

SHAPING THE STELLENBOSCH TOWN WAY OF LIVING: A DRAFT SPATIAL PERSPECTIVE

DRAFT

Shaping the Stellenbosch Way of Living: A Draft *Spatial Perspective*

1. Introduction

Many will agree that the town of Stellenbosch is transforming rapidly. Key sectors of the economy have grown, new property developments have transformed the landscape in response to new market demands, homeless households have occupied strategically located parcels of land, the University has expanded its footprint, student accommodation has encroached into the suburbs, traffic congestion is a sign of growth that also brings into play new challenges, more malls have emerged, tourism has increased and the services sector has boomed (in particular IT).

Reflecting the key role played by the University's knowledge community in the town's economy, Mayor Sidego has declared that Stellenbosch aims to become the "innovation capital" of South Africa.

Growth, expansion and innovation have to date taken place within the spatial layout of Stellenbosch's unique ecological and built environment. This spatial layout is partly the result of historical patterns of race- and class-based development; partly the result of specific planning frameworks that have been implemented over the decades; and partly the result of ad hoc decisions driven mainly by profit-seeking property developers or desperate homeless households that have invaded land.

Future growth, expansion and innovation cannot be allowed to unfold in haphazard ways as this is likely to result in expensive outward low density sprawl and the related destruction of valuable ecosystem and agricultural resources. Ad hoc development removes the certainty that everyone needs to make long-term investment decisions, including key players like the property developers, financial investors, development planners, municipal officials and ordinary households. The purpose of a Spatial Development Framework (SDF) is to provide maximum certainty to everyone. The SDF must provide everyone with a strategic vision of the future development of a given urban area. In the case of Stellenbosch, the SDF must answer the following questions: "How is Stellenbosch going to develop over the next ten to thirty years? What kind of development will take place and where will it take place?"

In 2013, Stellenbosch Municipality approved a SDF for the Greater Stellenbosch municipal area that includes Franschhoek, the Dwars River Valley, Klapmuts, Stellenbosch (including Kayamandi, Cloeteville, Idas Valley), Lynedoch, Vlottenburg and Raithby. The Greater Stellenbosch SDF is summarized below. The core town of Stellenbosch was identified as the primary economic node of the Greater Stellenbosch SDF and therefore in need of a more detailed SDF that describes in more detail the future spatial development of this local area. In 2013, consultants were appointed by Stellenbosch Municipality to co-manage with the Spatial Planning Department an innovative process for formulating what was defined in the brief as a "spatial perspective" for Stellenbosch that, in turn,

would translate into a detailed “Stellenbosch SDF”*, henceforth to be referred to as the SSDF. This process is described in detail below. This document should, therefore, be read as this “spatial perspective”. However, it can with a few technical additions and elaborations be easily upgraded into a fully-fledged SSDF.

It is important to note that after the SSDF is approved by Stellenbosch Municipality (SM), it will be used as a basis for making all development decisions in future within the framework of the Provincial Spatial Development Framework (PSDF), the Integrated Urban Development Framework (IUDF), SPLUMA, the Integrated Development Plan for Stellenbosch and most importantly of all, the Stellenbosch Environmental Management Framework (SEMF). All property rights are governed by the relevant zoning for each property, and what the zoning is of a particular property is determined by the zoning scheme. The SSDF does not automatically change the zoning scheme. Where the SSDF makes suggestions that are in conflict with the existing zonings of a particular area (e.g. that an area currently zoned agriculture use should be rezoned for residential use or if the densities of an existing built area should be increased), then the property owners of that area can decide whether or not to apply to change their zonings in accordance with the SSDF. The Municipality cannot force a given property owner to rezone without going through due process. The rights of property owners are protected by the Constitution. Rezoning will take place within the legal framework set by the recently adopted SLUMA. All rezoning decisions will have to be justified in terms of the approved SSDF read together with the Greater Stellenbosch SDF, PSDF and the SEMF.

There is no need to repeat in this document the analysis of the Greater Stellenbosch context that is captured in the Greater Stellenbosch SDF and the even more comprehensive (and more recent) SEMF documents. The contextual analysis provided by these documents will be taken as read. This document will be more normative and strategic. It will map out a future spatial development vision for Stellenbosch, followed by a framework for implementing this vision. That said, it needs to be noted that population growth is estimated to be 2.71% per annum. This means the population will double by 2020, with a significant proportion of this comprising households with relatively low levels of income. In short, Stellenbosch has no choice: it must cater for inclusive growth. This provides the point of departure for this spatial perspective.

