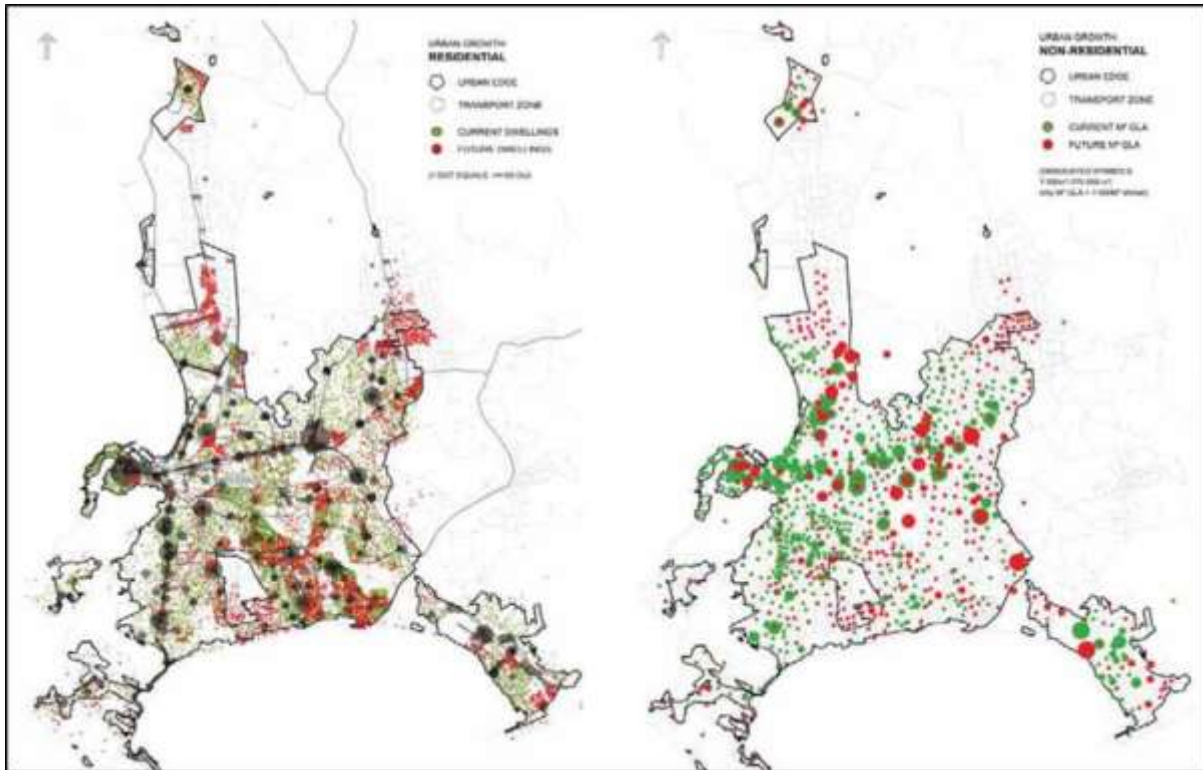


Figure 0-1: Present residential and non-residential land uses, with future PTOD development scenario

### 7.1.1 Trip Distribution

When the trip productions (from households) and attractions (to employment) are distributed between the origins and destinations, the major desire lines can be obtained. The two figures below show the results of the IPTN modelling for the base year (2013), that is person trips for all trip purposes and all modes (private and public) during the morning peak period. These images are therefore modelled results, versus actual counted numbers, but they are considered to represent reality accurately.

From the figures the following desire lines entering the VRC must be noted:

- The largest desire line with a demand of 10 000 to 20 000 entering the VRC travel from Philippi to Bellville;
- Mitchells Plain to Bellville with a demand of 6 000 to 10 000;
- Philippi to Parow with a demand of 6 000 to 10 000;
- Airport/Bishop Lavis to Bellville with a demand of 6 000 to 10 000;
- Kraaifontein to Bellville with a demand of 6 000 to 10 000, and
- Philippi to Mutual with a demand of 6 000 to 10 000.

The dots in the two figures indicate intra zonal trips. From the figures it must be noted that the largest demands for intra zonal trips within the VRC are in the following areas:

- Bellville
- Parow

- Maitland

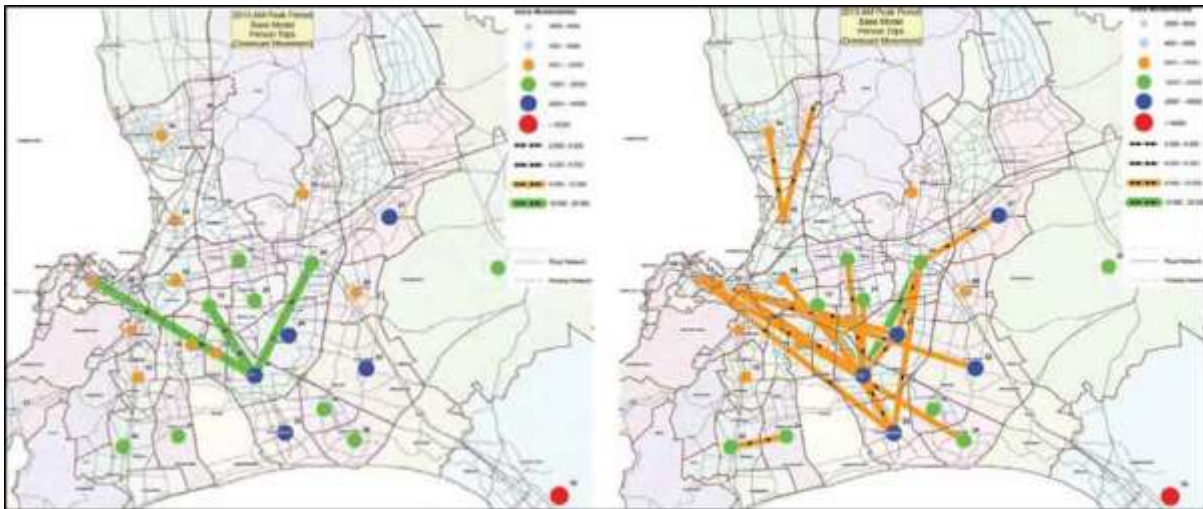


Figure 0-2: 2013 AM peak period origin/ destination movements (all person trips). Left: Demand 10 000 to 20 000; Right: Demand 6 000 to 10 000

## 7.2 Public Transport Zones (PT1 & 2)

In the past it has been realised that the lowering of the provision of parking can be used to encourage the use of public transport. For this reason the Road Access Guidelines (Second Edition, September 2002) of the Western Cape Department of Transport, contained a table with reduced parking requirements for areas that are well served with public transport. The City of Cape Town has included a similar table in their Zoning Scheme of November 2012 – it identifies areas referred to as PT1 and PT2 zones - see below. Reduced parking requirements are applicable in these areas as indicated in the table. The identification of the PT1 and PT2 zones is an effort by the city to encourage development in these areas, as the cost of parking provision (to a developer) should be less than in other areas.

A number of areas in the city have recently been defined as PT1 and PT2 zones, i.e. where the parking requirements can be reduced. The figure below for the Metro Central shows that the PT 1 zones in the VRC are areas around the rail stations along the Monte Vista line and PT2 are areas near the rail stations along the Bellville to Maitland line.

## 7.2.1 Priced Parking Bays

The TCT manages eight priced parking areas in the Metro, one of which is the Bellville CBD parking. The Bellville CBD area has a total of 550 priced parking bays which includes Edward Street which falls outside the VRC. It is estimated that Edward Street has approximately 100 parking bays.

**Table 0-1: CoCT Parking Ratios**

Land use	Standard areas	PT1 areas	PT2 areas
Main dwelling house (SR1 Zone)	2 bays per dwelling unit (1 bay per dwelling for erven < 350 m <sup>2</sup> )	1 bay per dwelling unit	Nil
Main dwelling house (SR2 Zone)	1 bay per dwelling unit (Nil per dwelling for erven < 100 m <sup>2</sup> )	Nil	Nil
Second dwelling	1 bay per 2 <sup>nd</sup> dwelling unit	1 bay per 2 <sup>nd</sup> dwelling unit	1 bay per 2 <sup>nd</sup> dwelling unit
Group dwelling	1,75 bays per dwelling unit, plus 0,25 bays per dwelling unit for visitors	1 bay per dwelling unit, plus 0,25 bays per dwelling unit for visitors	0,75 bays per dwelling unit, plus 0,25 bays per dwelling unit for visitors
Flats	1,75 bays per dwelling unit, plus 0,25 bays per dwelling unit for visitors	1 bay per dwelling unit, plus 0,25 bays per dwelling unit for visitors	0,75 bays per dwelling unit, plus 0,25 bays per dwelling unit for visitors
Bed & breakfast establishment	1 additional bay per guest room	1 additional bay per guest room	Nil
Boarding house, guest house	1,25 bays per bedroom	0,75 bays per bedroom	0,5 bays per bedroom
Backpackers lodge	1 bay per 6 beds	1 bay per 8 beds	1 bay per 10 beds
Hotel	0,75 bays per bedroom, plus 20 bays if licensed	0,75 bays per bedroom, plus 20 bays if licensed	0,5 bays per bedroom, plus 10 bays if licensed
Retirement home, orphanage	0,5 bays per bedroom	0,3 bays per bedroom	0,2 bays per bedroom
Crèche	1 bay per 10 children, plus stop & drop facility	1 bay per 10 children	1 bay per 30 children
School	1 bay per classroom and office, plus stop & drop facility	1 bay per classroom and office, plus stop & drop facility	1 bay per classroom, plus stop & drop facility
Place of instruction (post-school level)	0,4 bays per student, plus 1 bay per classroom and office	0,4 bays per student, plus 1 bay per classroom and office	1 bay per classroom and office
Library, museum	2 bays per 100 m <sup>2</sup> GLA	1,5 bays per 100 m <sup>2</sup> GLA	1 bay per 100 m <sup>2</sup> GLA
Place of assembly, place of worship, place of entertainment, funeral parlour	1 bay per 6 seats or persons, calculated at 1,4 m <sup>2</sup> floor space = 1 person	1 bay per 8 seats or persons, calculated at 1,4 m <sup>2</sup> floor space = 1 person	1 bay per 10 seats or persons, calculated at 1,4 m <sup>2</sup> floor space = 1 person
Sport stadium	1 bay per 4 seats or persons (or as per transport management plan)	3 bays per 20 seats or persons (or as per transport management plan)	3 bays per 40 seats or persons (or as per transport management plan)
Recreation or sports complex	1 bay per 8 seats or persons	1 bay per 10 seats or persons	1 bay per 15 seats or persons
Gymnasium, health club	10 bays per 100 m <sup>2</sup> GLA	8 bays per 100 m <sup>2</sup> GLA	6 bays per 100 m <sup>2</sup> GLA
Hospital (general and private)	1 bay per bed, plus 3 bays per consulting room	1 bay per bed, plus 2 bays per consulting room	1 bay per bed
Clinic, medical consulting rooms	4 bays per consulting room	3 bays per consulting room	2 bays per consulting room
Shops (excluding supermarket)	4 bays per 100 m <sup>2</sup> GLA	2 bays per 100 m <sup>2</sup> GLA	1 bay per 100 m <sup>2</sup> GLA
Supermarket, shopping centre	6 bays per 100 m <sup>2</sup> GLA	4 bays per 100 m <sup>2</sup> GLA	2 bays per 100 m <sup>2</sup> GLA
Restaurant	2 bays per 25 m <sup>2</sup> GLA	1 bay per 25 m <sup>2</sup> GLA	1 bay per 25 m <sup>2</sup> GLA
Offices	4 bays per 100 m <sup>2</sup> GLA	2,5 bays per 100 m <sup>2</sup> GLA	1 bay per 100 m <sup>2</sup> GLA
Conference centre	6 bays per 10 seats	4 bays per 10 seats	2 bays per 10 seats
Motor showroom	3 bays per 100 m <sup>2</sup> GLA	3 bays per 100 m <sup>2</sup> GLA	3 bays per 100 m <sup>2</sup> GLA
Motor repair garage, service station	4 bays per service bay, plus 4 bays per 100 m <sup>2</sup> GLA, minimum 8 bays	4 bays per service bay, plus 4 bays per 100 m <sup>2</sup> GLA, minimum 8 bays	4 bays per service bay
Motor fitment centre	2 bays per service bay	2 bays per service bay	1 bay per service bay
Industry	2 bays per 100 m <sup>2</sup> GLA	1,5 bays per 100 m <sup>2</sup> GLA	1 bay per 100 m <sup>2</sup> GLA
Warehouse, storage building	1 bay per 100 m <sup>2</sup> GLA	1 bay per 100 m <sup>2</sup> GLA	1 bay per 100 m <sup>2</sup> GLA

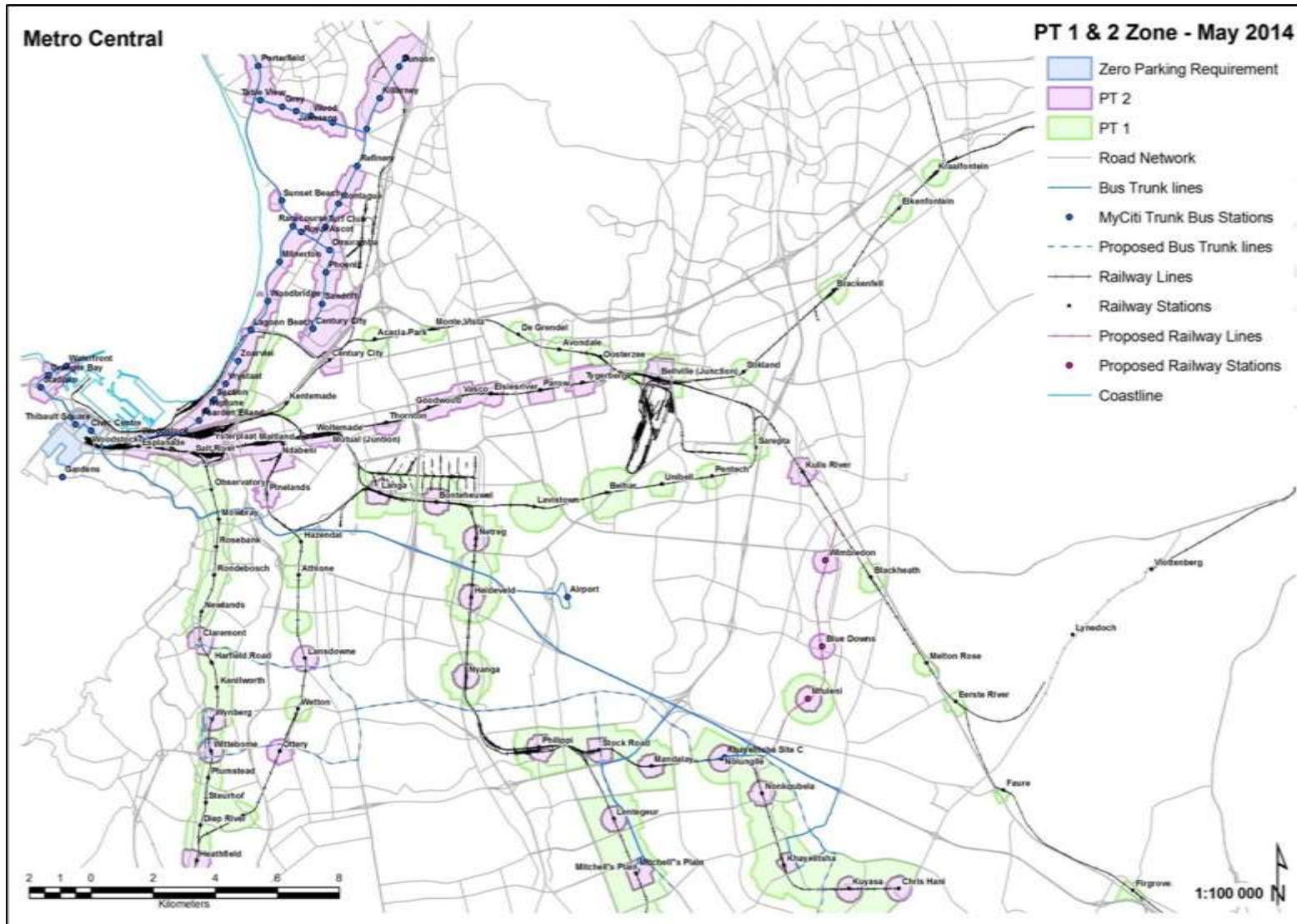


Figure 0-3: CoCT Parking Zones

## 7.2.2 Other Parking Areas

Parking in the CRC can be divided into four separate groups namely

- Kerbside Parking
- Off Street Public Parking Areas
- Parking Areas at Institution
- Private Parking Areas

It must be noted that for this exercise no survey was done to quantify the number of parking bays in each category, neither was the usage and quality of the facilities assessed. Drive through observations were done in order to comment on the current facilities.

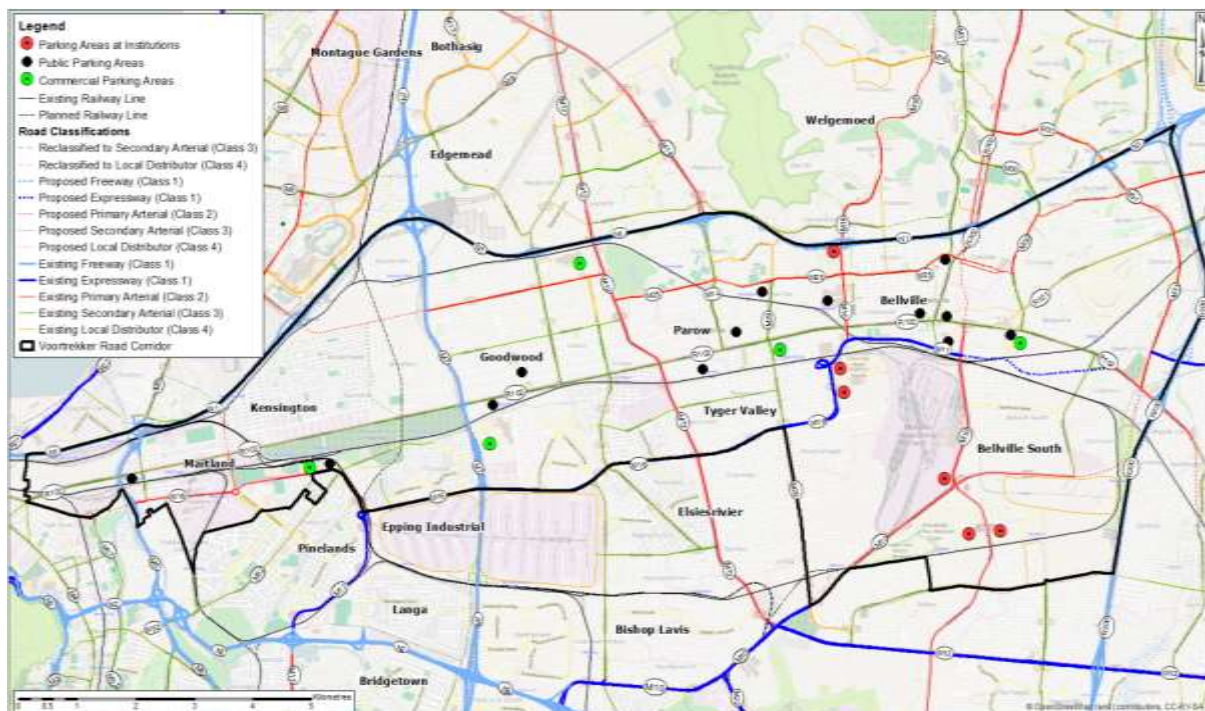


Figure 0-4: Other Parking Areas Separate Groupings

### Kerbside Parking

Kerbside parking occurs throughout the VRC. Parking bays along the arterial routes are demarcated painted bays, it is along Frans Conradie Drive and Voortrekker Road, while in the parking bays along the minor streets are unmarked.

Kerbside parking bays in Bellville CBD, approximately between the Bellville Civic Centre in the east and Bellville SAPS Police Station in the west, are charged for on an hourly basis during normal office hours. Kerbside parking bays in Vrede Street, Bellville, are also charged for. The collection of fees is performed by car guards through a tendered service provider contract. It must be noted that the majority of kerbside parking bays are free of charge and only have a time restriction of between 60 and 120 minutes to prevent all day parking.

It is very difficult to quantify the number of kerbside parking bays due to many being unmarked. The quality of the kerbside parking bays are in a good condition as they form part of the road way.

From on-site observations it can be stated that capacity far exceeds demand for kerbside parking. It must be noted that no survey has been performed to determine the oversupply.

### Off Street Public Parking Areas

From an aerial photograph survey, it can be stated that there are approximately 3600 off street parking bays in public parking areas spread through the VRC. These parking areas are open to the general public on a first come first serve basis. The City imposes a time limit at most of these parking areas of between 60 and 120 minutes in order to promote patronage of businesses in the adjacent areas. Table 0-2 lists the larger parking areas in the VRC.

**Table 0-2: Large parking areas in the VRC**

Area	Address	Approx. No of Bays
Koeberg Station	Camp Road, Maitland	148
Bellville Station	Charl Malan Street, Bellville	446
Bellville Civic Centre	Voortrekker Road, Bellville	123
Bellville CBD	Teddington Street, Bellville	377
Bellville	Smal Street, Bellville	93
Bellville Shoprite	Alexandra Street, bellville	87
Parow	Wynne Street, Parow	117
Parow	Fairfield to Oldham Street, Parow	853
Parow	Victoria Street, Parow	349
Goodwood	Joubert Street, Goodwood	65
Goodwood	Goulburn Street, Goodwood	153
Goodwood	Goulburn Street, Goodwood	202
Goodwood	Goodwood Civic Centre	271
Pinelands	Mutual Street, Pinelands	78
Avondale Station	Avondale Station, Parow	92
Oosterzee Station	Oosterzee Strn, Parow	151
	Total	<b>3605</b>

The parking areas have been grouped into three main zones around the Bellville, Parow and Goodwood CBDs. There are approximately 1039 bays in Bellville, 1318 in Parow and 931 in Goodwood. Most of these parking areas are positioned one block to the north of Voortrekker Road or close to railway stations and are connected to Voortrekker Road via a reasonable pedestrian network.

These parking areas are free and are generally well used. No form of surveillance is provided at these car parks but numerous informal car guards have been observed.

The usage of public car parks varies from area to area and well as day of the week. The Bellville CBD parking area is normally fully occupied during weekdays.

In some cases the quality of the parking areas are in a poor condition. The aisles in the Bellville CBD parking area are potholed and is an example of a parking area in poor condition. The Oosterzee Station parking area by contrast is in reasonably good condition.

From observations it can be stated that with the exception of the Bellville CBD parking area, there is more capacity than demand at the public parking areas

### Parking Areas at Institutions

Various educational and public services institutions are sited in the VRC. The major institutions which attract large numbers of private vehicles within the VRC are:

- University of Western Cape
- Cape Peninsula University of Technology
- Stellenbosch University Medical School
- Tygerberg Hospital
- Belcon Marshalling Yard
- Karl Bremer Hospital

These institutions provide sufficient on-site parking space for staff and visitors and parking is normally contained within the site boundaries of the institutions. Access to these parking areas are controlled by means of booms and in some cases security guards.

### Private Parking Areas

Businesses and shopping centres provide on-site parking space for staff and patrons. In some cases the use of the bays are charged for and access is therefore strictly controlled. In the case of certain shopping centres parking is free or parts of the parking area is free. These private parking areas are major destinations either on a daily basis or in some cases event driven. The major private parking areas in the VRC are at the following commercial sites:

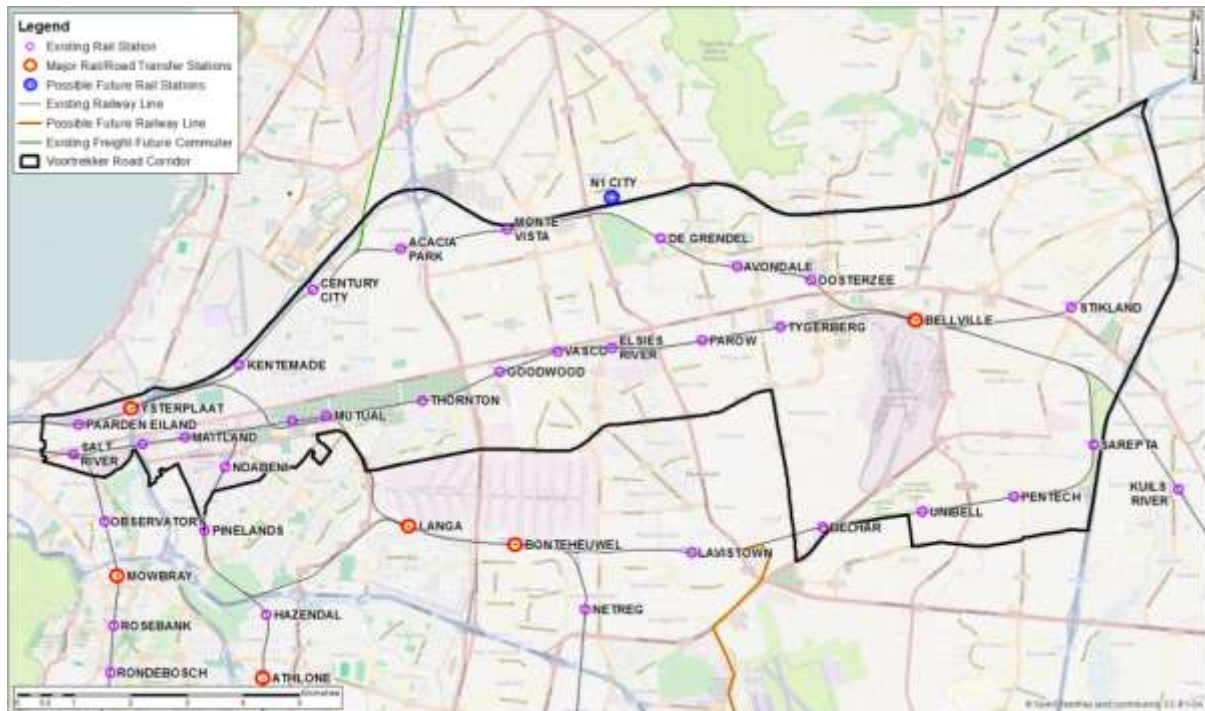
- Sanlam Shopping Centre, Parow
- N1 Shopping Centre
- Grand West Casino
- Sanlam Head Office
- Old Mutual Head Office

## 7.3 Commuter and Passenger Rail

The PRASA 2012 Rail Census Report is the reference document for this section.

### 7.3.1 Existing Commuter Rail Services

The bulk of the Rail Network in the Cape Town Metropolitan area is owned by the Passenger Rail Agency of South Africa (PRASA) and operated by Metrorail, Figure 0-5.



**Figure 0-5: Rail Network**

Passenger rail can provide the backbone of public transport services within the Voortrekker Road Corridor.

The following public passenger rail services are operated in the Voortrekker Road Corridor (Figure 0-6):

- Bellville Line
- Malmesbury/Worcester Line
- Bonteheuwel Line
- Cape Flats Line
- Simonstown Line
- Long Distance Passenger Line



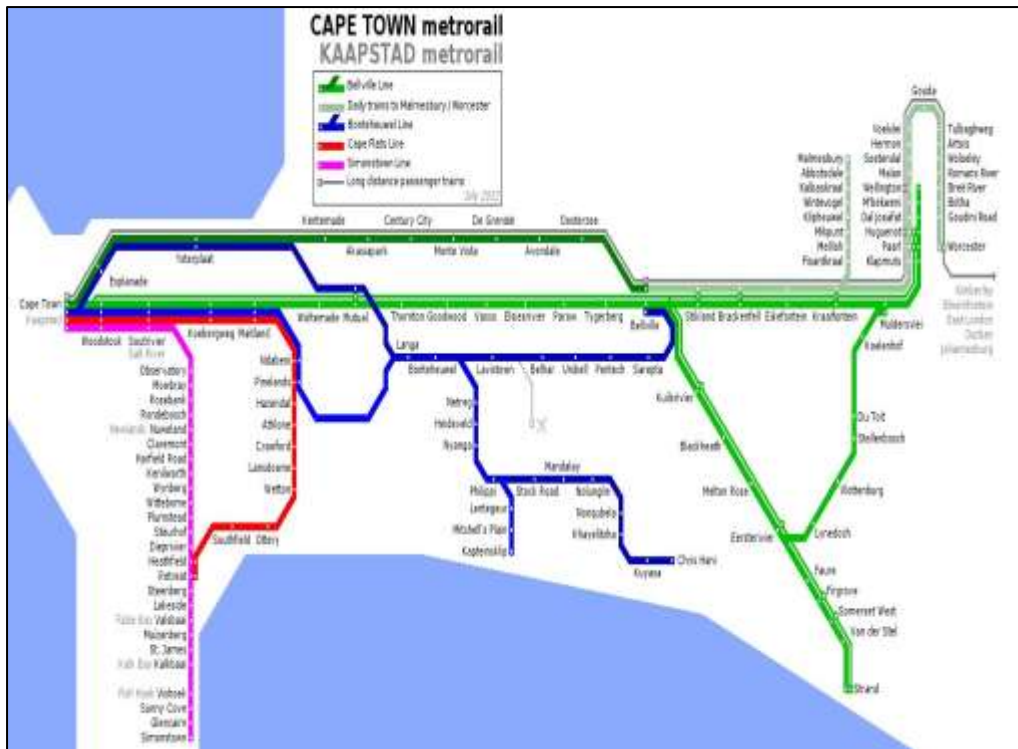


Figure 0-6: PRASA Metrorail Passenger Rail Services

The tracks are generally fenced off but due to a lack of regular maintenance and vandalism, in some places rail tracks are not in good condition. As a result trains need to reduce speed from their normal running speed for safety reasons. Signalling equipment and cabling is vandalised regularly which causes delays to the service.

### 7.3.2 Existing Stations

The Voortrekker Corridor is well served by passenger stations. There are 119 stations in the Cape Town Metropolitan Area with 85 owned by Metrorail and 34 by Transnet. The Stations are of varying size and function. All stations provide support services such as contracted security, ticket kiosks and ablutions and are operational from the first train at approximately 04:00 until the last train at 20:00. Most stations within the Voortrekker Road Corridor (VRC) provide drop and go, park and ride, taxi and bus embayment facilities in order to interface with other modes of transport.

Table 0-3 records the stations which provide transfers within the Voortrekker Road Corridor (numbers represent transfer boardings plus alightings per day).

**Table 0-3: Stations in the VRC**

Line	Station Name	Large Station	Rail to Rail	Park & Ride (>10 P)	Intermodal	Rail to IRT
Belville (Northern Line)	Akasiapark					
Belville (Northern Line)	Avondale					
Bonteheuwel	Belhar				692	
Belville (Northern) Central Bonteheuwel Malmesbury and Worcester Long Distance	Belville				9,754	
Belville (Northern Line)	Century City					
Belville (Northern Line)	De Grendel					
Belville (Central Line)	Elsiesriver				2,446	
Belville (Northern Line) Bonteheuwel	Esplanade					
Belville (Central Line)	Goodwood				1,473	
Belville (Northern Line)	Kentemede					
Belville (Central Line) Bonteheuwel Cape Flats	Koebergweg				2,833	
Belville (Central Line) Bonteheuwel Cape Flats	Maitland				3,584	
Belville (Northern Line)	Monta Vista					
Belville (Central Line)	Mutual				3,948	
Bonteheuwel Cape Flats	Ndabeni					
Belville(Northern Line)	Oosterzee,					
Belville (Central Line)	Parow				2,734	
Bonteheuwel	Pentech				209	
Belville (Central Line) Bonteheuwel Cape Flats Simonstown	Salt River				4,636	
Bonteheuwel	Sarepta				118	
Belville Malmesbury and Worcester	Stikland					
Belville (Central Line)	Thornton					
Belville (Central Line)	Tygerberg				3,732	
Bonteheuwel	Unibell				775	
Belville (Central Line)	Vasco				2,611	
Belville (Central Line)	Woltemade					
Belville (Northern) Bonteheuwel	Ysterplaat				4,970	

The service is not universally accessible as the older stations do not have lifts or ramps. Access to the platforms of most stations is via a subway or pedestrian bridge.

### 7.3.3 Type of Commuter Rail Services

Two types of commuter passenger services are provided by PRASA in the Cape Town area.

- Metrorail provides a standard Metro and the more expensive Metroplus service. Ticket sales show that approximately 19% of the passengers use Metroplus coaches while 81% use the standard Metro coaches.
- The Business Express, which is a premium service, operates between Hugenot Station in Paarl and Cape Town Station as well as between Strand and Cape Town Station. The service only operates one train during peak periods and runs as an express service stopping only at a few selected stations. The cost of the service is much higher than that of the regular Metrorail Services but the quality of service is of a premium level with secure parking, beverages and newspapers being offered. Total passenger numbers are low due to the limited service (one train per direction per peak period), as compare to the the higher numbers being attracted by regular services. The Business Express service is very popular.

Long distance passenger services are also provided through Shosholoza Meyl.

### 7.3.4 Commuter Rail Census

The 2012 Rail Census reported that approximately 622 000 rail passenger trips are made in Cape Town on the average weekday.

The daily boarding figures where more than 40 000 passes through the VRC were extracted from the Rail Census 2012, and is recorded in Table 0-4:

**Table 0-4: Commuter Rail Section Boarding Figures**

Line	Pax Boarding Both Dir
<b>Bonteheuwel Line</b> Khayelitsha to Cape Town via Mutual and Esplanade	133,765
<b>Bellville (Central Line)</b> Wellington to Cape Town via Woodstock	91,380
<b>Bonteheuwel Line</b> Kapteinsklip to Cape Town via Pinelands and Woodstock	72,481
<b>Cape Flats Line</b> Retreat to Cape Town	45,929
<b>Bellville (Central Line)</b> Strand to Cape Town via Woodstock	44,302

Of the top ten busiest stations in terms of boarding and alighting passengers, four are located in the VRC. Table 0-5 lists the stations with the daily total boarding and alighting figures:

**Table 0-5: Rail Stations with high patronage within the VRC**

Station	Total Boarding and Alighting
Bellville	35 572
Mutual	31 741
Salt River	22 552
Maitland	19 785

The rail fleet has decreased from 94 train sets in 2000 to 86 in 2012. This is a result of the aging rolling stock (average age in 2012 was 36 years) as well as the inability to repair trains. The

“PRASA 2011/2012 Annual Report” stated that there were 899 operational coaches in the metro in 2010.

The 2012 Rail Census states that the number of daily scheduled trains running through the VRC in 2012 is 515. The table below sets out the number of trains per service line.

**Table 0-6: Commuter Train Schedules in the VRC**

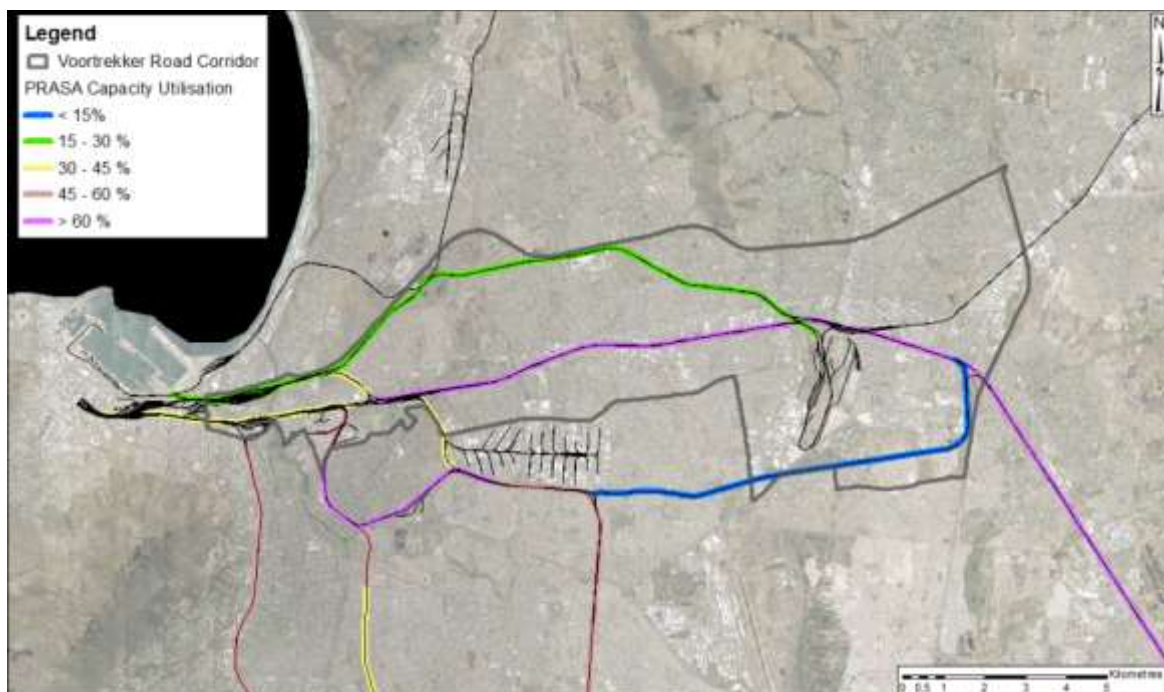
Service Line	No of Scheduled Trains/Day
Cape Flats Line Cape Town to Retreat	79
Bellville Central Cape Town to Wellington	97
Bellville Central Cape Town to Bellville via Monte Vista	43
Bellville Central Cape Town to Muldersvlei	29
Bellville Central Cape Town to Strand	69
Bonteheuwel Line Cape Town to Bellville via Langa	48
Bonteheuwel Line Cape Town to Kapteinsklop	89
Bonteheuwel Line Cape Town to Chris Hani	78

It must be noted that the number of scheduled trains per day on the service lines in the VRC decreased by 17 trains per day from 532 in 2007 to 515 in 2012.

### 7.3.5 Commuter Rail Infrastructure Capacity

Currently the minimum headway on the busiest lines is 6 minutes during the peak period for safety reasons, although 80% of the lines are signalised and in theory trains could run at a 3 minute headway. A major problem affecting the operation of the service is the theft of signal cabling and equipment which causes huge delays on the service. Security in terms of protecting rail facilities and property is lacking with long lengths of track being unfenced, which provide vandals and the public easy access to the tracks.

Figure 0-7 below shows the 2012 Cape Town AM Peak Passenger Rail Infrastructure Utilisation (Rail Census 2012).



### **Figure 0-7: Rail Infrastructure Capacity**

From the utilisation Figure 0-7 it can be stated that the Bellville (Central Line), and specifically the Strant to Cape Town Line, is one of the most utilised, while the Bellville (Northern Line) is underutilised. An increase in patronage demand on the Bellville (Northern Line) commuter rail services as a result of the planned densification and transport orientated developments in the catchment area, would easily be accommodated by Metrorail taking the rail capacity and investment programs into consideration. This despite the sharing of rail infrastructure with Spoornet on this line and the estimated growth in the fairly low container rail transport demand.

#### **7.3.6 Fares**

Metrorail fares are distance based with bands of 10 km up to 40km and two bands of 41 to 135km and 136 to 200km for the longer distances. Fares also vary in terms of the quality of service the commuter wishes to use with the standard Metro service being cheaper than the Metroplus service. Regular commuters are encouraged to purchase weekly or monthly tickets which are discounted compared to the single fares. The cheapest single fare for a trip up to 10km is R7 using the standard Metro service. The cost of a monthly ticket for the same distance is R134. Children under 12 years old and pensioners over 65 receive a 50 % discount concession on normal fares.

It must be noted that the fare system still functions on a paper ticket system. PRASA has not yet progressed to a smart card tap in/tap out system.

#### **7.3.7 Communication**

Timetables and PRASA related information is displayed on notice boards at stations and on the internet.

Since 2010 the Transport Management Centre operated by the City of Cape Town has provided a call centre which provides an up to date service regarding train schedules and delays.

#### **7.3.8 PRASA Strategic Upgrade Plan**

PRASA has published its Stage 2 Report: Western Cape Regional Strategic Plan which relates closely to the interventions required for improving the rail service and capacity for the City of Cape Town. The following interventions have been identified and need to be addressed in the short to medium term:

- Replacement of Rolling Stock with new, modern higher capacity vehicles.
- A revised ticketing strategy that will encourage users to travel during less busy times. This strategy will require the implementation of an electronic ticketing system.
- Corridor prioritisation – corridors will be prioritised for improvement based on passenger demand.
- Infrastructure upgrades
  - Signalling upgrades to provide improved headways, higher running speeds, Automatic train protection, and higher reliability
  - Increasing the number of platforms and running lines.
- Development of principle stations to improve convenience and facilities.
- Expansion of the network- fourteen projects have been proposed to expand the network.
- Increasing the fleet size from 81 train sets to 141 train sets in the long term.

The Cape Town super corridor identified which carries the highest priority of intervention implementation is shown in Figure 0-8.



**Figure 0-8: PRASA Super Corridor (Priority)**

### 7.3.9 Signalling

PRASA has appointed a contractor to upgrade the signalling system in the Cape Town area. Once the new signalling system is commissioned it will be possible to reduce headways from the current 6 minutes to 3 minutes. This will increase capacity on lines which are already running at capacity during the peak periods.

#### 7.3.10 Station upgrades

##### Platform alignment

PRASA is in the process of re-aligning platforms at certain stations where subsidence settlement of the platforms occurred, in order to narrow the gap between the train doors and platform. The platform re-alignment is also part of the delivery of new rolling stock. Some of the 'older' stations in the VRC have been identified for platform upgrades.

##### Concourse upgrades

New stations or station upgrades in the Metro have been recently designed as overpass concourse stations similar to the Stock Road Station with the platforms only serving as waiting areas.

##### Station Upgrades

The following stations in the VRC are earmarked for upgrades during later phases of the Prasa capital investment program:

- Bellville (current upgrades include minor construction work, currently out on tender)
- Mutual
- Maitland
- Salt River

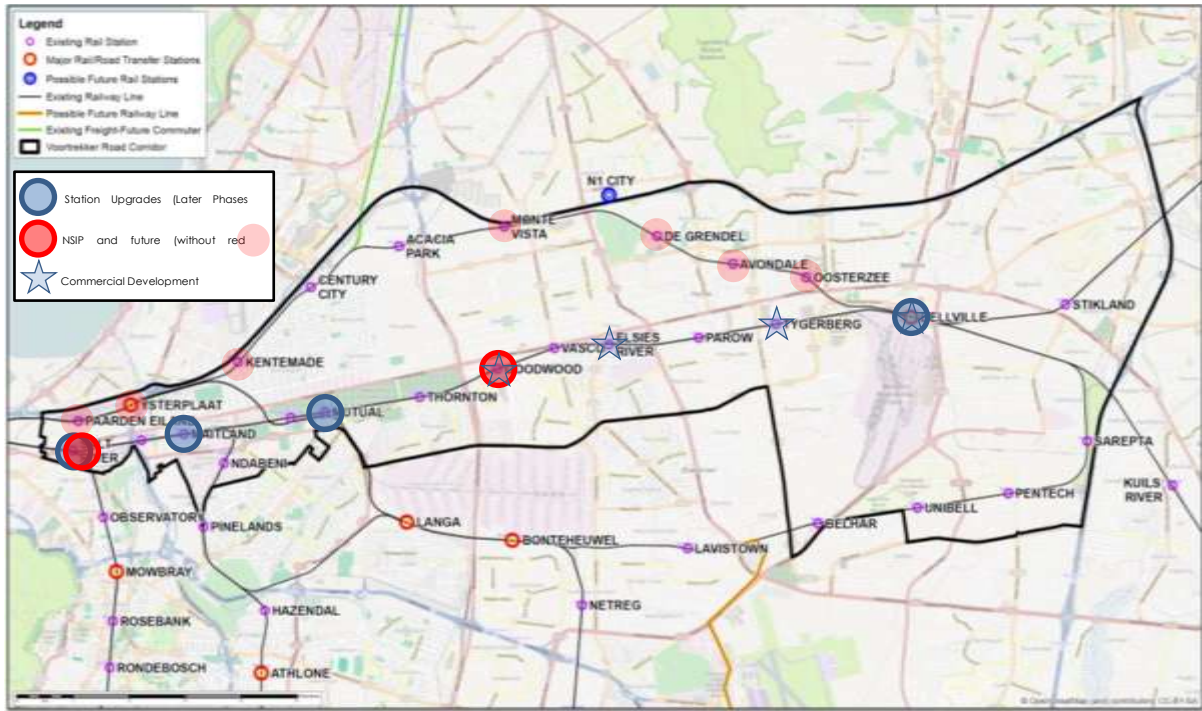


Figure 0-9: Station Upgrades

### National Station Improvement Project (NSIP)

Prasa is in progress of obtain tenders for detail architectural designs for the following Prasa owned land parcels within the VRC, all in an effort to generate income from the Prasa property development divisions, and in an effort to invest in Transport Orientated Developments (TOD's) that can support commuter rail patronage and eventually commuter rail sustainability:

- Salt River Industrial Master Plan, located between Salt River and Koeberg Rail Stations, with an approximately capital investment potential of R200m. This includes an 8ha redevelopment potential of an existing industrial area, a brownfield project, which also includes a potential new Autopax Bus Depot (Figure 0-10 shows the land extent).



**Figure 0-10: Salt River Industrial Re-development**

- New Goodwood Magistrate Court, located near the Elsie River Rail Station. Figure 0-11 shows the extent of the land and position of the site relative to the railway station.



**Figure 0-11: Goodwood Magistrate Court Re-development**



Future identified stations for NSIP's include the following:

- Oosterzee
- Avondale
- De Grendel
- Monte Vista
- Kentemade
- Ysterplaat
- Paarden Eiland

### National Station Precinct Development Program (NSPDP)

Feasibility studies were performed by Prasa to explore the potential of commercial development at the following station locations in the VRC:

- Bellville
- Goodwood
- Tygerberg
- Elsie's Rivier

### 7.3.11 Rolling Stock

PRASA has embarked on a programme to replace the existing rolling stock with new train sets. The PRASA Western Cape Regional Strategic Plan states that the passenger fleet will increase from 81 to 141 train sets. This is scheduled to coincide with the signal upgrades and the platform re-alignment programme.

### 7.3.12 Network Upgrades

The 2012 Metrorail Strategic Plan has identified four new rail corridors which lie within or partially within the VRC, as shown in Figure 0-12.

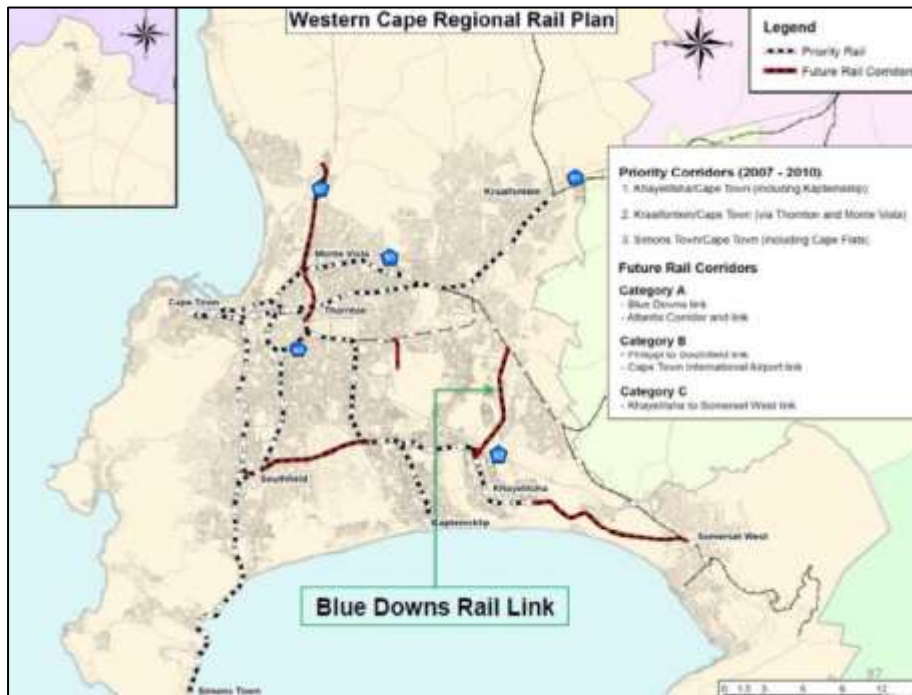


Figure 0-12: New Passenger Rail Lines \*3

### Blue Downs Link

While this link does not fall within the VRC boundary, it will feed into the rail network within the VRC boundary.

PRASA commenced with the planning of a new passenger rail link between Nolongile Station on the Bonteheuwel Line in Khayelitsha and Kuilsrivier Station on the Bellville (Central) Line. This link will connect Khayelitsha and Mitchells Plain with Bellville. The link will be approximately 9km long and passes through a densely populated area. It will provide a vital link for commuters living in the Metro South East and the work opportunities in the northern suburbs who are currently using road based transport or the rail round trip via Mutual or Bonteheuwel to commute to and from the VRC.

The Blue Downs rail link is part of the City of Cape Town approved Integrated Public Transport Network Plan, and can there be considered as the first level of priority new rail project.

#### Atlantis Corridor

The Atlantis Corridor is an existing single track line which is owned by PRASA. The line is currently used as a freight line. The line runs from Century City through Montague Gardens, Dunoon, Milnerton Rural to Atlantis Industrial. No passenger services currently operate on this line and no stations have been constructed on the line. PRASA has identified this corridor as another priority corridor due to the possible future development along the N7 Freeway north of Table View.

#### Communications

PRASA has embarked on the rollout of supplying WIFI on stations in order to make updates of train service delays easier to communicate to customers.

### **7.3.13 Public Rail Transport Authority**

The management of rail commuter services in the Cape Town Metropolitan Area is in the process of being transferred to Transport for Cape Town, the Transportation Department in the Municipality. Should this proceed, some of the main benefits to commuter rail will be:

- Public Transport in the City will be under a single banner and brand.
- Timetables will be integrated with all other modes of public transport.
- Integrated ticketing will be implemented where one ticket could be used on all modes of public transport.

It should be noted that the communication of rail timetables, fares and passenger information is already integrated into one department within Transport for Cape Town, the transport Department in the City of Cape Town.

### **7.3.14 CoCT Support of Commuter Rail**

The CoCT could assist and support public commuter rail:

- In approving developments close to rail stations, which supports commuter rail patronage, and applying Transport Orientated Development (TOD) principles
- Improve NMT access – footpaths, lighting, security, bicycle integration, pedestrian crossings, landscaping in a 1km radius around stations
- In maintaining fenced rail reserves, especially at station areas
- In the development of intermodal facilities
- With guidance signage giving directions to the rail stations
- With the elimination of level crossings
- With applying minimum parking ratios where commuter rail is established

## 7.4 Road Transport

### 7.4.1 Major Roads

The VRC is well served by a grid of arterial roads running east/west and north/south - Figure 0-13.



Figure 0-13: Major Road Network

The major east/ west roads (some linking the CBD with the residential areas in the corridor) in the VRC corridor are:

- N1: The N1 Freeway forms the northern boundary of the VRC. This major freeway (Class 1 route) from the CBD of Cape Town eastwards to Paarl (and further east) serves all road based modes and is the most important road artery in the VRC. It consists of three lanes in each direction for most of its length from the CBD to the Durban Road Interchange in Bellville and two lanes in each direction from the Interchange eastwards.
- Voortrekker/Strand Road: Voortrekker road is the major arterial (Class 3) road running the full length of the VRC. It serves primarily as an activity spine.
- Frans Conradie. Frans Conradie is a Class 2 arterial road. It is the east west link between Durban Road and Jakes Gerwel Drive. The road is planned to be extended further west from Jakes Gerwel Drive to link up with Sable Road at Century City Rail Station
- Berkley, Jan Smuts Drive, Viking Way and Avonwood. Jan Smuts Drive, Viking Way and Avonwood forms the southern boundary of the VRC. These roads link up with Tienie Meyer via Francie van Zyl and Mike Pienaar Blvd. Jan Smuts is a two lane
- Robert Sobukwe (Class 2). Robert Sobukwe is the major east west arterial in the south eastern corner of the VRC. It provides access to the two university campuses, the Bellville South industrial area and the Belcon Transnet Marshalling Yard.

- Old Paarl Road. (Class 3). Old Paarl Road links Voortrekker Road to the R300 southern ramps and the suburbs east of the VRC.

The major north/south roads traversing the VRC are:

- R300. The R300 Freeway (Class1) forms the eastern boundary of the VRC. It consists of three lanes per direction with a systems interchange where it intersects with the N1
- M5: On the western side of the VRC, the M5 is a major freeway link between the N1 and N2 freeways.
- N7/ Jakes Gerwel Drive: (Class 1 Expressway) This is the major secondary north/south link in the western area of the VRC, linking the N1 and N2 Freeways.
- Vasco Blvd: (Class 3) This secondary arterial connects Voortrekker Road and Frans Conradie to the N1 Freeway
- Hugo/Halt Road. (Class 3) This north south arterial link acts mainly as an activity zone connecting Frans Conradie in the north with Avonwood in the south.
- Giel Basson/Jan van Riebeeck (Class 2. The Giel Basson/Jan van Riebeeck arterial is the main link between the N1 Freeway and the Cape Town International Airport and its environs. This route also links up with the Stellenbosch Arterial Road. Future planning shows that this route will be a major route linking the VRC to the N7 Freeway north of Dunoon.
- McIntyre (Class 3) McIntyre Street provides a link between Voortrekker Road, Frans Conradie and the N1 Freeway. It also connects to the N7 Freeway via Plattekloof Road.
- De La Rey (Class 3). De La Rey Road links the Belhar area with the VRC. It is a major north south activity spine.
- Mike Pienaar (Class 1 Expressway). Mike Pienaar Blvd connects the N1 freeway in the north with Frans Conradie, Voortrekker Road, Tienie Meyer and Francie van Zyl. Mike Pienaar Blvd provides the main access to the Tygerberg Hospital
- Symphony, Robert Sobukwe, Durban Road (Class 2). This route is the major arterial road in the eastern section of the VRC. It connects the residential areas in the metro south east to the Bellville area. It also serves as a major mini bus taxi route as well as the two university campuses in Bellville. The Bellville Public Transport Interchange is situated on this route.
- Bill Bezuidenhout (Class 3). Bill Bezuidenhout Ave provides connectivity between the areas south of the N1 Freeway and the Tygervalley area.
- La Belle, Old Oak (Class 2) This route links Strand Road in the south with the N1 Freeway. It also provides access to Durban Road and Tygervalley north of the N1.