2. Summary Context

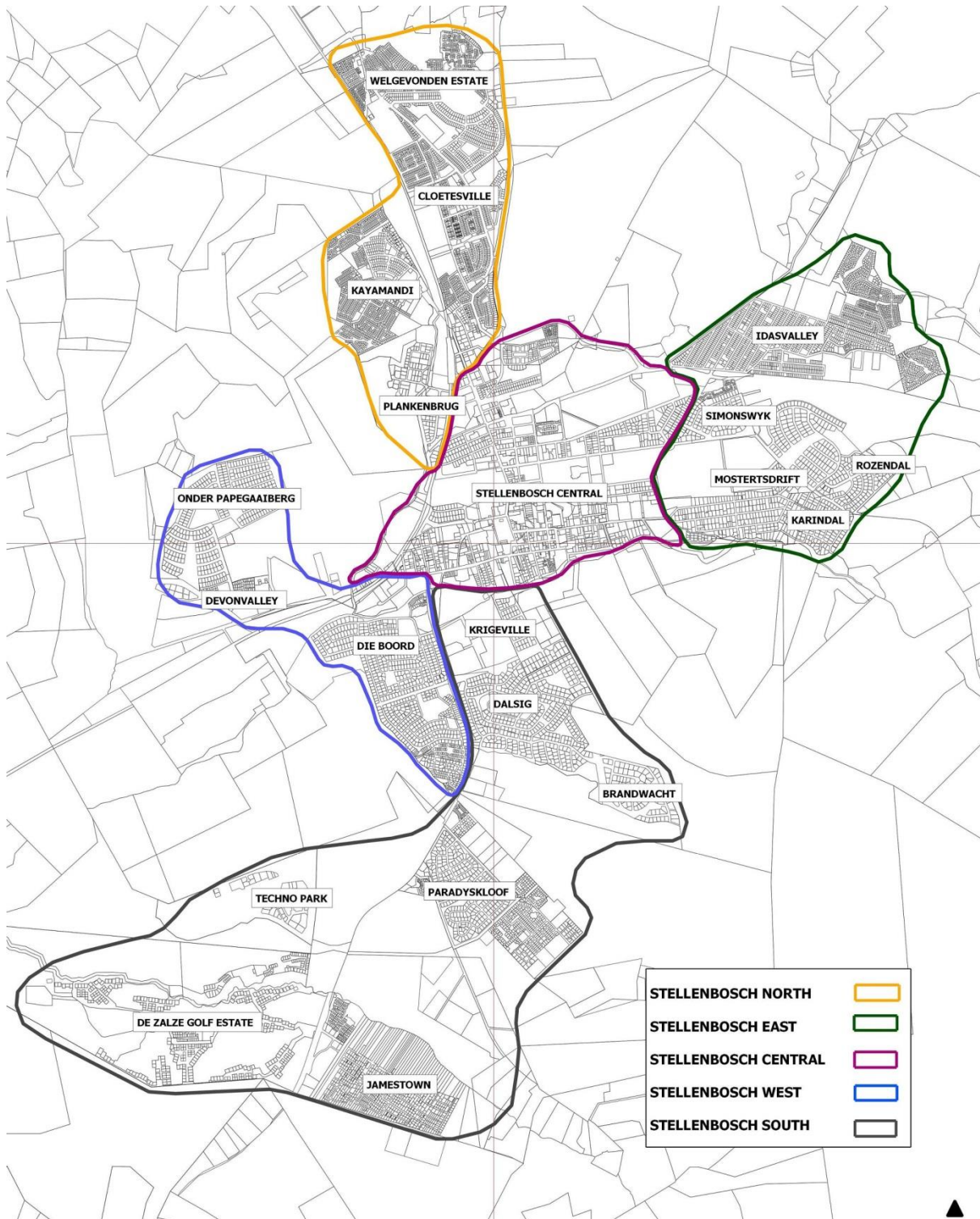
2.1. Study Area

The focus of this SPATIAL PERSPECTIVE is Stellenbosch town and the residential suburbs surrounding it. To manage the participatory planning process, the Shaping Stellenbosch Campaign is launched (explained further below). In order to clarify this for the purposes of the Shaping Stellenbosch campaign, the following map provides a rough indication of the study area, which was classified into the following 5 areas:

- STELLENBOSCH NORTH: Welgevonden Estate, Cloeteville, Kayamandi & Plankenbrug
- STELLENBOSCH EAST: Idas Valley, Simonswyk, Mostertsdrift, Rozendal & Karindal
- STELLENBOSCH CENTRAL: Central Stellenbosch, Dorp Street & Stellenbosch University

* . Note that from this point onwards, “Greater Stellenbosch SDF” will refer to the SDF approved in 2013, and “Stellenbosch SDF” will refer to the SDF applicable specifically to Stellenbosch town and is what this document is about.

- STELLENBOSCH WEST: Onder Papegaaiberg, Devon Valley & Die Boord
- STELLENBOSCH SOUTH: Krigeville, Dalsig, Brandwacht, Paradyskloof, Techno Park, De Zalze & Jamestown



The delineation of North, South, East, West and Central Stellenbosch as per the above map was for the purposes of the Shaping Stellenbosch public participation process, and in no way represents official boundaries.

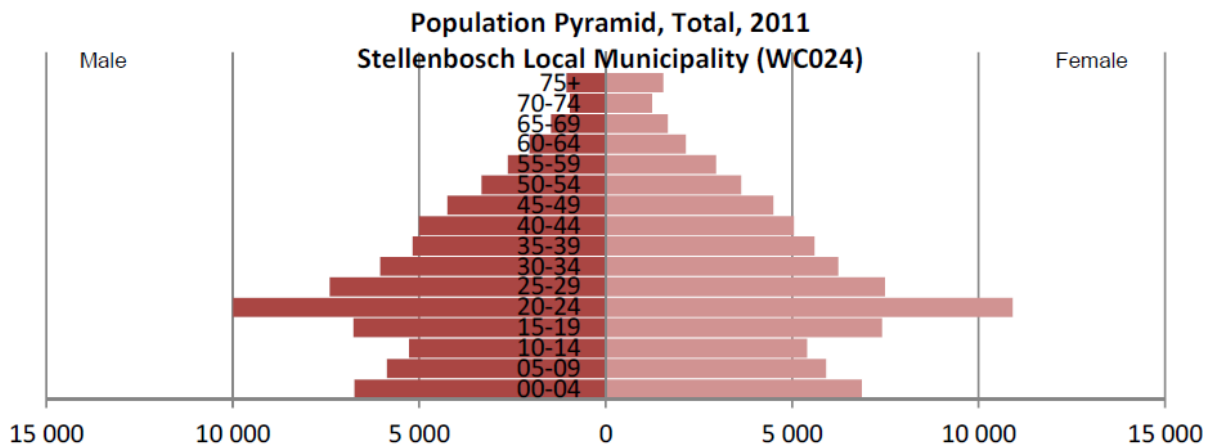
Given that part of the role of an SDF is to clarify where future development may take place, certain areas that are not currently developed need to be included as areas of consideration. Due to the Greater Stellenbosch SDF's focus on nodal development centred around nodes of public transport, areas that lie outside the lines illustrated above but are close to Stellenbosch's train stations and major roads have been included as areas of consideration. Those that lie far from the town centre (for example the areas south of Jamestown) have not been considered as they are not in line with the principles of the Greater Stellenbosch SDF.

2.2. Demographics

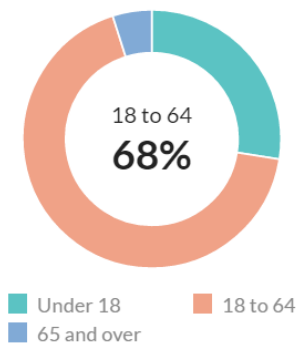
In the decade between the 2001 and 2011 census, the population of Stellenbosch Local Municipality (WC024) is estimated to have grown from 118,709 to 155,733 inhabitants, indicating a population growth of 2.71% per annum.¹ The African population has grown the fastest (over 40%), mainly as a result of in-migration from the Eastern Cape. Kayamandi is estimated to house over 40,000 people².

The majority of the population are potentially economically active (PEA), with 72.3% aged between 15 and 64 years old³. The most populous age range is between 20 and 24, which can largely be attributed to the students at Stellenbosch University. The population pyramid for Stellenbosch Municipality has a wide base and tapers toward the top, reflecting a natural trend in healthy demographics⁴. Those under the age of 15 represent 22.8% of the population, indicating that a large percentage of the population will be entering the labour market in the next two decades. Employment opportunities will need to be created within Stellenbosch in order to absorb the current unemployed as well as this future labour pool.

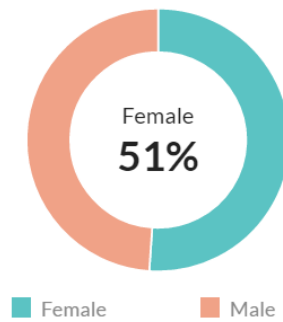
Figure 1: Stellenbosch Age Profile (2011)