## 7.4.2 Current Traffic

Information on the traffic volumes in the VRC has been obtained from the following source:

- The Annual Average Daily Traffic (AADT) volumes, including heavy vehicles, buses and minibus taxis, on the sections of the N1 and the intersecting arterial roads are provided on the website of the provincial roads department. A selection of data is shown in Table 0-7 below.

**Table 0-7: AADT**

N1 Freeway at Century City East of Sable Road  
Station AADT's

	Light	Heavy	Taxis	Buses
	108729	2726	285	159
Total	111899	2.44%	0.25%	0.14%

N1 Freeway at Monte Vista West of  
Interchange  
Station AADT's

	Light	Heavy	Taxis	Buses
	114212	3179	681	681
Total	118753	2.68%	0.57%	0.57%

Vasco Blvd at N1 South of Monte Vista  
Interchange  
Station AADT's

	Light	Heavy	Taxis	Buses
	49669	1464	455	159
Total	51747	2.83%	0.88%	0.31%

N1 Freeway at Durban Road West of  
interchange  
Station AADT's

	Light	Heavy	Taxis	Buses
	115125	4094	482	241
Total	119942	3.41%	0.40%	0.20%

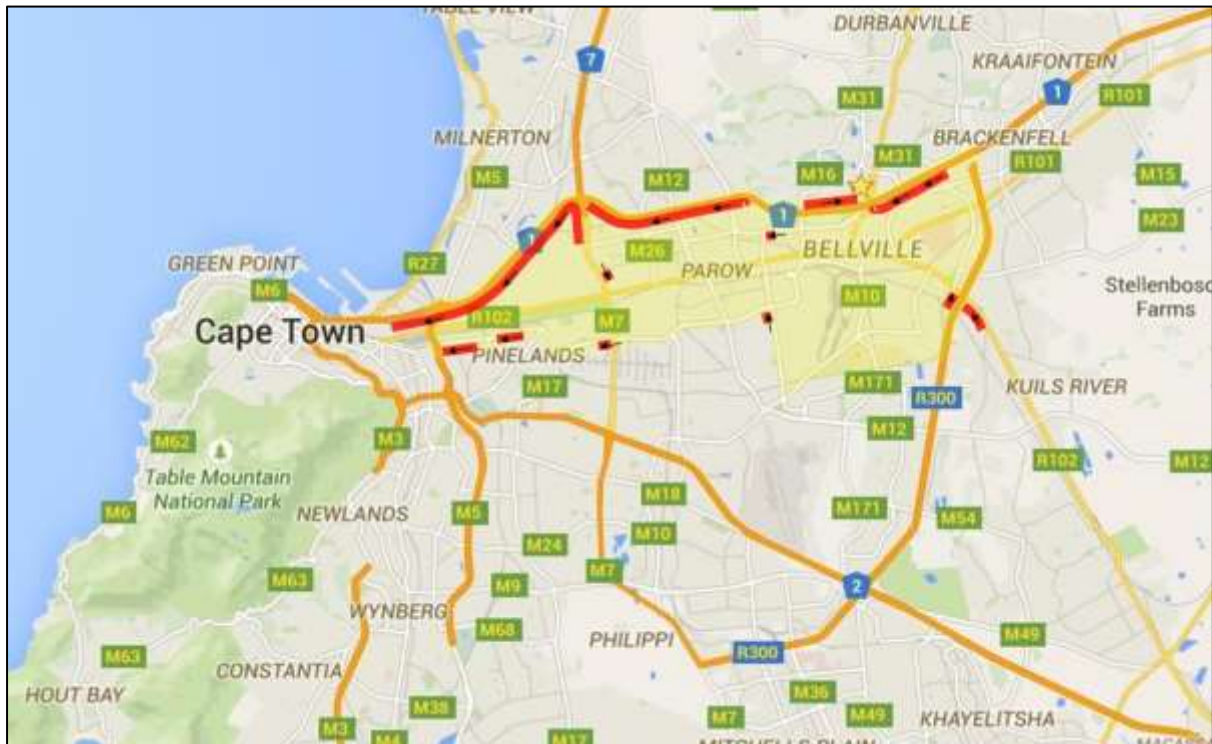
Durban Road at N1 South of Interchange  
Station AADT's

	Light	Heavy	Taxis	Buses
	40757	1117	1511	354
Total	43739	2.55%	3.45%	0.81%

The provincial counts show that the total number of vehicles on the N2 exceeds 100 000 per day through the VRC. Heavy vehicles vary between 2.44% and 3.41% of the total flow, whilst minibus taxis are very low (0.57% to 0.25%) and buses even lower. It is clear that private vehicles are the largest users of the N1.

Whilst the traffic demand is exceeding the capacity of the N1 on some sections during morning and afternoon peak periods (based on observed queuing), spare capacity exists during off peak times although the road remains busy throughout the day. The hourly distribution of traffic flow available (not included but available) indicates that there is a steady flow of vehicles during daylight hours. It is concluded that the spare capacity is slowly being taken up by business traffic and planning for the eventual upgrading of the N1 should ideally commence.

The typical weekday morning peak period road traffic condition in the VRC is shown in Figure 0-14, where the red highlighted areas shows the slow moving traffic and the black arrows the direction of travel.



**Figure 0-14: Typical weekday am peak period traffic VRC**

The following slow moving traffic is evident in the VRC during the am peak period (bold and italic printing indicates the existence of road upgrade planning projects to specifically address traffic congestion issues).

- N1 westbound traffic between the R300 and Durbanville turnoff
- N1 eastbound traffic between Jip De Jager and the Durbanville turnoff
- N1 westbound from Platteklouf past the M5
- Jakes Gerwel Drive (M7) northbound onramp towards Cape Town CBD backing up to Frans Cronje Drive (M25)
- M7 southbound at the Milton Road intersection
- De La Rey Street northbound at the intersection with Francie van Zijl Drive (M16)
- Frans Cronje Drive westbound at the intersection with Mike Pienaar Boulevard (M16)
- Viking Way (M16) westbound at the intersection with Sipres Avenue
- Jan Smuts Drive (M16) westwards between Ambleside Road and Parow Road
- Van Riebeeck Road (R102) north-west bound traffic from Sarepta Street up to the intersection with the R300
- Kuils River Street off-ramp north bound at the intersection of the R300

The typical weekday afternoon peak period road traffic condition in the VRC is shown in Figure 0-15.

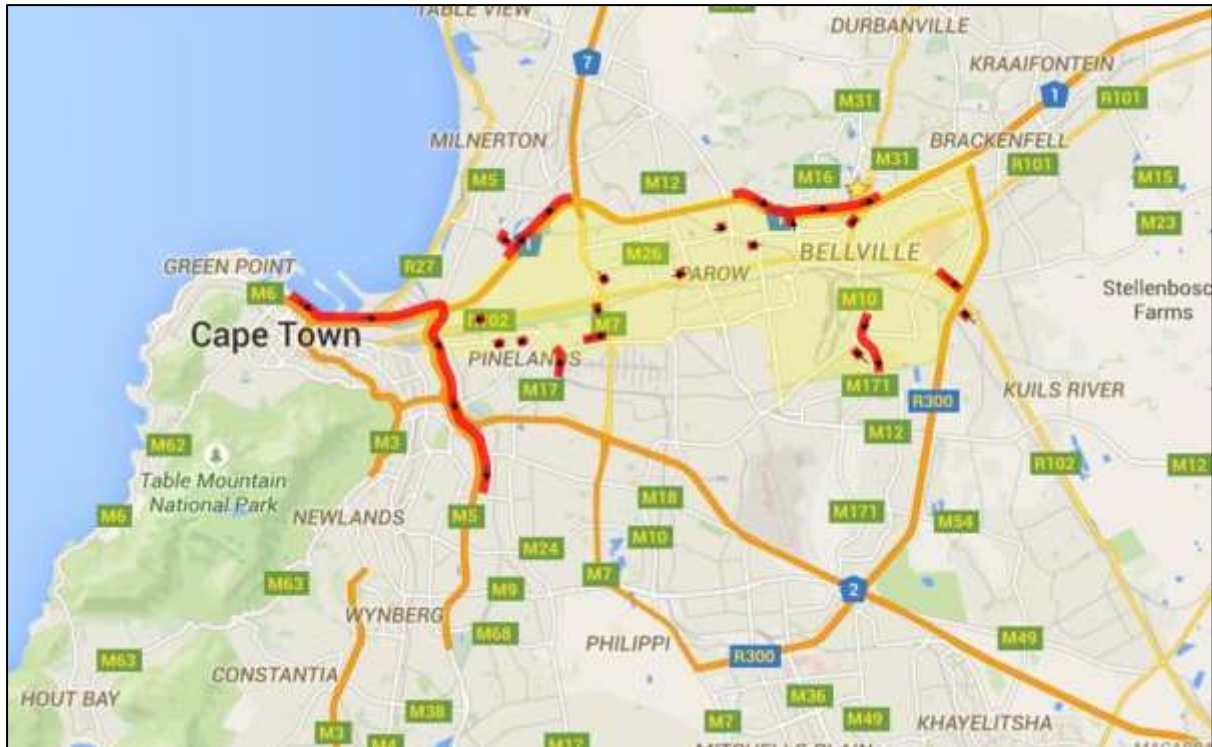


Figure 0-15: Typical weekday pm peak period traffic VRC

The following slow moving traffic is evident in the VRC during the pm peak period.

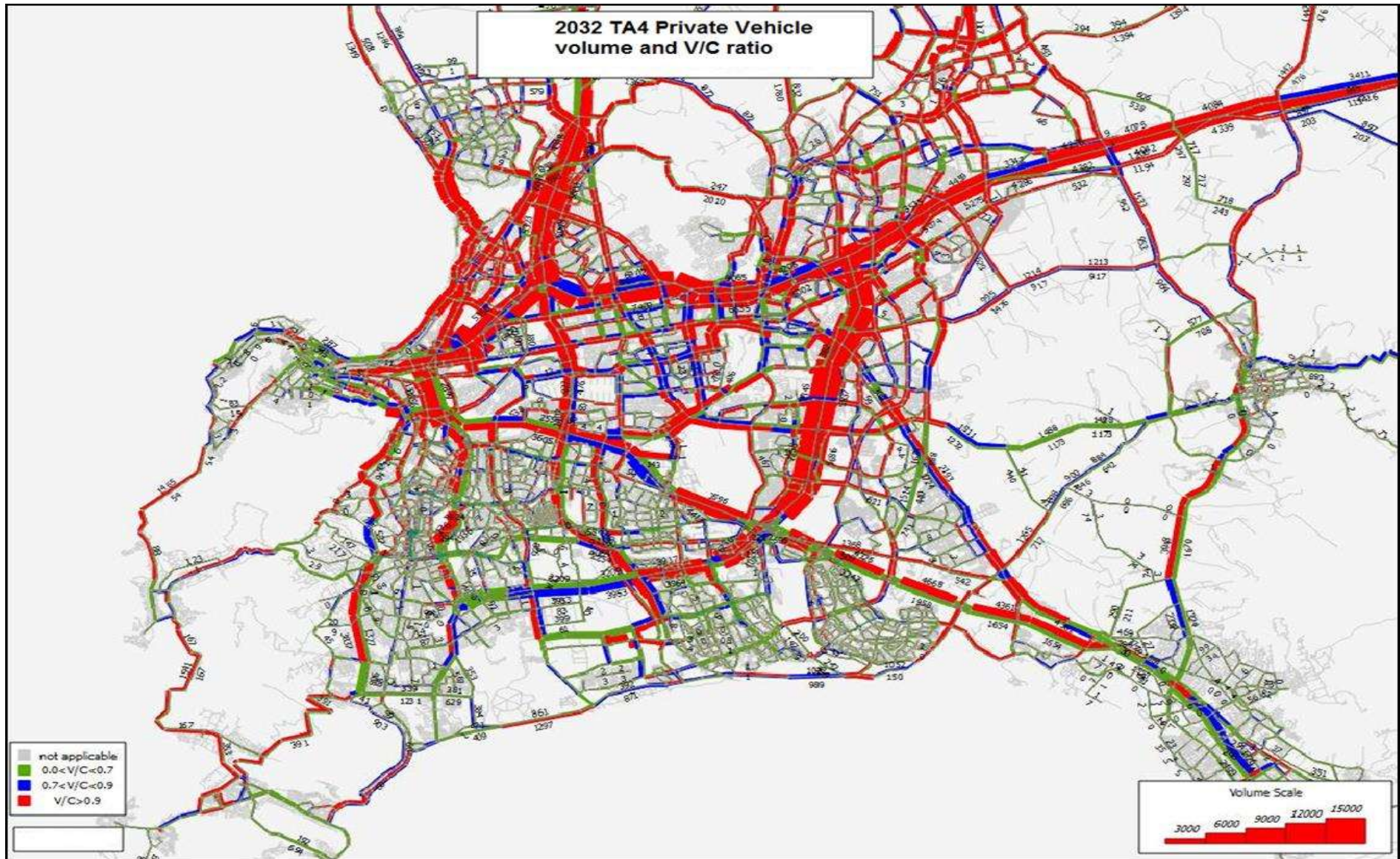
- N1 eastbound turning southbound in the M5 from the Cape Town CBD up to Kromboom Road (M43)
- N1 eastbound from Century City to the M7 as well as Sable Road (from Ratanga Road, south-east bound accessing the N1 eastbound)
- N1 eastbound from Platteklouf to after the Durbanville turnoff
- The eastbound traffic along Strand Road (R102) from Peter Barlow Drive up to the intersection with the R300
- The westbound traffic along Van Riebeeck Road (R102) at the intersection of the R300
- The southbound traffic along Robert Sobukwe Road (M10) from Kasselsvlei Road up to Erica Drive
- The northbound traffic along Symphony Way at the intersection with Erica Drive
- Jan Smuts Drive (M17) westbound between Forest Drive and Welwyn Avenue, as well as before the traffic circle with Prestige Drive, Avonduur Road and Morningside Street.
- Jan Smuts Drive (M17) north bound between Eland Street and just after the intersection with the N2, as well as the off-ramp east bound onto the N2
- Viking Road eastbound between Poplar Avenue and Sipres Avenue, as well as westbound between Jakes Gerwe Drive and Sipres Avenue
- Durban Road northbound from 12<sup>th</sup> Avenue to Frans Conradie Drive
- Frans Conradie Road west bound between Tierberg and Fairfield Street
- Frans Conradie Road east bound at the traffic circle McIntyre Street
- Jakes Gerwe Drive (M7) southbound between Milton road and Voortrekker Road (R102), and north bound before the intersection with Voortrekker Road (R102)
- Voortrekker Road (R102) between Wicht Street and Giel Basson Drive (M12)
- Voortrekker Road (R102) east bound between Kensington Road and 3<sup>rd</sup> Avenue

### 7.4.3 Future traffic

The modelling done for the IPTN in 2014 resulted in traffic predictions for 2032, based on the PTOD land use scenario for 2032. The morning peak hour assignments, as well as the



predicted volume/capacity<sup>1</sup> (v/c) ratios for 2032, according to this scenario, are shown in Figure 0-16. Note that this assignment refers to the Transport Supply Scenario TA4, which contains a combination of new rail services and BRT Trunk services, with a reduced peak hour level of service in order to minimise operational deficiencies. The assignment shows a number of routes with an expected v/c exceeding 0.9 in the future (including the M5 through Maitland, Frans Conradie, Jakes Gerwel Drive, Tienie Meyer, Robert Sobukwe, the R300, La Belle, Old Paarl Road and the N1 Freeway).



**Figure 0-16: EMME Future Traffic Estimates** (Volume/capacity in this instance = assigned traffic link volume for 2032 divided by the future link capacity)

## 7.4.4 Planned Road Improvements

The road projects in various stages of planning are shown in Figure 0-17 and the descriptions following:

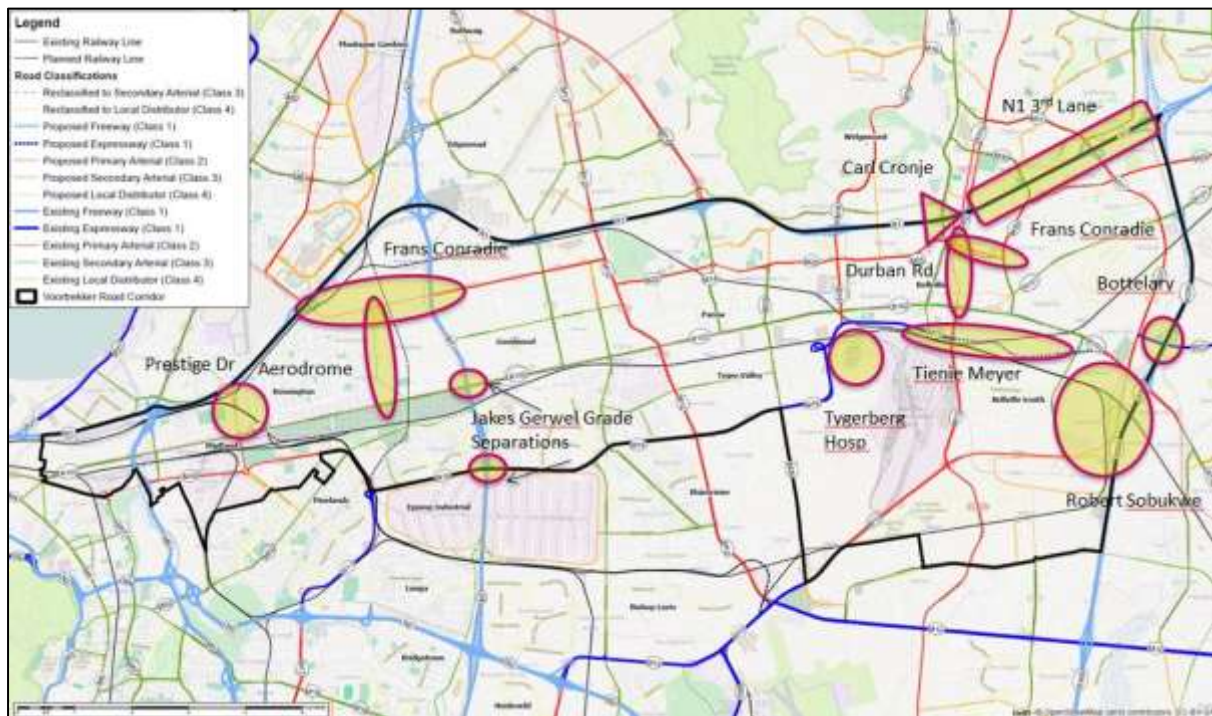


Figure 0-17: Planned road upgrades

### Durban Road Corridor

A conceptual design for the realignment of Durban Road from just north of Frans Conradie via the disused rail reserve and Vlei Street linking up to the Voortrekker Road/Robert Sobukwe Intersection has been developed. The ultimate cross section is proposed as a four lane dual carriageway road. Linking in with this proposal is the connecting of the section of Durban Road south of Frans Conradie with Carl Cronje Drive. The City has been expropriating affected privately owned land and properties along the proposed route over the last ten years. This realigned route will provide a more direct north-south route between Durbanville, the N1 Freeway and Bellville South and should have a positive impact on the VRC. Should the proposed Mitchells Plain to Durbanville IRT Trunk Route be implemented, the trunk route will follow the Realigned Durban Road Corridor alignment.

### Carl Cronje Half Diamond

It has been proposed that the western ramps of a half diamond connecting the N1 Freeway and Carl Cronje be considered in order to ease the pressure on the existing Durban Road Interchange. This scheme should also relieve outbound congestion on the N1 Freeway during the afternoon peak. The Carl Cronje Half Diamond should have a positive impact on the VRC providing better connectivity between the Bellville CBD and the N1 Freeway. Various proposals have been tabled to the Roads Branch of the Provincial Government: Western Cape (PGWC). Currently this proposal has no formal status but could be driven by commercial development north of the Freeway.

### N1 Freeway Third Lane Extension

It is proposed that the third lane on the N1 Freeway which currently starts (west bound) and ends (eastbound) at the Durban Road Interchange be extended further east past the Old Oak Interchange. This proposal will improve traffic flow in both directions along the N1 Freeway east of the Durban road Interchange. Although not directly linked to the VRC this improvement should have a positive impact on the VRC improving travel times to and from the Durban Road Interchange.

### Bottelary Interchange

In 2014 it was proposed that Bottelary Road be directly connected to the R300 Freeway by means of an interchange. It was proposed that the ramps be positioned in the northern quadrants of the current overpass. Conceptual designs were developed for this proposal. This interchange could have a positive impact on the VRC providing better connectivity between the VRC and the R300.

### N1/N2 Winelands Project

It is proposed by the South African National Road Agency (SANRAL) that the existing N1 Freeway be tolled from the Old Oak Interchange to the east through Paarl and Worcester as part of the N1/N2 Winelands Project. This could have a negative impact on the VRC forcing vehicles trying to avoid paying toll fees onto minor roads through the eastern section of the VRC. This could have the impact of increasing congestion on the minor roads as well as the cost of maintenance of these roads.

### Frans Conradie Extension to Sable Road

The Provincial Government: Western Cape is currently planning the section of Frans Conradie linking Jakes Gerwel Drive (N7) to Sable Road at Century City Rail Station. This link will provide improved connectivity between the Goodwood area and the industrial and commercial areas of Montague Gardens and Century City.

### Tygerberg Hospital

The PGWC is currently in the process of planning the redevelopment of the Tygerberg Hospital complex. The proposal includes changes to the local road network serving the hospital precinct. Francie van Zyl is intended to be the main access route to the new hospital with new roads linking the hospital to Robert Sobukwe Drive and Kasselvlei Road in Bellville South as well as Tienie Meyer to the north. It must be noted that the IRT T14 Route between Westlake and Bellville is planned to run along Francie van Zyl Drive.

### Frans Conradie Drive

Extension of Frans Conradie Drive between Durban Road and Bill Bezuidenhout.

### Tienie Meyer

Extension of Tienie Meyer from Robert Sobukwe to Strand Road will complete the "Bellville Bypass" and should relieve pressure on the eastern section of Voortrekker Road.

### Aerodrome Road through the Wingfield Site

Aerodrome Road through the Wingfield Site.

### Prestige Drive

Extension of Prestige Drive from Sunrise Circle to the N1. This would improve connectivity between the Pinelands, Ndabeni and Mitland areas and the N1.

### Voortrekker Road and Vanguard Drive (N7) Intersection

The current signalised intersection has been a bottleneck in the Metro Road Network for decades. A grade separated interchange has been planned to replace the intersection which should get a high priority.

### Viking Way and Vanguard Drive (N7) Intersection.

The current signalised intersection should be grade separated to improve access to the Epping Industrial Areas.

### N1 Access

There are a number of future phased upgrades currently being developed along the N1 Corridor. SMEC are currently appointed by WCG to model the corridor and advise on the geometric configuration required for the ultimate N1 Freeway Scheme between Koeberg Interchange and the R300. This is currently work in progress.

### IRT Trunk Route Road Improvements

See section under Conventional Bus – Future Planning

## **7.5 Long Distance Bus**

### **7.5.1 Existing**

Long distance bus services use Bellville as a pick up/drop off point on routes to and from Cape Town. The service operates nationally across the borders to neighbouring countries. Up to a few years ago the kerbside in Mispel Road was used as a bus stop. A new formal stop has been developed on the corner of Mabel and Durban Road. It must be noted that all the bus companies have not moved from Mispel Road and that this new facility will need to be relocated if the future realigned Durban Road Corridor is developed. Facilities at both the Mispel and Mabel stops are very basic providing limited shelter, on street parking and no ablutions.

### **7.5.2 Operations**

While the service is a scheduled service with buses operating on a daily basis, facilities do become overcrowded particularly over the festive season and during school holidays. Approximately four companies operate the routes through the Bellville stops with two being subsidiaries of PRASA and two being private operators.

### **7.5.3 Future**

The long distance bus services should be provided with proper facilities which should include adequate bus parking, drop and go parking, formal parking, ablutions, security and waiting rooms. The stop should also be integrated with the future MyCiti IRT service. An ideal position could possibly be on the wide median between Durban and Willie van Schoor just north or south of the N1 Freeway.

## 7.6 Conventional Bus

### 7.6.1 Existing

Golden Arrow Bus Company (GABS) and Sibanye operate the scheduled bus services in terms of the National Land Transportation Act Operating Licensing Agreement in the City of Cape Town. Coverage of the City by the two companies is generally very good. Figure 0-18 shows a layout of the routes operated by GABS and Sibanye.

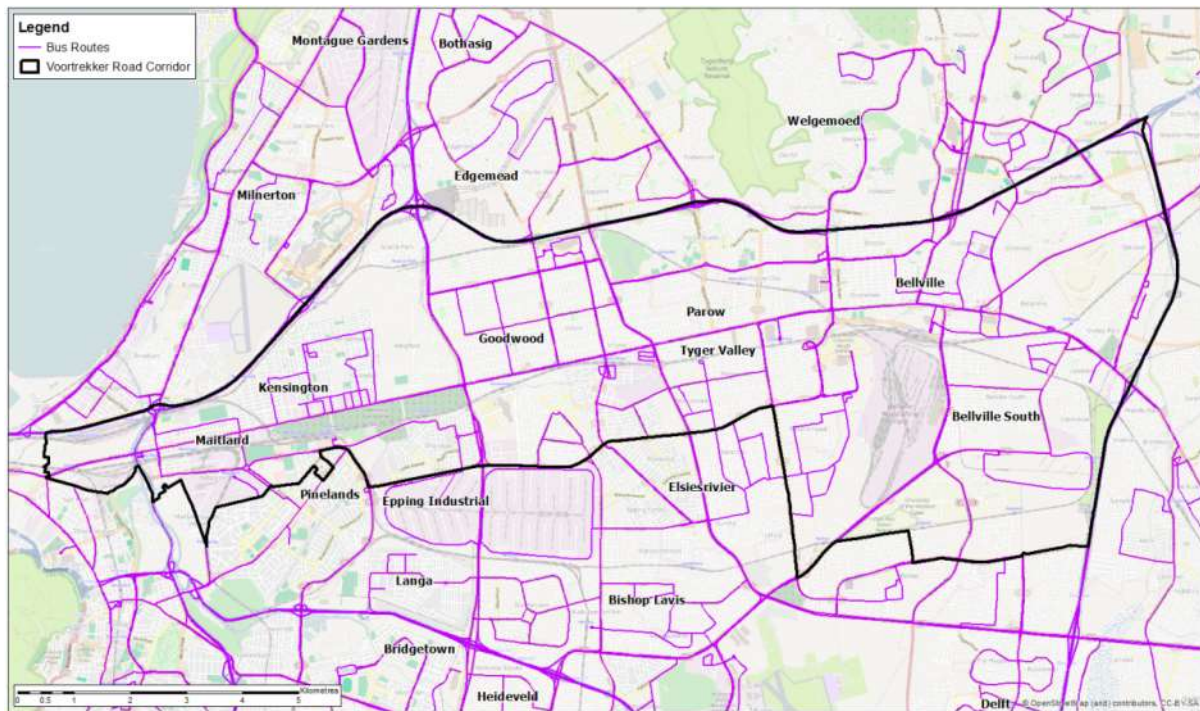


Figure 0-18 :Bus Routes

### 7.6.2 Routes

2 645 routes are operated in the City of Cape Town. Most of the routes are origin to destination routes with very few opportunities for transfers except at the major Public Transport Interchanges such as the Bellville Station. Due to competition with the mini bus taxi operators, bus routes are sometimes very arduous travelling through less dense areas.

Buses share general traffic lanes. Currently 25km of dedicated Bus and Minibus Taxi (BMT) lanes exist in the City but none exist within the VRC.

The City has planned to extend the existing BMT lane in Jakes Gerwel Drive from Gunners Circle to Voortrekker Road.

### 7.6.3 Facilities

#### Stops

Existing stops are normally in the form of a pole or a shelter depending on the usage and surrounding environment. The stops and shelters are very basic providing very little or no information.

Some shelters and stops do have embayments allowing the bus to dwell outside the through traffic lane.

Bus stops have been positioned by the City throughout the VRC as per recommendations and requests by the bus operators. Bus stop positions have been demand driven. On some routes bus stops are positioned very close to each other.

Along Voortrekker Road stops are as close as 300m apart and on sections of Giel Basson no stops have been provided between the N1 Freeway and Epping Ave in Elsie's River.

### Terminals

Normally at the end of each route, complex terminals with multiple loading bays and destination signage are present. These terminals also provide staging and holding facilities for buses as well as support services for customers and staff. Many terminals located within the VRC are located near to rail stations. These terminals also serve minibus taxi ranks which allows for modal transfers to take place between rail, bus and mini bus taxi. Bellville Station Public Transport Interchange (PTI) which falls inside the VRC is one of the busiest Public Transport Interchanges in the City. The bus operations at the terminals are managed by the bus operators with the City providing security and cleaning services.

### Depots

Although no major bus depots are situated within the VRC, the Arrowgate Depot in Montana has easy access to the VRC via Robert Sobukwe Drive.

## **7.6.4 Operations**

Between GABS and Sibanye, they own approximately 1134 buses. Operations are subsidised by the Department of Transport. Most of the buses are high floor which means that the service is not universally accessible.

The bus service is considered the safest form of public transport in terms of accidents, fatalities and injuries.

According to the Comprehensive Integrated Transport Plan 2013, 240 000 passengers were carried daily over 2424 routes. Of the ten busiest routes in the City, two routes originate or pass through the VRC. The routes with their trips and passengers per day are listed below.

**Table 0-8: Busiest Bus Routes in the VRC**

Route	Bus Trips/day	Pax/day
Mitchells Plain to Tygervalley Centre	17	1669
Cape Town to Bellville via Voortrekker Road	31	1303

The 2013-2018 Comprehensive Integrated Public Transport Plan states that 2465 passenger trips originated in the Bellville area during the AM peak using 60 bus trips.

## **7.6.5 Future Planning**

Due to the rollout of the MyCiTi IRT services across the City, the planning of new conventional bus services has slowed. Both GABS and Sibanye are stakeholders in the current MyCiTi service as shareholders in the Vehicle Operating Companies.

In the short term (next five years) no major IRT services are planned for the VRC area. However as part of the full IRT Service, the following Trunk Routes have been planned to pass through the VRC:

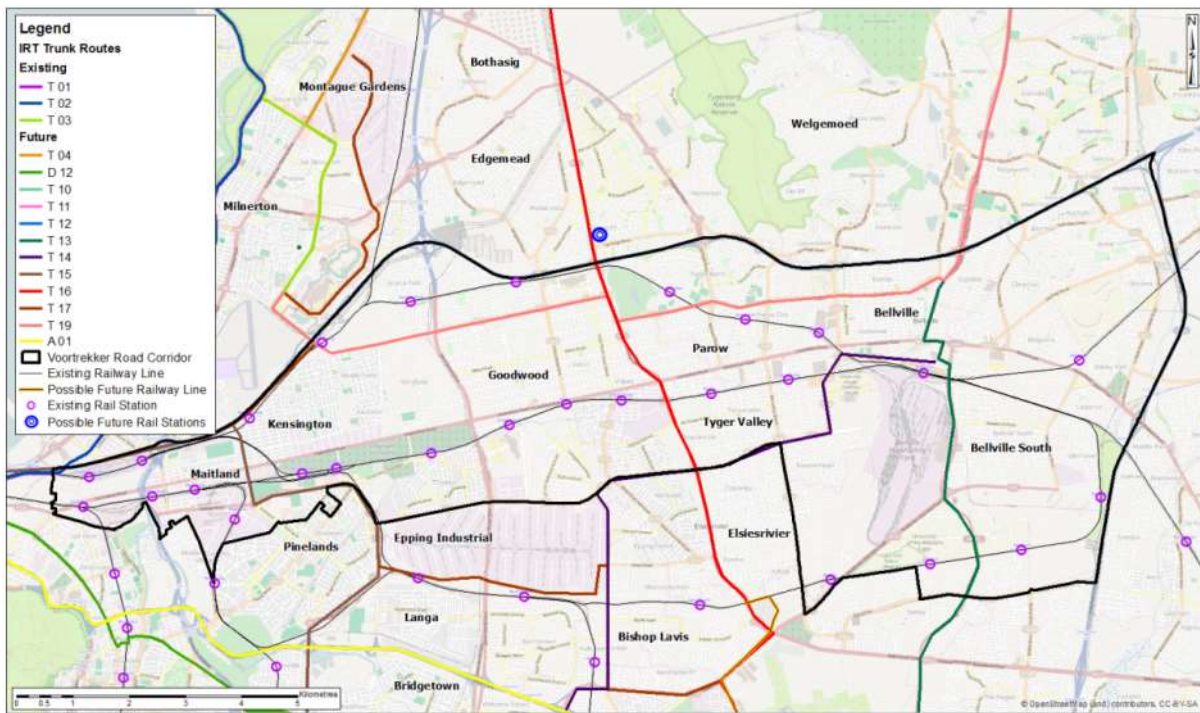
**Table 0-9: Planned Bus Trunk Routes**

Route No	Origin	Destination	Via



T13	Mitchells Plain	Durbanville	Symphony Way, Robert Sobukwe, Durban
T14	Westlake	Bellville	Viking, Mike Pienaar, Tienie Meyer
T15	Strandfontein	Cape Town	Jan Smuts, Prestige, IRT Route
T16	Eerste River	Melkbos	35 <sup>th</sup> Ave, Giel Basson
T17	Khayelitsha	Century City	Jan Smuts, Prestige, IRT Route
T19	Kraaifontein	Century City	Durban, Frans Conradie, Sable

A layout of these routes is shown in Figure 0-19.



**Figure 0-19 : IRT Routes**

These Trunk Routes consists of a dedicated median aligned Right of Way (ROW) for the buses which is protected from the general traffic by means of a mountable kerb. In areas where there are road reserve width constraints and/or operating speeds are predicted to be acceptable, the trunk bus shares lanes with the general traffic. Large capacity 18m articulated or 12m long buses operate on the trunk routes. Where capacity demands, express services (skip stops) may be introduced. It must be noted that the T13, T14, T15, T16 and T17 Trunk Routes will improve north south public transport connectivity. The T19 Trunk Route generally runs on an east – west orientation.

Bus stations are generally positioned in the median approximately 800m apart along the trunk route. Where heavy passenger movements in terms of boarding, alighting and transfers are predicted, enclosed median stations are constructed while lower volume stations are normally open shelters. Enclosed median stations normally provide pre-boarding ticket validation, ticket vending services, live information and ablutions while the open shelters only provide basic shelter and information posters.

Each trunk route is supported by a feeder service which is a network of routes serviced by smaller buses. These feeder routes share the general traffic lanes and stops are kerbside open shelters or stops.

The IRT bus services are operated by Vehicle Operating Companies (VOC). These companies are formed by the bus companies and taxi associations affected by the implementation of a particular IRT Route. Stations and ticketing services are operated by a Station Management Company (SMC).

It is currently predicted that the Trunk Route bus headways will be 90 seconds during the morning peak period. Trunk and feeder buses will operate according to set timetables.

Current planning predicts that the Trunk routes listed above should be in operation by 2032.

## 7.7 Minibus Taxis

The minibus taxi industry plays a big role in the transportation of short and long distance commuters in the City. Although operators need to be licensed by the Provincial Authority to operate on designated routes, the service is unscheduled, informal, unsubsidised and operates on demand. Approximately 7258 registered minibus taxis are licensed to operate in the City (2013 CITP). It is estimated that another 6000 taxis are unregistered and operate illegally. According to the 2013 CITP, the minibus industry captured 13% of the daily public transport demand in the City.

Due to the number of unregistered vehicles, unregulated services and poor enforcement, the industry is overtraded in many areas leading to intense competition amongst operators. This also leads to disputes, violence and taxi wars.

The average age of the fleet is estimated to be 10 years with the older vehicles operating on the informal residential township routes and the later model vehicles operating on the licensed routes.

### 7.7.1 Facilities

Minibus taxis share lanes with the general traffic. Routes generally run along arterial roads. A layout of the mini bus taxi routes is shown in Figure 0-20. Except for taxi ranks at the main Public Transport Interchanges minibus taxis do not benefit from any dedicated infrastructure. Pick up and drop offs occur anywhere along the routes. According to the TRS 2011 Surveys, the Bellville Station Transport Interchange Taxi Rank is the busiest mini bus taxi rank with an average of 39 174 daily passengers making use of it. Smaller ranks are scattered throughout the VRC particularly at railway stations along the Bellville to Cape Town line via Maitland and at major shopping centres. The ranks normally provide loading bays, holding and staging areas, wash bays and ablution facilities. The ranks are operated in some cases by taxi associations with some management and cleaning services being provided by the City.



Figure 0-20: Mini Bus Taxi Routes

## 7.7.2 Operations

The 6 metre Toyota Quantum or similar minibus is the vehicle of choice for minibus taxis. Services operate from early morning till late at night seven days a week.

Minibus taxis are privately owned. Fares are unregulated, cash based and collected on board. Generally fares are distance based with the shorter the distance the higher the rate. Fares are normally set by the taxi associations.

Mini bus taxi operations offer four types of service, namely:

- Long haul services which are services along licensed routes generally from rank to rank. These services are commuter services between residences and places of work.
- Informal feeder services which operate as a feeder service for the long haul services. This informal feeder service operates mainly in residential townships along unlicensed routes providing short haul services within the townships.
- Long distance mini bus taxi services which provide regional long distance services to other towns and provinces.
- Chartered/shuttle services are provided by the mini bus taxi industry. These services are mainly used by schools and businesses.

## 7.7.3 Future

The Minibus taxi industry has been impacted by the rollout of the MyCiTi IRT service in areas where the rollout has begun. Thus far taxi associations have been encouraged to participate in the operation of the MyCiTi service. By means of an industry transition programme, taxi owners are required to forego their operating licences and vehicles in return for a shareholding in one of the Vehicle Operating Companies in the MyCiTi system.

In the short term mini bus taxis will continue to play a vital role in public transportation in the VRC until the future MyCiTi services are rolled out in the area. At a high level of planning it is proposed that 6 IRT Trunk Routes with approximately 36 stations/stops are currently planned in the VRC. At this stage no timescale for the rollout of the MyCiTi IRT services has been set.

The mini bus taxi operations could also be affected by the implementation of the Blue Downs Rail Link between Khayelitsha and Kuilsriver. The Khayelitsha and Mitchells Plain to Bellville mini bus taxi services are some of the most patronised services in the city. Should the Blue Downs Rail Link be implemented this will probably draw patronage from the current mini bus taxi routes serving the same origins and destinations.

The City is currently planning to upgrade the Bellville Public Transport Interchange.

## 7.8 Non-Motorised Transport (NMT)

### 7.8.1 Existing

The "IPTN Status Quo Review and Evaluation Report (November 2013)" states that over the last 30 years the City has actively pursued NMT planning and implementation. The NMT Plan and Policy has been developed which has led to the drawing up of the Bicycle Masterplan, Figure 0-21.

Paved sidewalks are generally provided for along all the major roads in the VRC. However the continuity of NMT routes is problematic. One such example is at the McIntyre Road traffic circle where there are sidewalks on the approaches to the circle but no pedestrian crossings close by.

Marked dedicated cycle ways are not provided for on almost all the major roads with a short stretch of Robert Sobukwe in Bellville South being the exception.

In the Bellville Integrated Transport and Land Use Planning (BITLUP) process the following NMT issues were raised:

- The Bellville Public Transport Interchange bus and taxi rank is 325m away from the Bellville Station Platforms. The PTI is a sprawling facility.
- No cycle lockup facilities are available in Bellville
- Security and safety is a problem for pedestrians

Generally the City provides NMT infrastructure in the form of pedestrian and cycle paths, pedestrian crossings (signalised and unsignalised) and dropped kerbs. Wherever new roads are constructed or existing roads are upgraded, NMT facilities are included in the upgrade. NMT facility upgrades are also implemented as stand alone projects within the City such as the Salt River NMT route currently being implemented. The Status Quo Report also notes that the ease and convenience with which NMT users can access and use public transport promotes the usage of both modes at the same time. NMT access and its integration with public transport is therefore vital in the promotion of public transport.

With the rollout of the MyCiTi IRT Service, the Department of Transport has insisted on the provision of NMT facilities to support the IRT service. The NMT facilities must be universally accessible. The existing MyCiTi NMT facilities are of a world class standard with NMT routes running the full length of the major bus routes, facilities leading into the stations and all facilities are universally accessible. It is recommended that this standard is implemented with the future rollouts of the MyCiTi service in the VRC.

Through the Bellville CBD a pedestrianised network has been developed in Kruskal, Blanckenberg and Teddington Streets using wide sidewalks and traffic calming measures. In the Parow CBD, a few side streets entering Voortrekker Road have been closed and converted to pedestrianised malls.



Figure 0-21: NMT Bicycle Masterplan

## 7.9 Ports and Hubs

### 7.9.1 National Context

The national context with regards to Ports and Hubs is simplistically shown in the Figure 0-22. The size of the circles represents the current and estimated long term future (2043) number of TEU's per location, and the number the percentage of the national total.

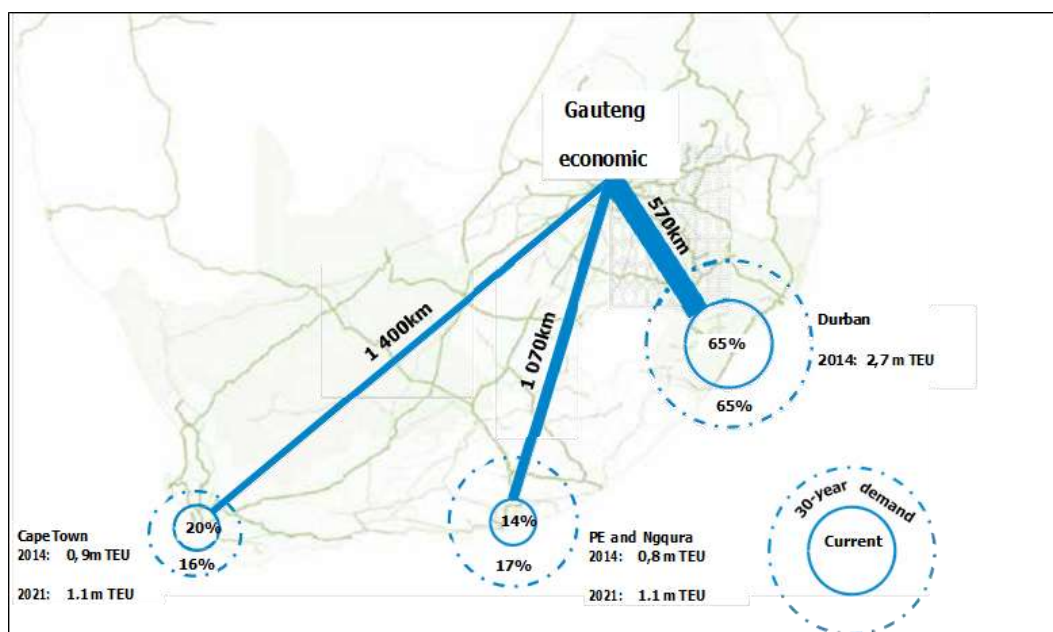


Figure 0-22: Ports and Hubs National Context \*1

The current and estimated freight volumes at the Port of Cape Town, for different commodities, are recorded in the Table 0-10 and Figure 0-23.

Table 0-10: Port of Cape Town estimated freight volumes \*1

Cargo type	2013	2014	2015	2016	2017	2018	2019	2020	2023	2033	2043
<b>Automotive (unit)</b>	1 510	1 382	1 234	1 106	1 049	1 003	878	769	516	195	142
<i>Annual growth</i>		(8,48)%	(10,66)%	(10,42)%	(5,10)%	(4,45)%	(12,44)%	(12,44)%	(12,43)%	(3,16)%	(3,10)%
<b>Break-bulk (t)</b>	368 471	353 001	335 775	318 846	299 366	287 028	281 053	277 669	274 356	221 870	173 625
<i>Annual growth</i>		(4,20)%	(4,88)%	5,04%	(6,11)%	(4,12)%	(2,08)%	(1,20)%	(0,15)%	(3,15)%	(1,91)%
<b>Container (TEU)</b>	853 868	879 331	910 270	943 630	978 341	1 012 151	1 044 238	1 077 404	1 183 777	1 631 082	2 267 375
<i>Annual growth</i>		2,98%	3,52%	3,66%	3,68%	3,46%	3,17%	3,18%	3,19%	3,32%	3,37%
<b>Dry bulk (t)</b>	680 146	687 391	694 074	700 521	709 057	717 491	728 839	742 527	789 893	972 843	1 208 967
<i>Annual growth</i>		1,07%	0,97%	0,93%	1,22%	1,19%	1,58%	1,88%	2,13%	2,08%	2,25%
<b>Liquid bulk (kl)</b>	3 079 119	3 351 872	3 490 071	1 499 903	1 599 684	1 618 155	1 719 208	1 823 152	2 157 387	3 642 989	5 758 021
<i>Annual growth</i>		8,86%	4,12%	-57,02%	6,65%	1,15%	6,24%	6,05%	5,58%	4,81%	4,68%

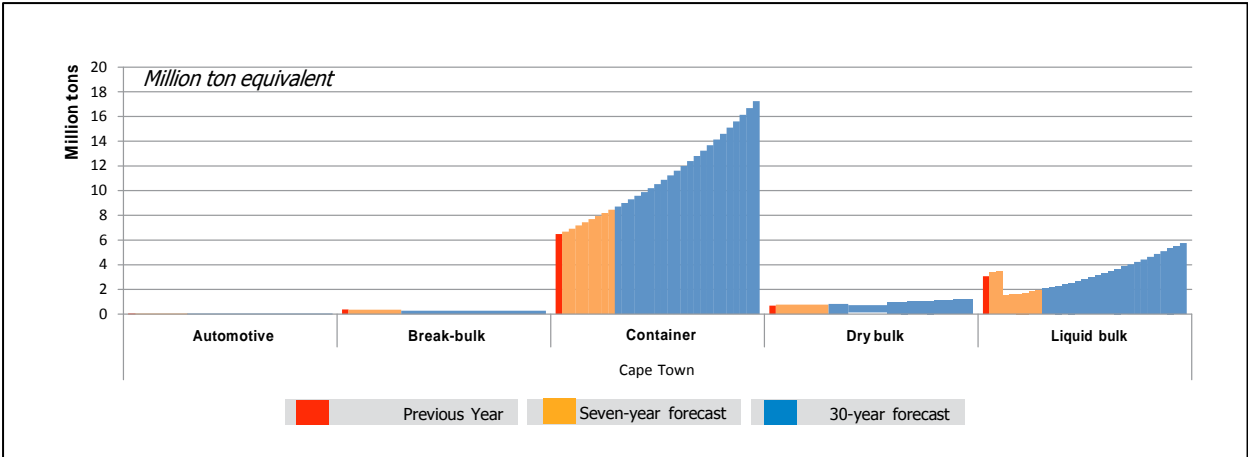
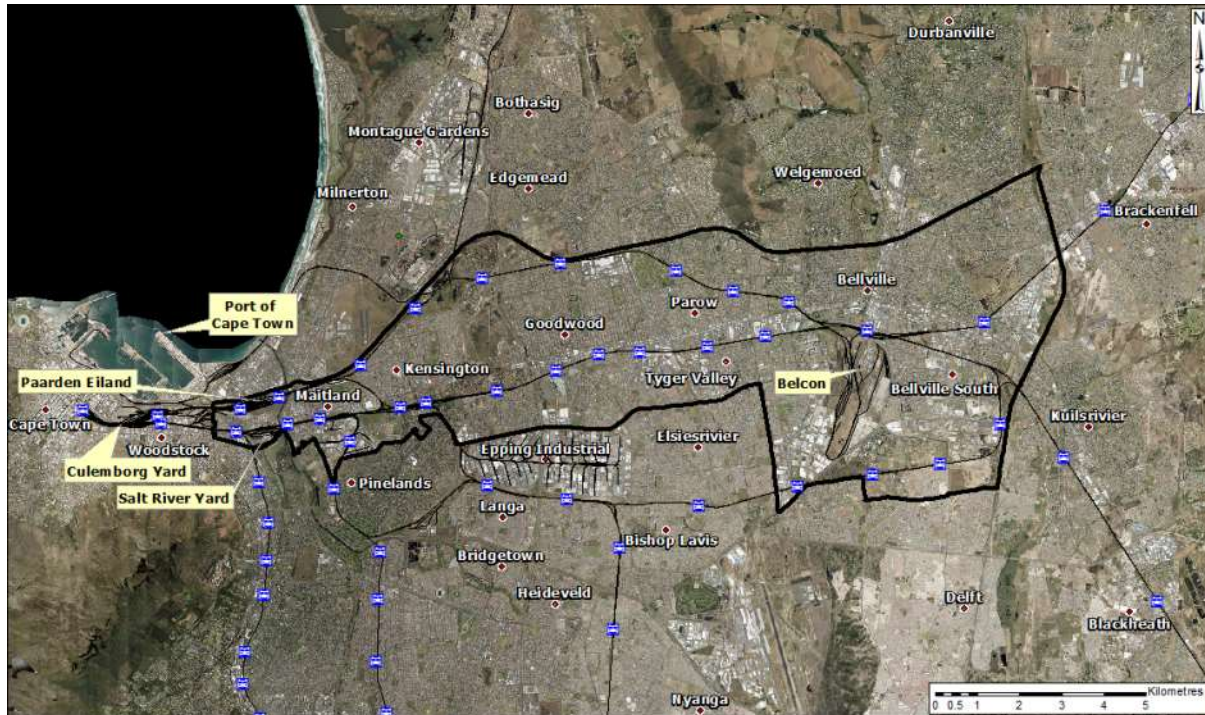


Figure 0-23: Port of Cape Town estimated freight volumes \*1



## 7.9.2 Local Context

The Local Port, Hubs and Rail Yards relevant and located within the VRC are shown in Figure 0-24.



**Figure 0-24: Port, Hubs and Rail Yards – Local Context**

The local Port and Hubs relevant and located within the VRC includes:

- Port of Cape Town
- Belcon

The local Rail Yards relevant and located in the VRC includes:

- Culemborg Yard
- Salt River Yard
- Paarden Eiland

## 7.9.3 Port of Cape Town

The Transnet “Long Term Planning Framework, September 2014” records “The container terminal’s current capacity of 900 000 TEUs is planned to be increased in increments up to a total 1,4 million TEUs by 2019, to meet forecasted demand. By 2026, capacity is to be further increased to 1,9 million TEUs with the seaward expansion project, which will be sufficient until 2037, when a new tranche of capacity will be required.”

A TEU is a Twenty Foot Equivalent Unit container, (6.1m in length, 2.44m wide and 2.59m in height with a volume of 39m<sup>2</sup>). Other standard container sizes include lengths of between 12.2m to 16.2m, with heights varying between 1.3m to 2.9m.

### Current Port Layout

“The port has two basins, the Duncan dock with general cargo berths and liquid bulk dolphin berths, and the Ben Schoeman Basin with container berths. The container berths have recently been deepened to -15,5m Cd and the container handling operation converted from a straddle carrier to a rubber-tyred gantry (rTg) system. Ship repair jetty berths and the

Sturrock dry dock are located on the eastern side of Duncan dock. The Robinson dry dock, synchrolift, tugs and admin craft are located in the V&A Waterfront. Local and foreign fishing vessels are berthed in various locations around the port. Recreational craft are moored in the royal yacht Club Basin. The container terminal takes up the largest area of Cape Town's port capacity followed by the ship repair and break-bulk terminals."



Figure 0-25: Port of Cape Town current layout \*1

### Short-term Port Layout

"The short-term port development includes the development of a Cruise Liner Terminal at E Berth. The handling capacity of the liquid bulk terminal increases by entailing the commissioning of an additional dolphin berth on the eastern mole. The industrial and vacant sites in the Culemborg area will also be incorporated into the port, for the establishment of 160ha of back-of-port commercial logistics operations, increasing the port's total land capacity from 242ha to 402ha."

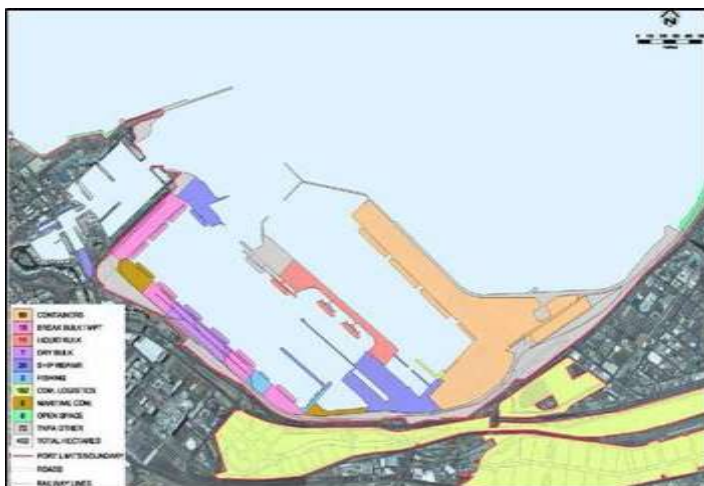


Figure 0-26: Port of Cape Town short term layout \*1

### Medium-term Port Layout

"Medium-term developments include the expansion of the container terminal capacity; entailing seaward reclamation to increase stack capacity and the infilling of the cross berth to create one additional container berth. Also in the medium term, the royal Cape Yacht Club basin will be filled in to make way for the landside expansion of the ship repair precinct, and the liquid bulk terminal will increase with the one additional dolphin berth on the eastern mole. Break-bulk activities decrease in capacity as three existing berths are converted to maritime commercial activities in association with the cruise liner terminal and waterfront facilities."