Population by age category



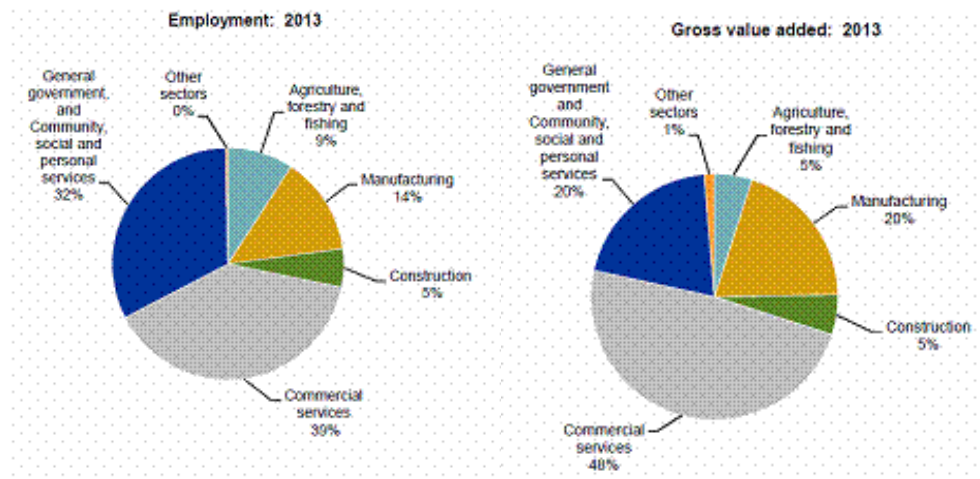
Sex

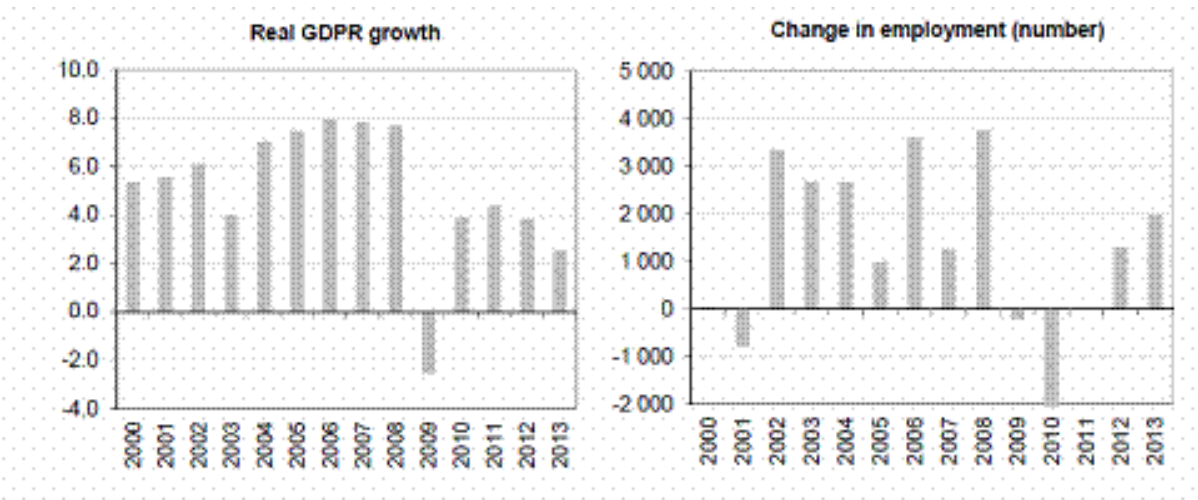


2.3. Economy and growth

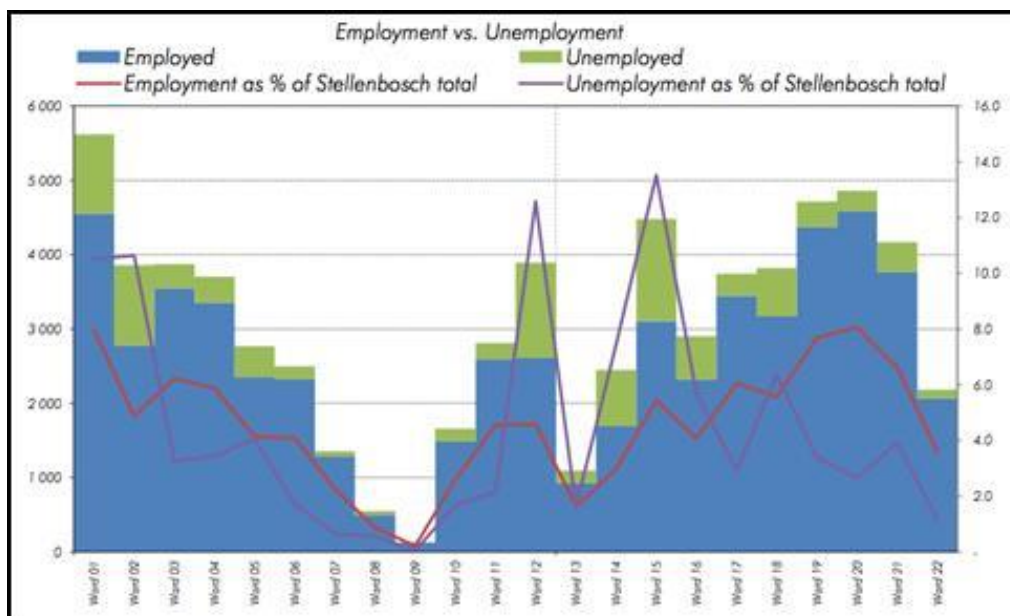
Stellenbosch is the largest and fastest-growing economy in the Cape Winelands District (CWD), growing at a real average of 5.5% per year between 2000 and 2013. Agriculture and the processing of food and beverages are the largest contributors to the regional economy (24%), and have been able to diversify successfully through secondary and tertiary economic activities. Other contributors to GDP include business services (18.5%), wholesale and retail activities (13%, boosted by tourism), finance & insurance (7.5%) and other services (8%), manufacturing (7%) and construction (4.5%)⁵.

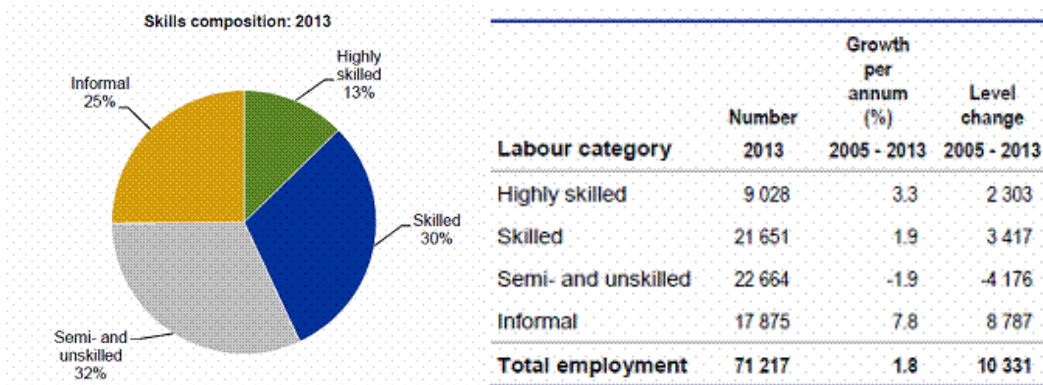
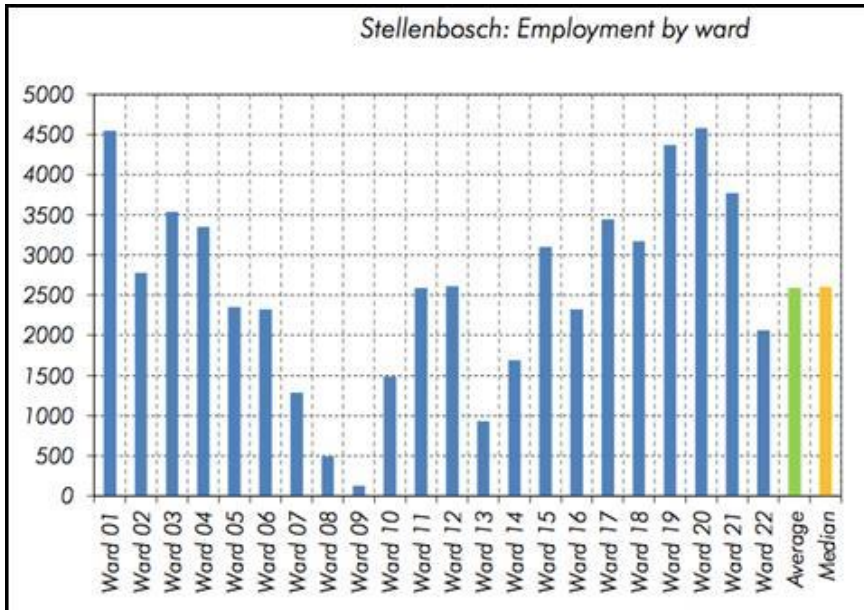
The services sector has seen fast growth, expanding at around 7% per annum, and contributing 64% of GDP. The sector has also been the largest contributor to employment, accounting for 150% of the net employment creation which occurred over the 2000-13 period. The construction sector has expanded rapidly (growing at 9.9% per annum), but the relative share of the manufacturing sector has declined (with moderate growth of around 3% per annum). The agricultural sector has been stable in terms of output, but has seen large scale job losses due to mechanisation and other factors⁶.





These shifts in the growth and contribution of each sector have resulted in the rapid expansion of demand for skilled labour (increasing at rates of 4.5% to 5.5% per annum from 2000 to 2013), while demand for semi- and unskilled labour has decreased (-0.5% per annum)⁷. Although Stellenbosch has a slightly lower unemployment rate than the Western Cape and the country as a whole, its unemployment rate of 20.2% represents a significant social challenge⁸. This is made worse by low levels of education, with only 25.2% having passed matric, and 17.3% having completed some form of higher education. Twenty years into democracy, approximately 3.1% of the population has received no education at all⁹. To reduce unemployment and improve competitiveness, educating the poor needs to be addressed as a key priority in Stellenbosch.





With a surplus of semi- and unskilled labour, the growth of the knowledge economy and services sector threatens to increase unemployment in Stellenbosch unless steps can be taken to better integrate these workers into the economy. To achieve a target of 8% growth whilst ensuring that lower skilled workers are not pushed out of the economy, a focus on the construction and manufacturing sectors is required. The completion of the town plan including **zoning that favours the manufacturing sector** in areas close to where labour resides will play an important role in achieving these economic goals. Current competitive strengths in tourism, agriculture and agri-processing will also need to be nurtured to prevent further job losses¹⁰.

Expansion in the manufacturing and construction sectors will need to be matched with interventions that reduce the time and costs of doing business and promote innovation in Stellenbosch¹¹. These include **transport infrastructures** that make commuting to and from work swift, safe and convenient, and **ICT infrastructures** that expand access to high speed internet. At the same time, in addition to meeting the needs of the homeless by supporting incremental upgrading of informal settlements, the Municipality needs to ensure that there is sufficient conveniently-located **housing for the middle**

income and gap markets to accommodate the labour force, and that the town is a safe place to live and work¹².

Stellenbosch recently launched its 'LED Strategy and Action Plan' in June 2014. The PACA process was used to identify a range of initiatives that would (1) help to grow the economy, (2) improve the competitiveness of small enterprises, (3) increase property values and (4) build a public sector that values and supports local economic activity. Of the initiatives proposed, the following have spatial planning implications¹³:

- Amend zoning to allow agri-processing and tunnel farming in certain areas
- Make more land available for agriculture by finalising the 'Land Availability Strategy'
- Use Die Braak and the Old Rhenish Complex in the town centre to create spaces for new businesses
- Provide more space for development close to transport infrastructure, incorporating Smart City principles
- Link the central town with Kayamandi and the Wood Mill area
- Support transit-oriented development by finalising the 'Transport Plan'
- Increase supply of middle income and GAP housing by promoting focused and mixed-use developments
- Unlock property value in townships through community spaces and commercial nodes.
- Amend zoning to allow for mixed usage and expansion of Techno Park

2.4. Society, poverty and inequality

Like many South African communities, income distribution in Stellenbosch is highly uneven and remains racially skewed following apartheid. According to the 2011 Census, the Gini coefficient dropped slightly from 0.62 to 0.57 between 2006 and 2011. Part of this can be attributed to a drop in the percentage of the population living in poverty, which has decreased from 35.3% in 2001, to 31.5% in 2006 and 29.0% in 2011¹⁴. Although this is a promising trend, concerted effort needs to be made to increase the pace of change so that poverty and its social and environmental side-effects can be eliminated.

The 2011 census revealed that 9.3% of Stellenbosch households live in informal dwellings, and that another 3,149 additional formal dwellings would have been required at that time to overcome the backlog. Of the households in Stellenbosch, 98.8% have an electricity connection, 97.2% have hygienic toilets, 96.7% have piped water, and 89.7% have formal refuse removal¹⁵. Significant progress can be made in reducing the conditions of poverty by improving access to services in innovative ways that are less resource intensive than conventional approaches.