Figure 0-27: Port of Cape Town medium term layout <sup>1</sup>

### Long-term Potential Port Layout

"The long-term potential plan for the Port of Cape Town shows a new fully developed northern basin, with a new breakwater and potential for additional container and liquid bulk facilities. This conceptually drawn seaward expansion is seen to be the only practical long-term vision for port expansion. If for environmental or other reasons this outer basin development cannot take place, an alternative plan to handle Cape Town's long-term cargo demand may have to be directed through Saldanha Bay, on the assumption that development will be permitted there."



Figure 0-28: Port of Cape Town potential long term layout <sup>1</sup>

### Landside and Waterside Infrastructure Capacity

"Typically of older ports, Cape Town has very limited quayside land relative to its berth capacity, and it has limited opportunities for landward expansion of port limits. Although separated from the port by a transportation corridor, the old railway lands in Culemborg and Salt river have the potential to be incorporated into the port limits, to provide additional extensive back-of-port area. There is currently 242ha of land within the port limits, which will increase to 482ha in the medium term. Currently, 70ha is utilised by container handling operations, 22ha by break-bulk, and 25ha by the ship repair activities. The total waterside capacity is currently 5 132m of berth length (none at >16m Cd), growing to 5 102m in the medium term (none at >16m Cd)."

### Inland Transport Capacity

"The port is connected by rail to the hinterland via the Cape Corridor, and to Saldanha Bay by the West Coast line. Regional road connections from the port include the N1, the N2 and the N7. Road connections are currently congested by CBD and peak hour traffic. An upgraded entrance to the container terminal and the northern side of the port is being provided on Marine Drive, which will allow for better movement of freight onto the N1 and N2 freeways."

Transnet planners apply the adopted strategy that capital planning and implementation work for upgrades will be performed just before the realisation of increased demand. Although conceptual short term planning around the port (inclusive of as understood rail and road upgrades) were performed by Transnet, these are not available in the public domain. It is anticipated that these will be made available by Transnet once the demand proved to become a reality.

Speculation on the impact of increased road freight on the road network as a result of port and container facility expansions is therefore somewhat premature.

### Current work opportunities in Culemborg

Figure 7-30 indicates the determined boundary for the Culemborg Marshalling Yard.



**Figure 0-29: Culemborg Marshalling Yard**

The site was visited on Monday, 22 June 2015 and Tuesday, 23 June 2015. The purpose of the site visits were to determine estimates of the following:

- number of employees
- number of trips (light & heavy vehicles) generated
- road accesses

A total of 11 companies were visited. Figure 7-31 show the location of the companies visited.



**Figure 0-30: Culemborg Marshalling Yard – companies visited**

Table 7-11 records their core business and the number of employees. Table 7-12 provides a summary of the estimated trips that are currently generated within the determined boundary of the marshalling yard.

Table 0-11: Estimated Number of Employees at Culemborg Marshalling Yard

No	Company Name	Core Business	Number of Employees
1	Lift Up Manitou Teleporter	Hire out, repair and selling of teleporters	5
2	Du Plessis Panel Shop	Panelbeaters	5
3	Natcorp	Transport abnormal loads	1
4	ATS	Truck stop, truck repairs, selling tyres	4
5	Simply Africa Trading	Import/export	16
6	Norsag	Make potting soil and art pots	5
7	Star Wheels	Hire of trucks, do deliveries & warehouse	15
8	Nico's Engineering	Ship repairs & fix damaged vessels for I&J	60
9	Mendel Motors	Car repair workshop	8
10	Unknown	Set building for movies	8
11	PRASA	Workshops, stores, train ops, coach maintenance, technical	160
<b>TOTAL NUMBER OF EMPLOYEES:</b>			<b>287</b>

Table 0-12: Estimated Trips Currently Generated (during the peak hour) - Culemborg Marshalling Yard

NO	COMPANY	TYPE	LAND USE	TOTAL EXTENT (m <sup>2</sup> )	TRIP GENERATION RATE			SPLIT		TRIPS		
					Rate	Unit		IN	OUT	IN	OUT	TOTAL
1	Lift Up Manitou Teleporter	Rent, repair and sell teleporters	Industrial (small)	418	0.9	trips per	100 m <sup>2</sup>	70	30	3	1	4
2	Du Plessis Panel Shop	Panel beaters	vehicle service station*	308	2.3 jobs/service bay daily			50	50	1	0	1
3	Natcorp	Transportation of abnormal loads	Industrial (small)	48	0.9	trips per	100 m <sup>2</sup>	70	30	0	0	0
4	ATS	Truck stop, truck repairs (diesel to sell in future)	vehicle service station*	264	2.3 jobs/service bay daily			50	50	1	0	1
5	Simply Africa trading	Import and Export (warehouse)	warehouse	7 480	0.8	trips per	100 m <sup>2</sup>	60	40	36	24	60
6	Norsag	Potting soil and art pots	Industrial (small)	631	0.9	trips per	100 m <sup>2</sup>	70	30	4	2	6
7	Star Wheels	Rent trucks, do deliveries, warehouse	Industrial (medium to large)	11 000	0.6	trips per	100 m <sup>2</sup>	80	20	53	13	66
8	Nico's Engineering	Ship repairs, Fire damaged vessels	Industrial (small)	577	0.9	trips per	100 m <sup>2</sup>	70	30	4	1	5
9	Mendel Motors	Motor repairs	vehicle service station*	1 215	2.3 jobs/service bay daily			50	50	1	0	1
10		Building sets for movies	Industrial (small)	2 123	0.9	trips per	100 m <sup>2</sup>	70	30	13	6	19
11	Prasa	Workshops, stores, train operations, coach maintenance, technical, etc	Industrial (small)	3 117	0.9	trips per	100 m <sup>2</sup>	70	30	20	8	28
<b>TOTAL VEHICLES:</b>										<b>136</b>	<b>55</b>	<b>191</b>

\* Number of service bays estimated

Table 7-13 gives a summary of the heavy vehicles moving in and out of the Culemborg Marshalling Yard. From the table it is clear that the heavy vehicles arrive and depart randomly throughout the day.

Table 0-13: Summary of Heavy Vehicles at Culemborg Marshalling Yard

No	Company Name	Heavy Vehicles/Trucks Information				
		Deliveries	Frequency		Time of Day	Origin/Destination
1	Lift Up Manitou Teleporter	Yes	2	per week	anytime	N2, Philadelphia, Phisantekraal, Grabouw, Johannesburg
2	Du Plessis Panel Shop	No	Not Applicable			
3	Natcorp	Yes	4	per week	anytime	Cape Town Harbour, N1
4	ATS	Yes	6	per day	anytime	Cape Town, Johannesburg
5	Simply Africa Trading	Yes	3	per week	anytime	Cape Town Harbour, Johannesburg
6	Norsag	Yes	1	per year	anytime	Cape Town Harbour
7	Star Wheels	Yes	60	per day	anytime	Durban, Johannesburg, anywhere
8	Nico's Engineering	Yes	2	per week	anytime	Brackenfell, Cape Town Harbour
9	Mendel Motors	Yes	5	per day	anytime	Local
10	Unknown	Unknown				
11	PRASA	Yes	1	per 3 months	8:00 - 12:00	All Over

Figure 7-32 illustrates the existing access points to the Culemborg Marshalling Yard. Access is gained from Christiaan Barnard Street which is located in the Cape Town CBD.



Figure 0-31: Access points to Culemborg Marshalling Yard

#### 7.9.4 Belcon

The objective of Transnet, in collaboration with the CoCT, was to produce a land use plan and development strategy for the Bellville Transnet land holdings. The aim identified was to maximize:

- the rail traffic on TFR infrastructure
- the land side potential for rail/road inter-modal land use
- the freight logistics sector.

The identified short term proposals for the next 5-10 years included amongst others:

- empty container market relocation from the back of port area
- fast moving consumer goods freight logistics centre
- break-bulk consolidation and distribution centre for the domestic market
- reefer market centre with associate food and beverage logistics hub
- cold storage, warehousing and distribution
- light industrial and commercial on street frontage areas



Figure 0-32: Belcon Development Strategy<sup>10</sup>

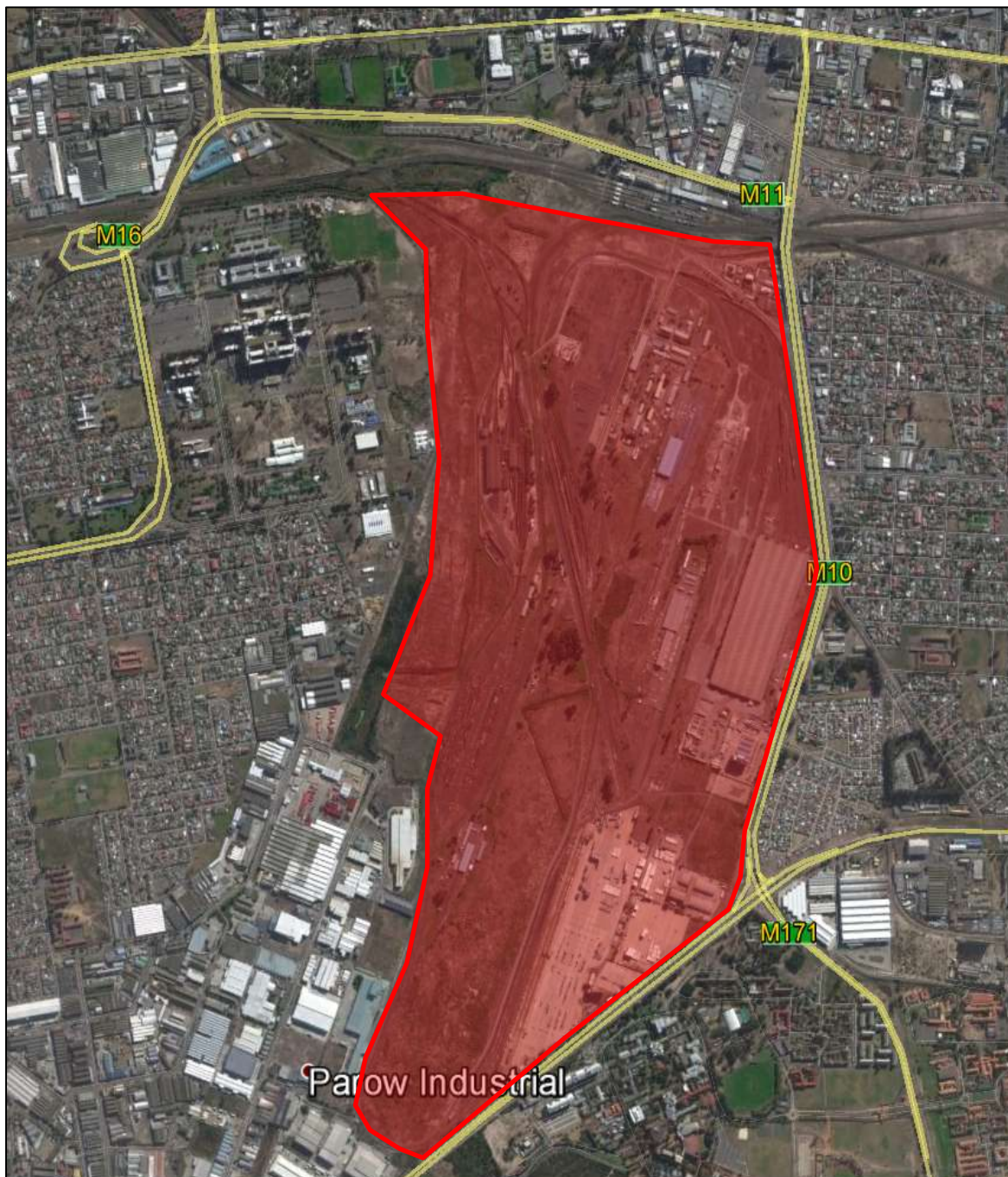
The Transnet Long Term Planning Framework, September 2015, is however silent on the Belcom initiatives, and included detailed future plans around the Port of Cape Town. It was confirmed with Transnet that the Belcon initiatives are currently not prioritised as a result of market demand.

<sup>10</sup> Bellville Land Use and Development Strategy Presentation to the CoCT



## Current work opportunities in Belcon

Figure 7-34 indicates the determined boundary for the Belcon Marshalling Yard.



**Figure 0-33: Belcon Marshalling Yard**

The site was visited on Wednesday, 24 June 2015 and Friday, 26 June 2015. The purpose of the site visits were to determine estimates of the following:

- number of employees
- number of trips (light & heavy vehicles) generated
- road accesses

A total of 21 companies were visited. Figure 7-35 show the location of the companies visited.



Figure 0-34: Belcon Marshalling Yard – companies visited

Table 7-14 records their core business and the number of employees. Table 7-15 provides a summary of the estimated trips that are currently generated within the determined boundary of the marshalling yard.

Table 0-14: Estimated Number of Employees at Belcon Marshalling Yard

No	Company Name	Core Business	Number of Employees
1	Transnet	Telecommunication	47
2	Transnet Freight Rail Clinic	Clinic	6
3	Neotel	Telecommunication	0*
4	Afrisam	Manufacture concrete	15
5	Transnet	Transnet	170
6	Bright Idea Projects 2552	Construct structural steel	55
7	ACA	Construct structural steel	22
8	Hyundai Trade Centre	Storage centre and auctioneers	10
9	Tygerberg Removals	Moving company & warehouse	3
10	New Adventure Steelworks	Steelwork	15
11	B Smart	Spray painters	6
12	Sharon Rose Trading	Making, buying and installing fences	35
13	Pick 'n Pay Clothing	Distribution centre	14
14	Singisi Forest Products	Distribution centre for wood	13
15	City Couriers	Couriers	22
16	Consol Glass	Warehouse	10
17	Indawo	Painting, waterproofing & construction	50
18	Mosh Petroleum	Filling station	15
19	Transnet Park	Transnet	174
20	Bridge Port	Warehouse	11
21	Transnet Cab Belcon	Rail containerisation	65
<b>TOTAL NUMBER OF EMPLOYEES:</b>			<b>758</b>

\* Did not want to disclose information

Table 0-15: Estimated Trips Generated (during peak hour) - Belcon Marshalling Yard

NO	COMPANY	TYPE	LAND USE	TOTAL EXTENT (m <sup>2</sup> )	TRIP GENERATION RATE			SPLIT		TRIPS		
					Rate	Unit		IN	OUT	IN	OUT	TOTAL
1	Transnet	Transnet - Telecommunication	Industrial (small)	1597	0.9	trips per	100 m <sup>2</sup>	70	30	10	4	14
2	TFR Clinic	Transnet Freight Rail Clinic	Medical Offices (suburban)	924	2.5	trips per	employee	55	45	8	7	15
3	Neotel	Telecommunication	Offices	272	2.3 trips per employee*			85	15	0	0	0
4	Afrisam	Concrete manufacturers	Industrial (small)	211	0.9	trips per	100 m <sup>2</sup>	70	30	1	1	2
5	Transnet	Transnet Depot	Industrial (small)	3620	0.9	trips per	100 m <sup>2</sup>	70	30	23	10	33
6	Bright Idea Projects 2552	Constructing structural steel	Industrial (small)	1094	0.9	trips per	100 m <sup>2</sup>	70	30	7	3	10
7	ACA	Constructing structural steel	Industrial (small)	1059	0.9	trips per	100 m <sup>2</sup>	70	30	7	3	10
8	Hyundai	Trade centre and auctioneers	Wholesalers	11521	1.5	trips per	100 m <sup>2</sup>	60	40	104	69	173
9	Tygerberg Removals	Warehouse	Warehousing	2812	0.8	trips per	100 m <sup>2</sup>	60	40	13	9	22
		Repair office	Vehicle service station**	98	2.3 jobs/service bay daily			50	50	0	0	0
10	New Adventure Steelworks	Steelwork	Industrial (small)	2811	0.9	trips per	100 m <sup>2</sup>	70	30	18	7	25
11	B Smart	Spray painting	Industrial (small)	38	0.9	trips per	100 m <sup>2</sup>	70	30	0	0	0
12	Sharon Rose Trading	Making, buying and installing fences	Industrial (small)	266	0.9	trips per	100 m <sup>2</sup>	70	30	1	1	2
13	Pick 'n Pay Clothing	Distributors	Warehousing	8847	0.8	trips per	100 m <sup>2</sup>	60	40	43	28	71
14	Singisi Forest Products	Distribution centre for wood	Warehousing	6711	0.8	trips per	100 m <sup>2</sup>	60	40	32	22	54
15	City Couriers	Courier company	Warehousing	6075	0.8	trips per	100 m <sup>2</sup>	60	40	29	20	49
16	Consol Glass	Warehouse	Warehousing	70114	0.8	trips per	100 m <sup>2</sup>	60	40	337	224	561
17	Indawo	Painting, waterproofing & construction	Industrial (small)	1121	0.9	trips per	100 m <sup>2</sup>	70	30	7	3	10
18	Mosh Petroleum	Filling station	Filling station	203	4% of adjacent traffic**			50	50	0	0	0
19	Transnet Park	Transnet	Industrial (small)	581	0.9	trips per	100 m <sup>2</sup>	70	30	4	1	5
20	Bridge Port (Steinweg)	Warehouse	Warehousing	7755	0.8	trips per	100 m <sup>2</sup>	60	40	37	25	62
21	Transnet Cab Belcon	Transnet	Industrial (small)	654	0.9	trips per	100 m <sup>2</sup>	70	30	4	2	6
<b>TOTAL VEHICLES:</b>									<b>685</b>	<b>439</b>	<b>1124</b>	

\* Company did not want to disclose number of employees

\*\* Number of service bays estimated

\*\* Impossible to determine at this stage - no traffic counts were done

Table 7-16 gives a summary of the heavy vehicles moving in and out of the Belcon Marshalling Yard. From the table it is clear that the heavy vehicles arrive and depart randomly throughout the day.

Table 0-16: Summary of Heavy Vehicles at Belcon Marshalling Yard

No	Company Name	Heavy Vehicles/Trucks Information			
		Deliveries	Frequency	Time of Day	Origin/Destination
1	Transnet	Yes	2 per month	Anytime	Anywhere, Johannesburg
2	Transnet Freight Rail Clinic	No	Not Applicable		
3	Neotel*	No Information Disclosed			
4	Afrisam	Yes	15 per day	Anytime	Bellville, CBD, Western Cape
5	Transnet	Yes	20 per week	Anytime, but not after 17:00	Worcester, Wolseley, etc
6	Bright Idea Projects 2552	Yes	4 per day	9:00 - 12:00 and 12:00 - 17:00	Anywhere, MacSteel, Stellenbosch Arterial, Robert Sobukwe
7	ACA	Yes	2 per day	9:00 - 12:00 and 12:00 - 17:00	Anywhere, MacSteel, Stellenbosch Arterial, Robert Sobukwe
8	Hyundai Trade Centre	Yes	40 per month	Anytime	Durban mostly
9	Tygerberg Removals	Yes	6 per day	Fetching from warehouse up to 17:00; trucks up to 22:00	Worcester, Langebaan, Local
10	New Adventure Steelworks	Yes	2 per day	Anytime	Anywhere, Locally
11	B Smart	Yes	3 per week	Mostly in Afternoon, but Before 17:00	Atlantis, locally
12	Sharon Rose Trading	Yes	unsure	Anytime	Locally
13	Pick 'n Pay Clothing	Yes	10 per day	7:30 - 17:00	Durban, Local
14	Singisi Forest Products	Yes	15 per week	Anytime	Umtata, Local
15	City Couriers	Yes	3 per day	Anytime	Johannesburg, Durban, Harrismith, Local
16	Consol Glass	Yes	20 per day	Anytime (day and night)	Factory in Sax Circle Industrial area
17	Indawo	Yes	undisclosed	Anytime	Locally
18	Mosh Petroleum	Yes	500 per day	Anytime	Anywhere
19	Transnet Park	No	Not Applicable		
20	Bridge Port (Steinweg)	Yes	5 per day	Anytime (mostly 8:00 - 12:00)	Mostly Cape Town Harbour
21	Transnet Cab Belcon	Yes	500 per week	Anytime	Local, Western Cape, Grabouw, Ceres, Ashton, Montagu

\* Did not want to disclose information

Figure 7-36 illustrates the existing access points to the Belcon Marshalling Yard. Access is gained from Robert Sobukwe Road in the Bellville Area

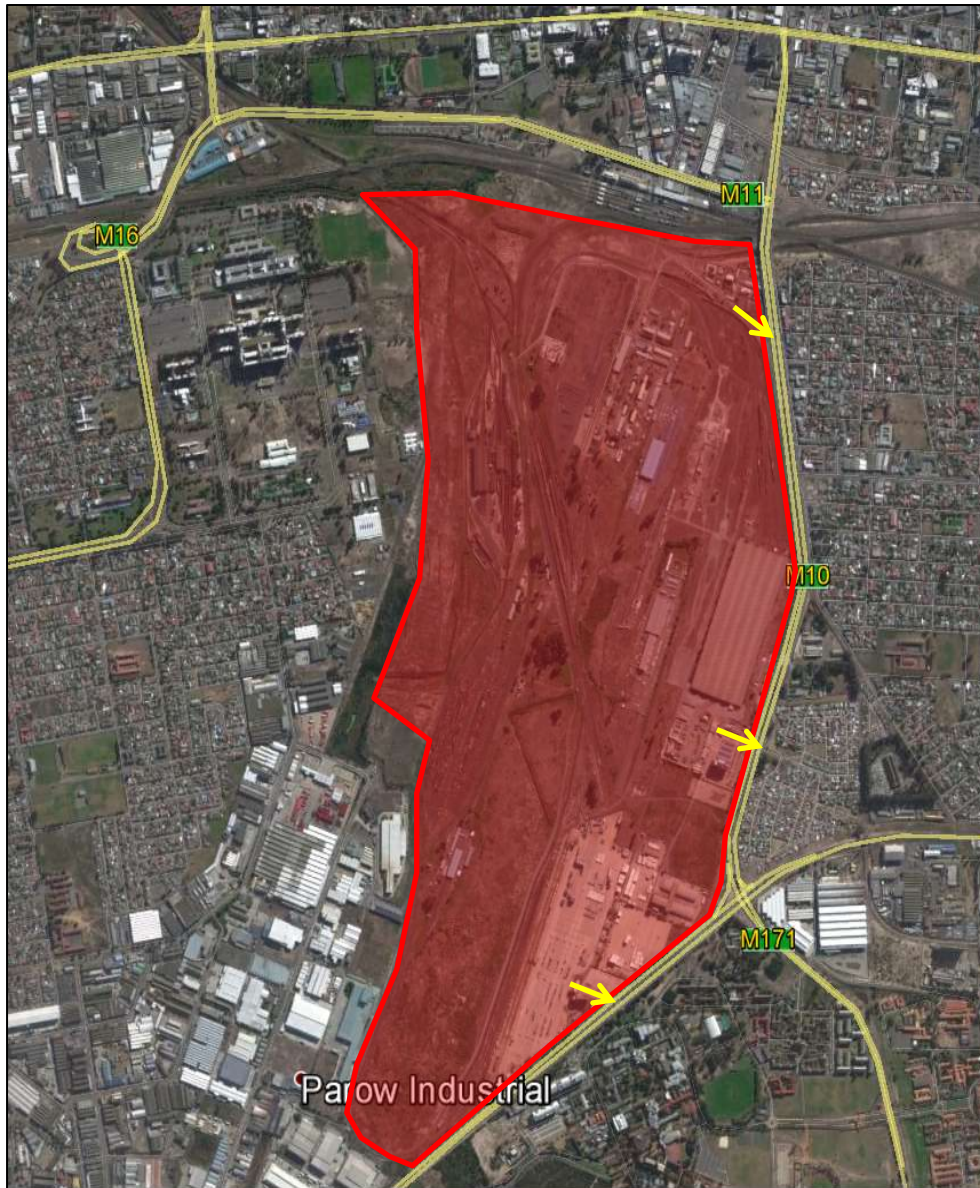


Figure 0-35: Access/Exit points to Belcon Marshalling Yard

## 7.9.5 Salt River

### Salt River Train Depot Modernization

PRASA is in the process of evaluating tender proposals for the construction of a fully functional modern maintenance depot that will be able to support and service the new metro train sets by the time the first new train sets are delivered in 2016, as well as the existing metro train sets, up until 2034.



Figure 0-36: Salt River Train Depot Modernization <sup>\*3</sup>



Figure 0-37: Salt River Train Depot Modernization – Artist Impression <sup>\*3</sup>

\*3 PRASA, Metrorail Western Cape, Modernisation Program, Stakeholder Engagement, March 2015 Presentation

## 7.10 Freight Rail

### 7.10.1 National Context

Rail freight transport is most cost effective over longer distances and bulk volumes, as shown in Figure 0-38. This Figure shows the 2009 surface freight tonnage versus distance. It also puts the rail freight market into perspective as not to play a significant role for localized freight transport within the VRC, as opposed to the significance of rail freight on a district and national wide scale. The more significant Port of Cape Town – Gauteng rail corridor has therefore reference.

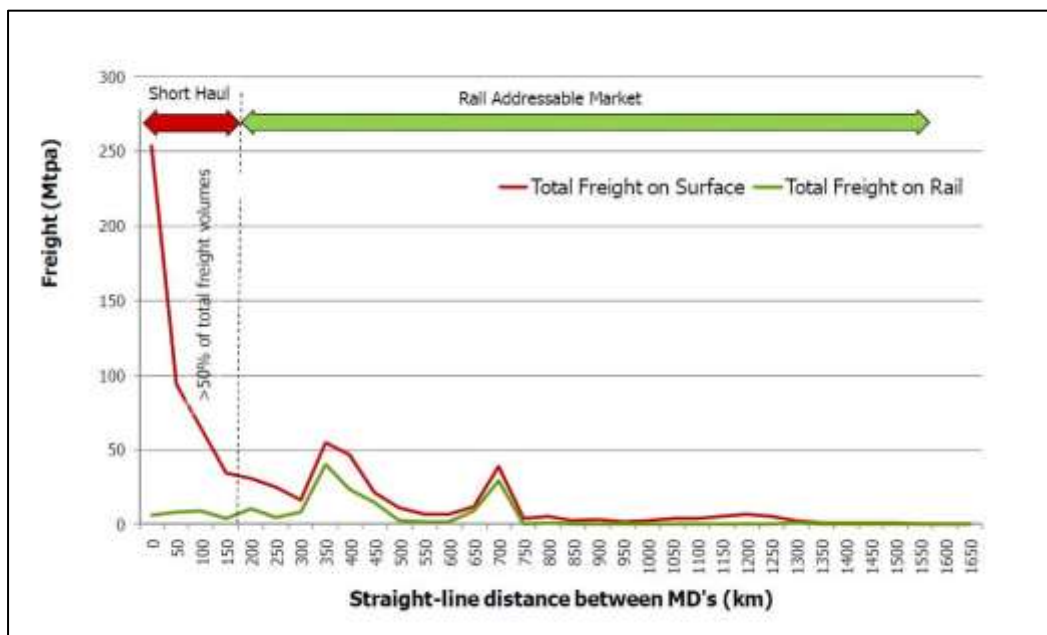


Figure 0-38: Rail Freight Perspective <sup>\*4</sup>

\*4 Transnet National Infrastructure Plan, July 2009



The District and National role of freight rail is shown in the Figure 0-39 and Figure 0-40, being Main Lines and Branch Lines.



Figure 0-39: District and National role of rail freight – Main Lines \*4



Figure 0-40: District and National role of rail freight – Branch Lines \*4

### 7.10.2 Local Context

The local context of rail lines within the VRC is shown in Figure 0-38.

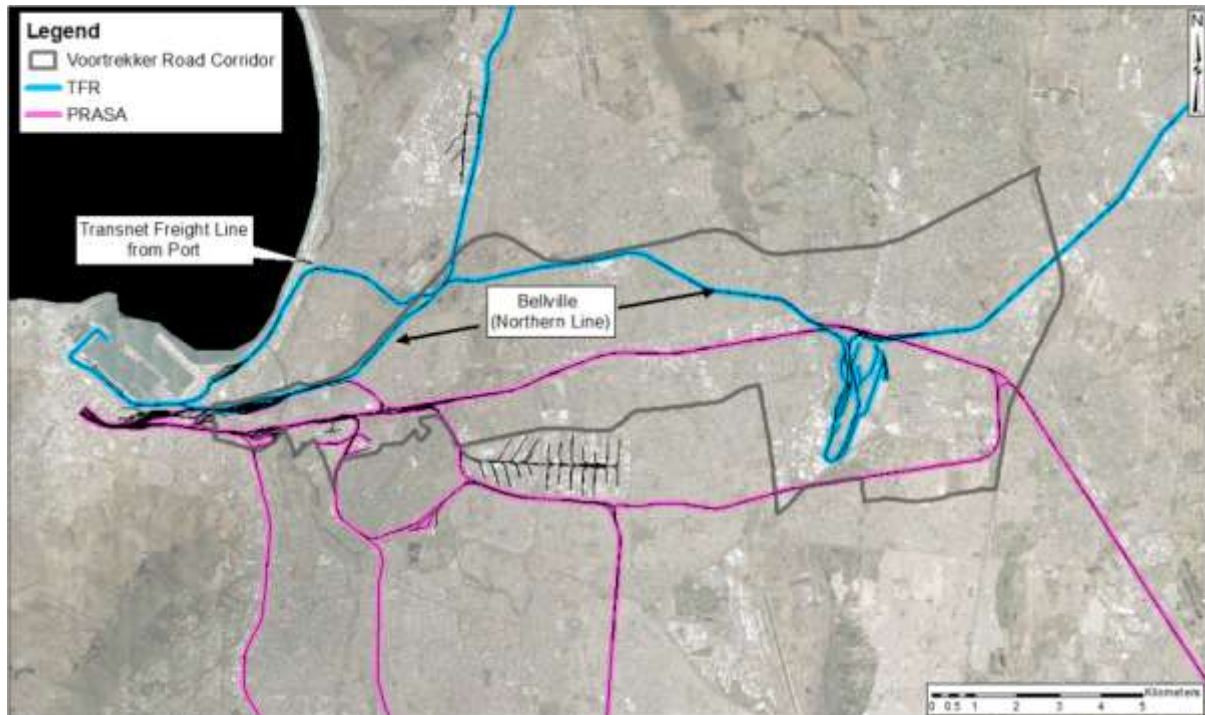


Figure 0-41: Rail local context

It is clear from Figure 0-41 that the rail infrastructure on the Bellville (Northern Line) belongs to Transnet, with Metrorail providing commuter rail services on these lines. A separate Transnet freight rail line from the Port of Cape Town, and linking into the Bellville (Northern Line) between Century City and Akasia Park Stations, is however not shared with Metrorail.

### 7.10.3 Port - Rail Corridor, Cape Town - De Aar

The Cape Town to de Aar is a general freight and long distance passenger single railway line, which connects Gauteng to the Western Cape. This section is electrified to 3kv DC from Cape Town to Beaufort West and 25kv AC from Beaufort West to de Aar, carrying axle tonnages of up to 20t/axle. A Centralized Train Control (CTC) system is used. The alignment of the Cape Town to De Aar rail line is shown in Figure 0-42.

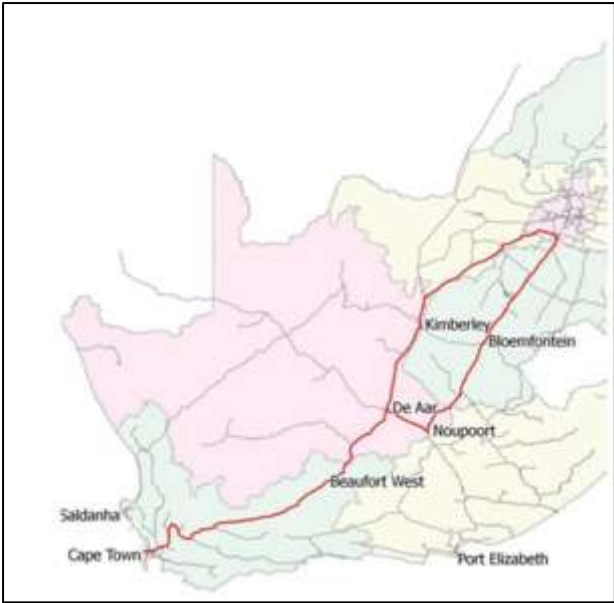


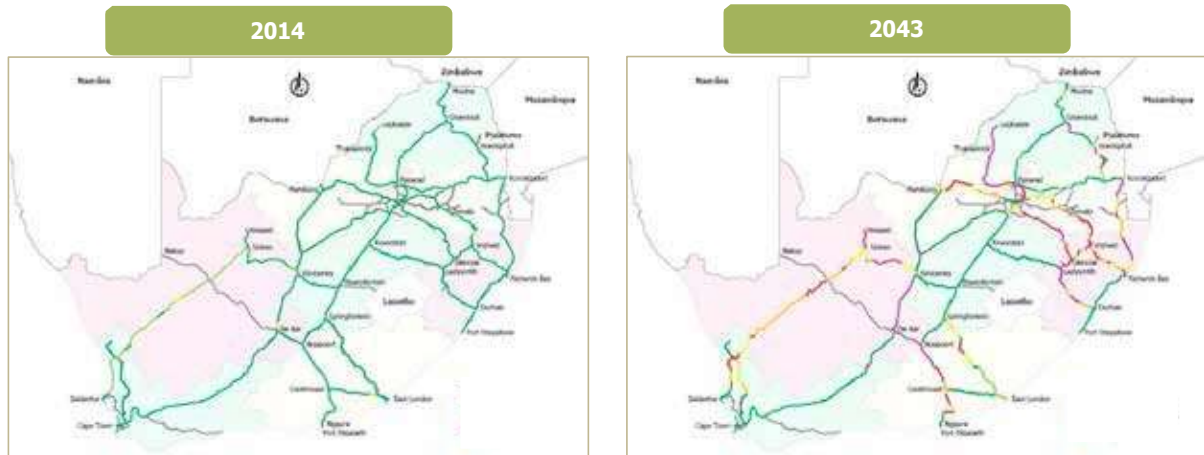
Figure 0-42: Cape Town to De Aar Rail Alignment <sup>\*1</sup>

The capacity of the Cape Town to De Aar, and onwards to Houtheuvel, is shown in Figure 0-43, inclusive of commodities being transported by rail.



Figure 0-43: Rail Capacity – Cape Town De Aar Section <sup>\*1</sup>

It can be concluded from Figure 0-43 that the rail capacity would be sufficient for the existing and envisage future freight haulage on the Bellville (Northern Line). This is based on the avialble train slots for the haulage of freight. A more familiar method of showing capacity on a alignment map is repeated for reasons of clarity in Figure 0-44.



**Figure 0-44: Transnet Freight Rail – Rail Capacity Map**

## 7.11 Freight by Road

Readily available traffic counting data in the VRC was sourced and analysed as to determine:

1. The locations where heavy vehicle traffic is more pronounced (% and total amount of heavy vehicle (truck) traffic)
2. Whether or not heavy vehicle peak period restrictions would have a beneficial effect on traffic condition (theoretical calculation of volume/capacity ratios with and without truck traffic)
3. Whether or not current data could be used as to determine the origins and destinations of truck traffic
4. The location of traffic congestion bottleneck areas caused by truck traffic

The traffic counting data of the Comprehensive Traffic Observation (CTO) stations of the South African Road Agency (SANRAL) and the Western Cape Provincial Government (WCPG) relevant to the VRC were sourced. The CTO locations is shown in Figure 0-45, together with CoCT traffic counts at signalised intersections along Voortrekker Road.

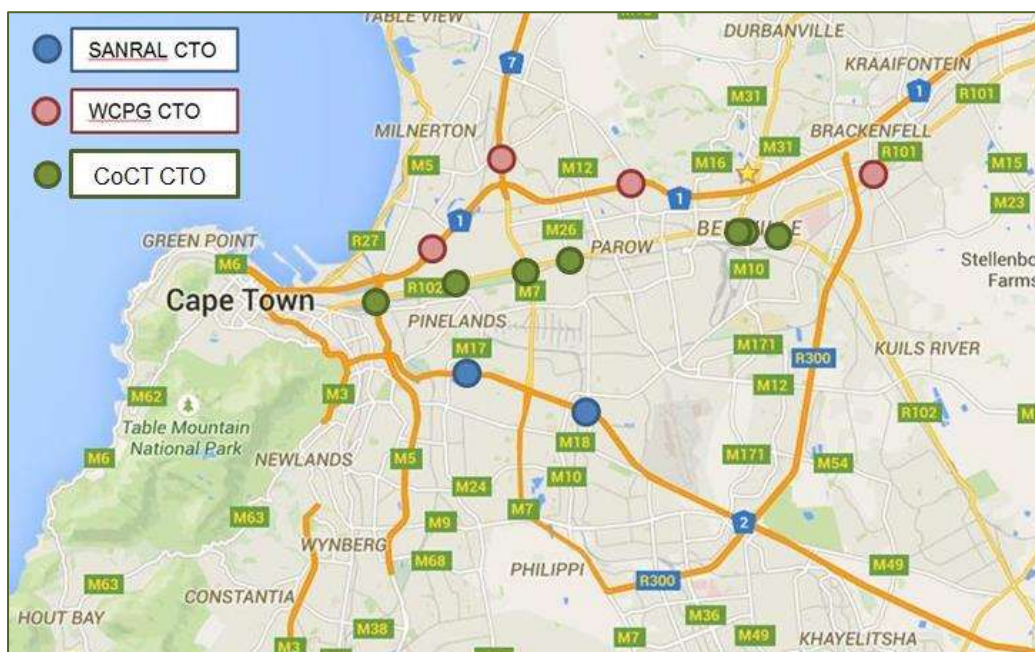


Figure 0-45: Comprehensive Traffic Observation (CTO) locations

A typical example of the result obtained from the WCPG is shown in Figure 0-46. The results include amongst others:

- 24 hour counts, inclusive of light and heavy vehicles
- Percentage heavy vehicles
- Build-up of heavy vehicles with the associated mid-day peak



Location	N2
From	Plattekloof
To	
Peak Hour East (vehs/hr)	5 635
Number of Lanes	3
Average Truck Percentage	5.4%
Average Speed	120
Approximate Capacity (vehs/lane/hr)	1 900
Ratio Truck to equivalent vehicle (assumed)	1.5
Peak Hour East (vehs/lane/hr)	1 878
Number of Trucks in Peak hour (No)	101
Number of equivalent truck vehicles (No)	151
Peak Hour Equivalent vehicles (vehs/lane/hr)	1 929
Volume/Capacity Ratio	1.0
Volume/Capacity Ratio excluding trucks	0.9

Figure 0-46: WCPG Traffic counts on the N1, Plattekloof, Wednesday 2014 04 01

Figure 0-46 also records a calculated volume/capacity ratio with and without heavy vehicles, where heavy vehicles were assumed to be equivalent to 1.5 light vehicles.

The indicative theoretical road capacity used is recorded in Table 0-17.

Table 0-17: Indicative theoretical road capacities

Road Type	Area Type	Free Flow Speed (km/h)	Estimated Capacity (vphpl)
Freeway	urban/cbd	120	1900
Dual carriageway K-route type road	rural	100	1240
	suburban	75	1010
	urban/cbd	65	880
Signalised intersection	through/lane		450
	left turn/lane		450
	left turn slip/lane		1000
	right turn phased/lane		200

The volume/capacity ratios of the different CTO counting stations, with and without heavy vehicles, are shown in Table 0-18.

Table 0-18: Volume/Capacity ratios with and without trucks – N1 and N2

Location	N2	N2	N1	N7	N1	R101
From	Raapenberg Road	Modderdam Road	Koeberg Road	N1		Okavango
To	Jan Smuts Drive	Airport	Sable Road	North of Intersection	Plattekloof	Van Riebeeck
Peak Hour East (vehs/hr)	6 231	4 350	6 915	4 033	5 635	683
Number of Lanes	3	4	3	3	3	2
Average Truck Percentage	4.3%	6.7%	4.9%	10.0%	5.4%	4.9%
Average Speed	85	90.8	120	120	120	60
Approximate Capacity (vehs/lane/hr)	1 346	1 438	1 900	1 900	1 900	812
Ratio Truck to equivalent vehicle (assumed)	1.5	1.5	1.5	1.5	1.5	1.5
Peak Hour East (vehs/lane/hr)	2 077	1 088	2 305	1 344	1 878	342
Number of Trucks in Peak hour (No)	89	73	113	135	101	17
Number of equivalent truck vehicles (No)	134	109	169	202	151	25
Peak Hour Equivalent vehicles (vehs/lane/hr)	2 122	1 124	2 361	1 412	1 929	350
Volume/Capacity Ratio	1.6	0.8	1.2	0.7	1.0	0.4
Volume/Capacity Ratio excluding trucks	1.4	0.7	1.1	0.6	0.9	0.4
						Intersection control
						Signalised - 450/lane
						0.8
						0.8

The percentage trucks as counted by the CoCT along Voortrekker Road (R102) are recorded in Table 0-19.

**Table 0-19: CoCT COT along Voortrekker Road (R102)**

Location along Voortrekker Road (R102)	% Truck average in peak hours (am and pm)
Koeberg	5%
Vanguard Road/Jakes Gerwel Drive (M7)	4%
16th Avenue	3%
Durban Road	3%
Robert Sobukwe	2%
Bill Bezuidenhout	1%
Vasco	1%

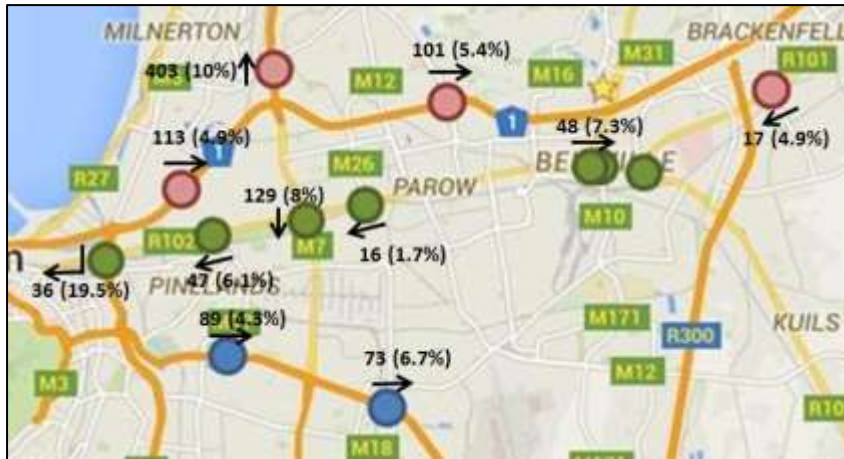
The volume/capacity ratios of two of the busier CoCT intersection counting stations, with and without heavy vehicles, are shown in Table 0-20.

**Table 0-20: Volume/Capacity ratios with and without trucks – R102/M7 Intersections**

Location	Voortrekker (R102) Jakes Gerwel Drive (M7)				Voortrekker (R102) Jakes Gerwel Drive (M7)			
	Intersection AM peak hour				Intersection PM peak hour			
From	North Appr	East Appr	South appr	West appr	North Appr	East Appr	South appr	West appr
Ratio Truck to equivalent vehicle (assumed)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Through All	1 424	936	1 410	391	1 632	524	2 065	595
Through Trucks	76	16	95	0	129	15	105	8
Through Lanes	1.5	2	3	2.5	1.5	2	3	2.5
Through Capacity (Vehs/lane/hr)	450	450	450	450	450	450	450	450
% Trucks	5%	2%	7%	0%	8%	3%	5%	1%
Volume/Capacity Ratio	2.2	1.0	1.1	0.3	2.5	0.6	1.6	0.5
Volume/Capacity Ratio excluding trucks	2.0	1.0	1.0	0.3	2.2	0.6	1.5	0.5
Left All	6	427	935	174	54	570	263	484
Left Trucks	0	7	15	7	3	11	28	7
Left Lanes	1	1	1	1.5	1	1	1	1.5
Left Capacity (Vehs/lane/hr)	450	1 000	1 000	450	450	1 000	1 000	450
% Trucks	0%	2%	2%	4%	6%	2%	11%	1%
Volume/Capacity Ratio	0.0	0.4	0.9	0.3	0.1	0.6	0.3	0.7
Volume/Capacity Ratio excluding trucks	0.0	0.4	0.9	0.2	0.1	0.6	0.2	0.7
Right All	686	41	340	302	219	110	517	355
Right Trucks	17	2	8	19	18	6	4	15
Right Lanes	1.5	1	2	2	1.5	1	2	2
Right Capacity (Vehs/lane/hr)	200	200	200	200	200	200	200	200
% Trucks	2%	5%	2%	6%	8%	5%	1%	4%
Volume/Capacity Ratio	2.3	0.2	0.9	0.8	0.8	0.6	1.3	0.9
Volume/Capacity Ratio excluding trucks	2.2	0.2	0.8	0.7	0.7	0.5	1.3	0.9
% Trucks Total	4%	2%	4%	3%	8%	3%	5%	2%
% Trucks Total	4%							

### 7.11.1 The locations where heavy vehicle traffic is more pronounced (total number of truck traffic and percentage)

The peak hour, heavy vehicle, typical maximum flows (and the percentage of total traffic) is shown in Figure 0-47.



**Figure 0-47: Heavy Vehicles typical flows**

(Notes: maximum peak hour flows: - am or pm, - specific direction or turning movement)

In perspective therefore it can be concluded that:

- The highest number of heavy vehicles are encountered on the M7, north of the VRC, in comparison with other high level roads in and around the VRC
- A high number of heavy vehicles are encountered on the N1 and the N2
- A lower number of heavy vehicles are encountered along Voortrekker Road

### 7.11.2 Whether or not heavy vehicle peak period restrictions would have a beneficial effect on traffic condition

A volume over capacity ratio of 0.8 and higher indicates theoretically a congested condition. The volume over capacity ratios with and without the heavy vehicles (trucks) in the am and pm peak hours, indicates that the restriction of heavy vehicle movements in the peak periods would most likely not have a significant influence on congestion in general, for the VRC.

### 7.11.3 Whether or not current data could be used as to determine the origins and destinations of truck traffic

Origin and destination data are not readily available for analysis in the VRC, and traffic counts and other methods should be employed in future, if so required, to get an understanding of freight origins and destinations in the VRC.

### 7.11.4 The location of traffic congestion bottleneck areas caused by truck traffic

It is the opinion that light vehicles traffic are the significant contributor to congestion.

Traffic data with regards to the entry and exit of heavy vehicles to and from the Port of Cape Town, from the surrounding road network and freeway system, where not readily available. Traffic counts and sourcing of relevant information and the analysis thereof could become important in the short term, as to enable the necessary response and support of the developments around the Port of Cape Town and specifically to accommodate the expected growth in containerised traffic.



## 8. Services Infrastructure Analysis

This study aims to provide an overview of the following services infrastructure:

- Stormwater management
- Water
- Waste Water / Sewage
- Electricity
- Solid Waste management
- Communications infrastructure (e.g. broadband)

The overview of each services sector is based on the following assessments:

- Identification of existing reticulation network and bulk supply / treatment capacity to identify areas of risk as well as areas of opportunity / with spare capacity. The purpose of this assessment is to determine the current engineering constraints to the desired high intensity mixed use development envisaged within the VRC. Shortfall areas as well as areas with the spare capacity to accommodate additional development are to be identified.
- Identification of planned future network / bulk services upgrades (and the phasing thereof), and indication how these initiatives would increase capacity / unlock opportunities to accommodate additional development within the VRC.
- Assessment of how the current / budgeted and planned initiatives identified may impact on current services demand, and identify any potential risks / risk areas. The aim of this assessment is to determine the impact of the upgrades to be implemented to establish the residual risk to services capacity post-implementation.

It should be noted that the assessment of residual risks within the VRC is based on the current infrastructure demand. Therefore, a review of infrastructure risks would be required once a projected land use intensification scenario is applied to the corridor in order for future bulk services planning for envisaged development to be carried out with sufficient lead times.

The services infrastructure overview will be concluded with:

- a brief summary of the most important services infrastructure informants affecting development within the corridor;
- A summary table of infrastructure informants by sector;
- A composite map of the residual infrastructure risk areas within the corridor and interpretation of future infrastructure requirements; and
- A table of capital infrastructure projects within the VRC over the next 3-year budget period (2014-2017), which will feed into section 1.4.1.2: Current, Budgeted and Planned Initiatives;

## 8.1 Stormwater

### 8.1.1 Stormwater risk areas

The following trends with regards to stormwater services can be observed within the VRC area (refer to Figure 49):

- The stormwater system can be categorised into the bulk/major and minor system. The major drainage system serves primarily as a conveyor for the stormwater from the minor system (which serves as the collector).
- Generally, bulk stormwater infrastructure was designed to manage up to the 1 in 10 year storm, whereas the minor stormwater infrastructure capacity varies to accommodate the 1 in 5 year storm, (and in some areas, although uncommon, up to the 1 in 10 year storm).
- Available information (including information provided by the recently completed Salt River High Level Master Planning Study) , indicates that all stormwater pipes crossing Voortrekker Rd, appear to exceed 600 mm diameter, but some of these pipes have capacity problems. Similarly the dimensions of culverts at some crossings appear to have a capacity that is undersized (even for the 10 year storm). Two such challenges are the culvert crossings East of Bill Bezuidenhout and in the vicinity of Durban Road (both due to the Steenbras bulk main water line).

For storm events greater than a 10 year return periods, vast stretches of the bulk stormwater system in the vicinity of the Voortrekker Road needs to be upgraded, which will require significant capital funding.

- The Elsiekraal River system forms part of the Salt River Catchments Flood Hazard Zones. The results of the modelling of the flood hazard zones indicate that areas abutting the Elsiekraal River are prone to substantial inundation during 100 year flood storms. The implications of the Elsiekraal River hazard zone on new developments along the Bellville Railway line in the areas of Thornton/Wingfield, Goodwood, Elsiekrivier and Parow are particularly significant, as can be seen in figure xxx below). The falls within the Salt River High Hazard
- The western portions of Thornton and Maitland, as well as the portion of the Culemborg Grounds that fall within the VRC study area, are also affected by the Salt River Flood High Hazard Zone.
- In the eastern bounds of the corridor, the Kuils River floodplain constrains development of several vacant industrial properties or portions thereof in Stikland Industrial Area.

The permissible extent and nature of land use, development or activities would be subject to very stringent evaluation and control in the interest of public safety. To this end, the Implications of flood hazard zones on the receiving environment where

development has already taken place are particularly severe. No new or additional development rights or exercising of existing development rights outside of current developed footprints would be considered within the high hazard zone areas.

However, some development/activities would be permitted between the 50 and 100 year floodlines subject to the City of Cape Town: Floodplain and River Corridor Management Policy (May, 2009) and would need to be compliant with the framework for assessment of development proposals

This policy has been promulgated to ensure that developments are undertaken in accordance with best management practices so as to protect the stormwater system against increased runoff peaks as a result of hardened surfaces from new developments and improve stormwater quality.

Section 10.3 of the policy holds particular reference to areas affected by either the high hazard zone or the 50/100 year flood line (please refer Table 21).

**Table 21: Application of section 10.3 of the Floodplain and River Corridor Management Policy in terms of taking up of existing development rights**

<b>EXISTING DEVELOPMENT RIGHTS<sup>1</sup></b>						
<b>ANTICIPATED FLOOD HAZARD</b>	<b>NATURE OF PROPOSED DEVELOPMENT</b>	<b>FLOOR LEVELS</b>	<b>PARKING</b>	<b>FLOOD PLAIN STORAGE REQUIREMENTS</b>	<b>EVACUATION REQUIREMENTS</b>	<b>FLOOD PROOFING</b>
<b>Within HHZ of flood plain</b>	Redevelopment within existing Building footprint	Above 100 year flood level (outside HHZ)	Above 100 year flood level (outside HHZ)	N/A (within exist footprint)	Special infrastructure to area outside HHZ, adjacent to public right of way (within Dev. precinct).	Flood proofing required
	Additions to existing structures			Founded on columns with clear space beneath.		
	New structures					
<b>Outside HHZ but within 50/100 year flood plain</b>	Redevelopment within existing Building footprint	Above 100 year flood level	Above 20 year flood level	N/A	Flood evacuation plans where appropriate	Flood proofing required
	Additions to existing structures.	Above 100 year flood level where practically possible (including garage).	Parking at any level for single residential and above 20 year flood level for all other Dev	Infill only permitted in instances where additions/parking cannot be located naturally above 100/20 (whichever is applicable) flood level.		

	New structures (to be located on higher lying portion of property).	Above 100 year flood level.	types.			
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<sup>11</sup>In terms of the abovementioned policy, proposed developments within the 100-year flood line need to:

- a) Be supported by a professional engineering report to ensure that any new or existing structure can withstand the forces and effects of floodwaters; and
- b) Ensure that floors are above the 1:100 year flood level, and that basements for non-habitable purposes are flood-proofed to 1:50 year flood level.

### 8.1.2 Current and planned NETWORK/BULK STORMWATER UPGRADES

The CSR branch is currently prioritising areas in the larger Salt River catchment where bulk stormwater infrastructure needs to be upgraded. The indication from high level stormwater master planning for the Salt River Catchment indicates that an upgrade of the Salt River Canal to the value of R450m is required to mitigate against the effects of the stormwater high hazard zone in the areas of Culemborg/Maitland and Thornton, without which new development in these areas would be severely constrained.

However, there is no indication that this upgrade will mitigate against the effects of stormwater flood hazard zones further upstream along the Elsiekraal River Corridor. This would require more detailed area-based master planning to the value of approx. R10m to determine the necessary stormwater infrastructure interventions and space requirements in the VRC.