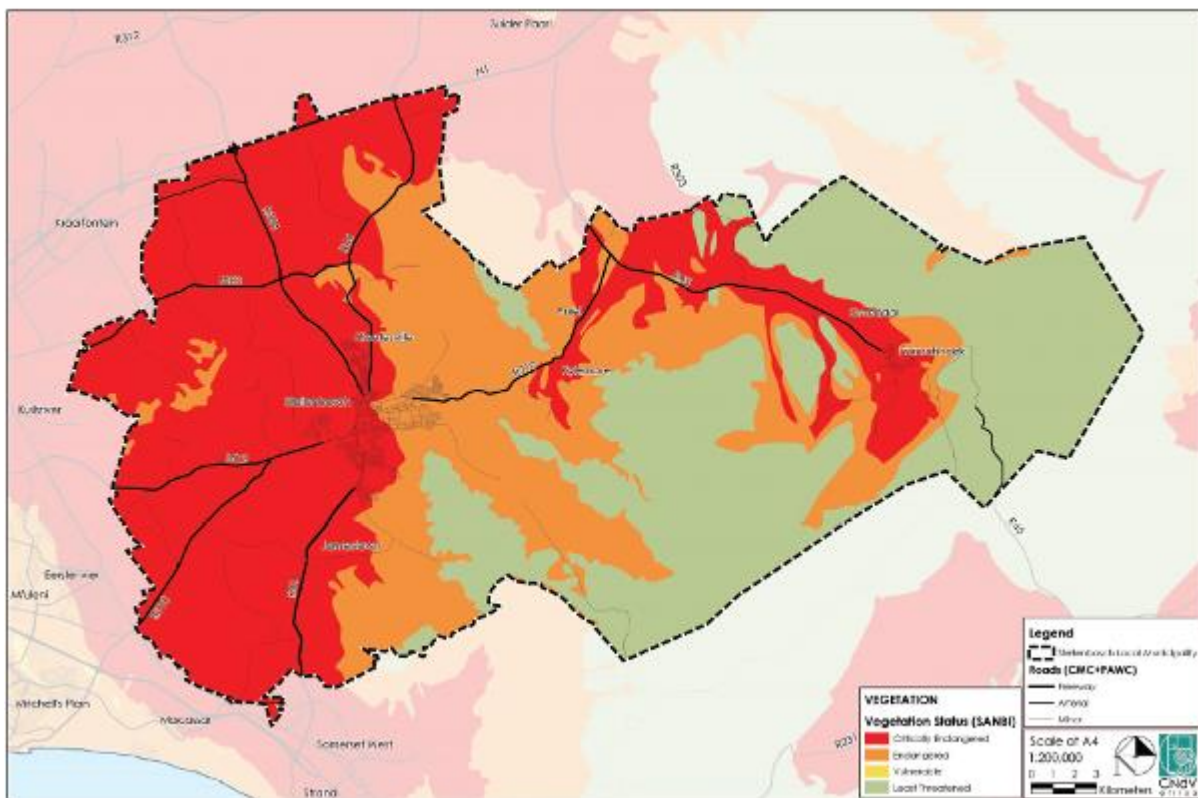
2.5. Ecology and ecosystems

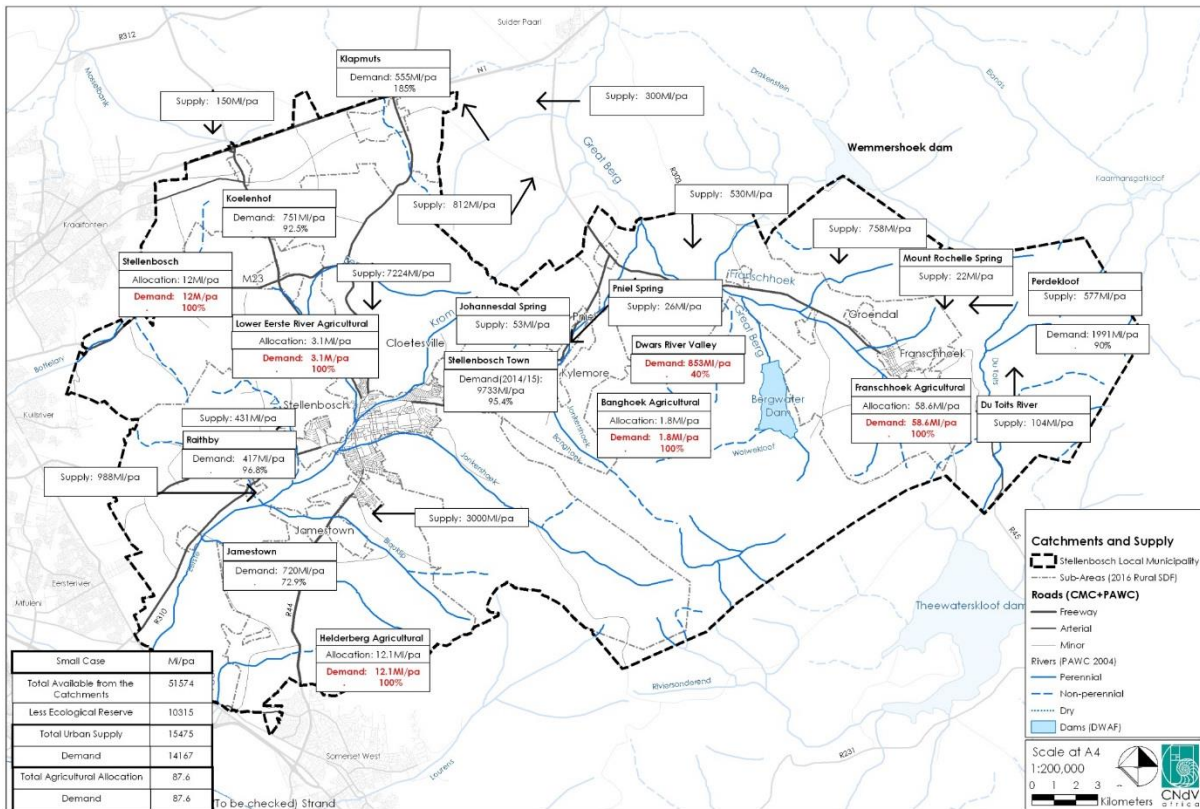
The Stellenbosch Municipal Area occupies a significant proportion of the Cape Floral Kingdom, which is the smallest of the world's six floral kingdoms. It covers only 0.06 per cent of the earth's surface, yet contains over 9 000 plant species, making it a treasure trove of biodiversity. The conservation of this area is important from both a South African and an international perspective, as 69 per cent of the species found in the Cape Floral Kingdom are found nowhere else in the world and many are under threat¹⁶.

Due to the interconnected nature of ecological systems, it is important to protect vulnerable species as the extinction of one species may have unforeseen knock-on effects on humans and other species, which may eventually result in ecosystem collapse. According to the 2004 National Spatial Biodiversity Assessment (NSBA), around half of the indigenous vegetation in the Stellenbosch Municipal Area can be considered 'Critically Endangered' (CE). This means that so much of the original habitat has been destroyed in these areas that ecosystem functioning has been impaired, and that a significant portion of the species once found there have been lost.

The main areas of concern in relation to Stellenbosch town fall in the Western half of its footprint, and includes areas of vegetation classified as 'Critically Endangered' in North, Central and Southern Stellenbosch. The Eastern part of Stellenbosch town is only marginally less at risk, with the vegetation being classified as 'Endangered'. This is illustrated on the map in **Figure ??** below. A comparison between this map and the location of conservation areas reveals that, with the exception of Jan Marais Park and other smaller parks, none of the Critically Endangered and Endangered areas in Stellenbosch town have been given formal conservation status; hence they are under severe threat of being damaged by human activities.¹⁷

Figure 2: Ecosystem status across Stellenbosch Municipal Area ¹⁸





Stellenbosch's river ecosystems play a crucial role in supplying the town with clean water for agriculture, food processing and direct human consumption. They also help to manage stormwater at a lower cost than engineered solutions, and provide appealing natural spaces for recreation throughout the town. The Eerste River stretches 40km from the head of the Jonkershoek Valley, through the town of Stellenbosch and its neighbouring nature reserves, pine plantations and agricultural areas. Concerns have been raised about the high levels of pollutants in the Plankenbrug River, which flows from the north, through northern Stellenbosch, and drains into the Eerste River in the south. Downstream, the water is used by farmers and passes popular tourist attractions, yet the river is so polluted with faecal matter that it poses a serious health hazard¹⁹. Inadequate sanitation, stormwater and solid waste infrastructure in Kayamandi and Enkanini are contributing to this problem, and need to be addressed as a matter of urgency in order to protect riverine ecosystems, the agricultural economy and human health.

The National Environmental Management Act (Act No 107 of 1998), Biodiversity Act (No 10 of 2004), and the Amended Protected Areas Act (No 31 of 2004) specify that planning for biodiversity in South Africa is the responsibility of local municipalities. Their mandate includes incorporating environmental considerations into the design of Spatial Development Frameworks (SDFs) in the interests of achieving integrated development planning that meets the needs of people as well as the environment²⁰. The main threats to Stellenbosch's ecosystems are (1) loss and fragmentation of natural habitats, (2) invasive alien plant species, (3) deteriorating water quality, and (4) climate change.

The Greater Stellenbosch SDF and the approved Stellenbosch Environmental Management Framework includes a number of strategies to address some of these issues²¹. Those of relevance to the spatial planning of Stellenbosch town include:

- implementing river conservation zones of between 10 m and 30 m in width (depending on the width and maturity of the river) on each bank to protect riverside ecosystems from all human activities except for passive recreational pursuits;
 - upgrading waste water treatment works to achieve minimum DWA water quality standards;
 - focusing development in low-density areas, infill, and brownfield land before considering greenfield sites;
 - encouraging forms of tourism that reinforce Stellenbosch's unique sense of place.
 - encouraging landowners outside formal conservation areas to conserve Endangered and Critically Endangered vegetation types, and to link with existing conservancies;
 - supporting projects to eradicate alien vegetation in non-agricultural areas; and
 - protecting conservation areas as a means of ensuring water quality and quantity.
- These guidelines need to be carried through into the Stellenbosch town plan, and enhanced with more specific principles relevant to the town in order to protect its natural heritage.