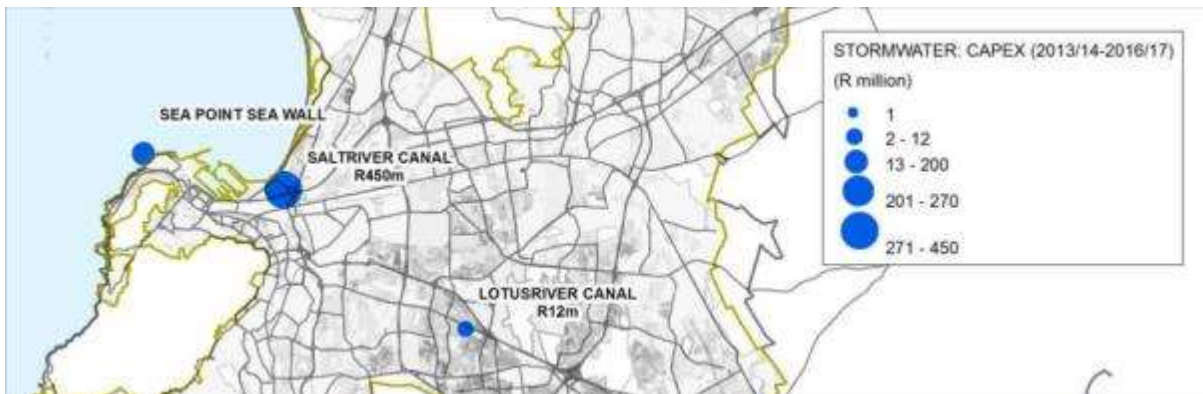


Figure 112: Snapshot of Stormwater CAPEX requirements in and around the corridor

<sup>11</sup> Guidelines for application of Section 10.3 in accordance with the principles of the Policy as clarified in the Report to the Transport, Roads and Stormwater and Major Projects Portfolio Committee dated 2010-11-04, Item Number 09/11/10

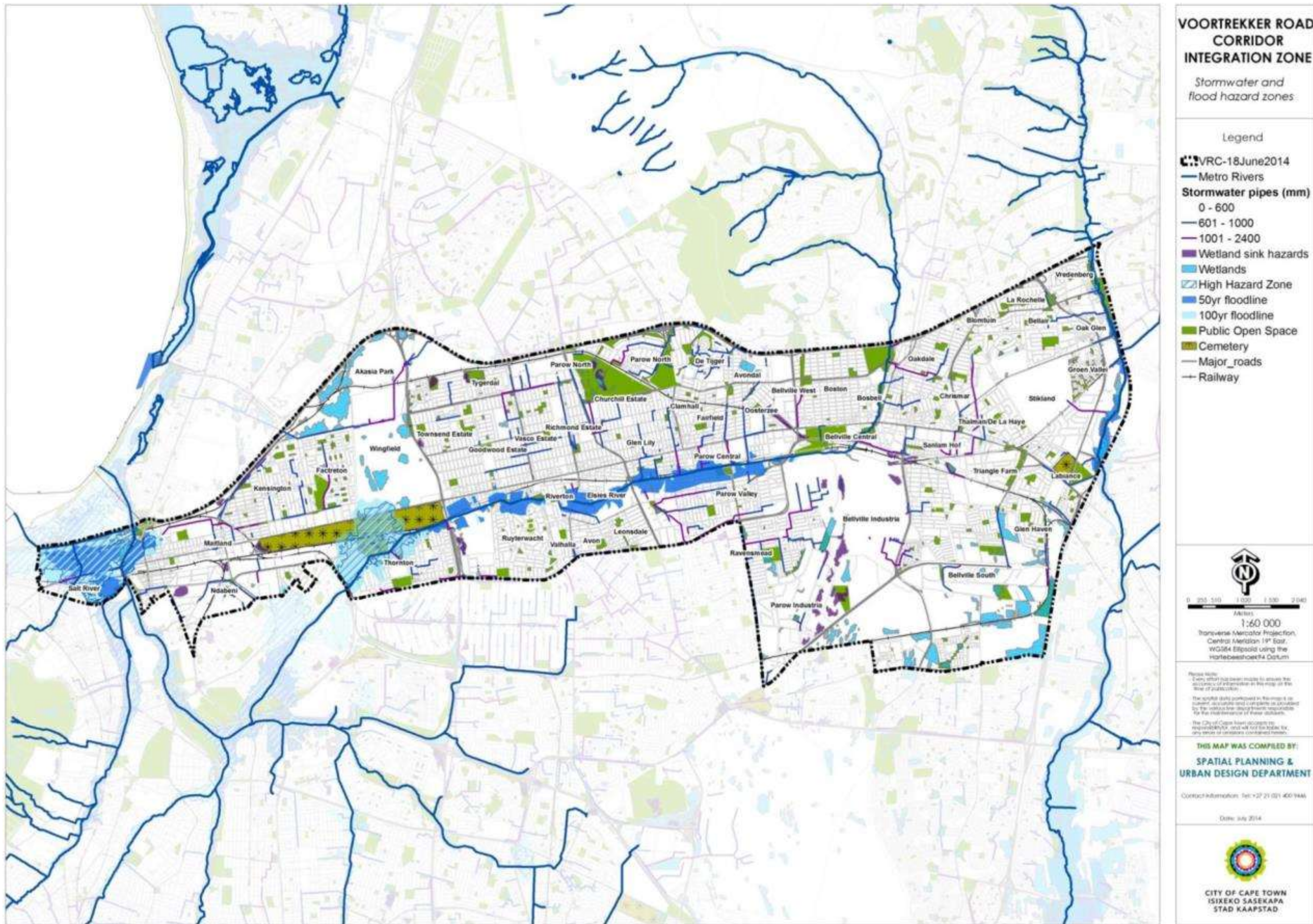


Figure 49: Stormwater and flood hazard zones

## 8.2 Water

### 8.2.1 Water risk areas

In general there appears to be sufficient water supply infrastructure for current land use. This information is based on IMQS data (software used to query the City's water and sewer network data) and communication with a range of officials in the Water and Sanitation Department.

Generally speaking the water network pipe diameter and peak pressure varies along the length of Voortrekker Road. There is a 750 mm diameter water main running the full length of Voortrekker Road with a number of different size mains running parallel in different sections of the road. There is a wide range of network peak pressures over the length of the 750 mm line.

The condition of the water infrastructure along Voortrekker Road is fair from the Salt River on the western end to the eastern end and in places there are up to three water mains as between the Black River and Second Avenue which consists 2 x 150 mm and a 750 mm diameter main.

At the start of Wingfield to Vanguard Drive intersection there are two large mains 750 and 685 mm diameter. At the intersection there are connections to bulk mains with the 750 mm diameter line becoming a bulk main (individual connections to these lines are discouraged) for the remainder of Voortrekker Rd towards the East. Water and Sanitation Department discourages random connections to bulk mains.

#### **Water network failure risks:**

- The expected useful life (EUL) for water network assets is approximately 65 years<sup>12</sup>. As the vast majority of the area is still serviced by the original installed infrastructure, the failure rate of this infrastructure is increasing.
- Currently, a substantial proportion of the water network infrastructure in the VRC corridor, predominantly those suburbs that were established before the 1950's, is beyond useful life (considering that the original installed infrastructure remains in operation) and is at high risk of failure (see figure xxx). This is particularly prevalent in the historic segments of traditionally suburban areas of Maitland, Kensington, Goodwood, Ruyterwacht, Upper Elsie's River, Parow and Bellville, where pressure management mechanisms have been put in place to minimize occurrences of burst water mains.
- Accordingly, it can be safely deduced that the majority of the infrastructure within the VRC could reach the end of its expected useful life within the next 20 to 30 years.

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<sup>12</sup> An expected Useful life (EUL) of water and sewer network assets is derived from the International Infrastructure Management Manual (IIMM).

- These network failure risk areas span virtually the entire length of Voortrekker Road from Salt River to Oakdale in Bellville, and also happen to be the areas where intensification is strongly encouraged. The implications of further densification of areas abutting Voortrekker Road on the receiving water network need to be rigorously interrogated.

**Water pressure risks:**

Failure risks in the corridor are currently being addressed by pressure reduction schemes to extend the infrastructure life and minor pipe relays for the water network as and where required. The pressure in the water supply drops towards the east end of the Voortrekker Road. This is due, in part, to aging water reticulation infrastructure, which is more prone to high pressure pipe bursts.

Table 22 below indicates that:

- Pressure management measures in place in Kensington, Thornton and Goodwood, which limits the peak pressure to 55meters.
- Peak pressure in the Bellville suburbs is especially low. This means that high rise, high density developments with high fire requirements will require pressure boosting, which could be done on site by the developer where necessary.

Average peak pressure changes in VRC suburbs and over the length of the 750 mm water main (west to east)		
Position of peak pressure	Peak pressure (Meter Head)	Pressure Management
Salt River Circle	70-80 mh	
Maitland	70-80 mh	
Ndabeni	70-80mh	
<b>Kensington</b>	<b>55mh</b>	<b>Yes</b>
Wingfield	70mh	
<b>Thornton</b>	<b>55mh</b>	<b>Yes</b>
<b>Goodwood</b>	<b>55mh</b>	<b>Yes</b>
N1 City	85mh	
Boston (upper?)	65mh	
<b>Bellville - Durban Road intersection</b>	<b>40 m</b>	
<b>Bellville - Old Paarl Road</b>	<b>36 mh</b>	
Stikland	50mh	
Bellville South	60mh	
Oak Glen (Blomtuin Res.)	50mh	
Oak Glen (Brick & Clay Res.)	75mh	

**Table 22: Average Peak pressure**

**8.2.2 Current and planned network/bulk water upgrades**

In the absence of an indication of required service levels, the assessment of water reticulation network investment is based on estimates of current replacement costs and annual depreciation rates.

Water reticulation network details for the Voortrekker Road Corridor are as follows:

- Length of water reticulation = 1080 km
- Estimated Current replacement costs = R 1 620 billion
- Annual depreciation (estimated) = R 25 000 000

At present, the only planned and budgeted project in the VRC is the Ruyterwacht Midblock Water Pipes Project, which is earmarked for the 2014/15 financial year and will cost R2,5 million.

### **8.2.3 Identification of residual water risk areas within the VRC Corridor**

The current water network risk areas within the VRC are likely to remain the same, while in some areas they are likely to expand as the system ages (refer to Figure 114). The following considerations are applicable to higher intensity redevelopment within the VRC:

- The age and quality of the infrastructure may need to be taken into account if increased densities along the corridor are considered.
- Water pressure boosting is to be carried out where necessary as part of high density developments in the corridor.
- In places where capacity exists, pipe replacement or rehabilitation may need to take place.
- The Water and Sanitation Department would require very detailed information on any new developments in the proximity of its mains existing along Voortrekker Road.
- Road widening is also a particular concern in certain instances.



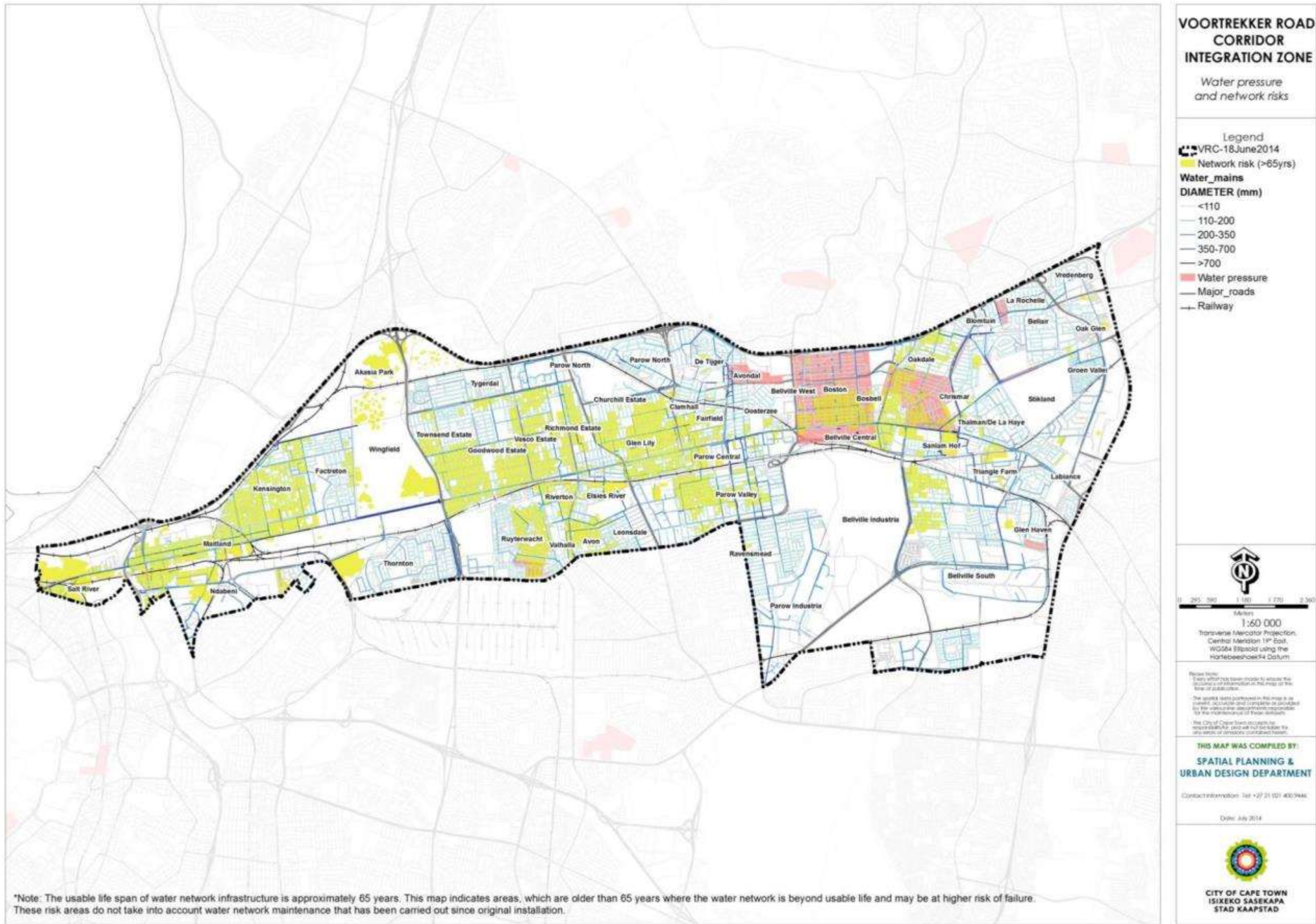


Figure 114: Water pressure and network risks

## 8.3 Wastewater

### 8.3.1 Areas of bulk waste water risk

#### **Bulk Waste Water Capacity (Risks)**

The sewer network along Voortrekker Road drains to two Waste Water Treatment Works (WWTW): Athlone and Bellville WWTW. Voortrekker Road west of the Mike Pienaar Road intersection drains to Athlone Waste Water Treatment Works via the Northern Areas Sewer Line (currently being upgraded), while the network east of Mike Pienaar Road drains to Bellville Waste Water Treatment Works. Bulk sewer capacity in both of these catchment areas is under varying degrees of risk (refer to Figure 115), but interventions are currently being implemented to alleviate these capacity constraints. Bellville WWTW is being upgraded with construction to be completed by the end of 2013. The successful commissioning of the upgraded section is expected to be completed late in 2015.

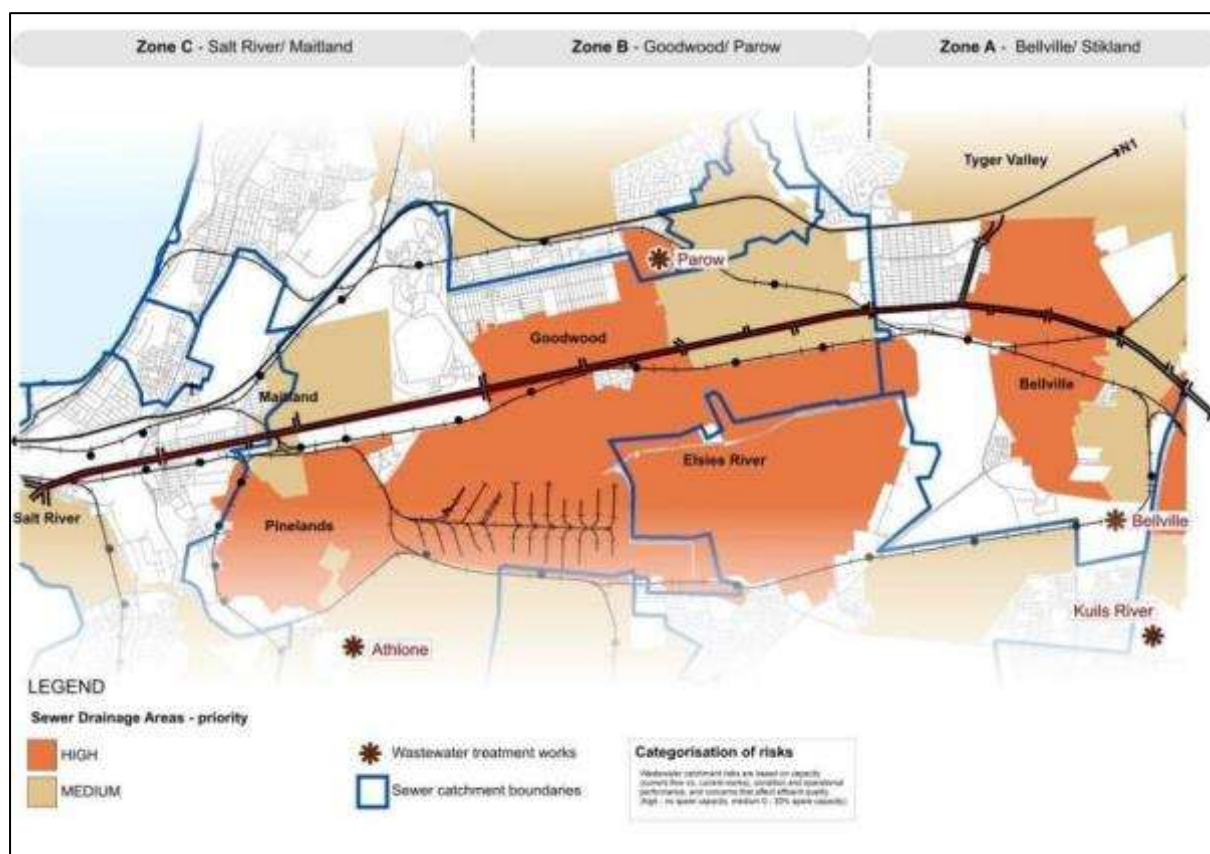


Figure 115: Wastewater treatment works risk

#### **Capacity at Athlone WWTW:**

- Athlone WWTW is currently functioning at full capacity, which remains a severe constraint to further development in the VRC. Exceptions are made in the case of special applications e.g. Social Housing Projects) where biological treatment processes are manipulated to some extent as a temporary measure to increase treatment efficiency.

- Part of the existing treatment load would therefore need to be diverted to Cape Flats WWTW in order to provide additional capacity to the Voortrekker Road Corridor.
- There are currently two lines that divert waste water from Athlone to Cape Flats WWTW – Cape Flats 1 (1m) and Cape Flats 2 (1.5m). The diversion is done via Bridge Town Pump Station. However, both these lines suffer from silt build up and operate at less than a third of their capacity between Bridge Town and Hanover Park Pump Stations. This problem has occurred due to both these lines being constructed at very flat grades in 1960-70s.
- Plans are in place to construct a third line (Cape Flats 3) between Bridge Town and Hanover Park Pump Stations, which will take the load of Cape Flats 1 and 2 and allow them to be cleaned, while providing additional capacity in the northern areas. This will be a 1.8 m sewer with a design that will hopefully be much more effective than Cape Flats 1 and 2. A consultant for Cape Flats 3 line was appointed to undertake detailed design and construction. However, delays were experienced due to issues regarding the alignment.
- At present, the expected completion date of the Cape Flats 3 line is mid-2016. The cleaning of Cape-Flats 1 and 2 line and the construction of Cape-Flats 3 line will create capacity at Athlone WWTW in the order of 55 MI/day. This will most likely enable additional capacity for higher intensity development in the VRC areas served by the Northern Areas Sewer Line. Until such time, bulk waste water capacity is likely to remain a major constraint to development opportunities within the section of the VRC that falls within this catchment area.

### **Capacity at Bellville WWTW:**

The upgrades to the Bellville WWTW are expected to come into effect by August 2014. This upgrade would enable planned new development in the Bellville, Belhar and Kuilsriver areas to be accommodated. It should be noted that commissioning is a very sensitive process and there could be a number of setbacks due to the temperamental nature of the technology to be implemented. It is anticipated that the process of full commissioning would most likely to be completed in 2015, where the total treatment capacity resulting from these upgrades would be available (see Table 23 below).

**Table 23: Current and future WWTW capacity**

Name	Current Capacity and Flows MI/day		Future Flows MI/day	
	Current Capacity	Current Flows	Future Capacity	Potential Capacity
Athlone	105.0	102.2	125 (2016)	142 (2020)
Bellville	54.6	53.7	70 (2015)	

### **8.3.2 Waste Water reticulation risks (Infrastructure condition)**

This information is based on IMQS data (software used to query the City's water and sewer network data) and communication with a range of officials in the Water and Sanitation Department:

#### **Salt River:**

- Between Salt River traffic circle and the Black River bridge limited sewer infrastructure exists
- Limited development capacity exists due to the large railway servitude (Culemborg)
- On the North side the limited network drains to the Salt River PS which has 87l/s (approximately 2100 housing equivalents) spare capacity.

#### **Maitland:**

- Sewer infrastructure capacity exists between the Black River and 3<sup>rd</sup> Avenue.
- The Northern side drains to Beach Road PS (6l/s spare capacity, 200 housing equivalents) and Royal Road PS with (23.8 l/s spare capacity, 800 housing equivalents).
- The Kensington area drains in a southerly direction towards Cape Flats WWTW. The main sewer line, which runs through Pinelands is at between 30-60% capacity

#### **Goodwood:**

- This network drains to Athlone Waste Water Treatment Works where the downstream network capacity is being increased with the Northern Areas Sewer upgrade.
- There is no sewer network on Voortrekker road between 3<sup>rd</sup> Avenue and Giel Basson Road.
- The connection to the main sewer is in the next road parallel to Voortrekker North and South of Voortrekker which have 20l/s spare capacity (could accommodate  $\pm$ 700 households).
- The section of the network linking Goodwood to the Northern Areas Sewer along Vanguard Drive has less than 30% spare capacity.

#### **Elsies River:**

- The main sewer line which links Upper Elsies River with the Northern Areas Sewer via. Thornton has less than 30% spare capacity.

#### **Parow:**

- The 375 mm diameter sewer line between Giel Basson and Gardener road (550m) has no spare capacity.
- The 375 mm diameter sewer line between Gardener and Fairfield Street has 35 l/s spare capacity.
- Between Fairfield Street and Mike Pienaar Street there is no sewer infrastructure.

#### **Bellville:**

- The sewer infrastructure between Mike Pienaar Street and Park Street has limited spare capacity of 5 l/s.

- The main sewer line, which serves Oakdale and Triangle Farm is under strain in numerous places due to gradient issues at the Kraaifontein and Strand railway crossings, as well as further downstream at Sacks Circle.

#### **Belhar CBD:**

- Bulk capacity is currently a major constraint to development of the Belhar CBD. However, this is more as a result of timing in relation to the upgrades to the Bellville WWTW.

#### **Tygerberg Hospital Upgrade:**

- The development of a new hospital will take up existing capacity serving the existing hospital. However, additional intensification of the site requires testing of the impacts on the waste water bulk and reticulation system.

The IQMS system was in the process of being updated at the time of this investigation. Therefore, the capacity constraints reflected above should be reviewed once this new information is made available. Definitive asset condition in the sewer network is not known, however a number of sewer collapses have been reported. Accordingly, it can be safely deduced that the majority of the infrastructure within the designated area is approaching the end of its expected useful life within the next 20 to 30 years.

### **8.3.3 Current and planned network and bulk waste water upgrades**

#### **Northern Areas Sewer Line Upgrade**

The Northern Areas Sewer (NAS) line, which drains to the Athlone WWTW and provides waste water capacity to the Parow/Goodwood/Epping/Elsies River areas, is currently being upgraded to provide additional capacity for development in these areas. This project forms part of the City's Sanitation Master Plan, which comprises infrastructure enhancement of its sewer reticulation system and will ultimately be completed in June 2015 at a total cost of R146,1 million. This upgrade project comprises the 4,8 km bulk sewer line from Vanguard Drive to the Langa Pump Station, which will be replacing the existing section of the NAS which has also exceeded its operational lifespan and is experiencing serious capacity constraints. The capital budget for 2014/15 is R55 million (City of Cape Town IDP, 2014/15).

#### **Bellville WWTW**

The civil works at Bellville WWTW is planned to be upgraded over the next 3-year period between 2014 and 2017. No additional capacity is to be added as part of the expected upgrades during this time. However, the efficiency of treatment is likely to be significantly increased. The following current budgeted projects are to be conducted within the 2014-2017 financial period:

- Replacement of screw pump
  - 2014/15: R3 000 000
- Replacement blowers
  - 2015/16: R20 000
- Upgrade clarifiers
  - 2014/15: R1 000 000

- 2015/16: R5 000 000
- 2016/17: R10 000 000

Also under construction at the moment is a diversion line through Durbanville to the Fisantekraal treatment works which will take pressure off the reticulation system to Bellville to the tune of 4MI /day. This does not offer new drainage capacity to Bellville. During upgrading it may however accommodate existing development rights in Voortrekker Rd.

### **Sewer network upgrades**

In the absence of an indication of required service levels, the assessment of the sewer reticulation network investment is based on estimates of current replacement costs and annual depreciation rates.

Sewer reticulation network details for the Voortrekker Road Corridor are as follows:

- Length of sewer reticulation = 870 km
- Estimated Current replacement costs = R 2 175 billion
- Annual depreciation (estimated) = R 31 000 000

In the circumstances indicated above, these figures are submitted as an estimate of required investment into the Voortrekker Road Corridor W&S reticulations over the requested 10 years.

#### **8.3.4 Identification of residual waste water risk areas within the corridor**

- The improved reticulation to Athlone is partially in place and once the Northern Area Sewer extension to Langa is completed in June 2015 the situation will be rectified. However bulk supply to the central part of the VRC will remain constrained for a further 2 years until the Cape Flats 3 line is installed.
- The Bellville Central Area and the greater Goodwood/Parow areas (north of Voortrekker Road) remain at risk post implementation of existing capital projects. This could be attributed to increasing incremental densification within these traditional suburban areas. This may warrant reprioritization of this area for capital expenditure to upgrade the waste water reticulation system.
- The Bellville Central Area in particular, where around high intensity mixed use development is identified in accordance with Durban Road realignment, would be significantly constrained by the residual waste water risks in the Bellville area.
- During the upgrade of the Bellville WWTW it will not have capacity to accommodate any new developments over and above the new development areas identified in the Tygerberg District Plan.
- The sewer infrastructure along Voortrekker Road is relatively old, which may need to be taken into account if increased densities along the corridor are

considered. In these cases existing pipe replacement or rehabilitation will be required.

Current areas that are unencumbered by waste water reticulation capacity risks:

- Maitland and Kensington
- Ruyterwacht
- Parow East
- Parow Valley/Tygerberg Hospital Estate
- Boston
- Bellville East/Stikland

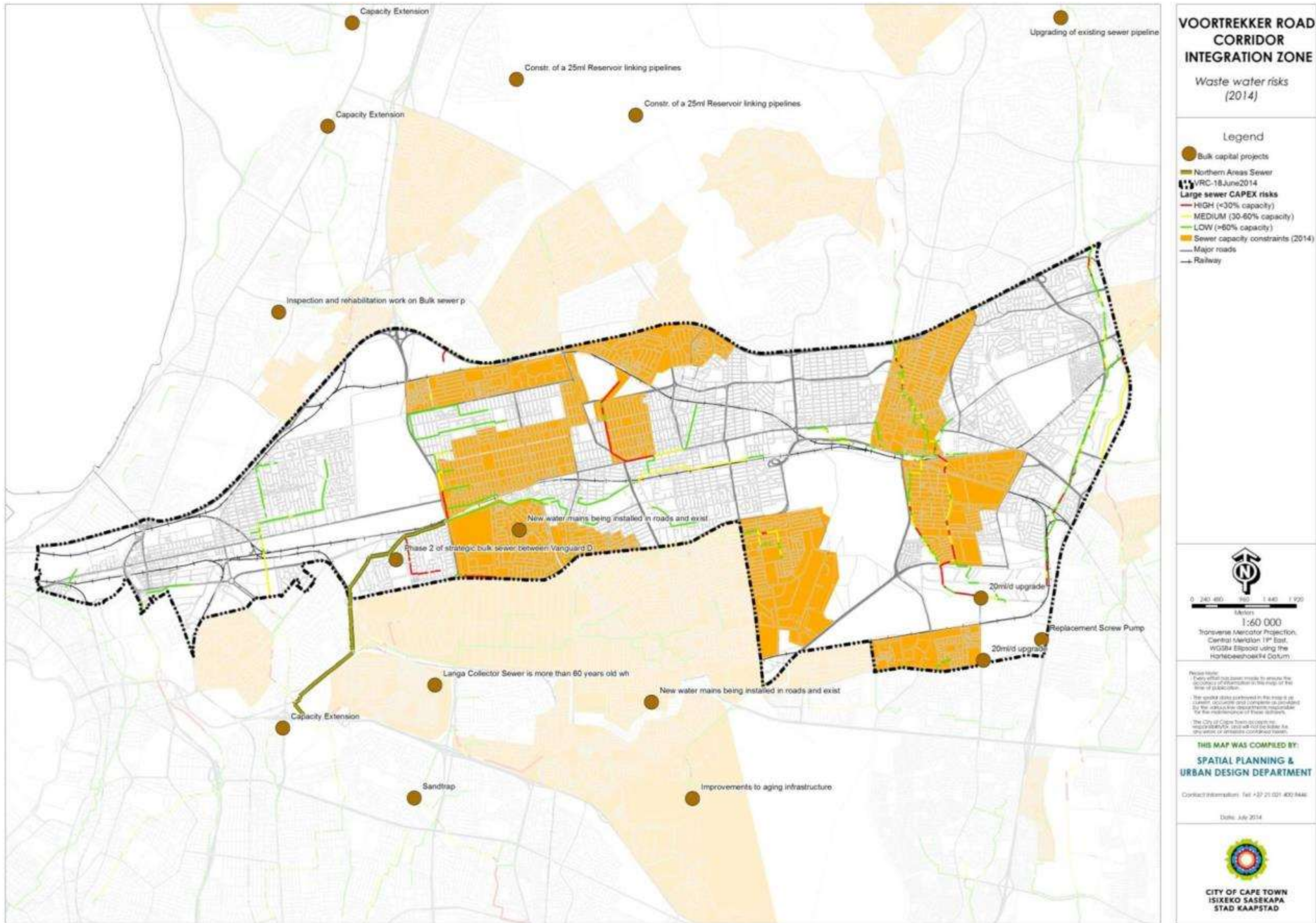


Figure 116: Waste water reticulation risks



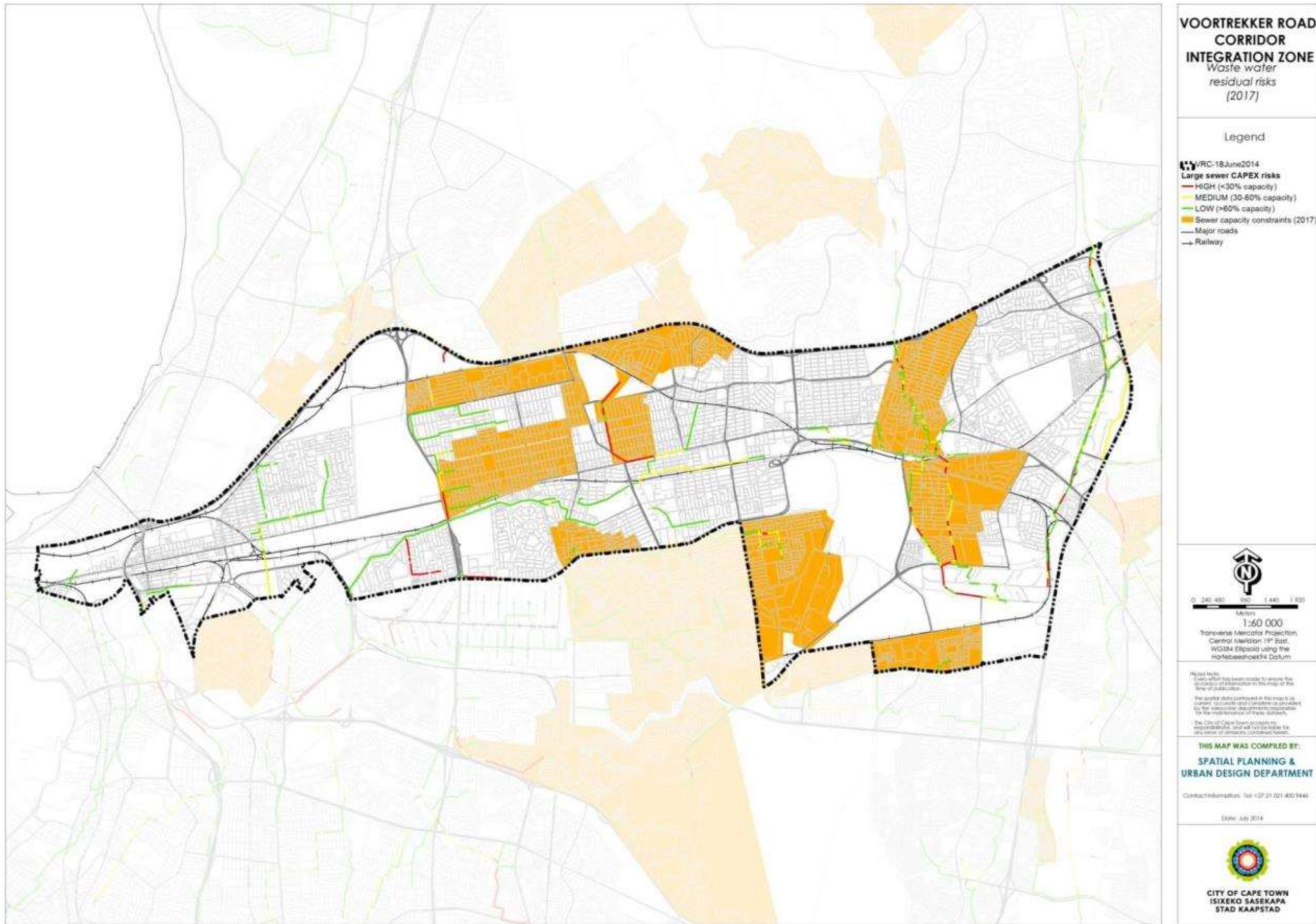


Figure 117: Waste water residual reticulation risks after CAPEX implementation (2017)

## 8.4 Electricity

### 8.4.1 Areas of electricity risk

The Voortrekker Road corridor is supplied by a number of electrical Step-down substations.

The Maitland and Salt River area is supplied by the Kensington and Koeberg substations. Kensington substation is at less than 70% capacity with an estimated spare capacity of 7.4 MVA. Koeberg substation is at between 70-90% capacity with an estimated spare capacity of 7.3 MVA. A portion of this spare capacity can be allocated to the Voortrekker Road development depending on network constraints.

The Parow-Goodwood area is supplied from Tiervlei, Tygerberg Hospital, N1-Platteklouf, Elsie River, Tygerdal and Acasia substations. The N1-Platteklouf (Tygerdal) substation is currently functioning at over 100% capacity, and is at highest risk of failure. This is due to large-scale increases in bulk in the N1 City business precinct, which has taken up available capacity. Planning is currently underway to increase capacity by upgrading the N1-Platteklouf substation and is scheduled to be completed during mid-2015. Incremental growth is only able to be accommodated at this stage until this intervention is complete.

The Bellville CBD and Stikland areas are supplied from Oakdale, Boston and Bellville City Substations. Oakdale and Boston Substations have current interventions in progress as indicated below:

- Oakdale substation upgrade is a multi-year intervention consisting of 3 phases. Phase 2, which comprises the upgrade of the switching station, is scheduled to be completed in 2016. This will increase its spare capacity to an estimated 22.3 MVA, of which a portion can be used for the Voortrekker Road development and the proposed increase in bulk between Bellville CBD and Tyger Valley. Incremental growth is only able to be accommodated at this stage until this intervention is complete.
- The Boston substation intervention was completed in the middle of 2013. An estimated 8.8 MVA spare capacity is available for growth along Durban and Voortrekker Road corridors.

The redevelopment of Tygerberg Hospital is not likely to require a significant increase in electricity capacity. However, a substantial release of land for new development may necessitate an upgrade to Tygerberg Hospital substation. The upgrade of the substation is scheduled for upgrade from 2017-2019 to accommodate such development.

The Bellville South and UWC/CPUT area is served by 3 main substations (Bellville South, Sarepta and SANS) which are operating over 100% capacity. This can be attributed to gradual increases in industrial activities as well as reinforcement of the UWC campus with additional development (faculty and student residence

buildings). In accordance with such improvements to the area, the Sarepta Substation is earmarked for upgrade in the 2016/17 financial year.

The redevelopment of commercial premises to residential from an electrical standpoint does not dramatically change the electrical demand of the building. The building has an existing electrical supply and its change in usage might affect its electrical peak demand or it could provide better diversity with existing commercial buildings in the area.

The sections of the VRC which have their electricity supplied by ESKOM include the Ruyterwacht/Leonsdale areas and a portion of Belhar (south of Unibell Station).



Figure 118: Electricity areas serviced by ESKOM

#### 8.4.2 Current and planned network/bulk electricity upgrades

##### Koeberg Road Switching Station – Phase 2 Upgrade

The substantial Koeberg Road Substation Phase 2 upgrade in Maitland will be completed in the second half of 2015. It has an estimated budget of R137 million. The existing substation, which feeds Mowbray, Observatory, Salt River, Maitland and Paarden Eiland, was built approximately 56 years ago.

With the significant developments that have taken place over this time, an upgraded substation is required to cater for the growth. The new substation will operate at a higher voltage and increase the capacity of the network which will in turn improve reliability and operational stability. As part of this project, a new gas insulated 145 kV switchgear will be installed. This will help to ensure greater reliability which will benefit industrial and commercial growth within its catchment area.

Other electricity infrastructure projects listed in the City of Cape Town IDP 2012-2017 for the next 3 years include:

- Platteklouf – N1 Reinforcement
  - 2014/15: R45 800 000
  - 2015/16: R36 068 900
- Bloemhof Network Control Centre
  - 2014/15: R23 478 100
- Oakdale Switch Station Upgrade – Phase 2
  - 2014/15: R10 000 000
  - 2015/16: R71 630 890
- Stikland main substation upgrade

- 2014/15: R5 858 600

### 8.4.3 Identification of residual electricity risk areas within the VRC Corridor

The following residual electricity risks are expected to remain once the identified Capital Expenditure projects are rolled out:

- Oakdale Substation Upgrade - phase 3, which is scheduled for implementation from 2017-2019 will address any residual capacity constraints affecting the Oakdale area.
- Similarly, additional upgrades to the Bellville South area are required in the medium to long term (+5 years) in order to bring electricity capacity to sufficient levels.
- In the affected areas only small scale incremental growth can be accommodated until the interventions are completed (mid 2013 – 2015).

Figure 119: indicates the long term rollout of long term electricity infrastructure capital projects within the VRC (2018-2025).



Figure 119: Electricity infrastructure expansion from 2018-2025

Large scale new development (e.g. Wingfield or Stikland Hospital) would require sufficient lead time for electricity supply to be provided. When more detailed information regarding where and when development will take place is available a more in-depth analysis can be made of its impact. Furthermore, future electricity risks in the Bellville Central Area must be reviewed once detailed local area planning reveals the extent of additional bulk that redevelopment could bring to the area.

It should be noted that while the demand for additional electricity capacity can be met with the appropriate infrastructure investment, the real constraint to development is electricity generation in line with demand. This is particularly prevalent in winter months, and manifests through load shedding at times. To this end, external factors such as ESKOM's national energy rollout plans are crucial for sustained economic growth and urban development within Cape Town and the VRC in particular.

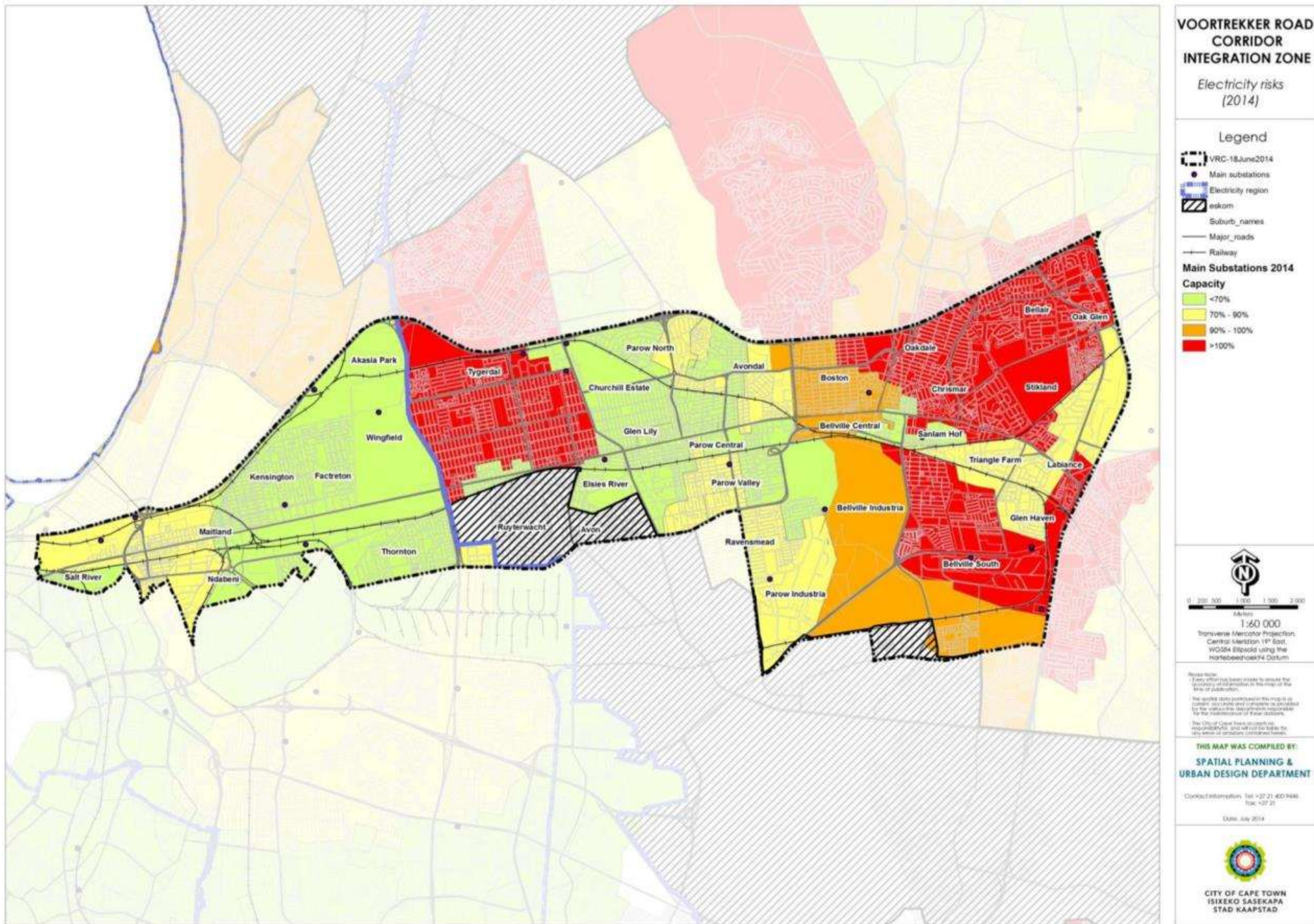


Figure 120: Electricity main substation risk areas

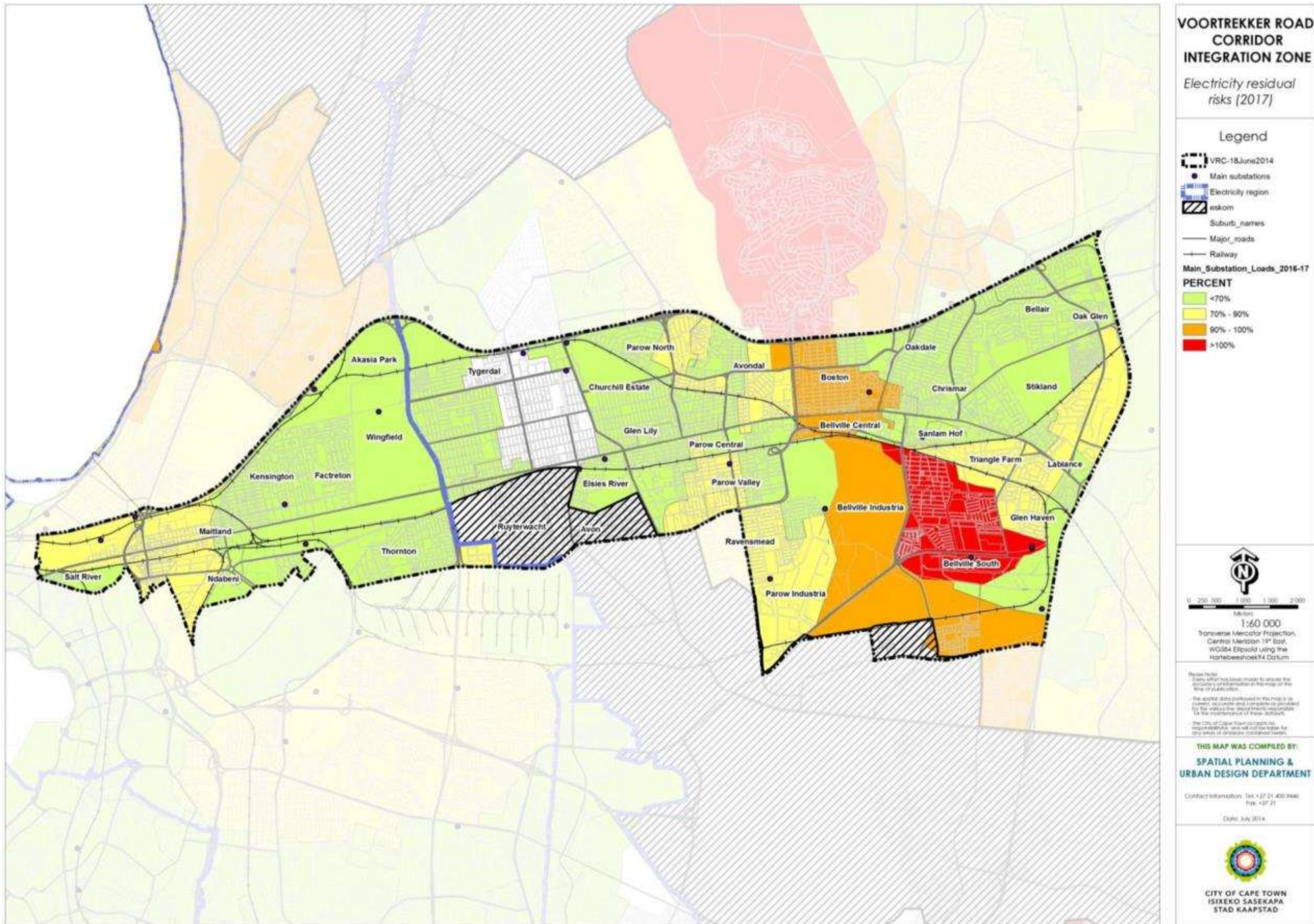


Figure 121: Electricity main substations residual risks after CAPEX implementation (2017)

## 8.5 Solid waste management

The city's five landfill sites are rapidly reaching capacity, which is likely to bring an increasingly stronger focus on recycling facilities in close proximity to where people live. The City's complement of waste drop-off facilities are set up to serve as an entry point for residents to recycle their household waste. However, the city is not geared to facilitate on-site recycling.

In addition to city recycling facilities, strong growth in private sector waste management businesses can be seen, many of which operate from various industrial areas within the VRC. Services rendered, range from collections from households, schools, and businesses, as well as on-site buy back waste management services.

### **Landfill Sites:**

The VRC is served predominantly by the Bellville landfill and Waste Transfer Station, located in Bellville South.

### **Drop-off facilities:**

The VRC is currently served by solid waste drop-off facilities at Salt River, Tygerdal, De Grendel, Ravensmead, and Bellville South. The Tygerdal facility is planned to be closed and due to conflicts with the local residents surrounding the facility.

### **Depot sites:**

Solid waste collection operations are run from 5 depots, which service the VRC. These are located in Salt River, Ndabeni, Elsie's River, Parow Central and Bellville South.

### **8.5.1 Current and planned solid waste upgrades**

The following solid waste capital projects are planned and budgeted for (refer to Figure 122):

- The Bellville Landfill requires a 10-year CAPEX cost of approximately R50 750 000 in order to expand operations to the required level of service.
- The Bellville Waste Transfer Station is currently undergoing a substantial upgrade over the next 2 years in the order of approximately R200 000 000.

A new drop-off facility is planned at Beaconvale Industrial Area to replace the Tygerdal facility. The proposed waste drop-off facility in Beaconvale Industrial Area has an estimated timeline for completion of construction that runs parallel with the planned closure of the Tygerdal Waste drop-off Facility. The Waste Licence Application (WLA) for Beaconvale has been submitted along with the draft Basic Assessment Report (dBAR). The estimated timelines for Beaconvale indicates that the WLA should be completed by November 2014, with the proposed design and construction to be completed by December 2015. The total budgeted cost for the establishment of the facility is R6 000 000.

An additional satellite drop-off facility is required to service the Maitland/Kensington/Factreton Area. This is planned to be undertaken in the 2015/16 financial year to the value of R220 000.

**Future solid waste operations planning in the VRC**

Capital investment in Solid waste infrastructure within the corridor, while requiring varying degrees of pre-planning and lead times, is not problematic. However, the associated operational budgets required to enable increased service provision is the primary concern regarding solid waste provision. This includes labour, fleet, plant and other associated resources to effectively carry out necessary solid waste operations. Risk in terms of Solid Waste service provision would need to be determined once densification scenarios are formulated for the corridor.



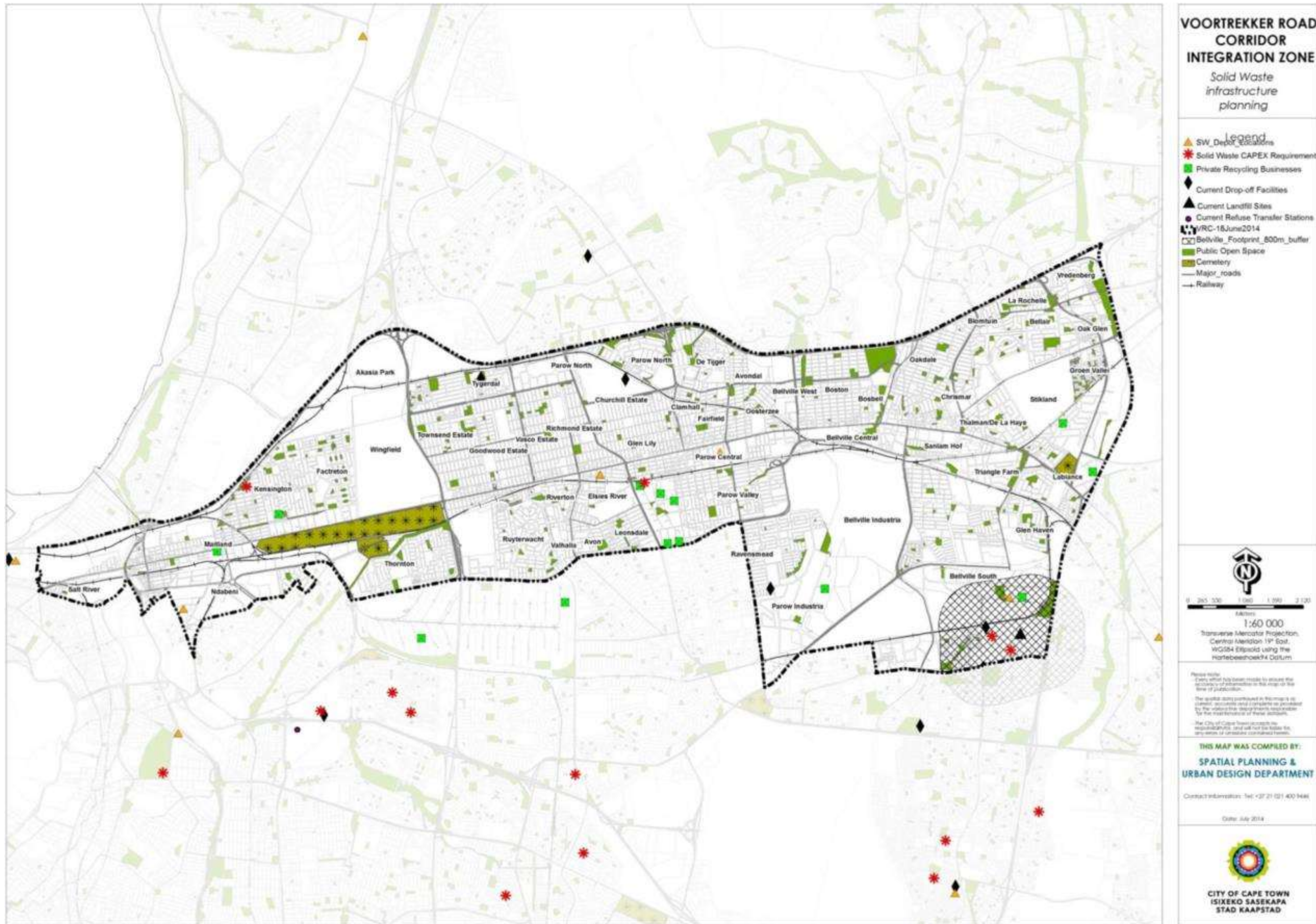


Figure 122: Solid waste infrastructure planning

## 8.6 Telecommunications Infrastructure (Broadband)

### 8.6.1 Background to the city's broadband infrastructure rollout plan

The City of Cape Town municipal fibre optic infrastructure network is being built to serve as single shared infrastructure capable of supporting multiple networks and operated mostly on an 'open-access' basis, with the aim of becoming the most digitally connected city in Africa.

The rationale for installation of such infrastructure includes:

- a) Containment of telecommunications costs, where costs are currently high for very little bandwidth between few buildings;
- b) Improved internal standards of delivery, which will allow more efficient use of centralised applications such as SAP and GIS); and
- c) Encouraging local economic development by sharing municipal infrastructure with private commercial operators at minimal incremental costs, thus leveraging the City's investment in infrastructure and avoiding unnecessary trenching and physical space limitations.

The initial focus of the City has been both to reduce telecommunication costs and improve high speed data communications to municipal facilities. When fully implemented, the project will effectively improve the City's ability to provide fast and efficient services to the residents of Cape Town. Investment in broadband infrastructure will build-up extra data capacity in the city which will, in turn, boost the City of Cape Town's competitive advantage and help drive economic growth, development and inclusion, especially in previously marginalised areas.

Beyond key internal government objectives, spare capacity within the network will be made available to the private sector, enabling businesses to utilise high speed Internet connectivity which is essential in today's environment. Cost effective and high speed access to telecommunication services, computer services, internet-working and cloud computing have become pivotal cornerstones of economic development.

### 8.6.2 Internet service providers and telecommunications companies

The City is not involved in provided internet transit or services to end users, but is rather undertaking to support internet service providers and telecommunications companies. To this end, the City is making spare capacity on the City's Broadband Infrastructure available by installing optic fibre cross connections to the data centres of internet service providers and telecommunications companies. This will stimulate competition in the telecommunications market, and thereby help reduce costs to end users. Spare capacity will be made available to licenced 3<sup>rd</sup> party service providers in the form of:

- Renting unlit fibre pairs between switching centres;
- Renting fibre from any fibre distribution point to any nearby building (up to 300m, subject to viability);
- Connecting their own fibre to a switching centre;

- Renting unlit fibre on a cross-connect ring to the exchanges of the national networks;
- Renting rack space in switching centres for transmission equipment
- Buying 100Mbps or 1Gpbs circuits between switching centres

The City has created peer connections to 3rd party network centres. This lays the foundation for individual 3rd party commercial service providers to enter into infrastructure lease agreements against the City's published tariffs to render services across City infrastructure to their clients.

The City of Cape Town recently has entered into third-party agreements with 8 different service providers for access to its upgraded fibre network infrastructure. These agreements range from infrastructure leasing, to providing physical cross-connections to operators' network centres. The eight companies that have signed such agreements with the City of Cape Town are: **RSAWEB, Cybersmart, Vanilla, Enhanced Networks, Comtel, Neotel, Vodacom, and TENET.**

Negotiations are progressing with 20 more companies regarding lease agreement, including Telkom. Telkom has also shown an interest in using some of the city's network. Telkom's request was for using the city's network to render last-mile services to schools to provide high speed internet connections to learners at schools.

### **8.6.3 Benefits to the residents of Cape Town**

The general public will benefit from:

- The efficiencies of several independent network operators sharing the same fibre optic infrastructure;
- The creation of a favourable telecommunications environment that promotes competition between service providers by reducing the limitations caused by capex barriers, and encourages greater choice for the end user;
- Increased local bandwidth for faster, more reliable services at lower costs to the end user;
- More competitive businesses within the telecommunications sector, which will create more employment opportunities within the city.
- Other new citizen services including those in safety and security (citywide CCTV camera network), intelligent transport systems, an integrated ticketing system, various e-services, enhanced internet connectivity for public institutions such as schools.

### **8.6.4 Project initiation and phasing**

A Universal Plan was developed to expand the City's fibre optic infrastructure throughout the city. This was initiated in 2010 and comprises 5 phases, which are expected to take between 7 and 10 years to complete depending on the level and timing of funding which it receives. The City has set aside an initial R213 million

towards the R1.3 billion required for the proposed roll out of broadband infrastructure throughout the metro.

The cost of Phase 1 was somewhere in the order of R125 million. This segment of the network has seen the connection of several major commercial and institutional nodes within proximity of the VRC connected with the City's broadband infrastructure network, including Century City, N1 City, Parow CBD, Bellville CBD, Tygervalley, Stikland, UWC/CPUT Tertiary Education Campus and the Cape Town International Airport node.

Phases 2 and 3 were completed in the 2013/14 financial year and cost an additional R152 million. These phases included the expansion of the network into other parts of the VRC, including Salt River, Paarden Eiland, Maitland and Ndabeni.

A significant part of the Metro including the Voortrekker Road Corridor is already connected to the core network with many new routes still lined up. Phases 4 and 5 are scheduled for implementation in the 2014/15 financial year to the value of R217 million, which will see the remainder of the VRC connected to the City's broadband infrastructure network. Figure 123 indicates the complete broadband network phasing plan in terms of the VRC.

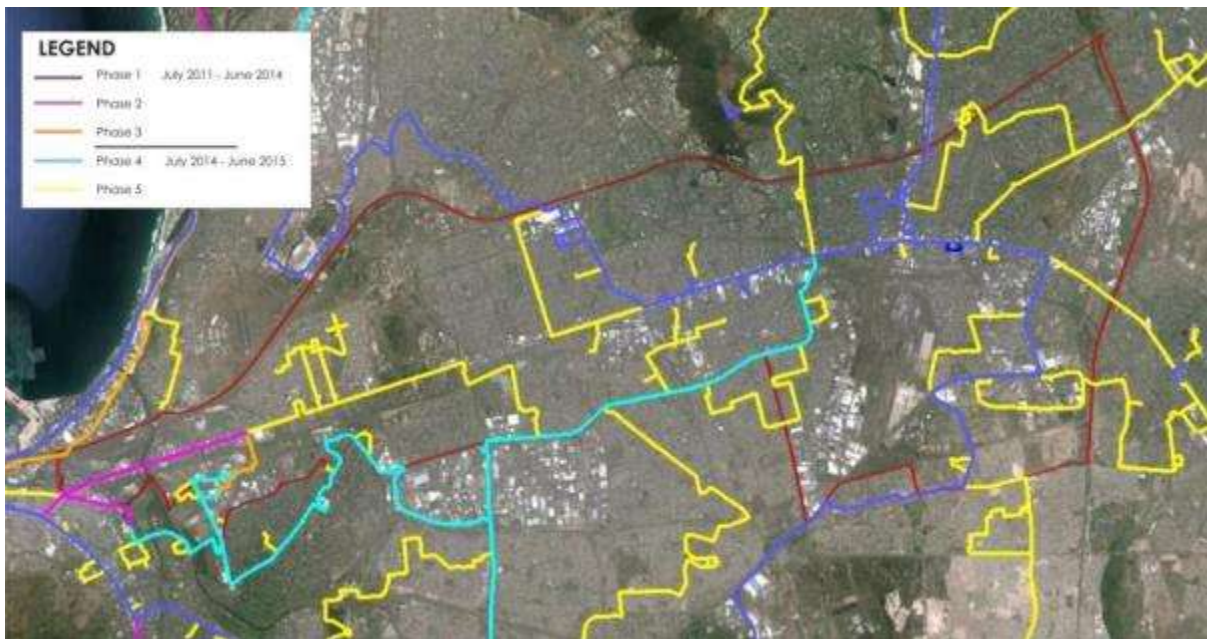


Figure 123: City of Cape Town broadband network phasing plan for the VRC

## 8.7 Synthesis of services infrastructure trends

### 8.7.1 Composite of residual infrastructure risks

The following points reflect the most pertinent service infrastructure trends within the VRC:

- The composite infrastructure risks map below (refer to Figure 124) indicates the residual infrastructure risks after CAPEX in the VRC. This picture reflects the current development situation in the corridor in terms of infrastructure risks. The areas most constrained by residual infrastructure risks, where 3 or more risks overlap, include Culemborg, Goodwood Triangle, Bellville Central Area and Bellville South.
- Stormwater and flood hazard zones linked with the Salt River and Elsieskraal River catchments represents a real concern for development within the VRC, especially with regard to certain strategic areas and precincts such as Culemborg, Conradie Hospital site, Upper Halt Road, and various rail station precincts between Goodwood and Tygerberg Hospital. To this end, it is critical to deal with this constraint in as proactive a manner as possible.
- While certain constraints remain in certain areas, the residual infrastructure risks indicate broadly that infrastructure services will not necessarily constrain incremental re-development in the corridor. However, 'big-bang' catalytic projects where development is to take place at scale, would require substantial pre-planning lead-times for infrastructure investment.
- Furthermore, an area demarcated as a high risk area does not necessarily mean that it is a 'no-go' area for development. Rather, if these areas overlap with areas encouraged for intensified development (e.g. TOD areas), they make a greater case for prioritization. A case in point is Bellville Central Area, where high density redevelopment commensurate with its status as Cape Town's second node is encouraged. To this end, the significant transformation of areas from traditionally low intensity to high intensity would require substantial infrastructure investment planning linked to land use scenario planning.
- The effects of changing land use characteristics of an area from monofunctional to multifunctional character, does not necessarily have a negative impact on infrastructure capacity. In cases where residential uses are becoming mixed with traditional industrial and commercial uses, the infrastructure requirements for these uses may peak at different times of the day and thus would not substantially increase capacity requirements.

- However, in instances where the intensity of uses is substantially increased from a low base, this would greatly affect infrastructure provision. Examples of such occurrences include the increasing of industrial manufacturing operations, a substantial increase in residential and/or commercial bulk.
- The assessment of infrastructure risk impacts remains an iterative process, and would need to be revised after application of a higher densification scenario within the VRC (e.g. pragmatic/full TOD densification scenarios). The application of these scenarios will most likely increase the severity of infrastructure risks within the VRC quite substantially.
- The areas of highest opportunity, where development is mostly unencumbered by services constraints, area:
  - the Maitland/Kensington area
  - Parow East and Parow Valley
  - Ruyterwacht and Upper Elsiesriver
  - Bellville East/Stikland

Table 24 provides a consolidated summary of the infrastructure informants and trends by sector.

### **8.7.2 Summary of infrastructure services Capital budgets**

Table 25 provides a summary of the capital Infrastructure services budget for current and future projects within the VRC. The table reflects that a substantial amount of capital investment is being spent within the corridor. However, the greater concern rests with the operational budgets to conduct maintenance/upgrades or improve services within the area.

The concern around limited operational investment is likely to become more prevalent in the future. However, a focus on spatial targeting of the corridor for investment to: a) facilitate a private sector development response, and b) create the necessary thresholds to support improved infrastructure service provision, may warrant reprioritisation of the VRC.

Water and Sanitation infrastructural investment is determined by W&S tariffing within the affordability of the municipal account. Hence, current network replacement is based on a needs base and not on an area base and is therefore also influenced by levels of service (e.g. pressure management, reliability of service). It should be noted that tariff income needs to also fund large capital investments such as Water and Wastewater treatment plants, bulk water and sewer lines and reservoirs.

### **8.7.3 City utilities perspective on private sector responses to services capacity**

Alternative forms of service provision (whether sustainable or privately managed) are welcomed. However the City of Cape Town remains mandated to provide connections/access for all properties to its utilities and services infrastructure. Should these alternative responses to City services fail for any reason, the City would be

obliged to provide the necessary services. To this end, property owners remain liable to pay for these connections.

#### **8.7.4 Green building design**

Green building design can reduce peak and overall energy demand through efficient building designs. The long term benefits of green building design are slowly being recognized, however there is some question over the perceptions of the advantages of the long term benefits compared to the additional initial cost.

Until energy storage becomes price competitive, on site generation from renewable sources especially wind and photovoltaic (PV), should not reduce overall infrastructure requirements as one has to plan for "worst case/sun does not shine/wind does not blow for a few days" scenarios. High availability onsite generation e.g. from biogas (on site anaerobic digestion of organic waste if sufficient available) would reduce infrastructure requirements.

What is a possible game changer is the introduction of natural gas into the western cape and its potential reticulation in localized areas e.g. such as in Epping. The national Gas Utilisation Master plan (GUMP), due for release sometime this year, would be the best source of a sense of direction in this regard. A particular project linked to the use of biogas is the provision by the City of landfill gas from the Bellville south landfill site for direct industrial use in Bellville south, which is estimated to be the equivalent of 8-10 MW thermal equivalent or 2 MW electrical energy if used to generate.

**Table 24: Summary of infrastructure informants and trends**

Summary of infrastructure informants/trends						
No.	Stormwater	Water	Sewer	Electricity	Solid Waste	Telecoms
1	The Salt River/ Culemborg areas as well as the north western parts of Thornton are severely constrained by the Salt River High Hazard Zone. This represents a significant constraint to the redevelopment of strategic sites such as the Culemborg rail yard and Conradie Hospital.	The majority of water network infrastructure within the VRC is approaching or has reached its expected usable life. The aging infrastructure along the entire length of the corridor is therefore becoming increasingly more prone to failure as a result of pipe bursts.	Areas to be served by the newly upgraded Northern Areas Sewer line, which drains to Athlone WWTW, will benefit from increased sewer network capacity. However, bulk capacity challenges at Athlone WWTW will remain a constraint to redevelopment in sections of the VRC until capacity is diverted the Cape Flats WWTW via the Cape Flats 3 sewer line. This is likely to be installed and operational by 2016.	Electricity supply is driven by demand. Brownfields redevelopment is not likely to be affected by electricity capacity constraints as this would constitute a take-up of existing electricity capacity, while a nominal increase in supply is required for additional bulk due to intensified use.	Capital investment in Solid waste infrastructure within the corridor, while requiring varying degrees of pre-planning and lead times, is not necessarily problematic within the VRC.	The latter phases of the City's broadband network phasing plan, which will see the remainder of the VRC being covered by the network is scheduled for completion within a 1-3 year timeframe.
2	Urban areas south of Voortrekker Road abutting the Elsiekraal River (Goodwood, Elsie River, Parow) are severely constrained by the 50 year floodline. This would make high intensity redevelopment in these areas very difficult, particularly in the vicinity of certain stations such as Goodwood, Monte Vista, Elsie River, Parow, and Tygerberg Stations.	Pressure management has been implemented in certain parts of the network to minimize the occurrences of pipe bursts, but will need to be used more extensively as the network ages further.	The Bellville Central Area and the greater Goodwood/Parow areas (north of Voortrekker Road) remain at risk post implementation of existing capital projects. This could be attributed to increasing incremental densification within these traditional suburban areas. This may warrant reprioritization of this area for capital expenditure to upgrade the waste water reticulation system.	Land use conversion from previously monofunctional areas to mixed use areas are not necessarily constrained by electricity supply as various uses (e.g. business/industrial and residential uses) require electricity supply at different times of the day.	However, the associated operational budgets required to enable increased service provision is the primary concern regarding solid waste provision. This includes labour, fleet, plant and other associated resources to effectively carry out necessary solid waste operations. Risk in terms of Solid Waste service provision would need to be determined once densification scenarios are formulated for the corridor.	The City has created peer connections to 3rd party network centres. This lays the foundation for individual 3rd party commercial service providers to enter into infrastructure lease agreements against the City's published tariffs to render services across City infrastructure to their clients.
3	Detailed stormwater master planning is required to determine the necessary engineering interventions and associated costs to mitigate against the flood hazards caused during 1:100 year storms.	These areas of high network failure often coincide with areas where densification is strongly encouraged. As a result developers are required to take the responsibility of boosting pressure in high-rise buildings.	The Bellville Central Area in particular, where around high intensity mixed use development is identified in accordance with Durban Road realignment, would be significantly constrained by the residual waste water risks in the Bellville area.	The development of major strategic sites such as Wingfield, Tygerberg Hospital and Stikland Hospital, Culemborg Rail Yard and Conradie Hospital, could necessitate significant lead time in order for necessary electricity infrastructure upgrades to be planned for and implemented.		The City of Cape Town recently has entered into third-party agreements with 8 different service providers for access to its upgraded fibre network infrastructure, and negotiations are progressing with 20 more service providers to extend a variety of broadband connections within the City.
4	The Triangular Transnet site north-east of Wingfield is severely constrained by seasonal flooding, and thus has limited development potential.	Current network replacement is prioritized on a needs basis and not on an area basis, and is also influenced by levels of service (e.g. pressure management, reliability of service). This system is largely reactive as little pre-planning is undertaken.	The sewer infrastructure along Voortrekker Road is relatively old, which may need to be taken into account if increased densities along the corridor are considered. In these cases existing pipe replacement or rehabilitation will be required.	The significant transformation of areas from low intensity to high intensity areas such as Bellville Central Area would need to be reviewed once detailed local area planning reveals the extent of additional bulk that redevelopment could bring to the area.		Among these 3rd party service providers, Telkom has requested the use of the city's network to render last-mile services to schools to provide high speed internet connections to learners at schools.



5			Constraints in electricity generation from Eskom are more concerning than infrastructure upgrades. This is particularly concerning given the City's increased focus on technological innovation and expansion of telecommunications infrastructure throughout the city.		
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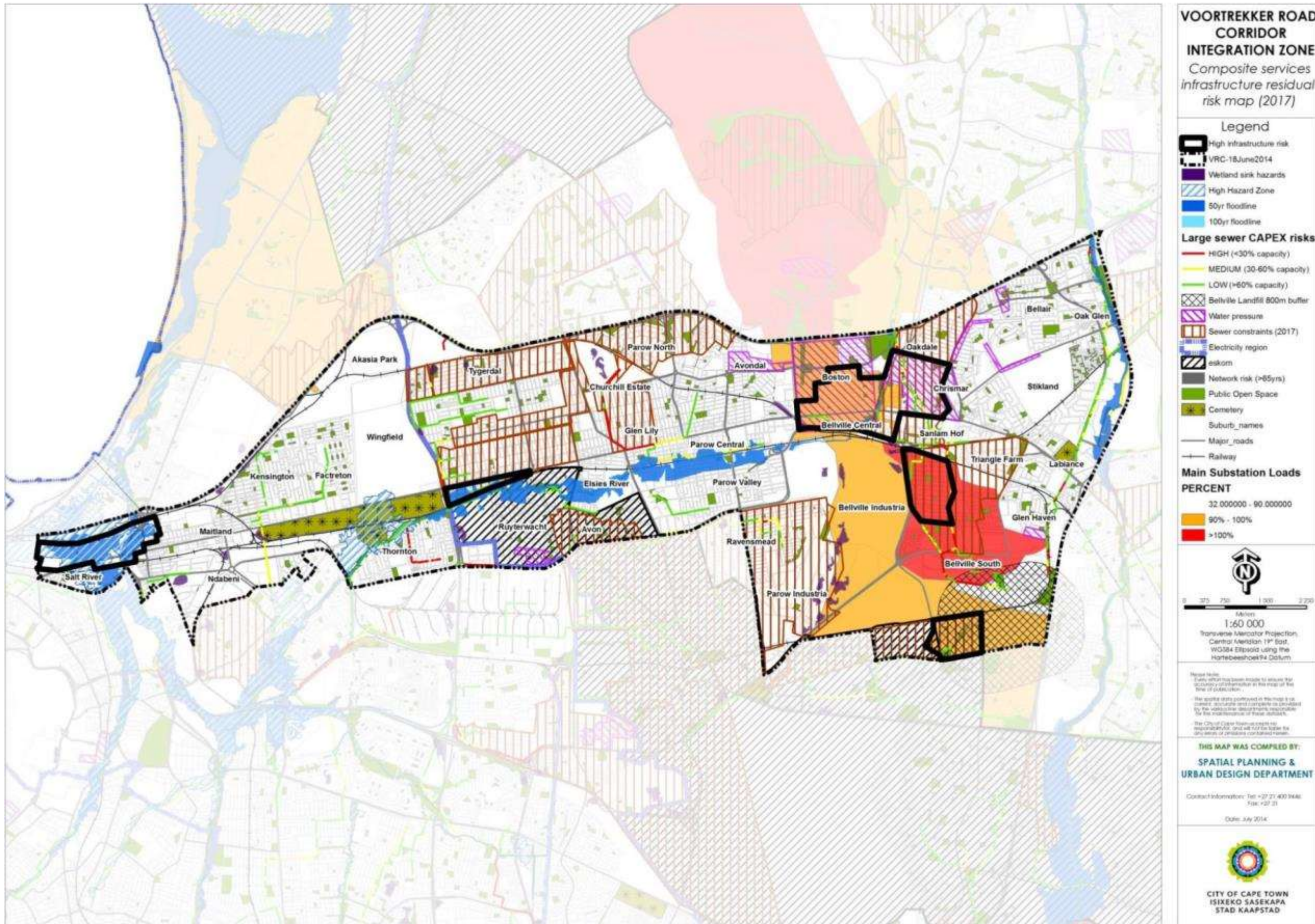


Figure 124: Composite infrastructure services risk map

Table 25: Infrastructure services budget for current and future projects

Infrastructure services budget: Current and future projects													
Utility	Project	Current 3-year budget			Planned (2018-2023)						Total	Notes	
		2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23			
Stormwater	Salt River Canal											R 450 000 000	Estimated CAPEX i.t.o high level master planning
												R 0	
												R 0	
												R 0	
Water services	water reticulation network	R 25 000 000	R 25 000 000	R 25 000 000	R 25 000 000	R 25 000 000	R 25 000 000	R 25 000 000	R 25 000 000	R 25 000 000	R 25 000 000	R 225 000 000	Required network investment per annum
												R 0	
												R 0	
Waste water services	Northern Areas Sewer Line	R 55 000 000										R 55 000 000	
	Bellville WWTW											R 0	
	Replacement of screw pump	R 3 000 000										R 3 000 000	
	upgrade clarifiers	R 1 000 000	R 5 000 000	R 10 000 000								R 16 000 000	
	Replacement blowers		R 20 000									R 20 000	
	sewer reticulation network	R 31 000 000	R 31 000 000	R 31 000 000	R 31 000 000	R 31 000 000	R 31 000 000	R 31 000 000	R 31 000 000	R 31 000 000	R 31 000 000	R 279 000 000	Required network investment per annum
Electricity	Platteklouf – N1 (Tygerdal)	R 45 800 000	R 36 068 900									R 81 868 900	
	Bloemhof Network Control Centre	R 23 478 100										R 23 478 100	
	Oakdale Switch Station Upgrade – Phase 2	R 10 000 000	R 71 360 890									R 81 360 890	
	Oakdale Phase 3				R 30 000 000	R 120 000 000						R 150 000 000	
	Sarepta Main Substation			R 30 000 000								R 30 000 000	
	Koeberg Road Switching Station (phase 2)	R 23 577 000										R 23 577 000	
	Stikland main substation upgrade	R 5 858 600										R 5 858 600	
	Tygerberg Hospital Reinforcement				R 20 000 000	R 12 430 000						R 32 430 000	
	Culemborg						R 6 713 000	R 53 657 700				R 60 370 700	
	Wingfield								R 90 000 000	R 60 000 000		R 150 000 000	
												R 0	
											R 0		
Solid waste	Bellville Waste Transfer Station	R 180 000 000	R 19 000 000									R 199 000 000	
	Beaconvale Drop-off facility	R 1 000 000	R 5 000 000									R 6 000 000	
	Kensington Satellite Drop-off facility		R 220 000									R 220 000	Land to be identified and secured
	Bellville Landfill											R 50 750 000	Land to be identified and secured
Communications	Phases 1, 2 and 3											R 0	Phases 1-3 complete
	Phases 4 and 5											R 0	Phases 4-5 to be completed in 2014/15
												R 213 000 000	
Spend/annum	R 348 713 700	R 136 669 790	R 40 000 000	R 50 000 000	R 132 430 000	R 6 713 000	R 53 657 700	R 90 000 000	R 60 000 000		R 1 631 934 190		

## References

### Telecoms

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<http://mybroadband.co.za/news/broadband/80595-100mbps-telkom-fibre-to-the-home.html>

<http://www.news24.com/Tags/Topics/broadband>

<http://mybroadband.co.za/news/government/100884-big-players-on-cape-town-fibre-network.html>

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### Solid waste/recycling

<http://www.tygerburger.co.za/172852/news-details/recycling-urged-as-landfills-fill>

## 9. Social Facilities Infrastructure

### 9.1 Status quo & trends/ areas of risk

#### 9.1.1 National & Provincial Government offices and services

**Social Development** is an unfunded mandate of the City but gets support from the Ministry of Social Development at the Western Cape Province. The Ministry is responsible for social development and poverty alleviation policy. It implements national and provincial social development and poverty alleviation policy through the work of the Department of Social Development (WCP DSD).

- The DSD runs facilities and services in the Province and the City of Cape Town's Department of Social Development support these mandates.
- There is a >>> where the WCP and City's staff do annual planning of service and facility provision.
- WCP DSD provides the following **services**:
  - Children & Family programmes consisting of sub-programmes for child care & protection, HIV/ AIDS, partial care & ECD, services to families;
  - Community development programmes including social relief of distress as well as youth development programmes;
  - Special programmes including older person, disability and substance abuse programmes.
- WCP DSD programmes are **implemented in partnership** with the private sector, Cape Town Municipality and NGOs. All of whom receive limited capital but more consistent operational fund contributions to the running of the above services at the following **facilities**:
  - accommodation and service centres for older persons;
  - child care and protection service centres such as child and youth care centres, drop-in centres for children and registered early childhood development centres;
  - residential facilities for persons with disabilities;
  - shelters for homeless adults;
  - crime prevention & support centres including child and youth care centres for sentenced children, secure care centres for trial awaiting children as well as youth training facilities;
  - substance abuse treatment centres;
  - shelters for victims of violence; and
  - specialised health care facilities.

**Department of Justice and Constitutional Development** aims to uphold and protect the Constitution and the rule of law; and to render accessible, fair, speedy and cost-

effective administration of justice, in the interests of a safer and more secure South Africa. To do this, this National Department operates in the City of Cape Town and provides the following services:

- Promotes constitutional democracy;
- Provides appropriate legal services; and
- Manages courts and alternative dispute resolution mechanisms.

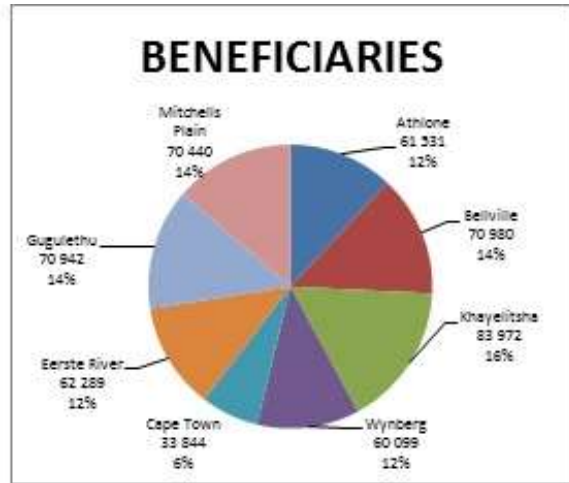
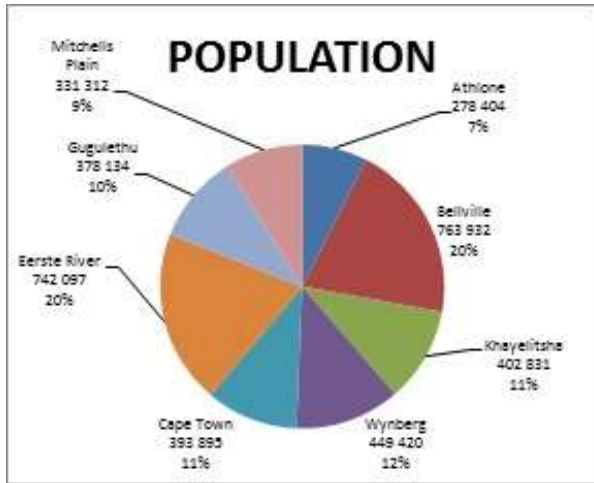
The following types of courts are run: Community, Equality, Magistrates', Maintenance, Sexual Offices, and the Small Claims.

Apart from the Provincial High Court, located in the CBD, the VRS has a good spread of magistrates offices and various types of courts concentrating around Voortrekker Road at locations such as Bellville, Parow and Goodwood. AT least the most significant being Regional, Magistrates and specialised Commercial Crime Courts, covering a much wider catchment such as the Western Cape are located in the VRC.

The **Department of Labour** for the Western Cape with it range of services such as (labour enquiries, complaints, UIF registration & claiming, and employment equity), has its main office in the CBD and support offices in Bellville, Goodwood, Athlone, Atlantis, Mitchell's Plain and Somerset West. Thereafter services are rendered from surrounding towns like Paarl, Malmesbury, Vredendal etc. The Bellville and Goodwood locations provide services to the large concentration of people from the north of the City, whilst the Athlone, Mitchell's Plain and Somerset West office covers the south of the City.

The offices of **SASSA (South African Social Security Agency)** who are responsible for the administration and distribution process for the 0.5 million recipients in the City of Cape area, are well located throughout the VRC and MSE. The fixed, mobile or satellite locations where grant registrations are facilitated at or where monthly grants are being paid out, is widely spread throughout the study area. There is an increase in locational frequency in the MSE – correlating with the spatial location of the families with lower socio-economic conditions. Around 14% of the City of Cape Town's population of 3,740million people are grant recipients. Process administration is handled by 374 staff and the estimate rand value is around R300 million per month.

The location of beneficiaries align with the location of the population (refer to graphs below). Although proportionally more beneficiaries are located in Athlone, Bellville, Khayelisha, Gugulethu and Mitchell's Plain.



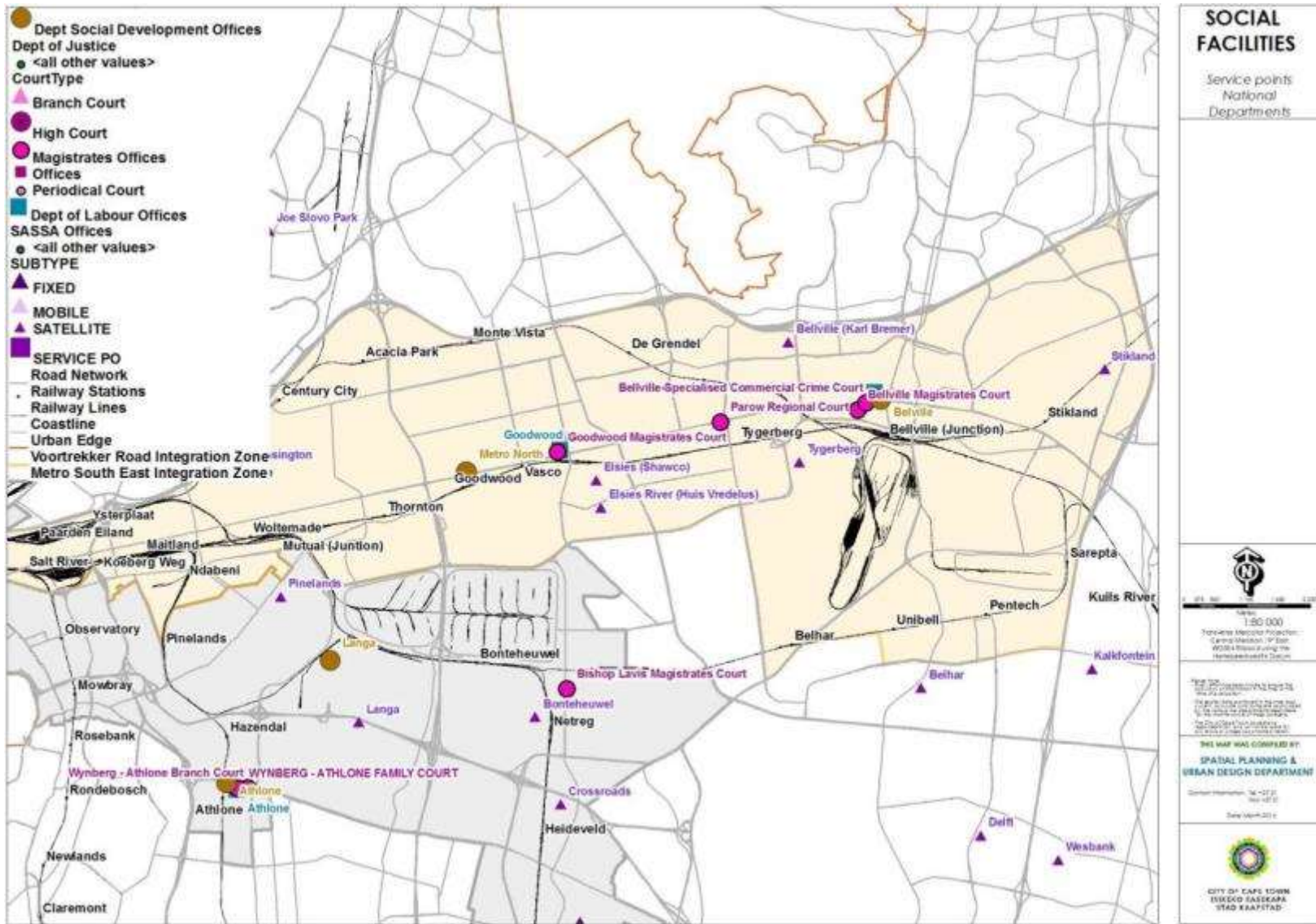


Figure 125: National department service points



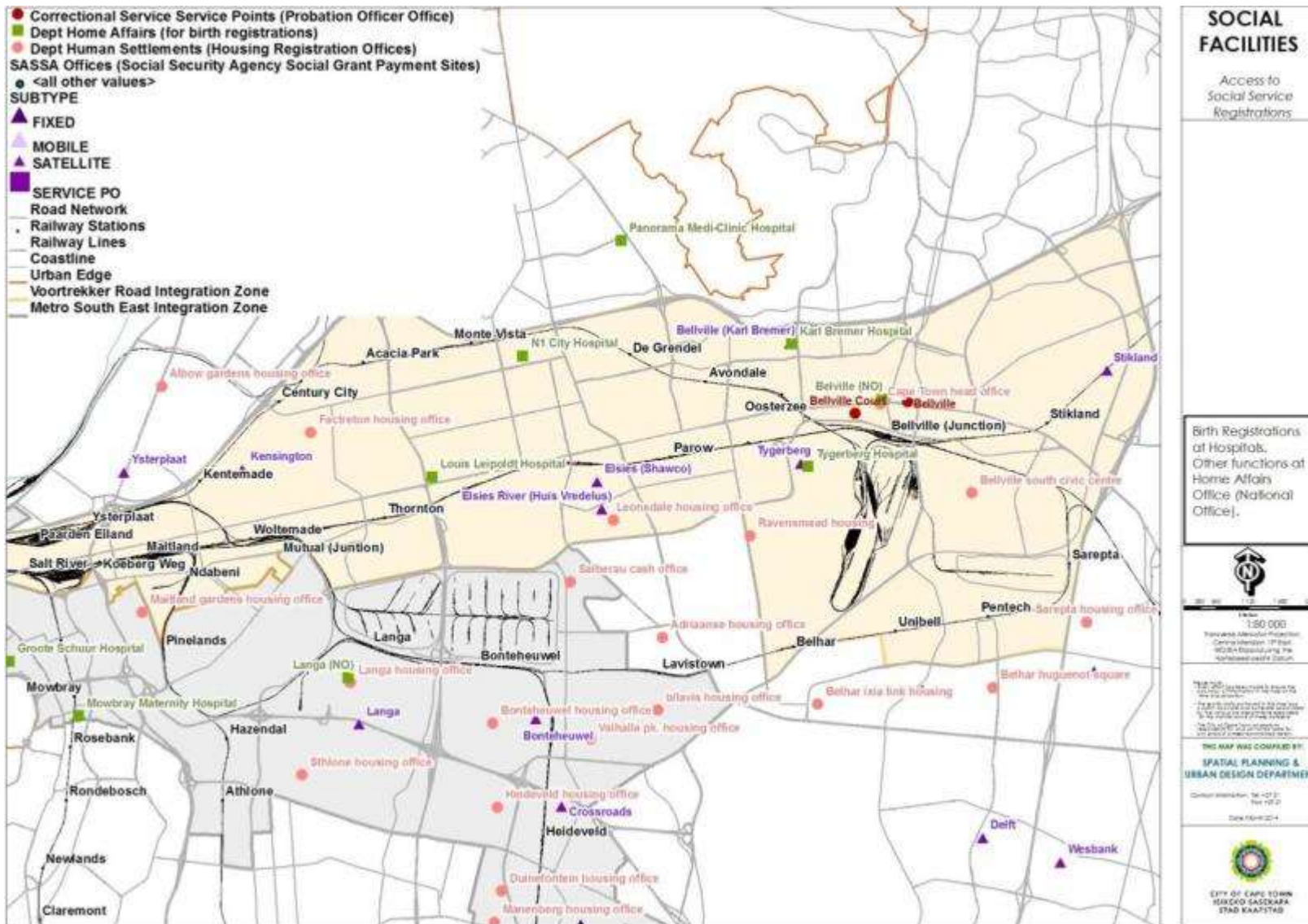


Figure 127: Access to social service registrations

There used to be a much stronger relationship between location point for grants payments, and the geographical location of the recipients registered home address. SASSA continues to rent and use City owned civic centres or community halls for the displacement of monthly social grants to recipients. They also averted to alternative methods such as electronic payments through service desks at Shoprite and Checkers which combats crime attacks on the distribution agent. However the unpredictability of where people pick up their grant money places the retail company under pressure and hence it is not sure how this model will look in future. There is not yet talk of electronic transfers associated with the absence of the recipient's in-person appearance and required validity processes.

Apart from the abovementioned essential access to registration points for social services like SASSA, citizens also use the VRC to congregate to for other social support services. This includes access to the services of the **Department of Home Affairs; Human Settlements and Correction Services**.

The aim of the provincial office of the **National Department of Home Affairs (DHA)** is to protect and regulate the interests of the inhabitants of South Africa, in respect of their individual status, identity and specific rights and powers. It issues and controls most documents that citizens need, such as birth certificates, IDs, passports and marriage certificates. The Department offers a multitude of services to the citizens of South Africa, as well as foreigners who wish to visit or stay in the country. Some of these services include: Identity documents; Travel documents; Citizenship; Birth registration and certificates; Adoption records; Marriage registration and certificates; Death registration and certificates; Population register amendments; Visas; Temporary residence permits; Permanent residence (immigration); and Refugee and asylum applications. Birth registration offices of the DHA are also located at some of the private and state hospitals in the VRC and the Provincial Office is located at the Bellville node.

The provincial office of the **National Department of Human Settlements (DHS)** is responsible for developing sustainable integrated human settlements in the Western Cape. They are tasked with creating human settlements that allow its residents to access social and economic opportunities close to where they live. The DHS have **Housing Registration Offices, in association with the City of Cape Town** which are assisting with registration applications for subsidised housing, supporting the People's Housing Process (PHP), dealing with Land Disposals, Residential rental of Government Properties, and dealing with rental disputes between landlords and tenants (the rental housing tribunal). Housing office sites are predominately located to the south of VTR and increase in number going south where larger proportion of housing dependent population resides at present.

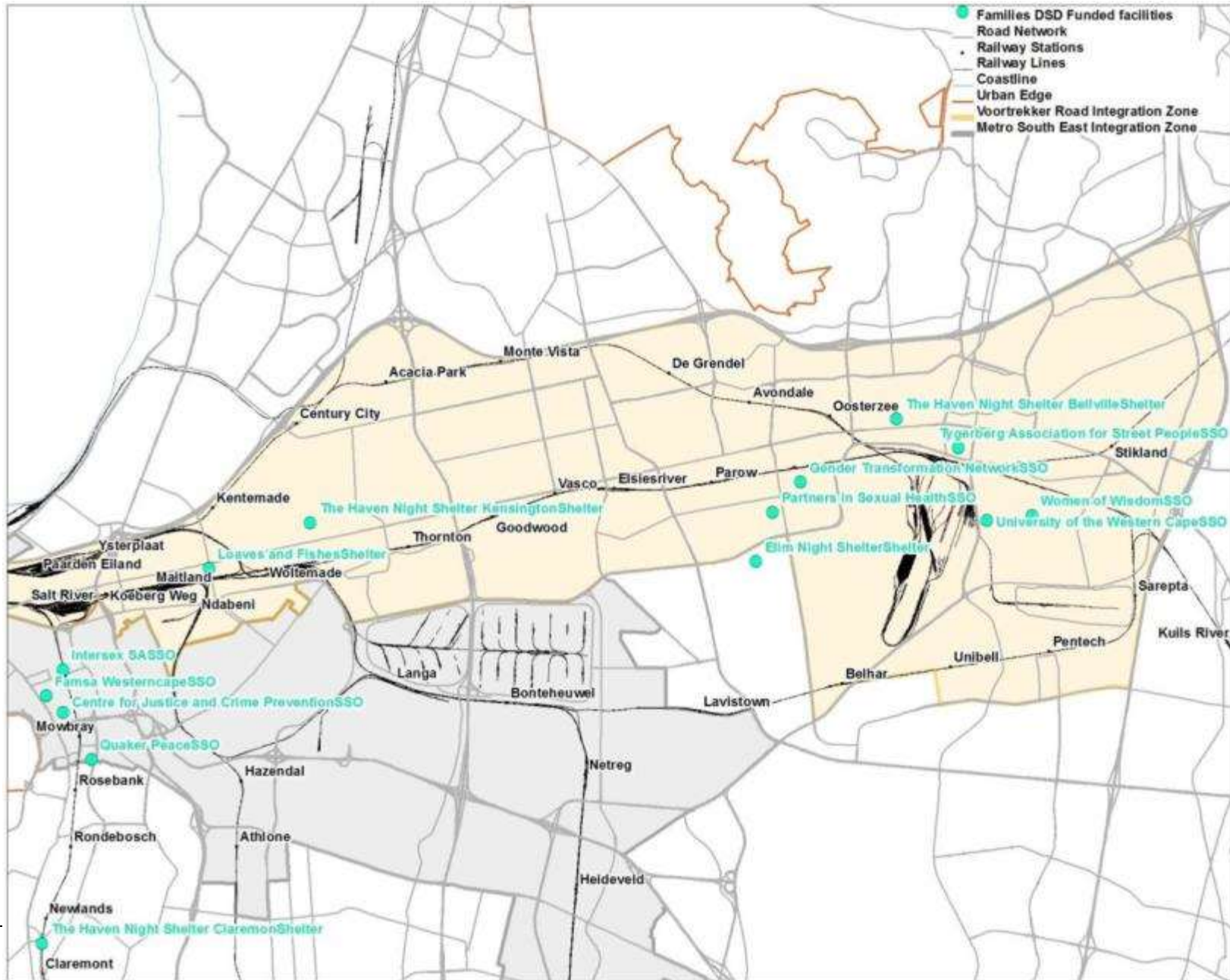
The provincial office of the **National Department of Correctional Services'** aim is to contribute towards maintaining and protecting a just, peaceful and safe society, by: enforcing court-imposed sentences; detaining prisoners in safe custody; and promoting the social responsibility and human development of all prisoners and those subject to community corrections. The Department's core business is the safe custody and supervision of offenders. It practices risk management in respect of offenders and acknowledges and applies the concept of humanity and human

rights regarding all stakeholders. The adjacent map indicates the location of at least 1 of the office of the Probation Officers, responsible for the execution of correctional supervision (CS) and parole (the 2 alternatives to imprisonment). Through the programme and the strategic location of community correction staff, the offenders are assisted with their reintegration into the community and supervision and control is exercised over offenders who have been sentenced to CS. The location of the Probation Officers is on the adjacent map and is located at Bellville and the Bellville Magistrates court.

## **Trends in the VRC re Government led provision of social/ community facilities and services provided**

- **Regional and Metropolitan level offices of Provincial and National Departments locate in Bellville or Goodwood areas** – sometimes supported by another (main) office in the CBD. Hence indicating that the VRC is hosting services of provincial importance. Secondary or tertiary nodes in Athlone or Langa and then further south in Mitchell's Plain and Khayelitsha also exist with an increase in numbers related to an increase in population density and cliental quantum into Metro South East. This pattern is envisaged to continue.
- Contrary to most of the service providers who are aiming to **have larger, more centrally located, comprehensive-service provision strategies**, the SASSA direction is to move toward more local offices located closer to the highest concentration of the population.
- On the other hand, **electronic pay-outs by SASSA are increasing in efficiency and scope**. Similar to the patterns in other provincial and national governments, it is anticipated that on-line registration will continue to increase, hence reducing the requirement for a magnitude physical registration offices close to the people. However, it is likely that physical offices will continue to exist considering the physical verification part requiring a human to present itself before access to product or services is confirmed (like visa interviews, ID documents, social grantee interviews).
- It **would be ideal, but not yet investigated** to what extend all national and provincial departments' IT systems could be integrated so that central 'services offices' could be established were a member of the public can queue for 'interviews/ physical verification' and hence get access to the complete scope of social/ community/ citizen services/ benefits as listed above.

Status:  
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**SOCIAL FACILITIES**

Prov Dept of Social Services  
Funded Facilities

Current Offices & Service Centres

Legend

  
 0 200 400 600 800 1 000 1 200 1 400  
 1:00 000  
 Transkei Mercator Projection,  
 Central Meridian 18° East  
 WGS84 Ellipsoid using the  
 International Datum

This map was compiled by:  
**SPATIAL PLANNING & URBAN DESIGN DEPARTMENT**  
 Contact Information: Tel: +27 21 460 1000  
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 Date: March 2014

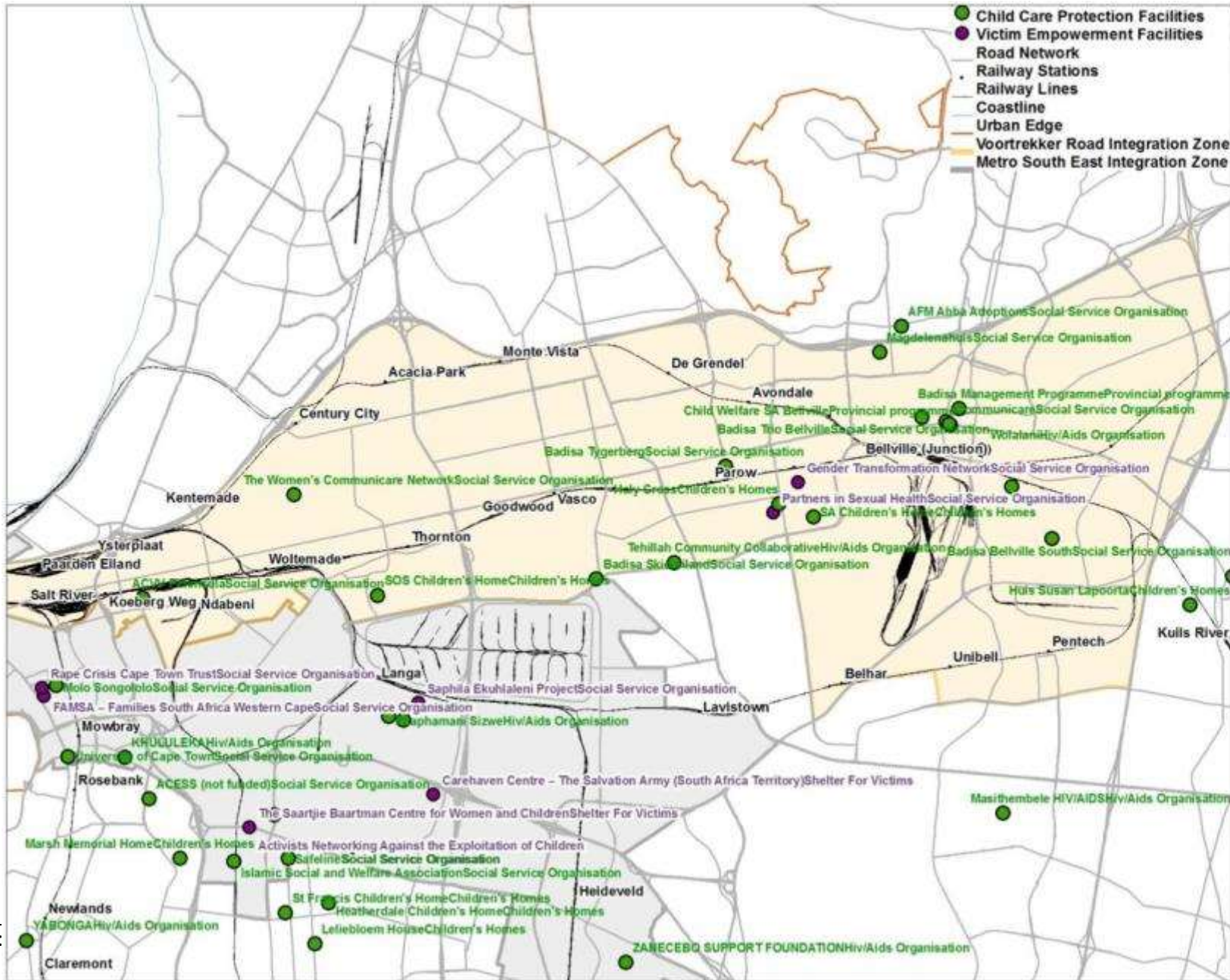
  
**CITY OF CAPE TOWN**  
 ISIXEXO SASAKAPA  
 STAD KAAPSTAD

**Figure 128: Provincial department of Social Services funded facilities**

### 9.1.2 NGO/ CBO and private sector offices and services

The adjacent map indicates the location of private sector/ NGO managed night shelter facilities and services for people living on the streets. Fourteen of the nineteen WCG DSD- registered facilities, are located in the City of Cape Town. Three of the fourteen is located in the VRC. These facilities and the services they provide are a cumulative response by the NGOs/ churches/ private sector and they are partially financially supported by the WCG DSD. The City-run programme related to street people also runs from or in collaboration with these service centres. The City Improvement Districts refer street people to these shelters whilst the City buys bulk-nights from the NGOs as part of its street people project where people can stay during the 7-day assessment period which kick-off the City's programs. Thereafter the City and other role players are trying to re-integrate the street person to its family. All bed nights in the shelters amounts to around 3,500 while the City anticipate that the existing needs is already around 9,000. Hence there are high level strategic discussions by some parts of the City's Social Development Department for so-called Assessment Centres to accommodate street people during the assessment period. Note the financial feasibility was never discussed and brief discussions pointed to the unviability of pursuing any such additional capital projects considering the already existing lack of operational budget. The adjacent map also refer to **Family related SSO** (Social Service Organisations), which basically represent the locations of offices of organisation that effectively host players involved in training, advocacy, communication, counselling and research type of services related to specific subjects including families, justice & crime, women empowerment, gender and related matters rendered by the Universities, NGOs, church and other private organisations. Some of these also get partial financial support from the WCG DSD.

The map below refers to **child care, child protection and victim empowerment Social Service Organisations that** either have offices and/ or facilities. These facilities and services are also partially financially supported by the WCG DSD due to the type of programs run. They predominately depend on their own fund raising initiatives and also apply at the National Lottery, private sectors, church networks and international donors. These services centres render essential services like hosting destitute children in children's homes, shelters for abused women, and serve as a transit space where the official or legal processes are pending ensuring the safety of victims over the long term. Victim related centres increase in frequency going south where population density is higher, but 2 locations exist in the VRC. Children's homes and other SSO's focussing on children are widespread throughout the VRC with a concentration in the Bellville area and other nodes in the metro (like Athlone and other nodes in the MSE Corridor).



- Child Care Protection Facilities
- Victim Empowerment Facilities
- Road Network
- Railway Stations
- Railway Lines
- Coastline
- Urban Edge
- Voortrekker Road Integration Zone
- Metro South East Integration Zone

### SOCIAL FACILITIES

Child Care & Victim Empowerment Centres

Current office & Service Centres

Legend

Scale: 1:50 000  
 Spherule Mercator Projection  
 Central Meridian: 18° East  
 WGS 84 Datum using the  
 North-South Africa Datum

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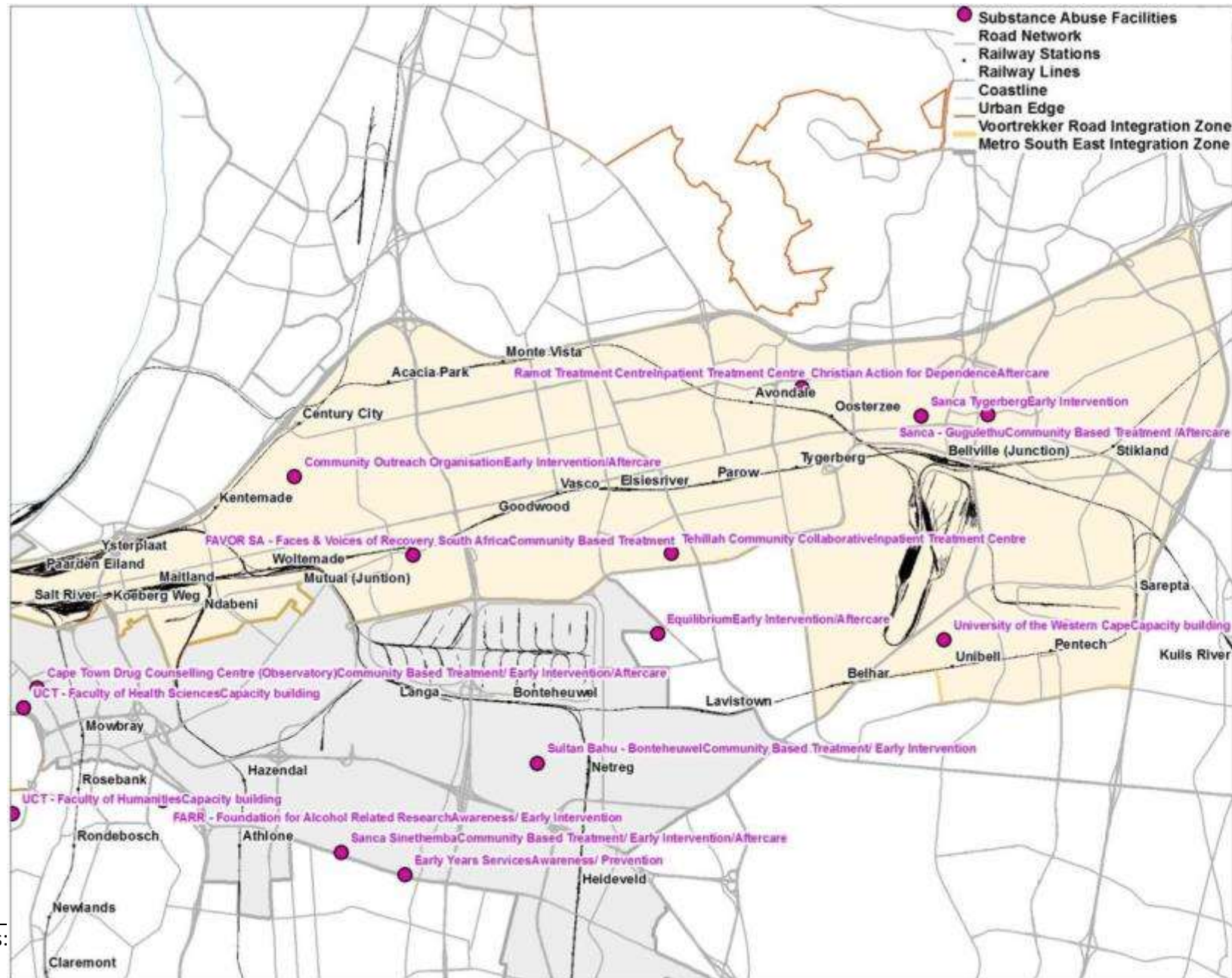
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**Figure 129: Child care and victim empowerment centres**



## SOCIAL FACILITIES

Substance Abuse Facilities

Current Offices & Service Centres

Legend



Source: Municipal Projection, Central Meridian 18° East  
 WGS 84 Datum using the International Datum

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**Figure 130: Substance abuse facilities**

There are also a wide range of offices and service centres for substance abuse individuals. These centres generally focus on research, advocacy, provide information, networks, counselling and preventative programs which can support the victim/ client as well as their families. Service centres are well spread throughout the VRC with a concentration around Bellville and frequency increase towards the south. These facilities are generally run by the NGOs, churches and get limited financial support from the WCG DSD based on their programmes.

There is a wide range of services and facilities related to the elderly. The majority of the services are run by the church/ NGOs and include day services centres (offering a range of medical tests, social events, shopping trips) and sometimes meals-on-wheels initiatives. Similarly there are also facilities such as retirement flats/ complexes predominately in private/ church management that also get limited and partial financial subsidy/ support from the WCG DSD (and other like the Lotteries for vehicles). A relatively large number are located in the VRC. The VRC is well covered with service centres in a lot of the residential suburbs which used to be occupied by single residential families. Then there are privately owned retirement complexes which are non-subsidised – predominately located outside the VRC.

**Trends in the VRC re NGO & privately led social/ community facilities and services provided (partial limited government subsidy or donations):**

- **Predominate privately owned** financed and managed facilities locate outside the VRC.
- The VRC is hosting quite a lot of **service providers and facilities** related to victim support (including, children, women, homeless, elderly), more so that the northern, eastern or southern part of the city
- The **location decisions of the now partially government sponsored facilities tend to be historically made** (either being previously fully government or NGO funded). These locations will also become fluent in cases where service provision is not related to ownership of the building. Increases in rental costs will push for relocation of service centres unless a larger correspondence is made between the location of churches who owns quite bit of land the VRC.
- **Locations of services provisions** related to population density in the VRC.

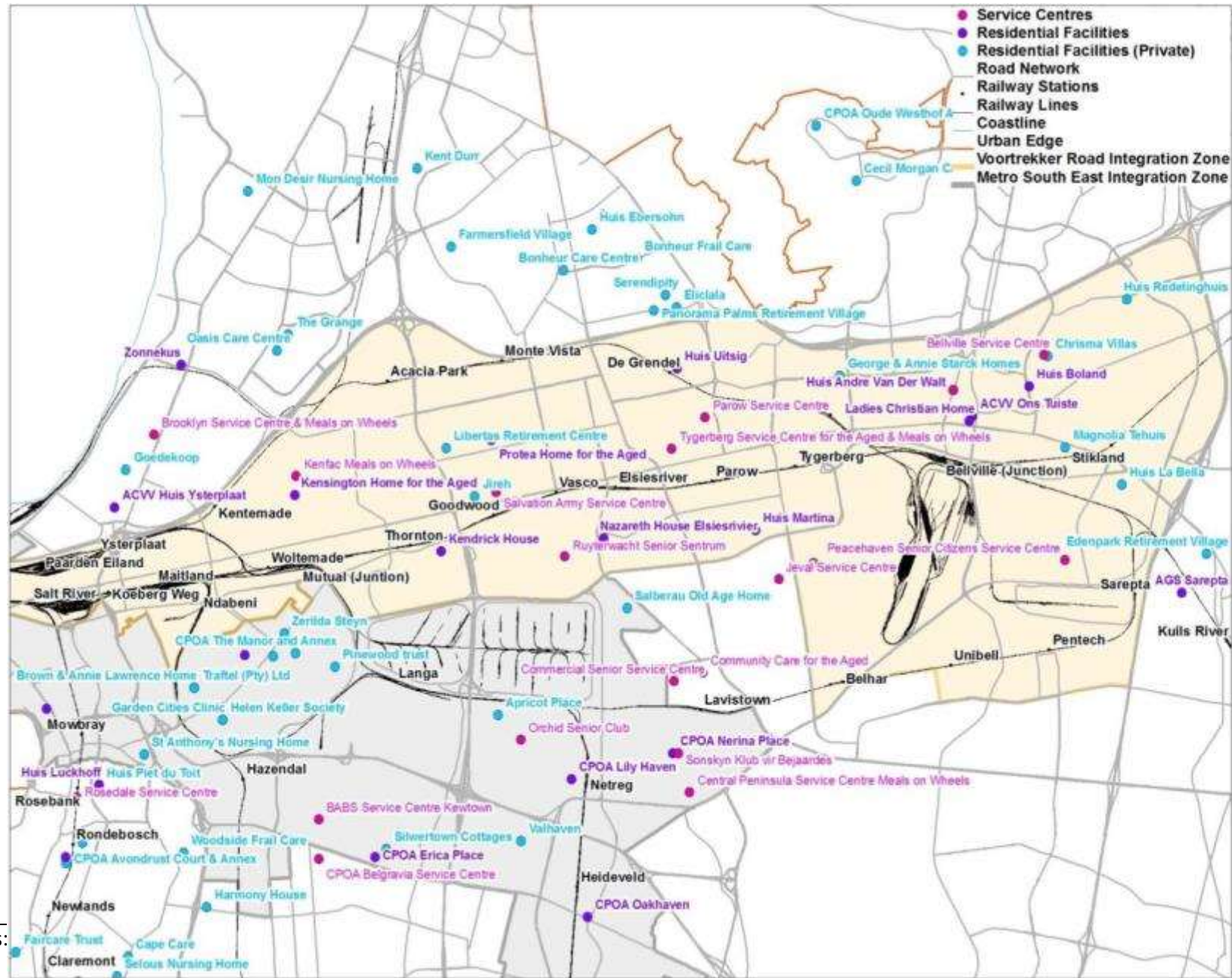
### **9.1.3 Pre-primary, primary and secondary Education**

Education services and facilities are provided by the **Provincial Department of Education through the provision of pre-primary, primary and secondary schools.**

The private sector is also an increasingly important provider of primary and secondary education, most of which are registered through South African or international controlling bodies. The Early Childhood Centres (0-5years) are predominately provided by the private sector but the WCG aims to register the service providers. The maps below indicate the number of children before the school name and the number of teachers at the back.

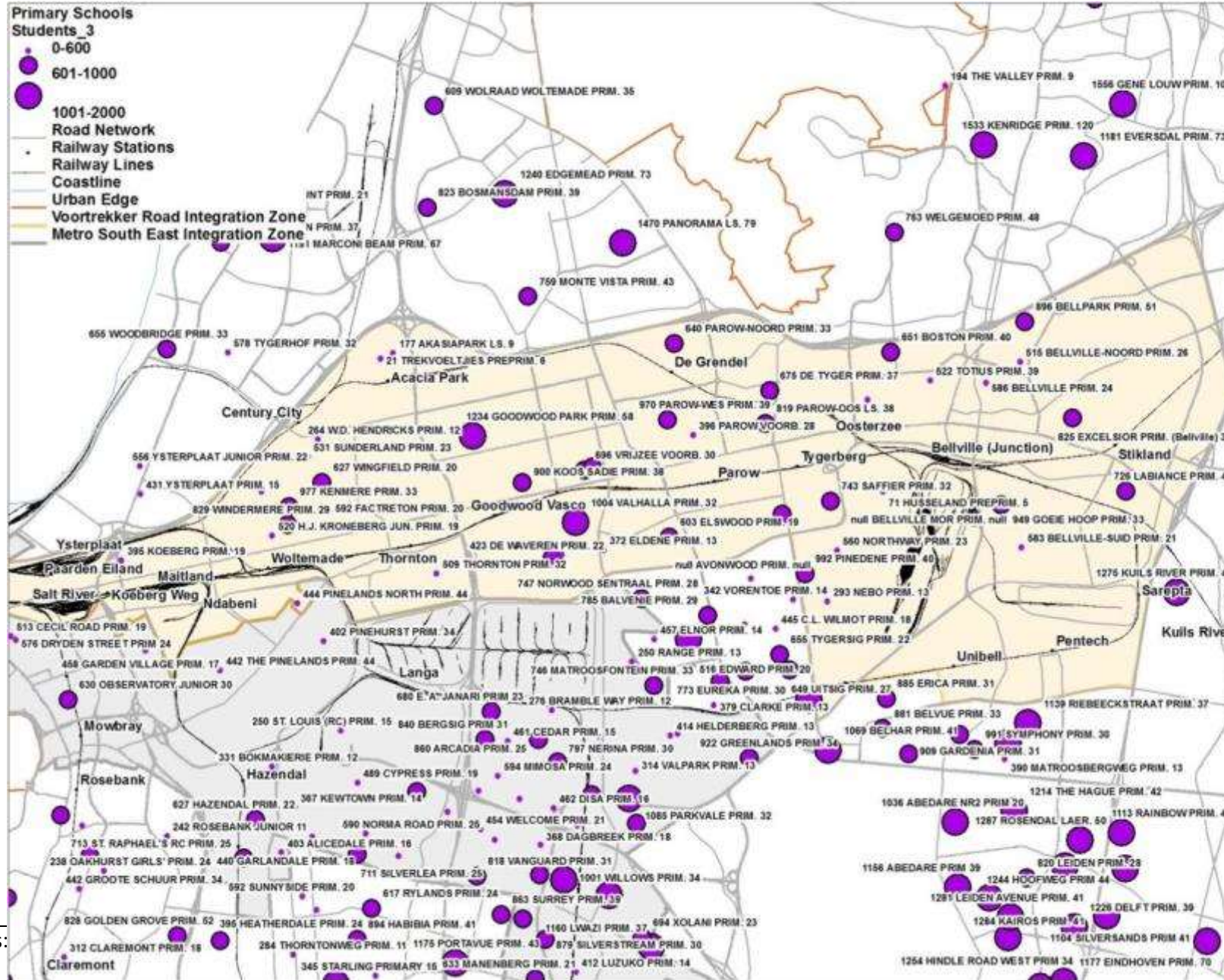
Although quite a few large **primary schools** are located inside the VRC, there is a much larger number located to the south in MSE and the northern part of the city with schools above 600 kids. Primary schools are evenly spread throughout the VRC.

The Goodwood/ Vasco areas have the largest concentration of large primary schools.



Status:  
 Draft

**Figure 131: Older persons service centres & facilities**



Primary Schools  
Students\_3

- 0-600
- 601-1000
- 1001-2000
- Road Network
- Railway Stations
- Railway Lines
- Coastline
- Urban Edge
- Voortrekker Road Integration Zone
- Metro South East Integration Zone

### SOCIAL FACILITIES

Primary School Sizes

Student numbers (2012) in front of School Name.  
Teacher numbers (2012) behind School Name.



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**Figure 132: Primary school sites**

**Secondary schools** are generally well located in the VRC, with more larger secondary schools located outside VTC. Secondary schools in the VRC are predominantly located to the north of VTR with Bellville/ Parow having higher concentrations of large secondary schools in excess of 700 children. Compared to the MSE, many more large schools exist outside the VRC.

The boundaries of the districts of the WCG Department of Education does not align with the City's planning boundaries, but at least the Bellville and Goodwood regions overlap. The table below indicates the proportional number of learners going to schools in the VRC compared to other much larger districts. It is also known that due to the 'perceptual' low standard of education in the MSE, many of the children commute to schools located in the VRC. No statistical information is available on numbers from the WCG Department of Education.

School students per Region			
Ordinary (Pre-Prim, Prim, Interm, Sec Schools - public and private)	2011	2011	
Education Region	Student Nr	Teacher Nr	
Bellville (Belhar, Delft etc)	83 963	3 685	12%
Cape (Gardens, CampsBay, Saltriver)	51 358	2 371	8%
Goodwood (ElsiesRivier, Parow, Goodwood)	64 175	2 824	10%
KuilsRiver (Kraaifontein, Brackenfell, Kuilsriver)	86 219	3 279	13%
Mitchell's Plain (Khayelitsha)	124 827	4 337	19%
Malmesbury (Blaauwberg, Atlantis)	18 302	686	3%
Simon's Town	15 017	730	2%
Somerset West	16 245	719	2%
Strand	21 266	828	3%
Wynberg (Althlone, CapeTown, Philippi)	191 205	8 393	28%
	<b>672 577</b>	<b>27 852</b>	100%

The **utilization levels of government schools** are reflected on the maps below. The over-utilisation/ pressure analysis is done by the WCG Department of Education's 2-3 year survey of the number of square meters per learner of classroom space. More primary schools are located to the south of the VRC.

It is clear that the **majority of primary schools** in the VRC are located to the north of VTR and that almost all primary schools in the VRC are not over-utilised – even although it is a fact that their learners are coming from different places in the City. During discussions with the WCG Education Department's staff during the CSIR process, this picture is continuously changing considering the high and growing demand for schooling of primary children in areas outside their residential area. The only reason this likely still seems to be under-utilised could be because some of the older schools were build at a higher more spacious size than recently build schools in MSE and also because of first language preferences, some children remain to go to mother-tongue schools in MSE and Mitchells's Plain. Quite a few of schools which have capacity are located in the corridor. No investment for replacement of

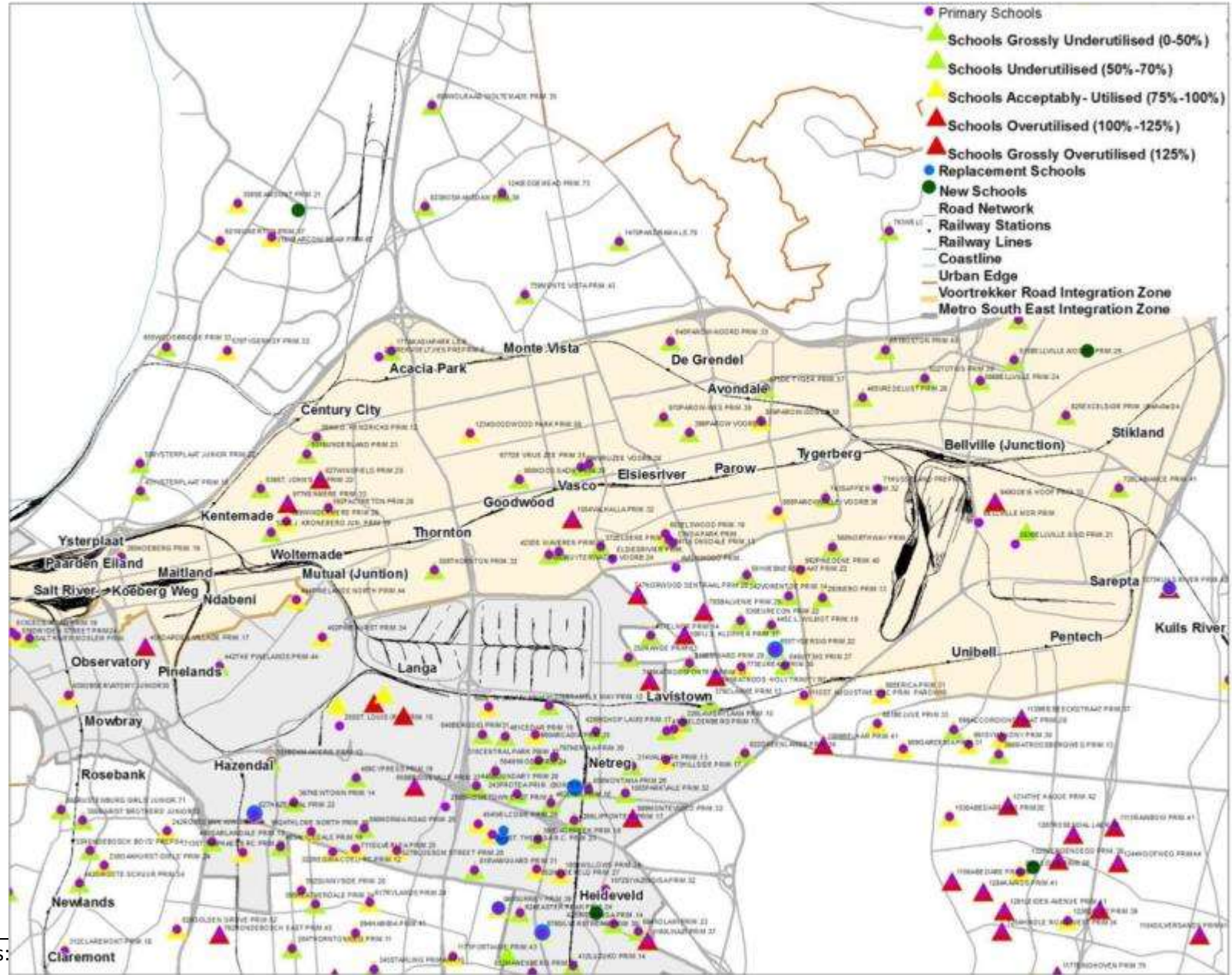
schools (blue dot) are planned in the corridor according to the WCG DE and only 1 new school location (green dot) likely to be located in the corridor in the future.

The **secondary schools** are reflected on the next map. More secondary schools are located to the south of the VTR corridor than to the north. The most secondary schools under pressure are located outside the VTC – with the only ones under pressure being in Bellville side of corridor. Quite a few of secondary schools which have capacity are located in the corridor and are generally well used according to verbal conversations by the officials. No investment for replacement of schools (blue dot) is planned in the corridor and only 1 new school location (green dot) is located in the corridor.

**Over-utilisation increases** significantly south of VTR with significantly more primary schools under pressure.



**Figure 133: Secondary school sites**



- Primary Schools
- ▲ Schools Grossly Underutilised (0-50%)
- ▲ Schools Underutilised (50%-70%)
- ▲ Schools Acceptably- Utilised (75%-100%)
- ▲ Schools Overutilised (100%-125%)
- ▲ Schools Grossly Overutilised (125%)
- Replacement Schools
- New Schools
- Road Network
- Railway Stations
- Railway Lines
- Coastline
- Urban Edge
- Voortrekker Road Integration Zone
- Metro South East Integration Zone

**SOCIAL FACILITIES**

Primary Schools  
Risk and  
Investment  
to 2016/17

Legend

Student Numbers  
(2012) in front of  
School Name and  
Teacher Numbers  
at the back.

Scale: 1:90 000  
Spherica Mercator Projection  
Datum: Africa World Map  
Datum: WGS 84  
Datum: Africa World Map  
Datum: WGS 84

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Figure 134: Primary schools risk and investment 2016/17

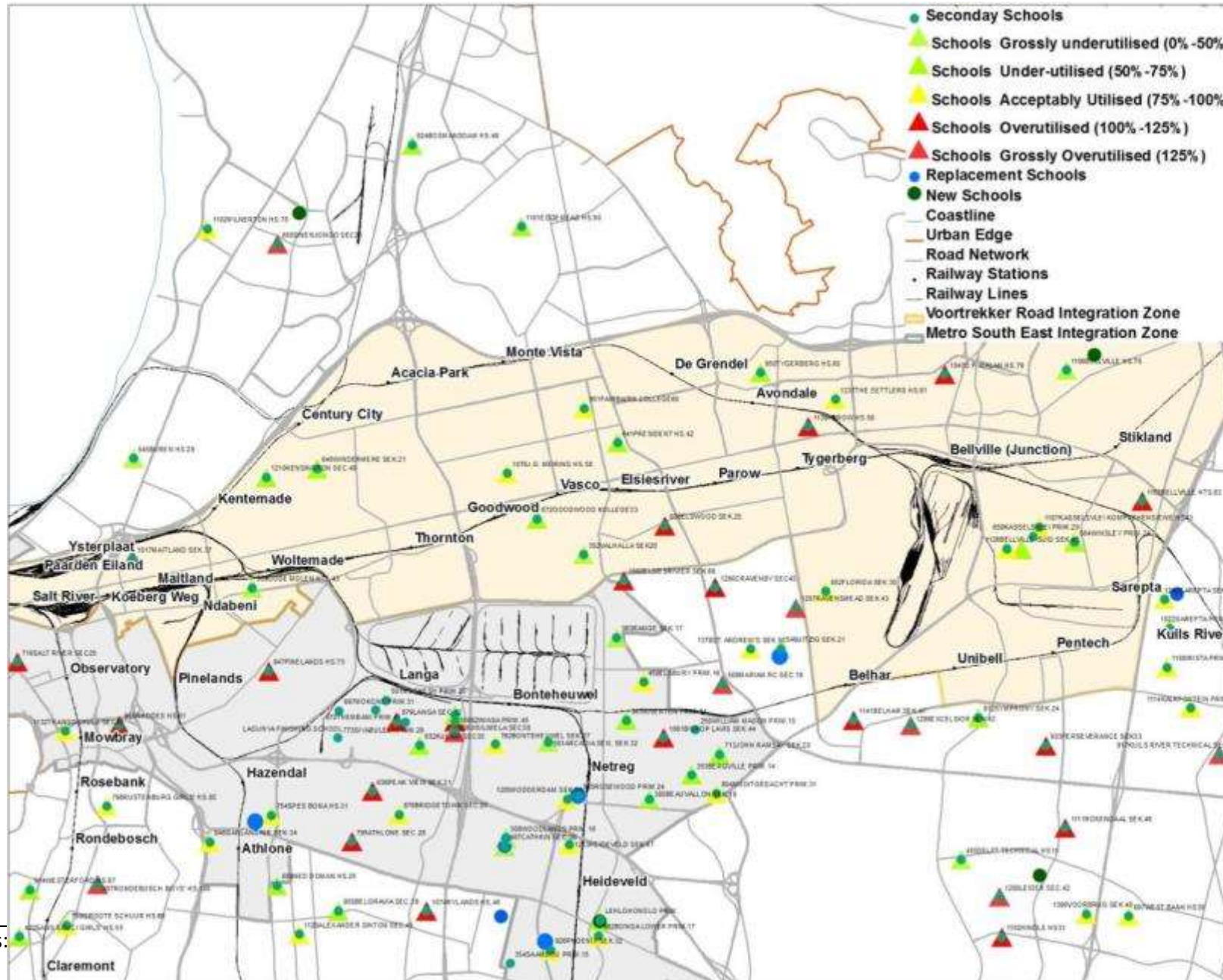
The **location of private schools** (often ranging from pre-school/ nursery, to pre-primary and primary) are in the VRC is resembled in the following map. Private schools are evenly spread throughout the corridor and surrounding areas, but student numbers are low compared to the government schools.

**Early Childhood Development Centres** ECDs(0-5 years) are generally provided by both the private sector as well as some of the being supported by the Western Cape Department of Education as being registered. The provision of facilities is predominantly done by the private sector but City of Cape Town has also around 30 such assets (of the more than 600 being registered) on its asset list. ECDs are widespread but concentrated to residential dominant areas (not located close to primary public transport interchanges). Frequent turnover in operations and locations are constantly changing. Locational concentration relates to population density and increases to the south of the metropolitan area where dominant residential areas are located.

**Trends in the VRC re education:**

- Schools in the VRC will continue to be used by residents from other areas in the city and the language will be the determining factor increasing or decreasing applications. More than before, the existence of existing school sports fields seems to be a growing attraction.
- ECDs will continue to be located in residential areas and will only move into commercial zones if rental prices are not negatively affective financial feasibility.





- Secondary Schools
- Schools Grossly underutilised (0% -50%)
- Schools Under-utilised (50% -75%)
- Schools Acceptably Utilised (75% -100%)
- Schools Overutilised (100% -125%)
- Schools Grossly Overutilised (125%)
- Replacement Schools
- New Schools
- Coastline
- Urban Edge
- Road Network
- Railway Stations
- Railway Lines
- Voortrekker Road Integration Zone
- Metro South East Integration Zone

### SOCIAL FACILITIES

Secondary Schools:  
Risk and  
Investment  
to 2016/17

Current Facilities

Legend

Student Numbers  
(2012) Infront of  
School Name and  
Teacher Numbers  
at the back.



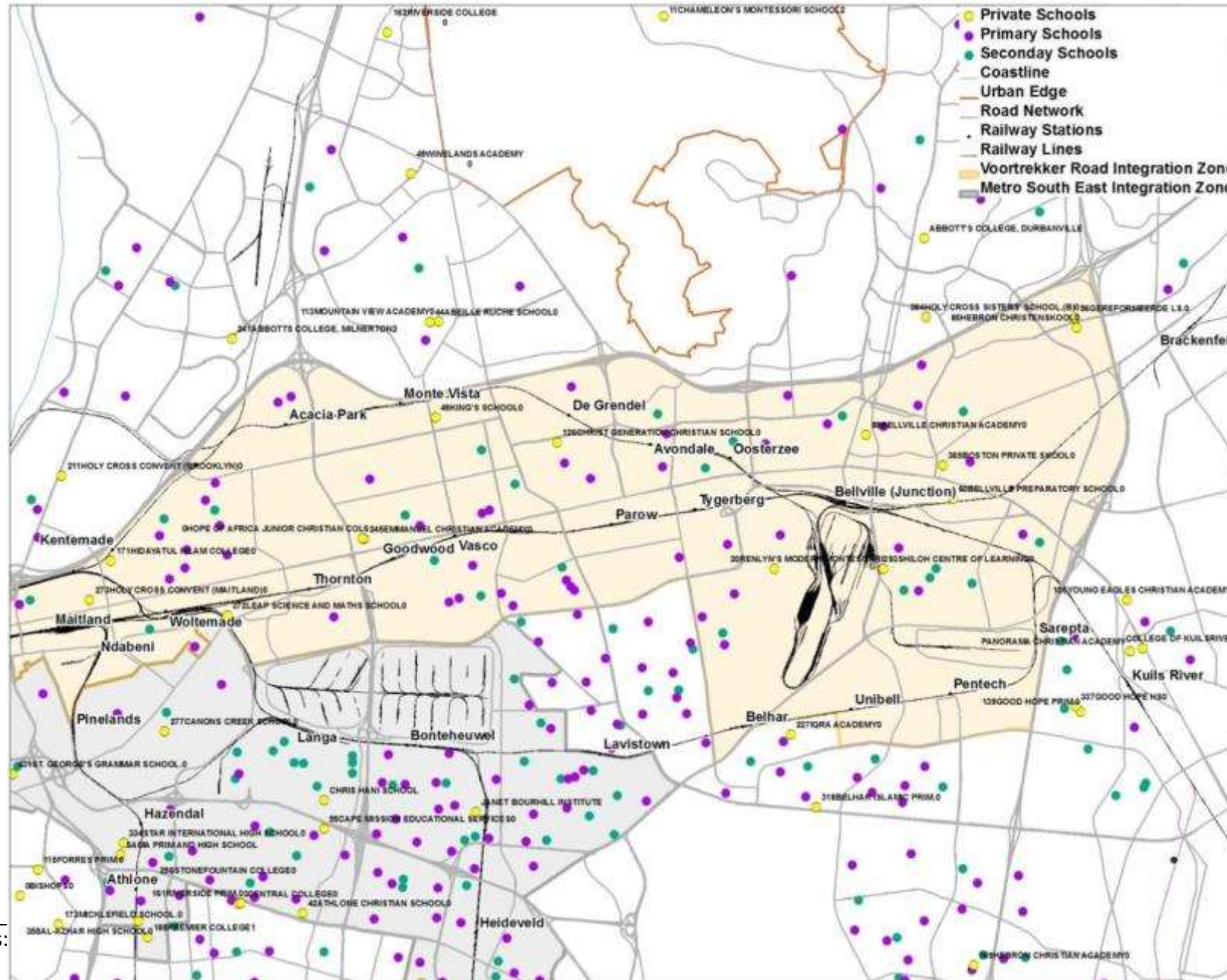
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Figure 135: Secondary school risk & investment 2016/17



### SOCIAL FACILITIES

Private Schools vs Primary and Secondary Schools

Current Facilities

Legend

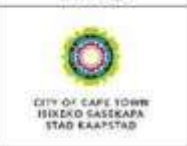
Student Numbers (2012) in front of School Name and Teacher Numbers at the back.

Scale: 1:80 000  
 Transverse Mercator Projection  
 Central Meridian: 18° East  
 WGS84 Ellipsoid using the South African Datum

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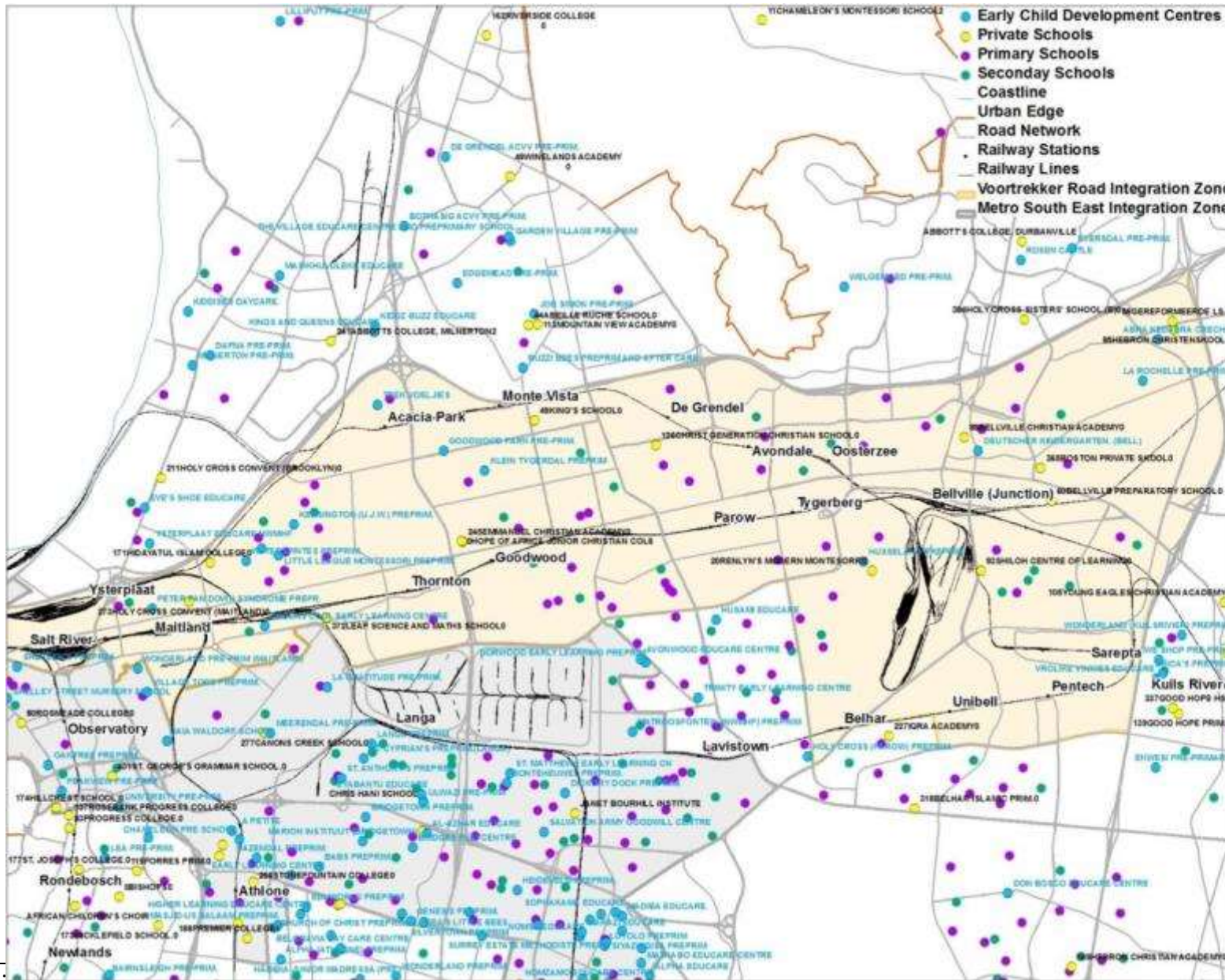
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**Figure 136: Private schools vs primary and secondary schools**



**SOCIAL FACILITIES**  
 Early Childhood Centres vs Private, Primary & Secondary Schools

2011 Facilities

Legend

Student Numbers (2012) in front of School Name and Teacher Numbers of the back.

Scale: 1:50 000  
 National Merit Projection, Central Meridian, 19 East, 2008, Re-projection using the Homebrewers' Datum

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**Figure 137: Early childhood centres vs private, primary and secondary schools**

### 9.1.4 Training facilities and services

Tertiary training facilities including Further Education & Training Centres, Adult Education Training Centres, and Special Education Learner Centres are reflected on the map below. Generally these government-subsidized but privately run institutions offer further training in technical but also basic subjects and are recipients of some of the school leavers. Hardly any Adult Education & Training Centres are located to the north of VTR, but the FETs are well located on the transport network. The tables below reflect the student numbers in 2011-12-13 (telephonic surveys).

		Student Nrs	Teacher Nrs	Students in hostels
UCT	CT	25301	11889	5576
CPUT	CT	22020	5409	4948
CPUT	Belville	10540	0	2045
UWC	CT	18764	4203	3656
USB	Bus School	2727	1019	909
UNISA	West Cape	2000-10000	85	0

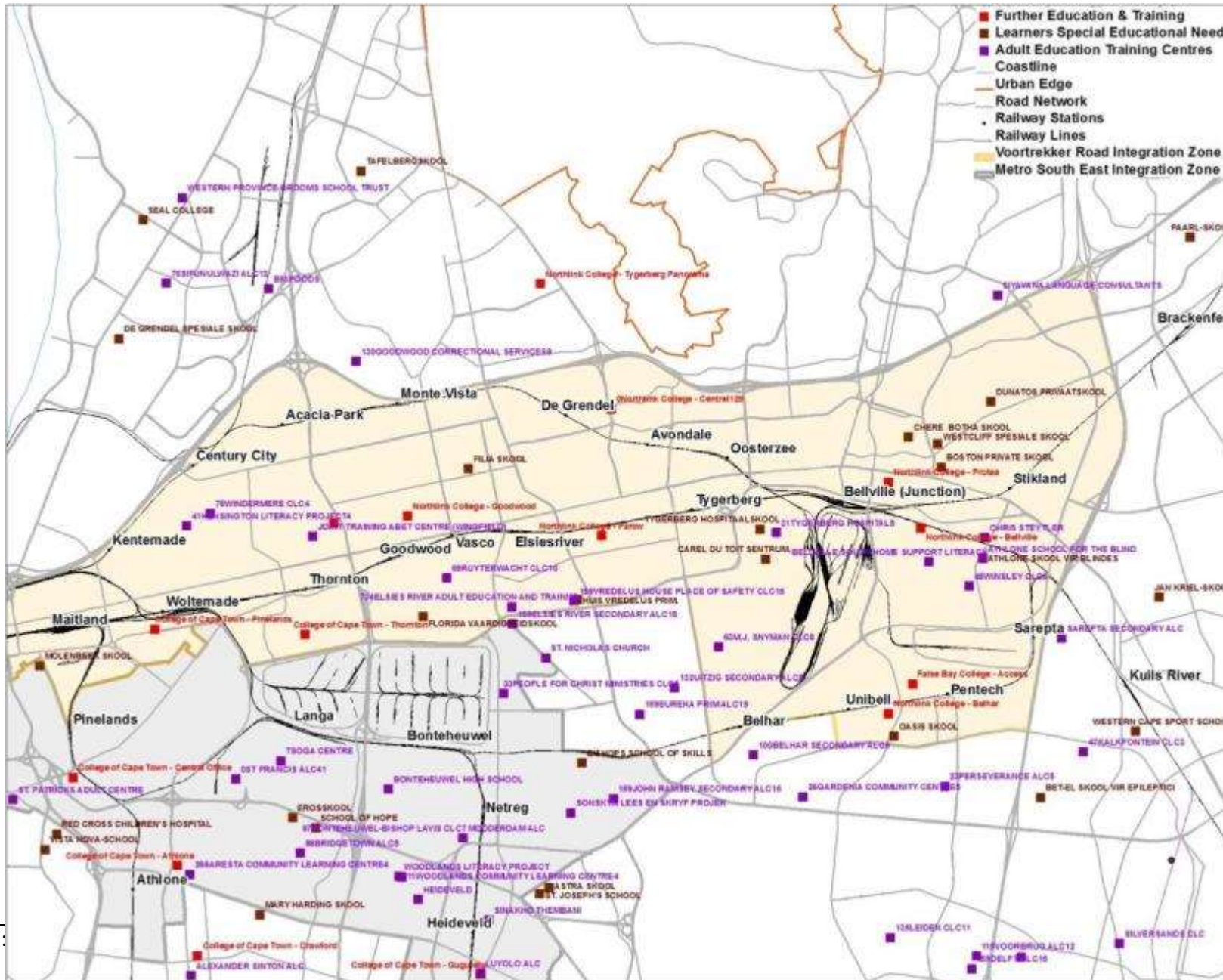
		Student Nrs	Teacher Nrs	Student Nrs	Teacher Nrs	Student Nrs	Teacher Nrs
		2011	2011	2012	2012	2013	2013
College of CT	Gardens	1 688	24	na	na	na	na
College of CT	Thornton	1 246	74	1 246	74	na	na
College of CT	Pinelands	1 300	58	1 300	58	na	na
Northlink College	Belhar	4 750	59	3 211	86	3 008	86
Northlink College	Bellville	2 345	83	2 150	99	1 681	129
Northlink College	Central	-	108	-	129	-	64
Northlink College	Goodwood	4 392	42	2501	64	1 819	97
Northlink College	Parow	2 435	83	1 635	97	1 539	89
Northlink College	Protea	1 655	76	1 306	89	1 340	74
Northlink College	Wingfield	709	64	1 450	74	864	539
		20 520	671	14 799	770	10 251	1078

The locational frequency of the AETC and the FET centres increases with the population density increase to the south of the VRC as well as the socio-demographic characteristics of the population.

#### Trends in the VRC re training:

- VRC will continue to attract tertiary institutions due to accessibility benefits.
- Growing demands exist for increased residencies and accommodation for students (market rental).

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**SOCIAL FACILITIES**  
Training and Specialised Education

Current Facilities

Legend

Student Numbers (2012) in front of School Name and Teacher Numbers at the back.

Scale: 1:80 000  
Northward Magnetic Projection  
Central Meridian: 18° East  
WGS84 Ellipsoid using the Horizontal datum of Datum

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### 9.1.5 Curative and preventative health facilities and services

The Western Cape Government, Department of Health (WCG DH) is the sole **provider of curative health services** for the 'unserved' population in Cape Town. This is estimated as 80% of the population at present who in Cape Town effectively cannot afford privately provided/ medical insurance.

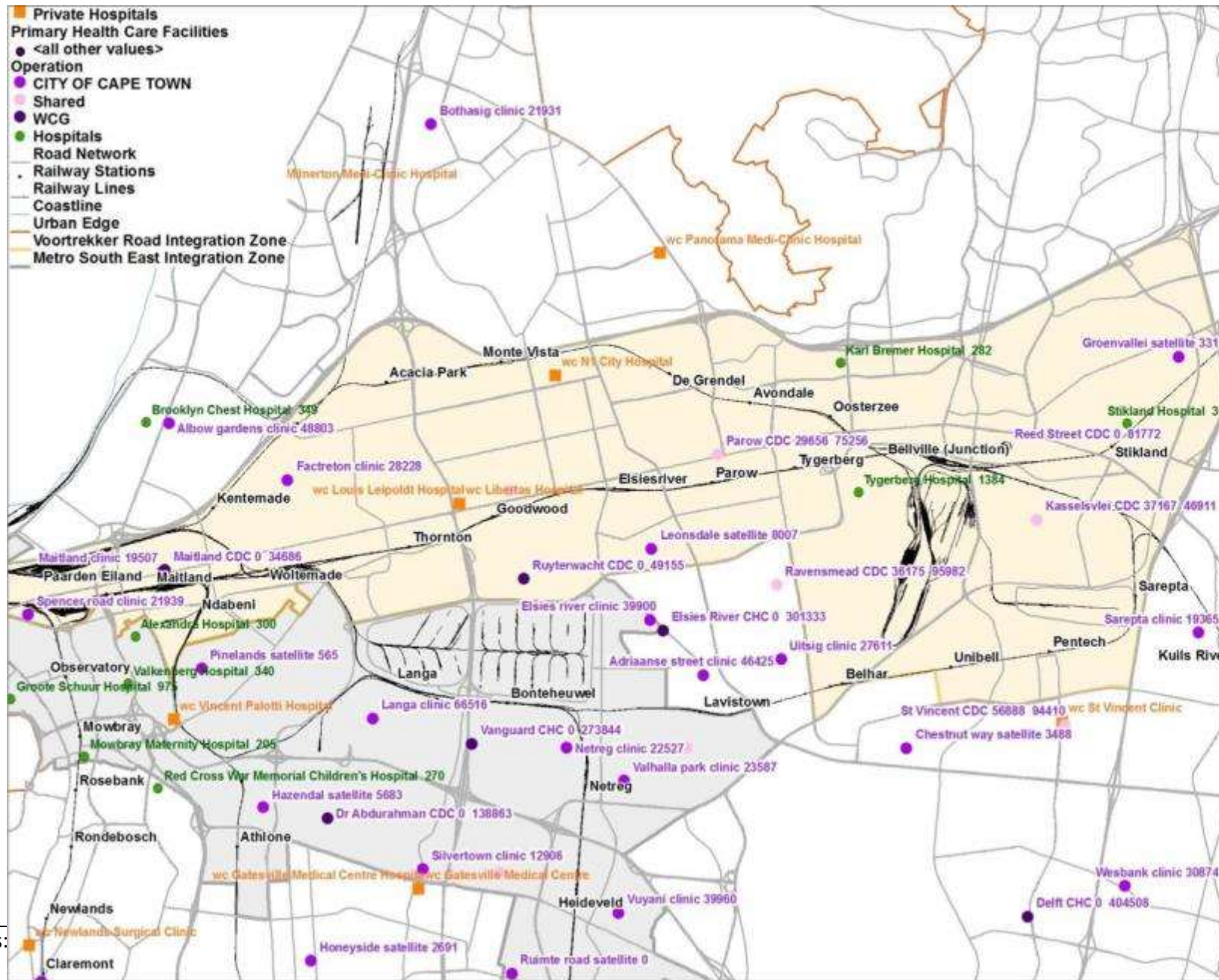
There are guide a wide variety of specialised medical facilities and the Western Cape's overall provision per 100,000 of the population is above the national standard. The health regions of the WCG DH differs from that of the City, but the adjacent table indicates the total bed provision at different types of hospitals in Cape Town as well as those located in the VRC compared to those outside. Hence the VRC plays an important role ito providing almost 50% of the total bed numbers in the metropolitan area. The potential location of more District Hospitals planned by WCG DH as replacement of existing or extension or new hospitals were concluded in the CSIR study and result are to be included here.

The **private sector** also provides curative medical services and 2 private hospitals are also located in the VRC.

		Propo % of beds in area	Propo % of beds per type
<b>Inside VTR Corridor</b>			
Eerste River	District	124	4%
Mowbray Maternity	Provincial	205	7%
Karel Bremmer, Bellville	Provincial	282	10%
Alexandra, Maitland	Psychiatric	300	10%
Stikland, Bellville	Psychiatric	318	11%
DP Marais, Retreat	TB	260	9%
Tygerberg	Tertiary	1384	48%
<b>Total</b>		<b>2873</b>	<b>100%</b>
<b>Outside VTR Corridor</b>			
GF Jooste, Manenburg	District	30	1%
Westfleur	District	31	1%
FalseBay, FishHoek	District	65	2%
Heiderberg, Somerset West	District	162	4%
Khayelitsha	District	230	6%
Mitchell's Plain	District	234	6%
Somerset, Green Point	Private	334	8%
Valkenburg	Psychiatric	340	9%
Lentegeur, Mitchell's Plain	Psychiatric	740	19%
Victoria, Wynberg	TB	178	5%
Brooklyn Chest Hospital	TB	349	9%
Red Cross Childrens, Rondebosch	Tertiary	270	7%
Grootte Schuur	Tertiary	975	25%
<b>Total</b>		<b>3938</b>	<b>100%</b>
	<b>TOTAL</b>	<b>6811</b>	



**Figure 139: Community health facilities and visitor numbers**



**SOCIAL FACILITIES**  
Health Facilities  
Private and Public Facilities

North Arrow

Scale: 1:80 000  
Topographic Map: 1998  
WGS84 Projection using the Transverse Mercator Datum

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**Figure 140: Health facilities - private and public facilities**

**Primary Health Care (curative and preventative)** are provided by the City of Cape Town in association with the WCG DH at facilities owned by both parties. From the above map it is clear that the locational frequency of PHC correlates with population density increasing to the south of VRC. Considering the head counts (number of patients per year) to each facility (note numbers behind name of each facility), together with the table below, it is clear that the VRC is actually only recording 5% of the visits to PHC facilities in Cape Town.

Sick patients and those involved in preventative services (immunizations, family planning etc), are generally going to clinics close to their area of residence and hence many more facilities are located in MSE than in VRC. In terms of scale it is important to note that the facilities located around VTR is significant large compared to other locations. Some have visitors in excess of 120,000 patients per year, which effectively is the largest type of facility group. The VRC therefore have around 3-4 of these large scale facilities at the moment and relates the the corridor being highly accessible from many parts of the city and widely used by employees working/ or trading in the VRC.

The CSIR study has investigated the optimal location for future clinics and primary health care service locations. This function is at present provided by the City in association with the Province. The future model is unclear. The province would like to move to less, higher quality, larger, strategically located and on a omprehensive service provision model with a likely catchment of 4 km between the client and the service centre. The City disagree with that and would like to provide facilities at 2,5km walking distance. The CSIR study will provide a middle of the road scenario considering that the strategic direction and specifics are being discussed at the moment.

The map below serves as an **illustration of the over-utilisation picture related to PH in the City**. The maps contains a selective analysis of the City-provided facilities' level of over-utilisation which effectively is supposed to influence the budget prioritising. The majority of high risk PHC institutions are located to the south of VRC with increasing levels towards the south of the metro area. Only 2-3 of the top 10 over-utilised PHC facilities of both Province and the City is located in the VRC, compared to MSE that carries the remainder.

This information dates from Aug 2013 and a re-assessing process is on-going at the moment and will only be available towards the end of 2014. The maps also indicates the location of capital projects as was generated in Feb 2014, which included the 2013/14 to 2015/16 budget. This inforamtion will be updated by only available in Mar 2015. Most of the capital projects are located outside the VRC indicating the facility capacity surplus or service growth options.

#### **Trends in the VRC re health care:**

- VRC will continue to attract PHC and curative patients visiting the different levels of state hospitals and government provided PHC facilities and services.
- The location of these services heavily relates to government-owned land and is likely to remain like that untill such time that Public Works or the City's Property acquisition department proceed to add land to its asset list.

- Province and the City has different models of provision of PHC and the actual dominant service providing role is under dispute. Province claiming it will be Province and City completely disagreeing on the principles and analysis on which such a decision was arrived at.
  - The decisions to locate capital for PHC facility provision in the VRC or MSE, will depend on the outcomes of the CSIR study which suggests the optimal locations of facilities (either those existing ones which should be considered for refurbishment and expansion) or replacement of an existing facility in the vicinity of the existing (assuming the unutilised asset will go back to Property development and/ or public works).







### **9.1.6 Sports & Recreation Facilities (indoor and outdoor)**

Sport & recreation facilities are provided for by the City, the schools, tertiary education institutions and the private sector. The City's products include formal sport grounds, multi-purpose halls/ community halls/ civic centres (orange points on map). A large number of sports fields (purple on the map) is located to the north of VRC and are under the ownership of Education Department at primary or secondary schools.

This pattern is not visible to the south of TRC and outside of the VRC due to the fact that those schools were underprovided for during the last 2-3 decades and has never had the means to establish school sport fields. The frequency of municipally provided facilities (civic centres and multi-code formal sports facilities) is much higher in MSE than VRC, and related to population density.

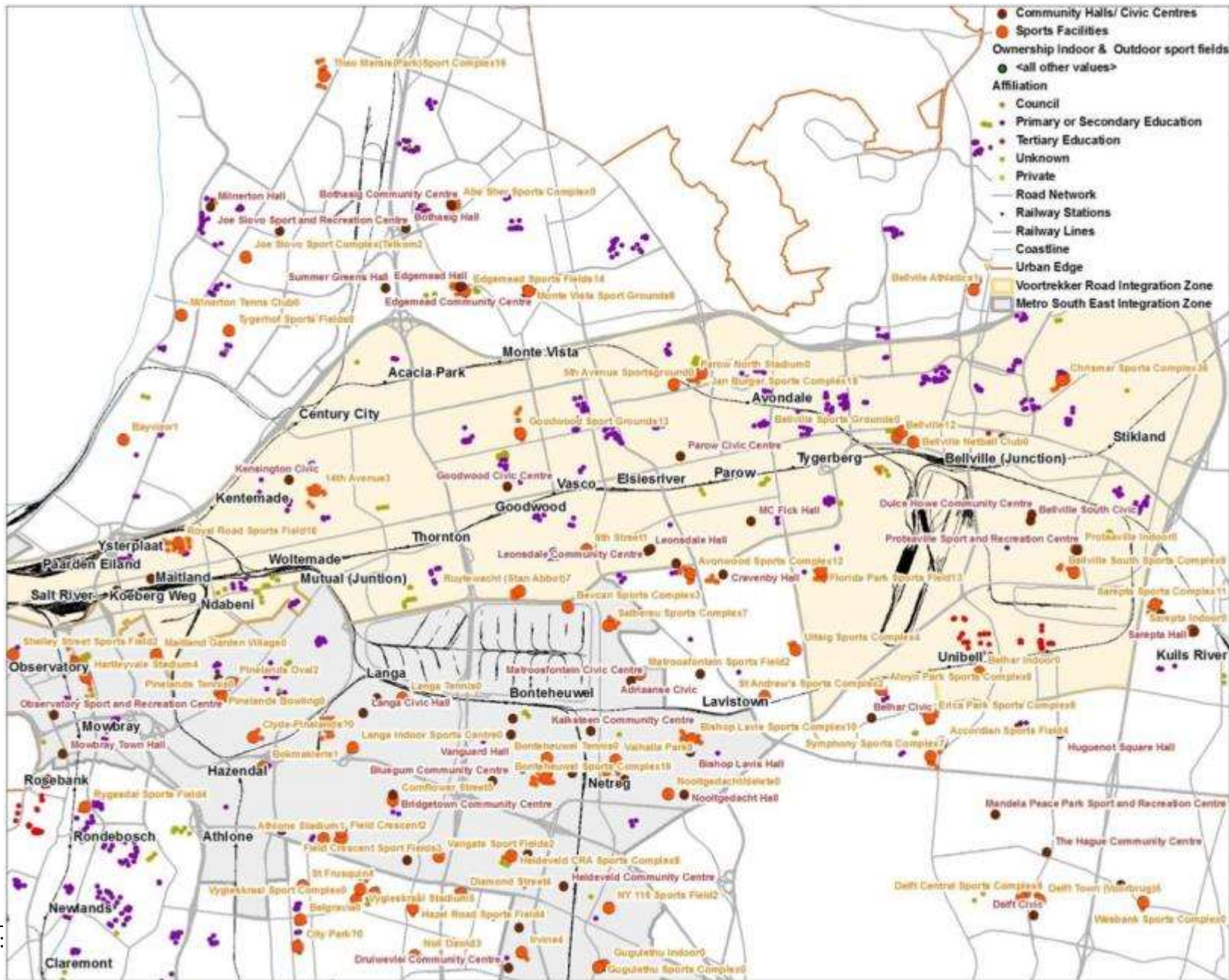
The anticipated capital expenditure program is only for the periods 2015/16-16/17 as suggested in Feb 2014. This program is currently being reviewed. The CSIR analysis will also be reflected in the 'investment plan' and once available will be used to update these maps. In principle new investment in any capital project is limited due to constraints in the operational budget expansion.

In addition the overall principle is used of optimising at existing locations by e.g. re-surfacing existing municipally owned fields to synthetic surfaces to enlarge use over long periods of time and to reduce maintenance and upgrades required. Capital investment (blue circles) also shows upgrades into new type of facilities like spray parks in stead of swimming pools which could be used for longer seasons.

#### **Trends in the VRC re sports & recreation:**

- VRC will continue to attract large groups into sport facilities of regional value like the Bellville Athletics/ Netball Club facilities, the Velodrome (indoor sports & cycling) etc.
- There is likely a trend towards the amalgamation of these facilities in the Bellville sport complex close to Hardekraaltjie (likely the private sector pushing out these facilities in the Tygervalley Regional Shopping and Office node.

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### SOCIAL FACILITIES

Sport & Recreation

Current Facilities

Legend

Number of sports fields (various)  
behind Facility Name.  
Capacity of Hub behind Facility Name.

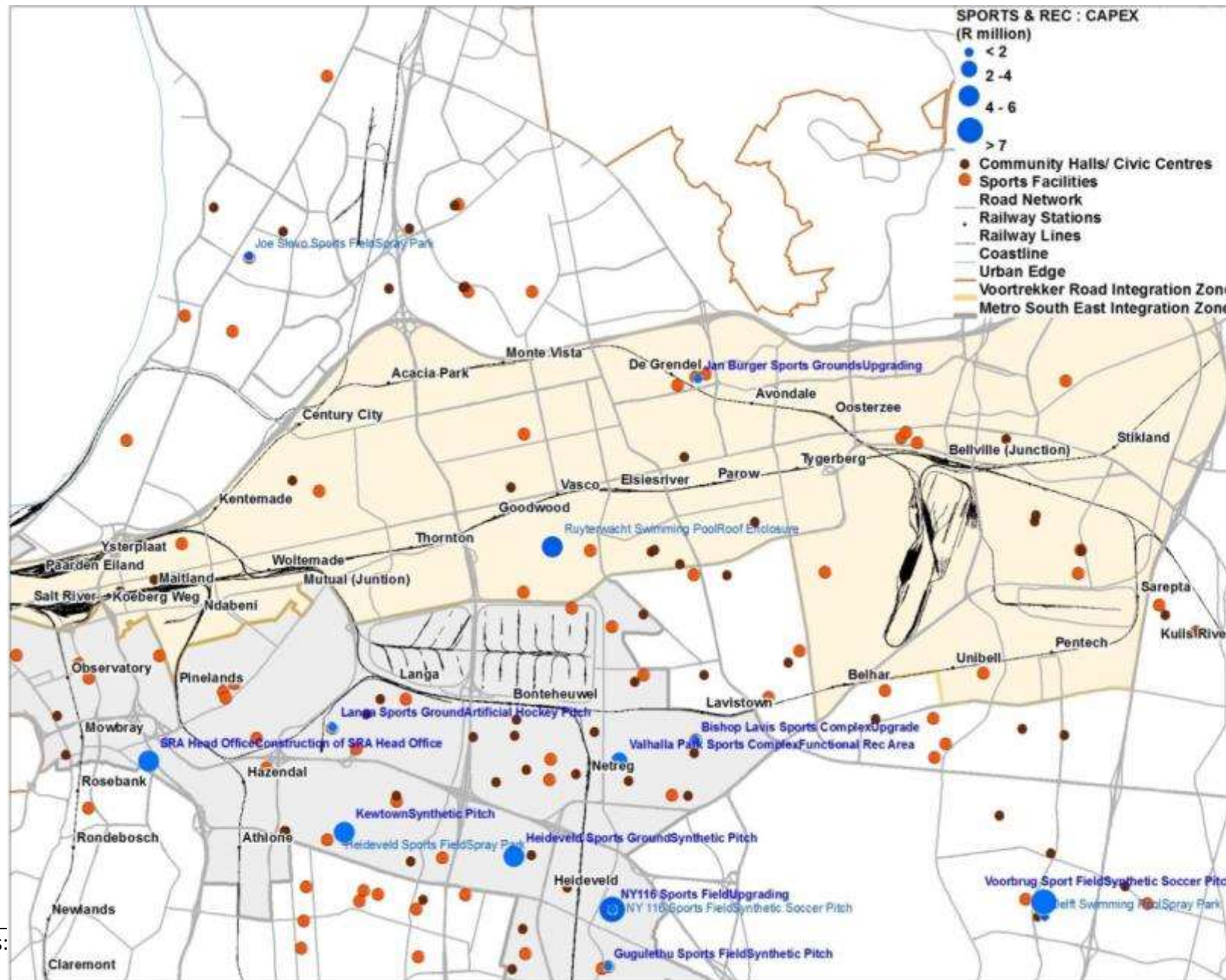


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**Figure 142: Sport & recreation – current facilities**



## SOCIAL FACILITIES

Sport & Recreation

Projects  
2014/15-16/17

Legend



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Figure 143: Sport & recreation - projects 2014/17

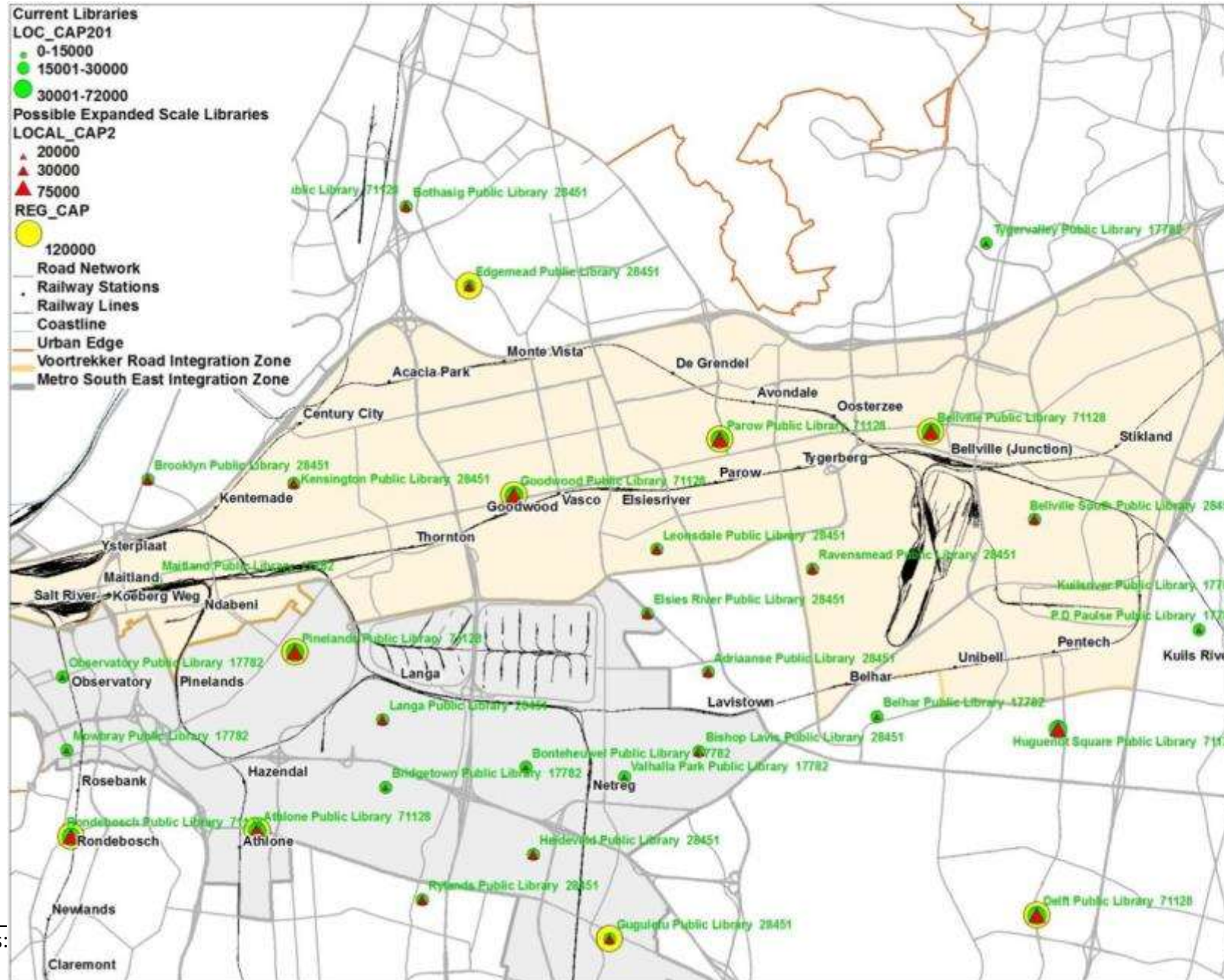
### **9.1.7 Libraries**

Libraries are a shared mandate between the Western Cape Province and the City of Cape Town. Whereby facilities are owned by the City but partially subsidized by financial contributions from the WCG LD (Western Cape Government Libraries Department).

The above map shows the current capacity and location of libraries in relation to the VTC and surrounding areas. The green circle size is an indication to the capacity of library in terms of the number of annual visitors. Red triangles indicate the locations which have benefits within the anticipated 2032 population figures utilised in the CSIR model. And yellow circles indicate the existing libraries which will have to be expanded to a regional library considering the anticipated population increase in the VRC. After a workshop with the regional managers of the libraries department, 3 existing libraries in the VRC were identified for upgrade to regional level based on the anticipated increase in usage and the associated central location in the VRC.

Capital upgrades are not yet on budget and are likely to remain wish list items. This is due to the fact that, although capital budget may exist for the upgrading of libraries, the operation budget for payment of staff and other operational responsibilities are frozen and hence no new library construction can proceed at the moment.





**SOCIAL FACILITIES**  
 Community Library Facilities  
 Possible capacities for 2022/32

Pre-lim CSIR Project  
 To be confirmed

Capacity for current visitors follows Library Name.

Scale: 1:50 000  
 National Mapwork Projection  
 Geoid Model: IZI East  
 WGS84 Ellipsoid using the horizontal datum datum

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Figure 144: Community library facilities - possible capacities (2022/32)

### **9.1.8 Parks**

Park provision is the mandate of the municipality. The northern part of the VRC is very well served with reserved and developed parks. The more south one moves, the less formal part development occurs (although land reservation was generally completed successfully).

Park land is generally provided as part of the township/ suburb establishment and land is reserved accordingly. However the actual development and long term maintenance of the park remains the responsibility of the City. Parks are, similar to libraries and PHC facilities, can easily be constructed to capital funding availability, but this program is hugely constrained by the fact that no new facilities are approved by Council if no operational budget is already available or could be made available. Hence park upgrades are generally done in the locations above rather than new park development.

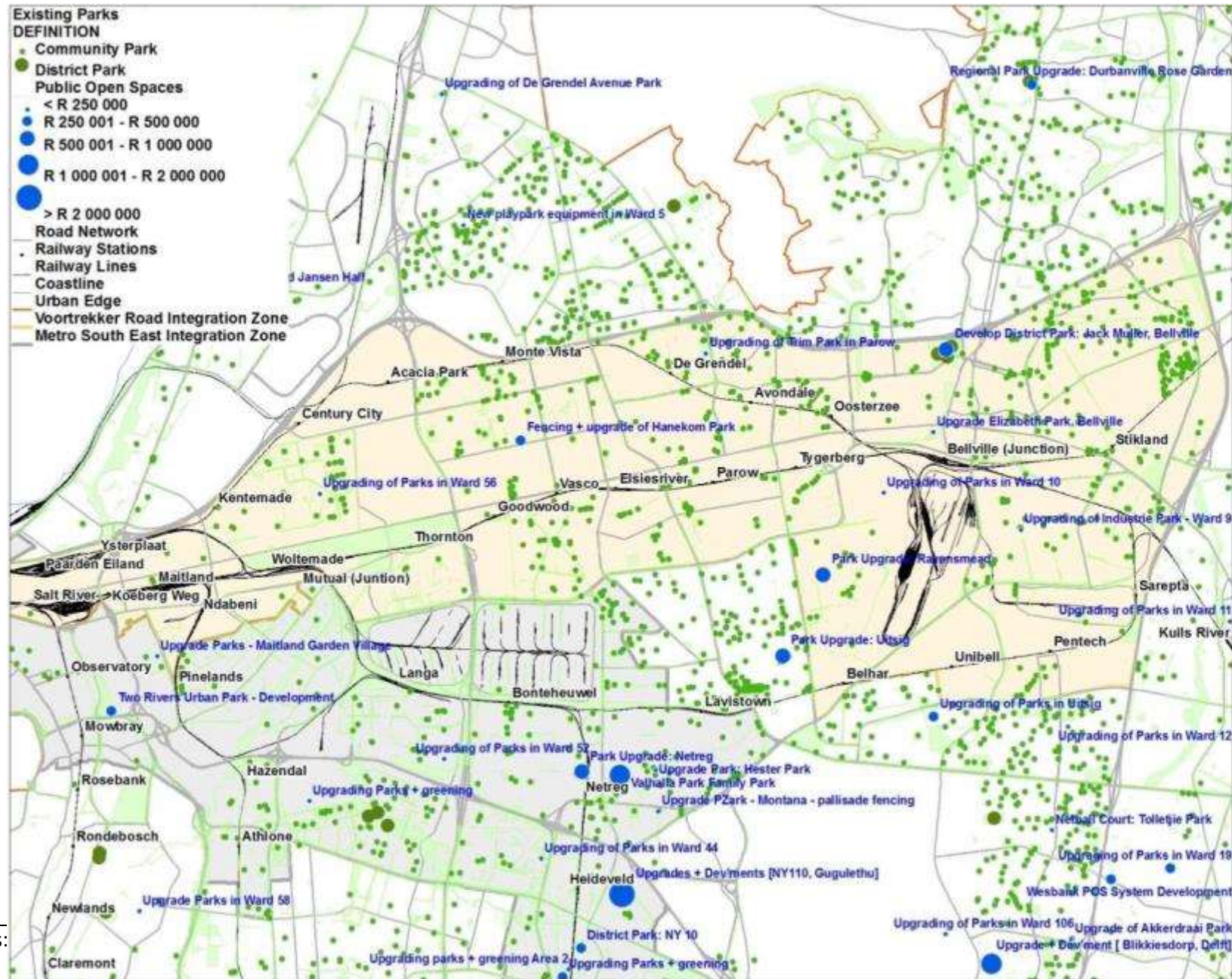
The Smart Parks Program and the associated capital investment program of the Parks Department are the most useful tools to understand the park development and upgrading system for community and district parks. Both of these are reflected in the above map, with a limited locational indication for the years 2014/15 to 2016/17 (obtained Feb 2014). This information is in a process of updating. It is anticipated that parks development and upgrading will focus on addressing the areas know for backlogs like MSE instead of those located to the north of VTR.

### **9.1.9 Disaster Risk Management and other Safety & Security related service points and facilities**

The City's 2 most important DRM centres are located in the VRC. This is supported by the Transport Control Centre also located at Goodwood. The Goodwood location therefore, apart from being central to the City, is providing services for disaster and emergency response dispatchment based on the 24/7 control room and associated tactical rooms to be used in case of a major city wide disaster like a nuclear accident. The information regarding capital upgrades to these facilities was not sourced yet as priority as both of these centres are relatively new.

The fire stations on the map was assessed in the CSIR study and has proven to be located accurately to serve their surrounding areas based on the policy guidelines for service provision/ emergency response times.

The location of police stations were merely pasted here for context but no information was obtained regarding utilisation level, or potential requirements for expansion or capital projects.



**SOCIAL FACILITIES**  
District Parks and Open Spaces Investments to 2016/17



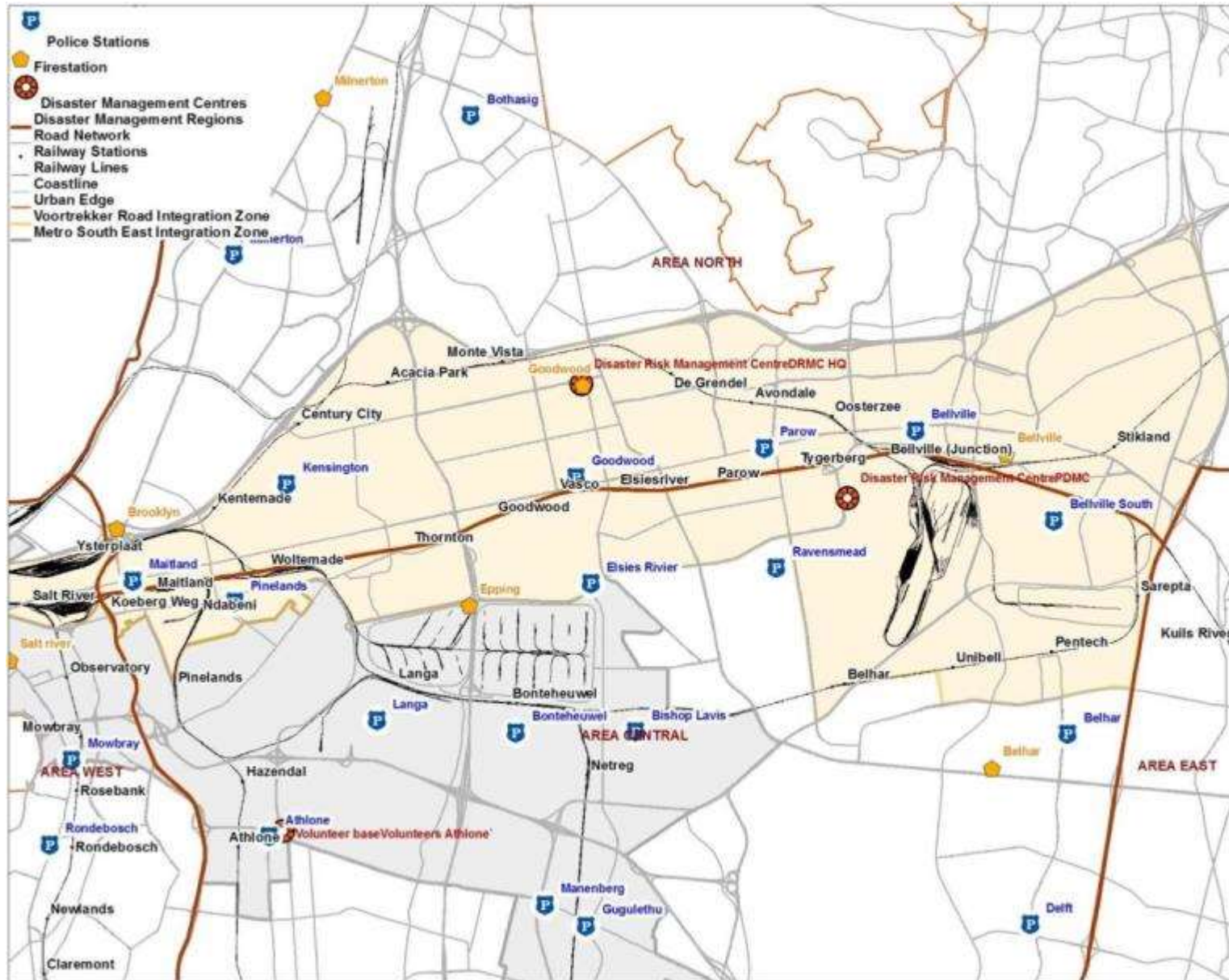
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Van der Waerden Projection  
Central Meridian 18° East  
WGS84 Spheroid using the  
NAD83 datum

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**Figure 145: District parks and open spaces investments 2016/17**



**SOCIAL FACILITIES**

Safety & Security Service Points

Scale: 1:80 000

Projection: Mercator Projection  
Central Meridian: 18° East  
False Easting: 500 000 m  
False Northing: 0 m  
Units: Metres

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## 9.2 Implications for social facilities modelling on the VRC

In Oct 2014 the CSIR completed the analysis of the Social Facility Planning for 2032. Working with the City Departments of Health, Sport & Recreation, Parks, Fire, Libraries and the Provincial Departments of Education and Health, the Project Management Team guided the analysis of existing social facilities from a locational centrality and capacity point of view for 2011. Having released the anticipated population densities and location for 2032 (as calibrated with the PWC/ Provincial Government/ 'new Dorrington' population forecasts/ estimates generated in April 2014), the CSIR then modelled the demanded social facilities (capacity demanded and optimal locality) for 2032 in the following sectors/ types:

- Pre-primary, primary and secondary schools;
- Primary health care facilities to be run by Provincial and/ or City Health;
- Community and District parks;
- Active ball sports grounds;
- Community Halls;
- Fire Stations; and
- Community and Regional Libraries.

The products of this process are used by the different departments, together with other sets of policy, to guide capital prioritising frameworks and decisions. The results of the Investment Guideline as reflected below, shows the priority of social facility provision based on the assumptions that current backlogs and future demand will be addressed in locations close to where people are staying/ will be having their residential addresses in future.

Considering the magnitude of assumptions associated with this product, it is prudent to mention the following caveats when interpreting the data below:

- Even at present the utilisation of especially schools and health care facilities are not dependent solely on the locational benefits of facilities located close to the people's current residential addresses, but more so relating to the quality of services they'd like to access. E.g. we know that most of the 'under-utilised schools' in the VRC is fully occupied while some have waiting lists due to the utilisation of those schools by students who are not residing in the immediate vicinity of the school, but are daily commuters to the school of preference of their parents (to language, sports facilities, standards). Hence if the Investment Guideline shows a backlog and future demand for schools in a certain locations, it is based on the mathematical nature of the CSIR model interpreting the planning standards of Department of Education which stipulates that all children should preferably be going to school in their local neighbourhood within a 5km radius of their home. Hence the maps reflecting the required location of new schools, or for that matter any of the social facility, should be viewed as the optimal locations if people were to go to these facilities close to their home. Knowing that it is not the case, the low level of requirement for facilities in the VRC should be viewed as partially correct and rather from the perspective that the shortfall in the MSE Corridor actually belongs in space to the social facilities in VRC. Hence the demand as reflected in the maps below could be directly transferred to the VRC.





# Overall Social Facility Investment Guide 2032

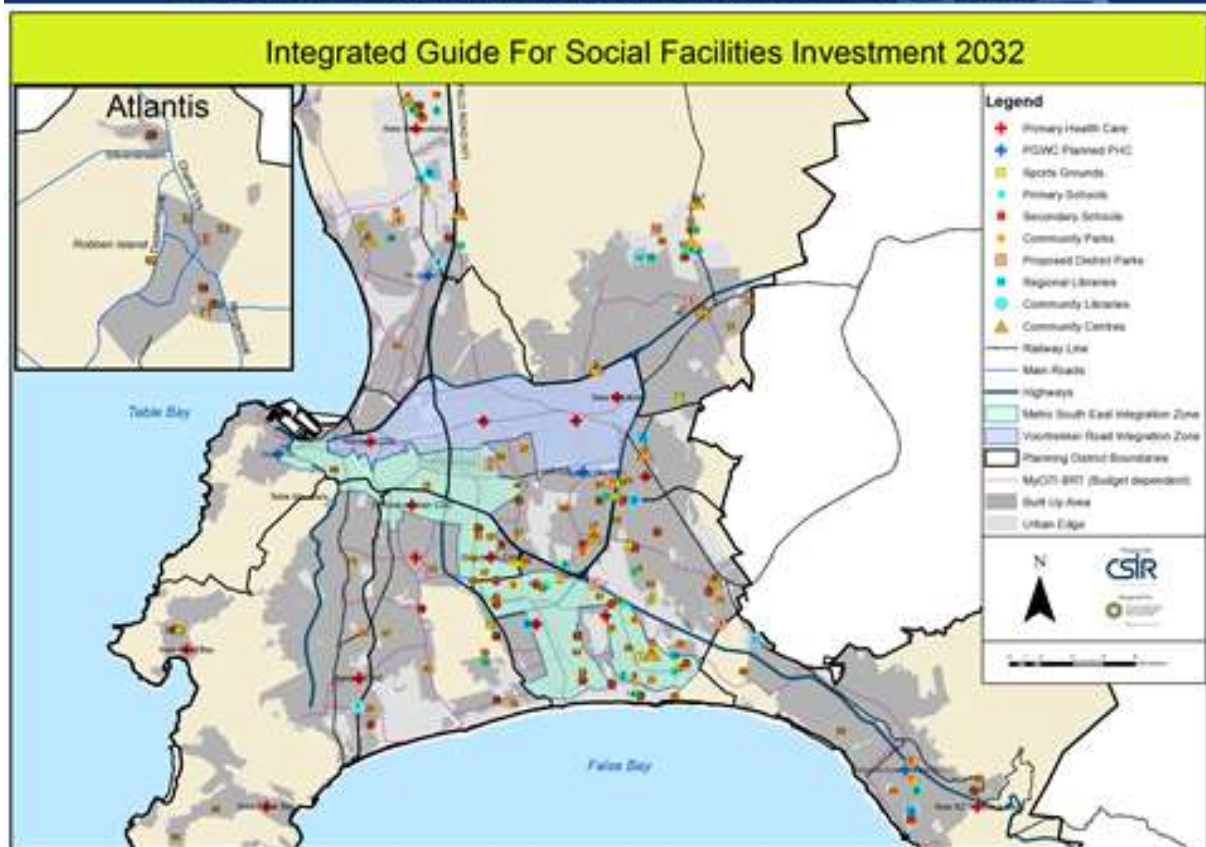


Figure 147: Overall social facilities investment guide 2032

- Considering experimental work for the scenario planning related to densification in the VTR Corridor, based on the information below, it became clear when given to the CSIR for modelling and using the space planner tool, that all land currently used for social facilities, will likely be required in 20 years' time and hence should be preserved for that purpose. However, if parts of public land are to be utilised for infill residential and housing development, care should be taken that agreements are reached with the relevant infrastructure planning department, that a duplication of a certain facility or its duplication in size is going to be required in the next 20 years (e.g. building a new primary school on top of the existing primary schools).



## 10. Land use

### 10.1 Zoning, land use and development trends

Historically, the Voortrekker Road study area has been subject to various zoning schemes which were replaced by the Cape Town Zoning Scheme (CTSZ) in 2012. Table 26 depicts a summary of the extents of the zoning within the study area.

**Table 26: Summary of zoning proportions in the VRC**

Zoning	%	Land Extent m <sup>2</sup>
Community	12%	5 477 452.00
Single Residential	42%	18 700 510.00
General Residential	7%	2 896 449.00
Business	7%	3 138 881.00
Mixed Use	5%	2 442 510.00
Industrial	19%	8 445 470.00
Public Open Space	8%	3 333 489.00
		44 434 761.00

From this table it is evident that single residential zoned land dominates the study area as a whole. However properties bordering on Voortrekker Road have predominantly mixed use and business zonings.

#### 10.1.1 Land use character areas

The study area can be divided up in to the following land use character areas.





Figure 149: VRC land use character areas

**Table 27: Land use character area analysis**

Character area	Zoning and Land use characteristics
<p>Western end of Voortrekker Road: Albert up to Aerodrome Rd. Maitland, Ndabeni, Kensington and Windemere areas.</p>	<p>This area is characterised by greatest mix of zonings when compared to the rest of Voortrekker Road.</p> <p>Large scale industrial zonings characterise the western end of Voortrekker Road. The land uses include cargo shipping yards and manufacturing metal works. From Black River Parkway moving east, there is a decrease of heavy industrial land uses and an increase of retail, mixed use, and general business associated activities abutting Voortrekker Road. These land uses include small scale retail clothing, local fast food outlets, car workshops, storage and warehousing. According to Table Bay land use planners there is latent potential to intensify uses in this area.</p> <p>Single residential zoned areas of Kensington and Windemere (with community facility uses) are set back from the road to the north. There is evidence of industrial creep into this residential area despite the green open space buffer. Mixed use redevelopment in this area is hampered by CTSZ parking requirements and forces purchase of extra land (eg open space or residential) in order to comply.</p> <p>Table Bay land use planners indicated an increased interest for affordable accommodation in the Kensington and Windemere areas due to displacement of residents from of the Salt River / Woodstock areas where gentrification is occurring. There are houses in the Maitland area being leased on a room by room basis as well as backyarders and informal residential uses. Note that size of erven inhibits rezonings to general residential. Ie consolidations would be required.</p> <p>Area zoned General residential in Upper Camp Road (near Berkley Road between M5 Park and Abattoir) is under pressure for office, parking and warehousing use. (eg rezonings to commercial.) Application for 7-9 story rental GAP / social housing on corner Koeberg and Voortrekker Road (location?)</p> <p>Heritage assets: old railway houses in Voortrekker Road vicinity.</p> <p>Maitland station located in close proximity to Voortrekker Road, fronts onto a park and has heritage significant buildings in vicinity.</p> <p>The Maitland Local Area Plan (1992) review which is to be initiated shortly needs to unpack the changing urban dynamics in the area.</p> <p>Urban development zone tax incentives – check Claus</p> <p>Conradie Hospital redevelopment has been shelved by Province due to the successful tenderer going bankrupt. Site has access issues.</p> <p>City owned abattoir site, located adjacent to a railway station, is zoned Industrial and is an important metro asset.</p> <p>Traffic congestion (e.g. heavy trucks) in Koeberg Road / Voortrekker Road vicinity.</p>





Road proposals linking Century City area with Voortrekker Road including Sable Road extension



Area around Maitland station showing park and heritage buildings in yellow.

Aerodrome Rd to Vanguard Drive


The Wingfield site is a public owned strategic site. Portions are the subject to land claims, heritage, biodiversity and wet land issues.

The Maitland Cemetery and Wingfield site create an inactive edge along Voortrekker Road.

Heritage study has been undertaken for the Maitland Cemetery revealing problems of vandalism, theft and informal settlements.

Traffic congestion at intersection of Vanguard and Voortrekker Road.

Planned Sable Road extension through to Aerodrome Road however conceptual design needs revision. Reconstruction of nearby N1 / N7 interchange is required urgently.


	
<p>Vanguard Drive eastwards to Hugo / Halt-Goodwood area</p>	<p>Continuous business zonings abutting the road. Land uses include motor vehicle related activities.</p> <p>Small scale businesses along some North South linkages eg Vasco, Halt Road. Vasco railway station very close junction of Voortrekker Road and Vasco Road, potentially a key location.</p> <p>Major uses to the south of Voortrekker Road include a Casino. To the north the N1 city business node, adjacent to the N1 and the large scale public facility (Goodwood traffic centre) on Frans Conradie Drive near to N1 City.</p> <p>Civic functions.</p> <p>Predominant residential character set away from Voortrekker Road.</p>




Vasco station precinct

Hugo / Halt  
to Giel  
Basson / Jan  
van  
Riebeeck

Industrial zoned areas: Elsie's River industrial area to south of Voortrekker Road and Beaconvale in the Jan van Riebeeck Rd vicinity.  
 Epping Industrial Area developer interest: E Junction a proposed 600 unit development 13-15 Storeys  
 GAP housing initiative using national grant funding (now abandoned?).  
 An increase in vandalism of derelict and vacant buildings in industrial areas.  
 Business zoning & retail uses front onto Voortrekker Road (2nd hand car sales / auto)  
 Elsie's River Station – acts as a major public transport interchange but needs pedestrian space

	<p>upgrading and improved connection to Voortrekker Road. Municipal offices and magistrates courts.</p> 
<p>Giel Basson / Jan van Riebeeck to Tierberg / De la Rey Parow area</p>	<p>Business zonings abutting Voortrekker Road. Communal parking areas setback behind shops north of Voortrekker Road. Shoprite Park as major destination. Auto sales and auto-related repairs/services; medium density residential. Municipal offices / civic centre forming a local node. Functional link exists between Voortrekker Road and Parow station due to business zonings. Informal trading activities along this link.</p>


	
<p>Tierberg / De la Rey to Mike Pienaar</p>	<p>Business and mixed uses zoning abutting Voortrekker Road.</p> <p>Regional retail -Sanlam Centre is a major destination. Dominant built form and perimeter parking lots differ from surrounding urban fabric.</p> <p>Parow East Industrial zoned area to south of Voortrekker Road.</p> <p>Several new non-residential projects in the Parow CBD, extending northwards along Mike Pienaar Boulevard to the N1. These include the newly opened China Town Centre retail development at Shoprite Park, which caters for lower income groups.</p>




Bellville West:  
from Mike  
Pienaar to  
Salisbury  
Road / edge  
of Bellville  
CBD

Hardekraaltjie camp site / Bellville caravan Park / sports grounds is an open space zoned, regional facility on southern side of Voortrekker Road. Site has heritage significance.  
On northern edge: Mix of business, general residential and mixed uses  
Mike Pienaar vicinity has institutional character eg Eye and ear Institute, Louis Leipoldt Mediclinic, Prestige College,



<p>Bellville central: Salisbury Road to Bill Bezuidenhout / Paarl Rd R 101 vicinity</p>	<p>Dominated by business zonings along Voortrekker Road.</p> <p>Large scale businesses along Voortrekker Road and at Bellville station node which is a major metropolitan railway interchange.</p> <p>Station area has a large number of informal trading activities.</p> <p>Bellville functions as the commercial and retail hub within the corridor, catering for various markets.</p> <p>Large block developments eg Sanlam HQ.</p> <p>Public land uses eg magistrate's court, library, and civic centre.</p> <p>Primary intersection is / Voortrekker Road / Durban Road which is connector to Tygervalley business node.</p> <p>Affordable rental accommodation availability.</p> <p>Urban development zone tax incentive area.</p> <p>Evidence of conversion of residential housing stock or light industrial to commercial or business land use activities particularly in the Durban Road area.</p>
	



<p>Bellville east:  Bill  Bezuidenhout  / Paarl Rd R  101 vicinity to  R300.</p>	<p>Business zonings along Voortrekker Road.  Lower order businesses uses compared to Bellville central.  Single residential and open space abutting road further east.  Large community uses eg Stikland hospital – vacant, public owned and planned for redevelopment (refer to Macroplan)  Lower density residential areas eg Labiance, Belgravia, Thalma.  LaBelle industrial area to north of Voortrekker Rd has eg boat building, engineering, auto – elect, transport contractors. Triangle Industrial area to the south.</p> 
<p>Bellville south  east</p>	<p>Large utility and transport facilities: Transnet marshalling yard &amp; Belcon container depot.  Significant industrial areas eg Sacks Circle, Bellville South industrial, Parow industria.  Major health and education institutional uses eg UWC, Pentec, Northlink College, and Tygerberg Hospital (which is in the initial stages of re-planning).  Belhar CBD with proposed GAP housing (&amp; problems re bulk services).</p>



### **10.1.2 General application and development trends**

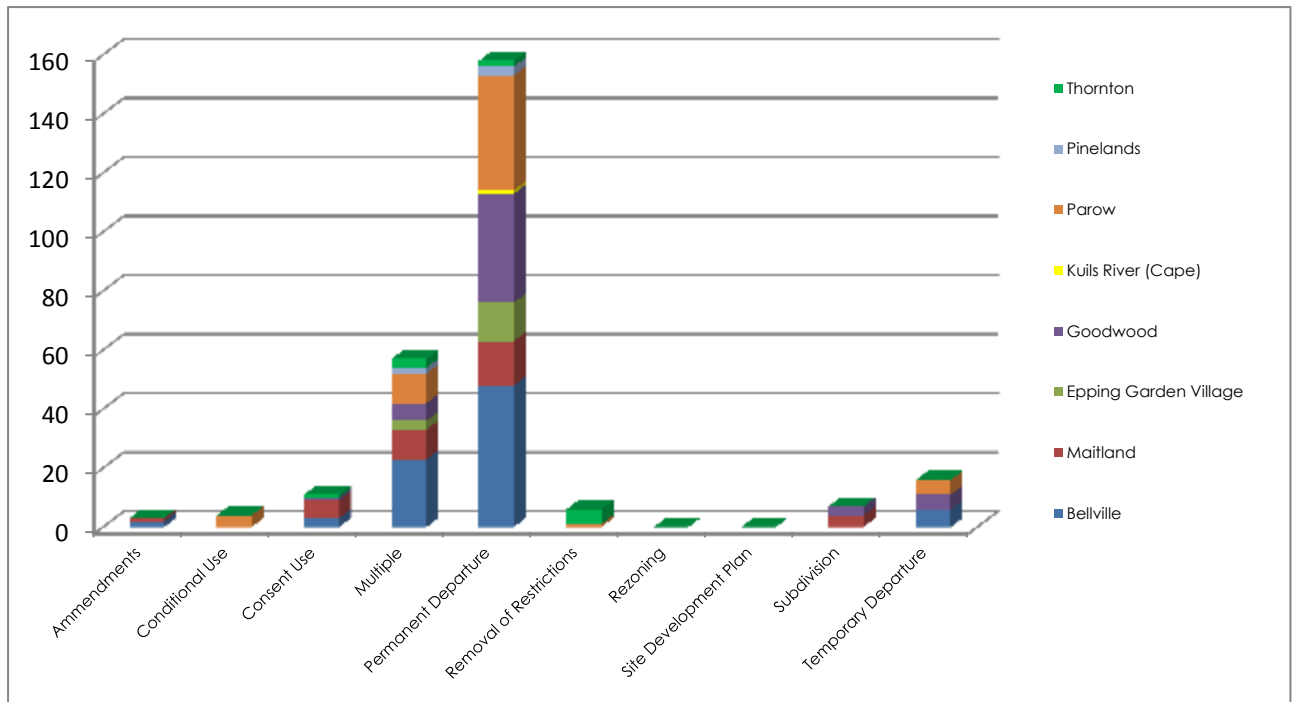
There were a total of 586 Land Use Applications submitted in 2013 for the study area. New developments may need resort to onsite sewage treatment works due to the capacity constraint that will only be resolved in 2016.

Bellville had a significant number of land use and building plan submissions. This has been attributed in part by conversions from higher-order to lower-order land use activities and from office to residential uses. Goodwood, Parow and Bellville had a significant amount of permanent departures from the zoning scheme, mostly parking departures specifically for General Residential activities or tertiary student accommodation. The introduction of formal PT Zones is likely to decrease the need for such departures.

There appears to be a growing demand for general residential land uses across the entire study area, but particularly in well located areas such as Maitland where demand has exceeded supply. Areas of significant general residential activities include Bellville and Parow where rental student accommodation is required for the major educational institutions in that area. There is an increase conversion of Grade B office space and buildings to student rental accommodation. The University of Stellenbosch is planning to increase student numbers and therefore demand for affordable rental residential is expected to increase further.

Building alterations for single residential properties has been particularly evident in Maitland and Kensington, and this has could be attributed to a possible increase of second dwelling or back yard dwellings taking advantage of demand in this central location.

The most substantial commercial complexes such as Grand West, N1 City and Sanlam have submitted building plans to increase bulk.



**Figure 150: Proportion of land use applications by suburb in the VRC (source: DAMS, 2013)**

Figure 150 shows that the greatest number of applications was for permanent departures in the Parow, Goodwood and Bellville areas. There were very few rezonings and subdivisions. These trends indicate that urban development is incremental and relatively small scale.

This was echoed by the land use planners who indicated the corridor is low maintenance, in terms of their time, compared to other areas in the district.

## 10.2 Building conditions

The evaluation of the building condition was based on the City's Non Residential Data Collection Manual. A land use survey conducted in 2012 classified building conditions as one of the following: excellent, good, average, poor. Refer to City's Non Residential Data Collection Manual.

Though the overall building quality within the study was deemed to be in a in a good condition the study revealed the following focus areas:

### Train Station Precincts

- Buildings rated as Poor where particularly located around station precincts such as Maitland Station , Goodwood ,Parow and Bellville Station
- These areas also have a significant number of informal trading activities associated within the area.

- A large number of buildings adjacent to train stations were particularly dilapidated and this has been closely associated with the lack of maintenance of PRASA owned land

### 10.3 Public land ownership

There are a number of major public owned sites:

#### **The Transnet Marshalling Yard (Belcon)**

This site is approximately 233ha in extent. Historically, utilised as a marshalling yard, diesel depot and a civil maintenance department, the precinct represents a significant investment in rail infrastructure and comprises the central hub of Transnet operations in the metro area, which have recently relocated from Culemborg (Partially??). The site is currently being investigated by Transnet to determine the future uses. Planning will depend on the long term use of Saldana Bay as a port and the supply chain connections required as a result. Due to the site's location at a transportation hub and its extent, it is regarded as a "strategic site".

#### **WCG Public Works, Education, Transport and Health**

Stikland Hospital is approximately 132 hectares and has been identified as a new development area in the Tygerberg District Plan (DSP). The site has been ear marked for inclusionary housing due to its prime location near to major transportation rail and road routes and to the economic centre of Bellville. Currently the Department of Western Cape for Health has appointed consultants (Macroplan) to undertake a prefeasibility study and development framework for the site. The existing built form and spatial distribution of the hospital buildings is inefficient, thus sterilising large portions of land, which could otherwise be used for other activities.

#### **Tygerberg Hospital**

The grounds of the hospital are currently being rationalised to allow for redevelopment. Tygerberg Hospital was built in 1972 under the apartheid government, and was designed in a highly inefficient manner so as to segregate patients, with several areas of operation having to be duplicated to serve this function. The Provincial Government is now in the process of initiating a planning framework for a phased development of the 75 hectare site. Eight hectares will be used for construction of the new hospital and the remainder will be used either for hospital-related uses or ancillary institutional uses, or will be alienated for other purposes if deemed surplus to requirements.

#### **Conradie Hospital**

Conradie Hospital was established in 1938, but has been abandoned in recent years. The site is now vacant with derelict and vandalised top structures and utilities services infrastructure. At present, there is no clear plan for the future use of the site. However, the site is very well located and has the potential to accommodate a range of uses, including medium to high density residential. Other potential uses include the reinstatement of the site as a hospital facility for the relocation of other

State medical related uses in order to free up other strategic sites (e.g. Stikland Psychiatric Hospital or Alexandra Hospital) for development.

### **Maitland Abattoir**

The Abattoir, was operated between 1914 and 2005, and thereafter was decommissioned by the City of Cape Town. With the termination of these operations, various City departments relocated to refurbished office buildings on the site. This re-use of the site has taken place in an ad hoc manner as no approved plan was developed to guide the future use of the site. The abattoir site is well located and easily accessible. Based on the high level of demand for City and other Government departments to locate in the Maitland area, it would seem logical to develop the site to its fullest potential as a municipal hub. Other non-essential portions of the site should be investigated for private sector mixed-use development.

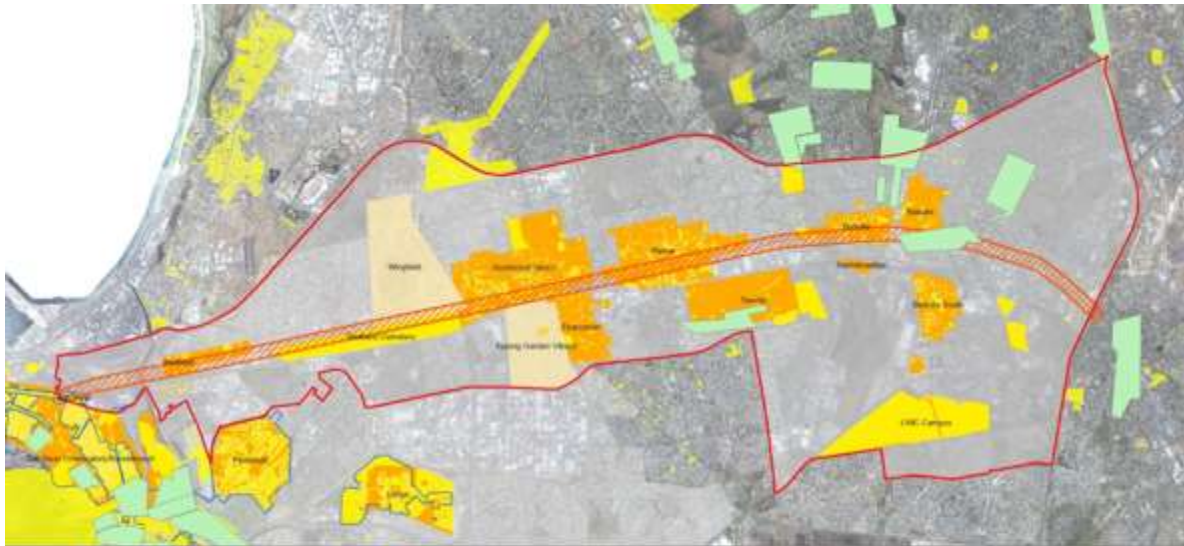
### **Hardekraaltjie Caravan Park**

This is a Council owned caravan park located on Voortrekker Road in the Bellville vicinity, which is of heritage significance. The site was previously used as a livestock outspan for travellers moving to and from the hinterland of the country.

### **Wingfield**

The Wingfield Site, owned by National Government and utilised by the Defence Force, has been considered a desirable development site within the City for a number of years. The Site represents a large portion of either vacant or underutilised land close to the CBD, something that is in particularly short supply (Setplan 2004). The Site is close to major transport infrastructure – both road and rail, and located near one of the long term metropolitan growth axes.

## **10.4 Heritage Resources**



**Figure 151: Built environment heritage significance (Source: ERM Department, City of Cape Town)**

### 10.4.1 General history

Voortrekker Road is the historic main road northwards and predates the N1. In the mid-19th century (c1845) hard surfaces were laid down on roads leading out of Cape Town, formalising the road network. Voortrekker Road, being part of the main road northwards to Klapmuts and Paarl, was also resurfaced.

During the 18th and 19th century, this area would have been characterised by isolated farms. These farms cluster to the northeast of present day Parow. Little remains of this historic agricultural layer. At the end of the 19th century, forest plantations were established in the Epping, Elsie's Rivier area (including Uitvlug plantation). These plantations are related to the collapse of the wine industry after the Phylloxera epidemic and boom in the deciduous fruit industry. The discovery of gold and diamonds stimulated the development of the railway line northwards. The railway, for the most part, ran parallel to Voortrekker Road.

Maitland, the oldest of the residential and commercial nodes along this road, was laid out in the second half of the 19th century. It developed in the junction where the hard road crossed the Salt River and was named in honour of the Lieutenant-General Sir Peregrine Maitland, who was Governor at the Cape 1844-1847). Maitland is probably best known for its cemetery (established in c1888) and the Maitland Abattoir (built in 1914). Maitland functioned as a separate municipality 1902-1913, before it was absorbed into the Municipality of the City of Cape Town.

Voortrekker Road remained the 'northern' main road until the construction of the N1 in the 1950s. The N1 followed Marine Drive past Paarden Island to the Koeberg Circle – up to this point it was a single carriage way. From Koeberg Circle to Willie van Schoor, the N1 was a dual carriage way.

#### 10.4.2 Apartheid history

During the late 1950's the Group Areas Act forced the removal of approximately 2500 African families from Windemere, which was one of the largest of the 'peri-urban' 'squatter settlements at the time. The heart of this area was located between the present 6th and 13th Avenues in Kensington. African residents were also forcibly removed from Goodwood, Parow, Eureka Estate, Elsie's River (Marabastad, Maseru and Hershel) and Bellville (specifically Oakdale). Many were moved to 'bachelors' compounds in Nyanga and an emergency camp at Nyanga West (Gugulethu).

#### 10.4.3 General built environment characteristics

With the exception of Maitland, where there are some early 20th century buildings such as the town hall and police station, the built environment heritage in the study area is largely represented by WWII and post WWII urban expansion.

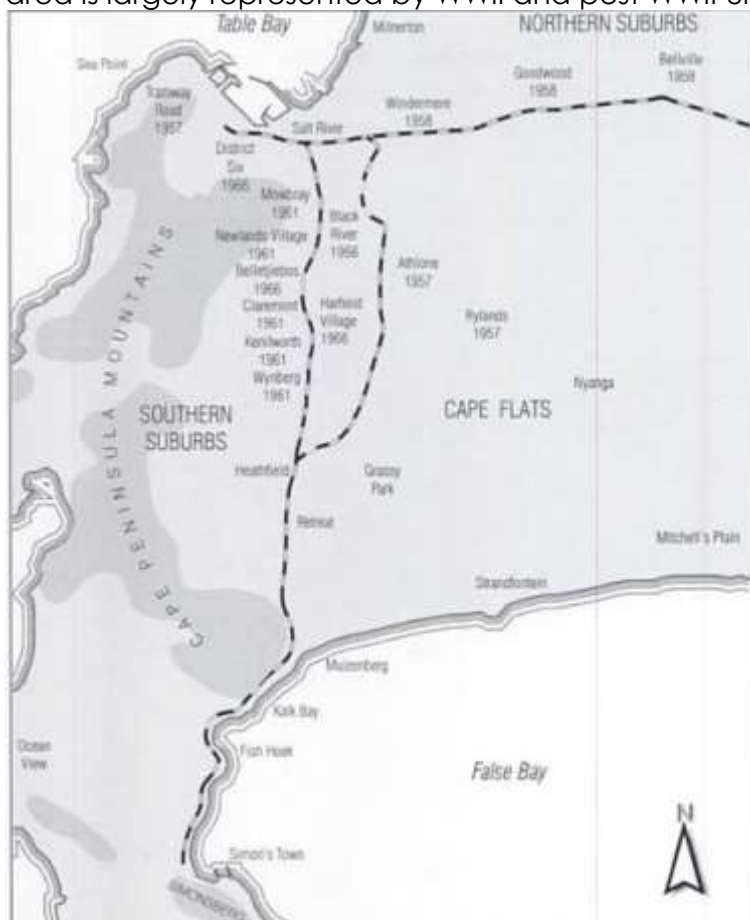


Figure 152: Expansion of Cape Town's residential suburbs along the railway line

## 10.4.4 Heritage Precincts: Background and Recommendations

**Table 28: Summary of heritage precincts in the VRC**

Precinct	Background in brief	Defining characteristics	Heritage Recommendations
Voortrekker Road Corridor	<ul style="list-style-type: none"> <li>• One of oldest roads in Cape Town</li> <li>• Main route northwards prior to the construction of the N1</li> <li>• Hard road established 1845</li> <li>• Milestones</li> <li>• Light industrial activities along Voortrekker Road.</li> </ul>	<ul style="list-style-type: none"> <li>• Isolated pockets of heritage worthy buildings</li> <li>• Few, if any heritage precincts along Voortrekker Road itself</li> <li>• Pockets of historic residential fabric preserved just off Voortrekker Road</li> </ul>	<ul style="list-style-type: none"> <li>• Maitland is the only node along Voortrekker Road that has a coherent heritage character, albeit sporadic.</li> <li>• Redevelopment along Maitland Voortrekker Road can enhance the character of this node.</li> <li>• Redevelopment opportunities along the immediate interface of the remainder of Voortrekker Road would have little or no heritage concerns</li> </ul>
Maitland	<ul style="list-style-type: none"> <li>• The oldest of the settlement along Voortrekker Road</li> <li>• The Maitland Cemetery has heritage value: eg Maitland Road Cemetery Protests in 1886, moving of the remains to Maitland Cemetery, Famous and well known people buried in the cemetery eg Anglo Boer War graves, First and Second World War graves and memorials and Victoria Cross Holders.</li> <li>• Experienced a boom in the post WWII period</li> <li>• Industrial and commercial encroachment evident from 1960s onwards</li> </ul>	<ul style="list-style-type: none"> <li>• Some rare remnants of late 19<sup>th</sup> century fabric</li> <li>• Some early 20<sup>th</sup> century fabric</li> <li>• Predominately mid to late 20<sup>th</sup> century built fabric</li> </ul>	<ul style="list-style-type: none"> <li>• Revitalisation opportunity at junction with Salt River Road north-eastwards of the Salt River Circle</li> <li>•</li> </ul>
Hardekraaltjie camp site	<ul style="list-style-type: none"> <li>• Outspan established along the Elsie's river, already in place by 1750s</li> <li>• Links with other 18<sup>th</sup> and 19<sup>th</sup> century outspans along the major routes from the outlying areas to the markets in Cape Town e.g. Pampoentjieskraal – later Durbanville</li> </ul>	<ul style="list-style-type: none"> <li>• Public open space</li> </ul>	<ul style="list-style-type: none"> <li>• Retention of the site as a public open space</li> <li>• Opportunities to enhance the space</li> </ul>
Bellville	<ul style="list-style-type: none"> <li>• Established near the 17<sup>th</sup> century farm Hadersleben (granted in</li> </ul>	<ul style="list-style-type: none"> <li>• Predominately mid to late 20<sup>th</sup> century built</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities of retaining generous sized residential</li> </ul>



Precinct	Background in brief	Defining characteristics	Heritage Recommendations
	<p>1706 to HH Hatting)</p> <ul style="list-style-type: none"> <li>• XII Milestone celebrated at Bellville (associated with the Hardekraaltjie outspan)</li> <li>• Origins in the Durban Road Station, established in 1861</li> <li>• Retained predominantly rural character until mid-20<sup>th</sup> century.</li> </ul>	<p>fabric</p>	<p>components</p> <ul style="list-style-type: none"> <li>• Consideration of retention of nodes within residential areas for conservation</li> <li>• Retention of mature trees and avenues</li> </ul>
Parow	<ul style="list-style-type: none"> <li>• Laid out on parts of the Plattekleof farm towards end of the 19<sup>th</sup> century</li> <li>• Speculation development driven by a Johann Parow to house people moving south as a result of the Anglo-Boer War.</li> <li>• 1903 Parow railway siding opened.</li> </ul>	<ul style="list-style-type: none"> <li>• Some early 20<sup>th</sup> century buildings</li> <li>• Includes extensive areas of 1930s-1940s housing stock which is conservation worthy, but has not been included in 1992 conservation study (Thorold 1992)</li> <li>• Consistent scale and style</li> <li>• Planted avenues</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities of retaining generous sized residential components</li> <li>• Consideration of retention of nodes within residential areas for conservation</li> <li>• Retention of mature trees and avenues</li> </ul>
Goodwood and Vasco	<ul style="list-style-type: none"> <li>• Goodwood developed as a speculative venture post 1902 by Joyce &amp; McGregor;</li> <li>• 100 lots laid out around a racecourse intended to rival the Cape Turf Club;</li> <li>• Named after the race course in Sussex, England.</li> <li>• Vasco</li> </ul>	<ul style="list-style-type: none"> <li>• Many early houses corrugated iron houses, in 2005, many were still extant, incl school hall</li> <li>• Consistent scale and style</li> <li>• Planted avenues</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities of retaining generous sized residential components</li> <li>• Consideration of retention of nodes within residential areas for conservation</li> <li>• Retention of mature trees and avenues</li> </ul>
Epping Garden Village	<ul style="list-style-type: none"> <li>• Subsidised housing for soldiers returning after the WWI</li> <li>• Based on Garden City principles</li> </ul>	<ul style="list-style-type: none"> <li>• Broad pine planted avenues</li> </ul>	<ul style="list-style-type: none"> <li>• Retention of street grid with treed avenues</li> <li>• Heritage opportunity at the circle/junction</li> <li>• Redevelopment opportunity</li> </ul>
Wingfield	<ul style="list-style-type: none"> <li>• Established on an erstwhile outspan</li> <li>• Original airport of Cape Town</li> <li>• Significant role during the WWII</li> </ul>	<ul style="list-style-type: none"> <li>• Open space</li> <li>• Hangers and bunkers close to N1</li> </ul>	<ul style="list-style-type: none"> <li>• Development opportunity</li> <li>• Retention of strategic green spaces in an area with relatively few green open spaces</li> </ul>
Tiervlei	<ul style="list-style-type: none"> <li>• Situated on or near an early farm grant – Rustenburgh, granted in 1707 to Cornelius</li> </ul>	<ul style="list-style-type: none"> <li>• Predominately mid to late 20<sup>th</sup> century built fabric</li> </ul>	<ul style="list-style-type: none"> <li>• Heritage constraints largely unknown</li> <li>• Sporadic potential heritage</li> </ul>

Precinct	Background in brief	Defining characteristics	Heritage Recommendations
	Obes		resources identified – require ground truthing
University of the Western Cape Campus	<ul style="list-style-type: none"> <li>Established in 1959 as branch of UNISA, specifically for people of colour.</li> <li>First students enrolled in 1960</li> <li>Significant role in the struggle against Apartheid</li> </ul>	<ul style="list-style-type: none"> <li>30ha Cape Flats Fynbos nature reserve declared a Provincial Heritage Site</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>

## 10.5 Environmental resources - Natural systems

A remnant of Critically Endangered Cape Flats Sand Fynbos vegetation located on the Wingfield site has become degraded over the past 20 years. There are some seasonal wetland areas still supporting important biodiversity (closer to the N7 end of the site) that could be conserved as part of an open space system.

The Cape Flats Nature Reserve is found on the grounds of UWC is a significant natural asset and a proclaimed Provincial Heritage Site, which is used by the university and learners from other impoverished education institutions for various environmental education and research programmes.

Elsieskraal River runs parallel to Voortrekker Road in a canalised stream, and the river has significant history attached to it. The flood plains of the river once blossomed with indigenous vegetation but invasive alien vegetation has taken over the area. The river has not been integrated in to open space system and has suffered from water pollution and flooding over the past several years with the increase of industrial development in the areas

## 10.6 Summary Discussion

Character area	Key challenges	Assets and opportunities
Western end of Voortrekker Road: Albert up to Aerodrome Rd. Maitland, Ndabeni and Kensington areas.	<p>Heavy Industrial (shipping, cargo, metal works) buildings are often dilapidated with little or no maintenance.</p> <p>The concentration of land uses such as liquor stores, pubs and gambling outlets has generated undesirable activities.</p> <p>Lack of safe pedestrian access from Woltemade &amp; Thornton station to Voortrekker.</p> <p>Industrial creep into Kensington /</p>	<p>Proposed Sable Road extension and other road proposals connecting Century City/ N1 to Voortrekker Road could prompt developer interest in the Maitland area.</p> <p><b>Road connections considered to be catalytic projects.</b></p> <p>Regeneration of Salt River / Woodstock / Observatory and good metro central location with affordable property prices may also prompt increased developer interest in Maitland over time.</p> <p>The area provides affordable and well located housing opportunities in the metro</p>

	Windermere residential.	<p>area. <b>There is a need to guard against regeneration that excludes this market.</b></p> <p>Opportunities for land use intensification around stations, especially Maitland, Kentemede and Century City stations and along proposed Sable Road extension.</p> <p>Possible upgrading of the Maitland Station public space precinct.</p> <p><b>Possible opportunity for redevelopment of Maitland abattoir site.</b></p> <p><b>Conradie Hospital is an unused, public owned, well located strategic site.</b></p> <p>Area has some heritage character which should be recognised in redevelopment.</p> <p>Opportunity of Maitland SRA as service delivery vehicle.</p> <p><b>Protection of industrial zoned land.</b></p> <p>Cemetery and related land uses provide a metropolitan function.</p> <p><b>Maitland Local Area Plan review needs to be accelerated. Eg CTSZ parking requirements and heritage protection issues.</b></p>
Aerodrome Rd to Vanguard Drive	<p>Negative image, condition and illegal uses in Maitland cemetery. Also vandalism, vagrancy and theft: eg lead lettering and clamps from stones, also other metals from fencing, railings and gates.</p> <p>Servicing problems at Wingfield (Tony??)</p> <p>Traffic congestion at Vanguard / Voortrekker Road intersection.</p>	<p><b>Wingfield is an unused (?) public owned, well located strategic site.</b></p> <p>Retention of strategic green space / remnants of Critically Endangered Cape Flats Sand Fynbos vegetation located on the Wingfield site.</p> <p><b>Maitland Cemetery Conservation Management Plan has identified upgrading / intensification possibilities</b> eg other land uses eg passive recreation &amp; destination graves.</p> <p>Possible improvement of traffic at Vanguard / Voortrekker Road intersection.</p> <p><b>Proposed road connections considered to be catalytic projects.</b></p>
Vanguard Drive eastwards to Hugo / Halt Rd Includes Goodwood	<p>Lack of connections between some railway stations and Voortrekker Road. Eg Goodwood Station</p> <p>Business development being drawn away towards N1 City and Century City nodes.</p> <p>Increase of business activities within residential area, particularly along</p>	<p>Car / auto related business a functional speciality.</p> <p>Opportunity for urban design upgrading and land use integration between stations and Voortrekker road.</p> <p><b>The location of Vasco railway station at an open space and at the junction of Voortrekker and Vasco Roads forms a</b></p>

	<p>Vasco Road northwards to Frans Conradie Drive.</p> <p>Concentration of poor condition of buildings particularly south of Voortrekker Road.</p> <p>CID?</p>	<p><b>potentially key urban upgrading location.</b></p> <p>Retention of mature trees and avenues.</p>
Hugo / Halt to Giel Basson/ Jan van Riebeeck – Industrial area	<p>Elsie's River station design does not have a safe connection to the taxi terminus.</p> <p>Urban management related issues as well vandalism of buildings creates an undesirable component in the Elsie's River Industrial area.</p> <p>There is no active CID in this area.</p>	<p>Car / auto related business a functional speciality.</p> <p>Opportunities for GAP residential.</p> <p>Opportunity for Elsie's River station precinct upgrade.</p> <p><b>Protection of industrial zoned land.</b></p>
Giel Basson/ Jan van Riebeeck to Tierberg / De la Rey Parow area	<p>Tension between formal business and the informal traders in pedestrianized Station Road linking Parow station and Voortrekker Road.</p>	<p>Upgrading of Station Road precinct.</p> <p>Car / auto related business a functional speciality.</p> <p>Redevelopment opportunities within general residential uses.</p> <p>Retention of mature trees and avenues.</p>
Tierberg De la Rey to Mike Pienaar Parow area	<p>Large shopping centre with parking frontage breaks urban fabric along Voortrekker Road.</p>	<p>Existing redevelopment interest (land use applications or pre application meetings) along Mike Pienaar.</p> <p>Possibly upgrading of parking / public spaces around Sanlam centre.</p> <p><b>Protection of industrial zoned land.</b></p>
Bellville West: from Mike Pienaar to Salisbury / edge of Bellville CBD		<p><b>Hardekraaltjie camp site as open space and heritage asset upgrade / partial redevelopment.</b></p> <p>Consolidation as an educational and health institutional node.</p>
Bellville central: Durban Road to Bill Bezuidenhout / Paarl Rd R 101 vicinity	<p>Poor condition of buildings near to transport interchange</p> <p>Area along Durban Road in urban flux.</p>	<p>Mature trees and avenues to be retained.</p> <p><b>Investment potential due to major metro rail station interchange</b></p> <p>Informal trading upgrades</p> <p><b>Promotion of GAP rental accommodation function.</b></p> <p><b>Propose a Local area policy plan for Durban Road area.</b></p> <p>Consolidation as public institutional node.</p> <p>CID involvement</p>

<p>Bellville east: Bill Bezuidenhout / Paarl Rd R 101 vicinity to R300</p>		<p><b>Possible GAP housing development on Stikland site.</b></p> <p><b>Protection of industrial zoned land.</b></p>
<p>Bellville south east</p>	<p>Bulk service problems?</p>	<p><b>Potential to develop major tertiary and health land use nod and complementary uses eg student and health worker housing and other accommodation as well as study centres, library.</b></p> <p><b>Tygerberg Hospital redevelopment.</b></p> <p><b>Protection of industrial zoned land</b></p> <p>Gap housing in Belhar area</p> <p>Protection of Cape Flats Nature Reserve.</p>
<p><b>General summary</b></p>	<p>Growth in decentralised office and retail centres along the N1 threatens to drain investment away from Voortrekker corridor.</p> <p>Relative uniformity in land uses along some stretches of the corridor, with undefined edges to historic suburbs.</p> <p>Heritage resources neglected generally.</p> <p>Land claims risk</p> <p>Displacement of lower income family residential should regeneration occur.</p> <p>Regeneration of Maitland cemetery.</p>	<p><b>Potential link between Century City and Voortrekker Road via proposed Sable Road extension will enhance connections between the two and potentially prompt renewed investor interest in Voortrekker Road area generally. Catalytic project?</b></p> <p><b>Corridor as a whole needs to accentuate its functional niche in the metro area.</b></p> <p><b>Each sub area also needs to identify functional niche at the corridor scale eg Auto retail, GAP housing, institutional, industrial.</b></p> <p><b>Major underdeveloped public land holdings eg Possible opportunity for redevelopment of Maitland abattoir site. Also Stikland, Conradie and Tygerberg Hospitals, Wingfield and Hardekraaltjie sites.</b></p> <p><b>Major industrial and business zoned land is an important metro asset.</b></p> <p><b>Possible integration of Elsie's River into the open space system.</b></p> <p><b>Opportunity for socio – economic integration through land claims in Windermere and Oakdale areas??</b></p> <p><b>Upgrading of public space precincts around railway stations, including connections to Voortrekker Road.</b></p>

## References and meetings

- Maitland Cemetery: Conservation Management Plan June 2014
- Oostenburg Heritage Mapping Project: Identification and assessment of heritage resources 2002
- District Spatial Development Plans: Tygerberg and Table Bay (2012)
- Review of Town Planning Scheme: Maitland I, District policy Plan Alternatives
- Maitland Local Area Plan 1992
- Voortrekker Road Corridor Heritage report (ERM 2014)
- Voortrekker Road Status Quo Report Summary (2012)
- Voortrekker Economic Land Use Activity Survey (2012)
- History - Source: Voortrekker Growth Management Strategy Volume 1 & 2 (2000)
- Forced Removals in Greater Cape Town 1948-1970. Martin Legassick

Discussion with P&BDM Land Use planners in the Tygerberg and Table Bay Districts. as well as data obtained from the DAMS system.

### Tygerberg District Planning Office: Parow Civic Center

3 June 2014

Present: Chad Newman ,Adele McCann, Claus Rabe, Ashleigh Manyara, Tess Kotze & Suna van Gend.

### Table Bay District Planning Office: Media City Building

12 June 2014

Present: Greg September, Adele McCann, Lorryn Steenkamp, Ashleigh Manyara, Peter Ahmad.

### **Table Bay District ERM Office: Media City Building**

9 June 2014

Present: Dimitri Georgeades , Adele McCann & Ashleigh Manyara.

### **ERM Heritage Resource Management : 44 Wale Street**

18 June 2014

Present: Adele McCann , Ashleigh Manyara, David Hart, Harriet Cliff , Clive James .

## 11. Urban Management

Urban management involves **coordinating** and **integrating** public and private activities to tackle major problems the residents of a region face - with the aim of building a more competitive, equitable and sustainable city. These services include but are not limited to the following:

- Safety and security
- Quality of Public Realm
- Street Lighting
- Littering

The urban management baseline assessment will focus on the following themes:

- Informal trading
- Crime and Grime
- Problem Buildings
- Building Maintenance
- Illegal land uses
- Dumping and littering - Refuse collection and removal

### 11.1 Current urban management service provision

This section identifies key line departments and stakeholders and the urban management roles that they undertake within the study area.

**Table 29: Summary of line department and stakeholder roles and responsibilities in urban management service provision**

Line Department	Service Provided	Frequency
<b>Solid Waste</b> Provides refuse collection, provision of litter bins and street cleaning services within the area.	<u>Refuse Collection</u> Commercial, retail and industrial properties along have the option of having the City of Cape Town as a service provider or an external contractor for refuse collection services. <u>Street Cleaning</u> In conjunction with refuse collection is a service provided by Area Cleaning and these services include sweeping, litter picking emptying of litter bins and removal of illegal dumping once a week. Industrial areas have this service available should there be funds available.	Dependant on zoning : Single Residential and General Residential Weekly Properties a weekly service is provided. Commercial and Industrial dependant on contractual agreement with the CCT Solid Waste or external contractor .
<b>Econ Dev : Business Area Management</b> Regulation of informal trading activities Provision of ablution facilities where necessary	<ul style="list-style-type: none"> <li>• Ensuring compliance with Informal Trading By-Law</li> <li>• Designation of "Free Trade Areas and Gazetted Areas"</li> <li>• Drafting Informal trading plans and demarcation of trading bays .</li> <li>• Issuing of informal trading permits</li> </ul>	Dependant o availability of resources

<b>PBDM :</b> <b>LUMS</b> CT Zoning Scheme Contraventions Table 1: Stakeholders and Service Providers	<ul style="list-style-type: none"> <li>Ensuring compliance with the Cape Town Zoning Scheme</li> </ul>	When required
<b>Safety &amp; Security</b> <b>Law Enforcement</b> Problem Buildings	<ul style="list-style-type: none"> <li>Ensuring compliance with the Cape Problem Buildings By- Law</li> </ul>	When requested
<b>SAPS</b>	<ul style="list-style-type: none"> <li>There are currently 7 police stations within the integration zone area namely</li> </ul>	Patrol and surveillance Crime Stop

## 11.2 City Improvement Districts

Apart from the CCT line departments City Improvement Districts play a key role in urban management within the corridor.



Figure 153: Special Ratings Areas within the Voortrekker Road Corridor Integration Zone

Currently there are a total of five operational CIDs within the study area namely:

- Maitland
- Voortrekker Road CID
- Triangle Farm
- Parow Industrial
- Stikland Industrial

Establishment of a City Improvement Districts is a community driven initiative based on City's Special Rating Area By – Law, which permits for additional rates and the establishment of CIDs to provide additional or “top up services “over and above the City's provision. These top up service include additional refuse collection services,



street sweeping, street lighting and general upkeep of the public realm within the CIDs mandate.

## 11.3 Review of Existing reports and interviews

### 11.3.1 Maitland CID Perception Survey Report (2014)

The survey revealed the following findings:

- Main concerns that residents and business owners face include:
  - General safety concerns
  - Safety concerns for pedestrians within Maitland Trains station areas
  - Litter and dumping
  - Homelessness and other socio-economic related issues
  - The quality and maintenance of the public realm including street pavements , sidewalks , maintenance of civic amenities such as parks and other facilities
- The survey always revealed that the implementation of the Maitland CID has boosted business confidence within the area

### 11.3.2 Elsie's River City Improvement District Business Plan (2014)

The Elsie's River Improvement District Business Plan submitted in June 2014 entailed a survey of 71 business and property owners within the area. The findings of this survey are summarised below.



Figure 154: Elsie's River City Improvement District Boundary

The survey focused on key urban management challenges that the areas faces such as:

- Increase in serious crimes within the area with armed robbery having the highest number of incidents.
- Effectiveness of law enforcement agencies within the area.

- Dumping and impact in the public environment and areas such as Halt Road, Vacant Land, and train station precinct and Epping Avenue being key priority areas.
- Close correlation between homeless people and dumping sites as the survey identified that that the areas frequented by these are areas that have severe dumping issues.

### 11.3.3 Summary of meetings and interviews

#### VRCID and Maitland CID Meetings

On the 12<sup>th</sup> of August SPUD representatives engaged with the CIDs in Voortrekker Road. Maitland , Salt River and Elsie River CIDs represented by Gene Lohrentz from Geocentric and Dereck Bock representing VR CID respectively .

From the discussions the following were key issues raised:

Train Station Precincts	<ul style="list-style-type: none"> <li>• Traffic Congestion</li> <li>• Maintenance of train station precincts</li> <li>• Public subject to opportunistic crimes</li> <li>• Prevalence of unregulated informal trading activities that are a hazard to public and environmental health</li> </ul>
Informal Trading	<ul style="list-style-type: none"> <li>• Prevalence of unregulated informal trading activities that are a hazard to public and environmental health</li> <li>• Crime hotspots have been closely linked to informal trading activities such as Parow Station Road</li> <li>• Conflicts between formal businesses and informal traders</li> </ul>
Problem Buildings	<ul style="list-style-type: none"> <li>• Subletting of properties has led to an increase of illegal activities and activities that have a significant impact of public health and safety.</li> </ul>
Illegal land use activities	<ul style="list-style-type: none"> <li>• A number of churches ,bottle stores , gambling outlets clustered in Maitland CBD , these activities are incompatible with the general residential and business component within the area.</li> </ul>
CIDs' Impact on business confidence	<ul style="list-style-type: none"> <li>• Visibility of CID patrol has created a safer environment within the area as well maintenance of the public realm has created a visibly welcoming and clean environment.</li> </ul>

#### Planning Building & Development Management : LUMS

On the 20<sup>th</sup> of August, Clayton Jacobs a Principle Property inspector in the Tygerberg Planning District shared key concerns regarding illegal land uses (Cape Town Zoning Scheme Contraventions) within the area. The key trends:

Zoning Scheme Provisions	VRC has a substantial number of properties that have General business and Mixed Use and this zoning is being permits a number of various land uses and occupants of these properties rapidly change uses without submission of building plans.
Demand in residential accommodation	Though unsubstantiated claims, the PBDM department has identified a number of buildings

that are rapidly being converted from office and retail space to residential units. The average size of these units approximately 20-25sqm and priced at an average of R2000 .These buildings are suspected to have high densities that have deterring

*C3 Notifications of problem buildings and buildings maintenance and Illegal land use activities*

## Safety and Security

On the 20<sup>th</sup> of August, a representative from Safety and Security within the Problem Buildings Unit in the Tygerberg Planning District shared key concerns regarding Problem Buildings.

In terms of the Problem Buildings By-Law (2010) a “**problem building**” is defined as:

*“any building or portion of a building—*

*(a) that appears to have been abandoned by the owner with or without the consequence that rates or other service charges are not being paid;*

*(b) that is derelict in appearance, overcrowded or is showing signs of becoming unhealthy, unsanitary, unsightly or objectionable;*

*(c) that is the subject of written complaints in respect of criminal activities, including drug dealings and prostitution;*

*(d) that is illegally occupied;*

*(e) where refuse or waste material is accumulated, dumped, stored or deposited with the exception of licensed waste disposal facilities; or*

*(f) that is partially completed or structurally unsound and is a threat or danger to the safety of the general public.”*

Senior Law Enforcement Officer Clinton Overmeyer identified a few focus areas:

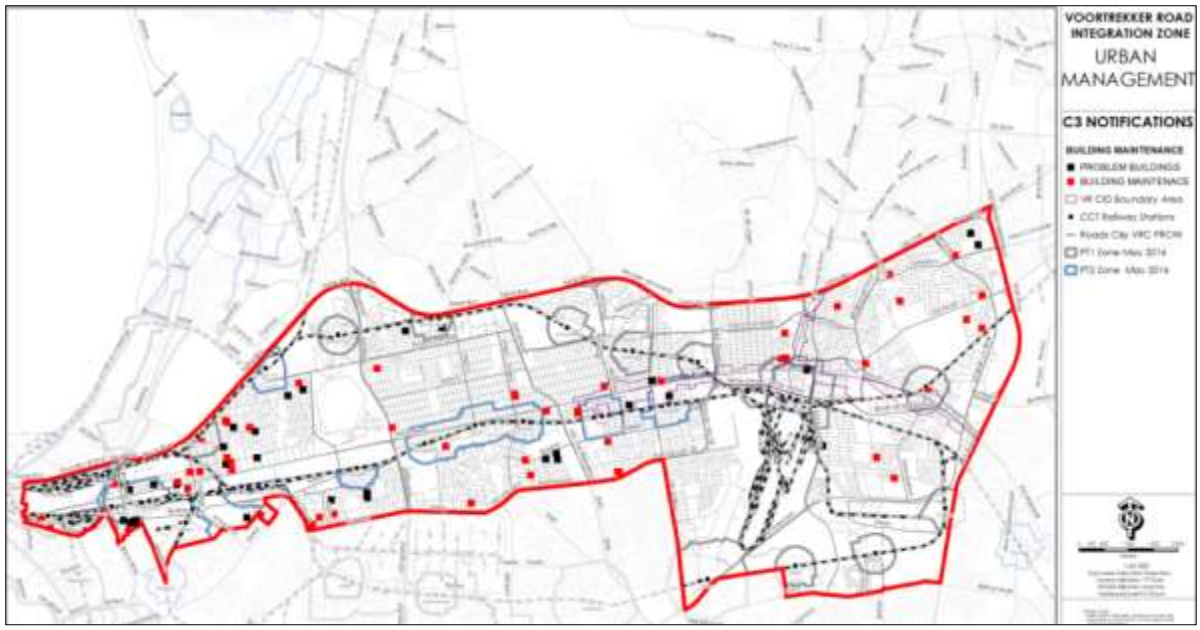
- The by- law is a fairly new law and there is limited awareness of the law particularly with the general public .
- VRC has a significant number of properties that have been deemed a problem building and they are currently three court cases against property owners within the area.
- Problem buildings within the area are a result of land owner's neglect in maintenance of the buildings and subletting the buildings to maximise profits.

## 11.4 Summary of trends

### 11.4.1 General Trends

#### Problem Buildings and Building Maintenance

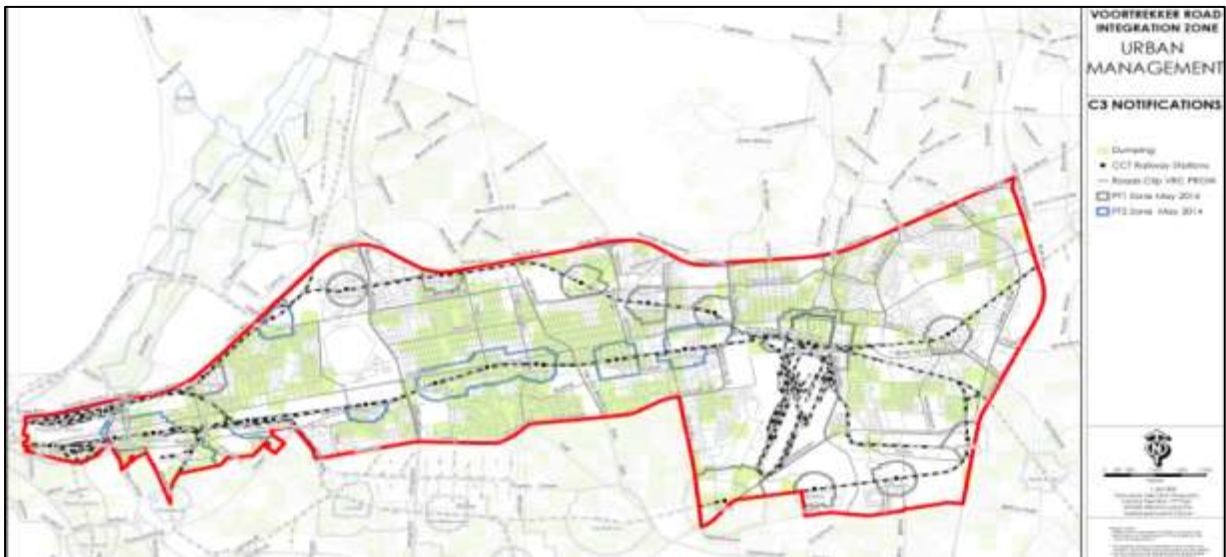
From the image below the C3 notifications display a number of hot spots , most of the clustering occurs in Miatland CBD and surroundings . From the discussions with PBDM LUMS , this concentration has been closely associated with the influx of foreign nationals in the area. However further investigations will be able to substantiate these claims.



**Figure 155: C3 Notifications: Problem Buildings concentrated predominantly in the Maitland – Kensington Area**

**Dumping**

Based on the C3 notifications ; it is evident that incidents of dumping are prevalent across the corridor . The concentration of dumping is prevalent in Elsie's Industrial and surrounds. As well as the Kensington area . The prevalence of dumping in industrial areas is due to budget constraints, Solid Waste Area cleaning has identified that budget constraints limit the departments resources to service industrial areas.



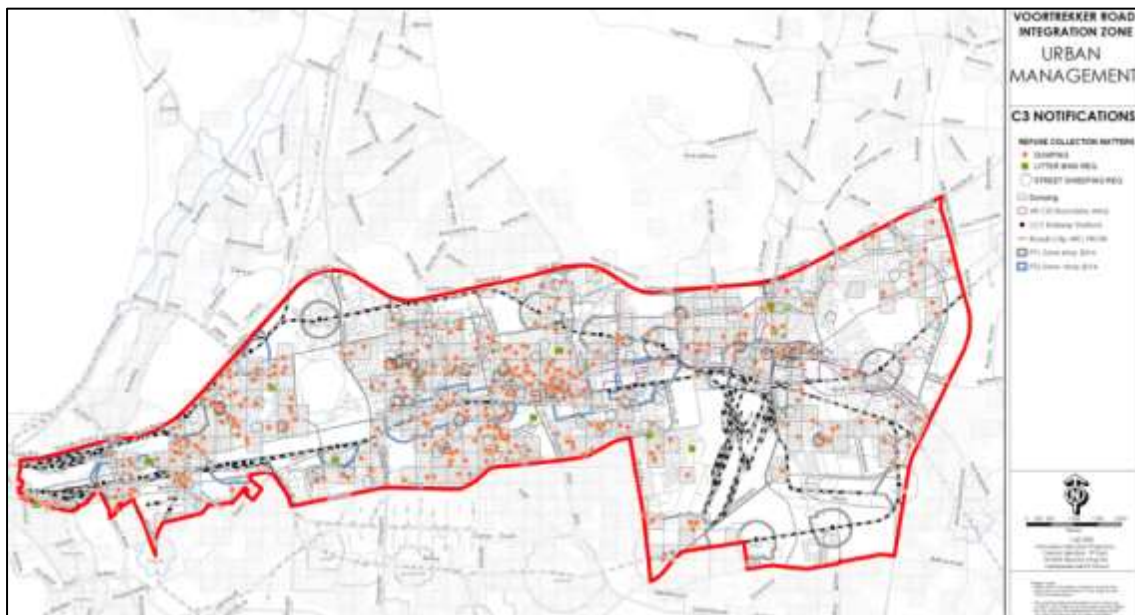
**Figure 156: C3 Notifications - Dumping**

Other incidents of dumping in commercial areas not serviced by the Solid Waste department are due to external contractors employed by commercial or industrial property owners who fail to comply with contractual obligations and fail to collect refuse .

The more prominent dumping sites can be seen to be around station precincts such as Maitland , Parow, Vasco, Belhar, Bellville and De Grendal Stations. The lack of maintenance and a lack of provision of litter bins within train station precincts has largely contributed to this increase in dumping within the public environment.

**Dumping, Littering and Street Sweeping Required**

The services provided by Solid Waste Area Cleaning are on a scheduled weekly basis or on request from the general public. Dumping and street cleaning are a problems that seem to be prevalent in the core of the corridor from Vanguard Drive to Mike Pienaar Road . Parow station precinct has a significant number of reports of dumping and street cleaning required. This is closely related to the significant informal trading activities that occur within the area and the lack of provision of solid waste disposal dedicated to informal traders.



**Figure 157: C3 Notifications – Dumping, littering and street sweeping**

**Potholes**

The majority of the C3 notifications reported for potholes are concentrated in the centre of the corridor, Parow CBD and Elsies River industrial having the highest numbers of incidents. Maintenance Budget constraints accelerate these conditions.



Figure 158: C3 Notifications - Potholes reported



### 11.4.2 Key Findings

Below represents the key findings and focus areas pertaining to urban management related issues within the study area:

Nature of Trend	Location	Impact
Informal Trading	<ul style="list-style-type: none"> <li>• Train Station Precincts:</li> <li>• Maitland PT1 and Station Road</li> <li>• Parow Station and Station Road</li> <li>• Bellville PTI and CBD</li> </ul>	<ul style="list-style-type: none"> <li>• Prevalent Crime and Safety concerns</li> <li>• Lack of "visible" Law Enforcement</li> <li>• Conflict between formal and informal activities</li> <li>• Dumping and littering</li> <li>• Traffic congestion</li> <li>• Public Health and Safety</li> </ul>
Problem Buildings	<ul style="list-style-type: none"> <li>• Maitland</li> <li>• Bellville</li> <li>• Parow</li> <li>• Elsie's River Industrial</li> </ul>	<ul style="list-style-type: none"> <li>• Overcrowding</li> <li>• Crime</li> <li>• Slum Dwellings</li> <li>• Public Health</li> <li>• Dumping</li> <li>• Non-compliance</li> </ul>
Illegal Land Uses	<ul style="list-style-type: none"> <li>• Voortrekker Road and surrounds :</li> <li>• Maitland</li> <li>• Parow</li> <li>• Goodwood</li> <li>• Bellville</li> </ul>	<ul style="list-style-type: none"> <li>• Parking provisions inadequate ( traffic congestions)</li> <li>• Incompatibility of land uses creates conflict with residents and businesses.</li> <li>• Anti-social behaviour</li> <li>• Rapid conversion of land uses CTZS permissive</li> </ul>
Dumping	<ul style="list-style-type: none"> <li>• Maitland Station precincts</li> <li>• Prestige Rd and Voortrekker Road</li> <li>• Vasco Station</li> <li>• Goodwood</li> <li>• Elsie's River industrial and surrounds Including station</li> <li>• Parow Station Road and surrounds (north)</li> <li>• Bellville Modderdam Road – c/o Bill Bezuidenhout and Voortrekker Road</li> </ul>	<ul style="list-style-type: none"> <li>• Public Health safety concerns</li> <li>• Environmental health concerns</li> <li>• Pollution of streams</li> <li>• Crime</li> <li>• Underutilisation of public facilities such as train stations.</li> </ul>
Road Repair / Potholes	<ul style="list-style-type: none"> <li>• Goodwood - Parow</li> </ul>	
Neglect of Civic Assets	Maitland , and Maitland Cemetery	Lack of upkeep of civic assets and property within the corridor to an extent that they have a substantial impact on the public environment. Areas then are prone to dumping , vagrants and crime
Dead Spaces/Underutilised Spaces		

### 11.4.3 Roles and Reasonability Matrix

Below is a responsibility matrix that identifies key areas of possible intervention by relevant internal line departments and external entities.

DEPARTMENT																	
	Solid Waste : Refuse Collection	Solid Waste : Area Cleaning	Economic Development; Business Areas Management.	Law Enforcement : Safety and Security	PBDM : LUMS	TCT: Maintenance	Extended Public Works Programme	Community City Parks	City Improvement Districts	SAPS	Social Development	Electricity : Maintenance	PRASA	PGWC : Health	CCT : Environmental Health	Finance ISL	Property Management
<b>Urban Management Themes</b>																	
Crime																	
Illegal Land Uses																	
Informal Trade																	
Safety and Security																	
Problem Buildings																	
Littering & Street Cleaning																	
Refuse Collection																	
Road Maintenance																	
Homelessness & Vagrancy																	
Street lighting																	
Resource Coordination																	
Public Realm : Parks , PTIs etc.																	
Pedestrian Safety																	
Traffic Congestion																	
Maintenance of Civic Assets																	
Provision and maintenance of ablution facilities																	

The key findings from the above matrix identifies that there is a need for the City of Cape Town to play a bigger role in the coordination of resources and funding to maximise urban management efforts by the CIDs as well as to ensure that the basic service delivery levels are adequate for the various areas and needs.

Currently the Urban Management Component is run by the Inter Service Liaison Department in Finance a greater inter-departmental role is required to have all role players interests addressed.

The ISL department have identified that there is no functional body within the City that coordinates resources for the CIDs. This has been identified to be one of the pressure points within the VRC.

## 11.5 References and meetings

- Maitland Cemetery: Conservation Management Plan June 2014
- District Spatial Development Plans: Tygerberg and Table Bay (2012)
- Voortrekker Road Status Quo Report Summary (2012)
- Maitland CID Perception Survey Report (2014)
- Elsie's River City improvement District Business Plan (2014)
- Voortrekker Economic Land Use Activity Survey (2012)

### Meetings

Urban Management Meeting

12 August 2014

Attendees:

- Gene Lohrentz                      Geocentric - Maitland CID
- Dereck Bock                      VRC CID
- Lynette van Lill                      Stikland Farm CID
- Anthony Marks                      SPUD
- Ashleigh Manyara      SPUD
- Lance Boyd                      SPUD

PBDM Land Use: Tygerberg District Planning Office: Parow Civic Center

20 August 2014

Attendees:

- Ashleigh Manyara,
- Clayton Jacobs (Principle Property Inspector)

Safety and Security: Problem Buildings Unit

Clinton Overmeyer

## 12 Synthesis

### 12.1 Summary of the most salient trends/issues in the VRC

Table 30 below provides a summary of the most salient trends experienced within the VRC by sector.

Table 30: Summary of key trends within the VRC by sector

Summary of key trends by sector							
No.	Demographics	Residential and property	Economics	Transport	Engineering	Social facilities	Land use & urban management
1	<p>In-migration concentrated around VRC spine, particularly in:</p> <ul style="list-style-type: none"> <li>• Maitland</li> <li>• Parow</li> <li>• Elsie's River</li> <li>• Bellville South</li> <li>• Stikland</li> </ul>	<p>The provision of public housing at scale is a significant challenge due to financial and management issues. This is mainly attributed to lack of available City-owned land within the corridor</p>	<p>High level trends VRC sandwiched between 'N1 Office Boom Belt' along north and 'Resilient Rust Belt' along south</p> <p>Shadow effects have largely run their course</p> <p>Local economy is now almost entirely localised and largely insulated from competition</p> <p>But lack of upward mobility within local market caps potential for endogenous growth</p> <p>5-10 year employment growth likely to centre on 'managed' green field areas</p> <p>So, how does VRC use its prime location, artisanal skills and low property costs to enhance economic spill overs?</p>	<p>Commuter Rail can provide the backbone of public transport services within the VRC, with station precincts serving as gateways into corridor. The priority for implementing the future Blue Downs Commuter Rail Corridor, connecting Khayelitsha and Mitchells Plain with Bellville, was again highlighted. Rail infrastructure modernization planning is required along the length of the Bellville railway line in order to determine interventions needed to improve the quality and efficiency of the passenger rail services through the corridor.</p>	<p>Stormwater and flood hazard zones along the areas abutting the Salt and Elsie's River coincide with several station precincts along the length of the corridor, resulting in potential challenges to TOD.</p>	<p>Whilst it may seem that social facilities in the VRC are adequately provided for, the reality is that most of capacity in these facilities is taken up by members of the population residing outside of the VRC but accessing services in the VRC. Therefore, demand for services in a more densified VRC is likely to outstrip capacity in the future.</p>	<p>Growth in decentralised office and retail centres along the N1 threatens to drain investment away from Voortrekker corridor.</p>

2	<p>Some areas feature consistently in 'needy' category: Kensington / Windermere Elsies River / Leonsdale Ravensmead Bellville South Bellville CBD</p>	<p>The level of overcrowding within the Leonsdale area is a big concern. Several public housing projects have been initiated within this area with little or no regard given to the existing lack of public facilities and poor quality open space within this area.</p>	<p>Except for Voortrekker Road, the greatest concentration of businesses is found in Elsie's River Industrial. This represents a formidable agglomeration of industrial and retail services.</p>	<p>Of equal importance are the high-order north-south routes passing through the VRC, such as Giel Basson/35<sup>th</sup> Avenue and Robert Sobukwe/Symphony Way. These routes are earmarked as trunk routes for future phases of implementation of the MyCiti Bus system. Improved public transport functions along these routes is envisaged to stimulate development at points of accessibility, especially where they intersect with Voortrekker Road and other east-west routes.</p>	<p>Residual engineering services constraints will not necessarily constrain incremental redevelopment in the corridor, but infill of strategic sites where development will take place at scale will require significant lead time for planning of infrastructure investment (e.g. Wingfield and Tygerberg Hospital precinct).</p>	<p>The ever-increasing demand for vacant land for public housing in areas such as Leonsdale and Bellville South has compromised the ability to provide facilities such as quality public open space to those communities.</p>	<p>Each sub area needs to identify and promote its functional niche at the corridor scale (e.g. Auto retail, GAP housing, institutional, industrial).</p>
3		<p>The current densities within the corridor are unacceptably low considering the extent of public transport service provision within the corridor. However, densities need to be increased in appropriate locations within the VRC. To what extent does the corridor need to densify and where? Which densification scenario is the most realistic?</p>	<p>Although retail activities continue to be concentrated along Voortrekker Road, there is a notable presence of retail in nodes formally regarded as industrial. This is particularly noticeable in Elsie's River Industrial (see Figure 60) and Triangle Farm. While business services are relatively sparsely distributed, personal and social services predominate in established commercial nodes such as Bellville and Goodwood and Parow town centres.</p>	<p>Road Transport in relation to the VRC clearly indicated current and future bottleneck areas, of which congestion on the M5 and N7 is most pronounced. Priority existing planned road improvement projects coinciding with existing highly congested areas includes a 3rd lane on the N1 between the R300 and Durban Road intersection, a new interchange at the R300 and the Bottelary Road intersection, as well as construction of the half diamond interchange on the N1 at Carl Cronje Road.</p>	<p>Land use conversion from mono-functional to mixed use will not necessarily impact infrastructure capacity. Infrastructure requirements may peak at different times of the day. However, substantial intensification of low base / increases in manufacturing operations may have additional risk implications.</p>		<p>Major underdeveloped public land holdings e.g. Stikland, Conradie and Tygerberg Hospitals, Wingfield and Hardekraaltjie site present significant redevelopment opportunities at scale within the VRC.</p>

4		Social housing provision is a potential mechanism with which to protect vulnerable socio economic bracket against market forces such as gentrification.	On a whole, firms located along the central spine of the study area are generally locally-oriented as opposed to integrated into regional value chains. With the possible exception of the automotive cluster, these firms draw on low land costs, accessibility to artisanal skills and a captive local consumer market. These firms usually have low scale economies, which prevent large-scale, vertically-integrated firms from taking business away from the cluster to some lower-cost area. In this sense, the remaining industrial and retail activity are relatively insulated and resilient from further encroachment by competing nodes.	Freight Rail was shown to play a national and limited role through the VRC with enough existing and future rail infrastructure capacity for freight rail haulage and shared commuter rail services. The Port of Cape Town, with the expected positive growth of containerised freight over the following 30 years and the intensification of industrial and vacant sites in the Culemborg area, is likely to receive priority. The Transnet marshalling yard, while serving an important freight logistical and industrial land use function, will receive a lesser priority as oppose to the developments around the Port of Cape Town.	Significant infrastructure challenges overlapping with areas encouraged for intensified development (TOD) may make a greater case for <b>prioritization</b> e.g. Bellville Central Area. Proactive investment in infrastructure risk areas may catalyse development.		Upgrading of public space precincts around railway stations, including connections to Voortrekker Road should be prioritized .
5		The ability for the market to provide affordable housing stock in the VRC at a reasonable return remains a huge challenge. Financial viability remains an issue that needs to be addressed. This is largely attributed to the challenge of paying development charges to the City.	We find a very large number of firms engaged in automotive retail and repair. This is identified as perhaps the only cluster which draws consumers from outside the study area. This raises the question: to what extent is the customer-facing end of this activity linked to upstream activities in the study area. We find that there is indeed a significant concentration of upstream activities, such as automotive machinery and firms engaged in metal works clustered in close proximity to the automotive retail and repairs. Further investigation is suggested to indicate whether ancillary activities such as glass, rubber and plastics feed into this value chain.	Freight by Road was shown to be most eminent in the VRC northwards on the N7 from Epping Industria. Limiting road freight movements during peak periods were estimated not to have a significant contribution to better the traffic congestion situation. A better understanding of freight movements and freight traffic generated by existing and future developments in and around the Port of Cape Town is required.	Operating expense constraints are more problematic than CAPEX → Effects of densification on public services (e.g. waste collection & maintenance)		

6		Property values have substantially increased in Maitland and Kensington due to increased demand in the lower-middle income residential segment. Other evidence of strong demand for affordable housing within the corridor exists in the Avon and Ruyterwacht areas, where residential property prices have also increased quite substantially.	On a whole, the study area is typified by extensive retail activity. We calculate that there are upwards of 1,200 formal and approximately 800 informal retail activities within the study area, and 141 wholesales. In light of our rental analysis in the preceding section, it is assumed that such retail is generally of a lower order and caters exclusively to the internal market rather than incidental commuter movements. This is in contradistinction with the depiction of retail along the length of the study area as a membrane capturing shoppers moving through the area.	The section of the VRC from Goodwood to Bellville served by public parking areas, which were provided to fulfil parking needs of proximate developed properties along Voortrekker Road and surrounds. While most of these parking areas are under-utilized, parking areas within Bellville CBD are well utilized. Furthermore, the fact that these parking areas are unmanaged and not monetized means that the City of Cape Town has lost several revenue streams, which could be used to fund other local improvements in the area. This should be investigated further. Other public parking areas in the VRC should be investigated, so that they are more efficiently utilized or repurposed for another use.			
7		Incremental densification will be a strong contributor to the overall densification of the corridor, with small scale consolidations occurring to enable low-rise forms of residential development. This is quite evident in parts of Goodwood, Parow and Bellville.	The question arises as to what extent to traded goods is locally sourced, in relation to imported wholesale. This is particularly salient given the anecdotal concerns about the large-scale trading of counterfeit and grey market goods in the area.	Pedestrian environments within the VRC are generally poor quality and often harsh environments. Furthermore, while certain pedestrian routes may be evident, there is no coherent and seamless network of NMT routes. It is recommended that special attention is paid to NMT planning at the level of the prioritized local area.			
8		The primary housing need in the city is subsidized housing (<R3200). The ability and appropriateness of the VRC to absorb demand in this segment at scale is questioned.					

## 12.2 Process for functional area based synthesis

\*\*\*Tony to add\*\*\*

The status quo analysis phase of the VRC Integration Zone Strategy & Investment Plan is concluded by the identification and analysis of functional areas.

The methodology for analysis of the identified functional areas is described below:

### 12.2.1 Identification of functional areas

The integration zone is a rather large entity, which does not have a homogenous character. As such, it is necessary to divide it into smaller sub-areas ('Functional Areas') with discreet identities which may share certain characteristics / trends / areas of influence.

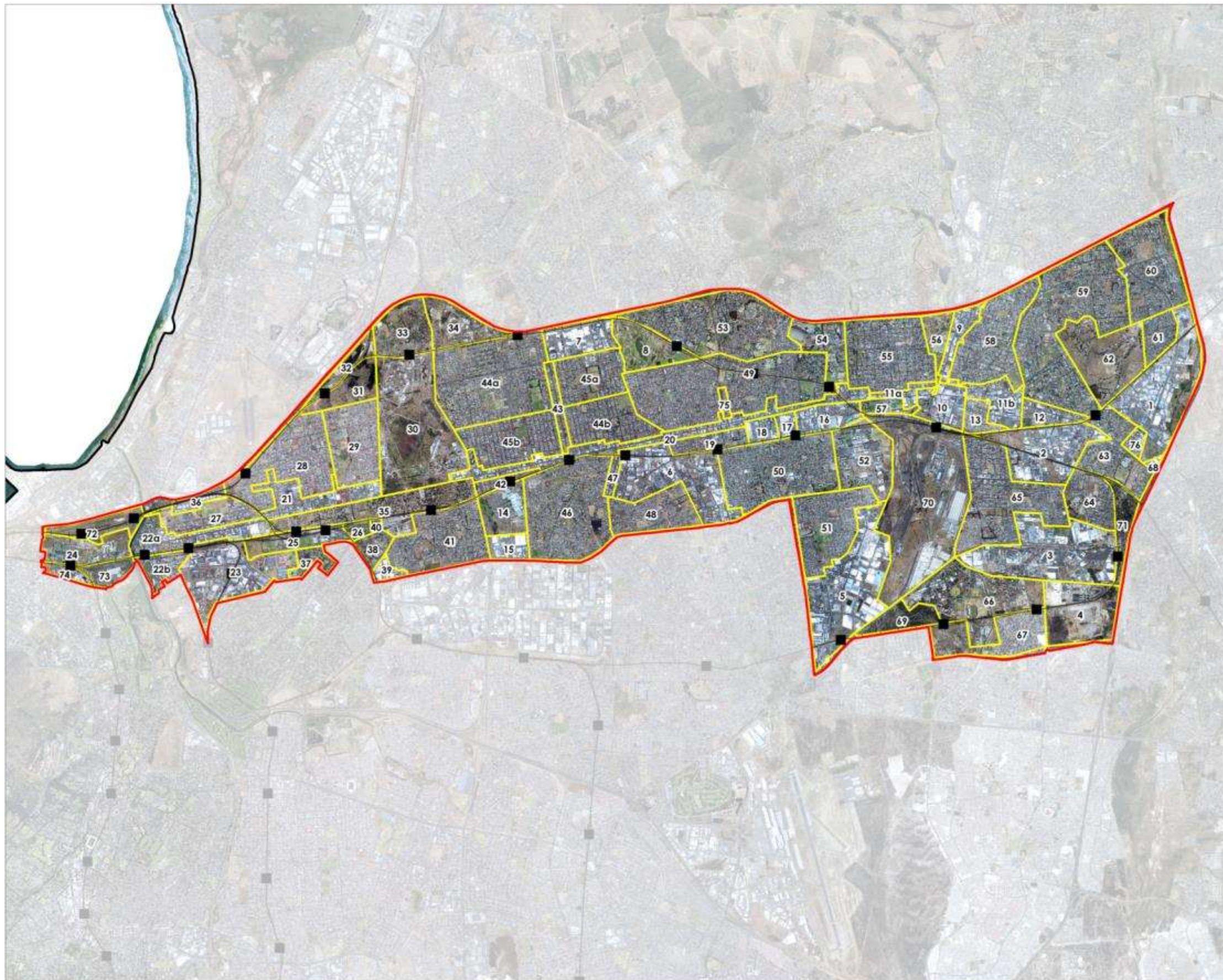
The aim of this stage is to draw on the information gathered in the status quo analysis to identify a number of functional areas within the integration zone. The identified functional areas cover the entire Integration Zone area.

A Functional Area is loosely defined in the VRC Scope of Works document as a sub-area with discreet identity within the Integration Zone which shares certain functional characteristics / trends / areas of influence. These Functional Areas could inter alia be classified in terms of their:

- Existing land use (e.g. commercial / industrial / residential etc.);
- Role (e.g. township retail node etc.);
- socio-economic / demographic status;
- transport role / function (e.g. origin / destination etc.); and
- Performance (e.g. high performing / underperforming etc.).

Figure 159 below illustrates the identified functional areas which cover the full extent of the VRC.





**VOORTREKKER ROAD CORRIDOR INTEGRATION ZONE**

*Functional Areas*

Legend

- City
- VRC
- CCT\_stations
- CCT\_railway\_line
- Functional\_Areas

  
 0 250 500 1,000 2,000  
 Meters  
**1:60,000**  
 Transverse Mercator Projection  
 Central Meridian 19° East  
 WGS84 Ellipsoid using the  
 Hartbeespoort94 Datum

Note: Every effort has been made to ensure the accuracy of information on this map at the time of publication.  
 The spatial data portrayed in this map is of current, accurate and complete as provided by the various line departments responsible for the maintenance of these datasets.  
 The City of Cape Town accepts no responsibility and will not be liable for any errors or omissions contained herein.

**THIS MAP WAS COMPILED BY:**  
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 Date: March 2014

  
**CITY OF CAPE TOWN**  
**ISIXEKO SASEKAPA**  
**STAD KAAPSTAD**

Figure 159: VRC Functional Areas identified

### **12.2.2 Trends analysis of functional areas**

Following the identification of the functional areas, the opportunities, issues and trends for each functional area must be extracted from the information gathered in the status quo analysis. More focussed analysis may be required in terms of certain informants (e.g. economic trends, transport and services etc.) within the identified functional areas in order to assist with prioritization.

The trends analysis will serve as the basis for a methodology and / or criteria for the classification of these functional areas, which will inform the development strategy for the Integration Zone.

The methodology for classification of functional areas is based on a scoring system, which is described as follows:

- Functional areas were scored in order to adequately prioritize functional areas for more in-depth investigation;
- Functional area scoring was undertaken by all drafters of status quo assessments;
- Each functional area was scored for current performance and future potential;
- Each of the three focus areas (Jobs, Residential and Tertiary Education) will be assessed using the criteria above and any additional other factors that the team are aware of. A composite score will then be given;
- Once scoring of areas is complete, the results will be used to identify areas requiring intervention – interplay between current performance and future potential.
- Services capacity has not been considered in this analysis as it was agreed that this can be improved through the allocation of capital investment (purpose of investment strategy). To this end, areas with high future potential and other areas requiring intervention will be assessed against services capacity.

Table 31 below sets out the criteria for scoring of identified functional areas in terms of current performance as well as future potential. The scoring of functional areas will inform the identification of prioritised local areas for targeted interventions by prioritizing areas.

Table 31: Criteria for classification of identified functional areas

<b>Current Performance and Future Potential Assessment</b>			
<b>Colour</b>	<b>Description</b>	<b>Criteria: Current Performance Assessment</b>	<b>Criteria: Future Potential Ultimate development potential</b>
	Positive	<p><b>Jobs</b></p> <ul style="list-style-type: none"> <li>• ECAMP rating – customised                             <ul style="list-style-type: none"> <li>○ Vacancies</li> <li>○ Building development</li> <li>○ Sales churn</li> <li>○ Congestion Index</li> <li>○ Accessibility                                     <ul style="list-style-type: none"> <li>▪ Distance to Regional Market Nodes</li> <li>▪ Distance to freight corridors and gateways</li> </ul> </li> <li>○ Public transport                                     <ul style="list-style-type: none"> <li>▪ Level of service</li> <li>▪ Connectivity</li> </ul> </li> <li>○ Crime</li> </ul> </li> </ul> <p><b>Residential Intensification</b></p> <ul style="list-style-type: none"> <li>• Demographic Informants                             <ul style="list-style-type: none"> <li>○ Socio-economic Index</li> <li>○ Overcrowding</li> <li>○ Backyarding</li> </ul> </li> <li>• Liveability                             <ul style="list-style-type: none"> <li>○ Crime</li> <li>○ Facilities</li> <li>○ Urban Environment</li> </ul> </li> </ul> <p><b>Public Facilities</b></p> <ul style="list-style-type: none"> <li>• Facilities</li> </ul>	<p><b>Jobs</b></p> <ul style="list-style-type: none"> <li>• ECAMP rating                             <ul style="list-style-type: none"> <li>○ Agglomeration</li> <li>○ Physical room for growth – extent of vacant land and bulk allocated</li> <li>○ Skills and spending catchment</li> </ul> </li> </ul> <p><b>Residential</b></p> <ul style="list-style-type: none"> <li>• Potential for appropriately located densification</li> <li>• Potential for mixing of incomes</li> <li>• Residential demand                             <ul style="list-style-type: none"> <li>○ Migration</li> <li>○ Churn</li> </ul> </li> <li>• Accessibility                             <ul style="list-style-type: none"> <li>○ Jobs</li> </ul> </li> <li>• Liveability                             <ul style="list-style-type: none"> <li>○ Facilities</li> <li>○ Urban Environment</li> </ul> </li> </ul> <p><b>Public Facilities</b></p> <ul style="list-style-type: none"> <li>• Clustering</li> <li>• Space</li> <li>• Accessibility</li> </ul>
	Marginal		
	Poor		

		<ul style="list-style-type: none"><li>• Residence</li><li>• Incubators</li></ul>	
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## SCORING CRITERIA: CURRENT PERFORMANCE

- Assessment of how the area performs currently
- Assessment provided for each category below
- A final score given based on the lowest score for any one category. Scorers able to amend this score if special conditions exist

Jobs			Residential			Public Facilities			Overall Score		
Customised ECAMP rating: <ul style="list-style-type: none"> <li>• Vacancies</li> <li>• Building Development</li> <li>• Churn etc.</li> </ul>			Socio-economic Index Liveability <ul style="list-style-type: none"> <li>• Facilities</li> <li>• Urban Environment etc.</li> </ul>			Accessibility to public facilities Tertiary Education Institutions <ul style="list-style-type: none"> <li>• Facilities</li> <li>• Residences</li> <li>• Urban Environment etc.</li> </ul>			<ul style="list-style-type: none"> <li>• Based on lowest score for any one category</li> <li>• Scores amended if special conditions existed</li> </ul>		
Decline	Stable	Growth / Positive	Decline	Stable	Growth / Positive	Decline	Stable	Growth / Positive	Decline	Stable	Growth / Positive