3. Vision and Process

The rest of this document will elaborate the implications of a strategic vision that has evolved over a twelve month period of intensive social dialogue that has taken place across a number of different levels, including the following:

- a facilitated process of engagement between Directors of key Municipal Departments (specifically engineering, finance and planning) and members of the Mayoral Committee (MAYCO) supported by a set of 'think tools' called EIDOS;
- the Shaping Stellenbosch campaign was a town-wide appreciative inquiry that gave citizens an opportunity to express what they would like to see happen in their local neighbourhoods via a dedicated website and facilitated via social media and small group dialogues across the town's constituencies;
- in-depth discussions within two sub-committees of the Rector-Mayor Forum, namely the Infrastructure Innovation Committee (IIC) and the Integrated Planning Committee (IPC).

The end result of this process is a preferred narrative future scenario that responds to poverty and the rising cost of natural resources by envisaging the future of Stellenbosch as a *compact, sustainable, inclusive town*. In practice, a compact town is about high density living rather than sprawled out suburbia; a sustainable town is about living in a way that restores rather than destroys the natural ecosystems we all depend on; and an inclusive town is about ensuring that poverty is eradicated and everyone feels included in more equitable economic growth and development.

To achieve this vision of a *compact, sustainable, inclusive town*, it will be necessary to ensure that strategies are adopted that:

- allow everyone to access a public and/or non-motorised transport system within 500 meters of their homes and work;
- make sufficient funding available for eradicating service backlogs and catering for future needs;
- encourage densification to take place within the existing built footprint; and

- build an inclusive knowledge economy that includes a major role for a University-based 'education brain port'.

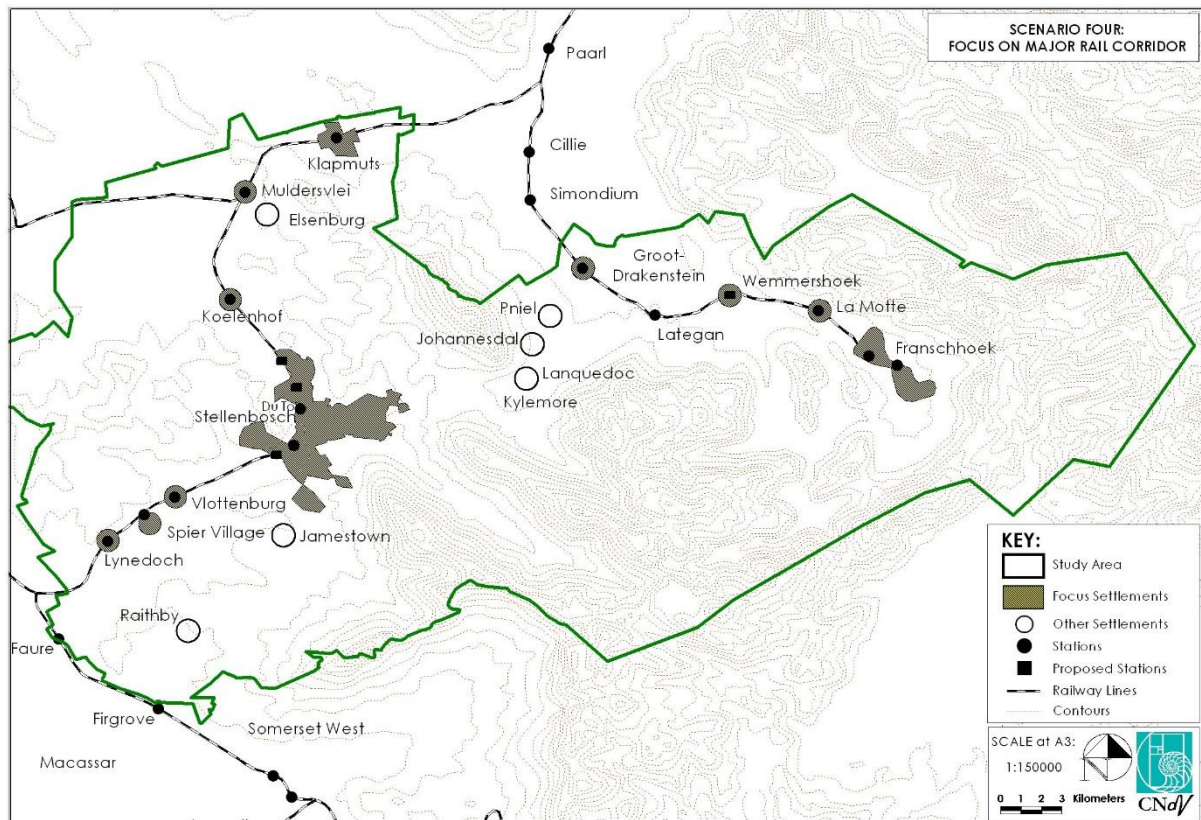
This can only be achieved if the SDF has been approved and decision-makers respect the need to make decisions in accordance with the SDF.

In practice this will mean five specific urban development processes over the next twenty years that must be guided by the Greater Stellenbosch SDF, the SSDF, the SEMF and the SDFs that will need to be drafted for all the other development nodes located within the Greater Stellenbosch area:

1. significant densification within the existing urban footprint using a range of zoning tools and financial incentives;
2. the construction of new high density multi-story socially mixed urban nodes around the stations within the Greater Stellenbosch area, specifically the Lynedoch, Vlottenburg, Stellenbosch, du Toit, Koelenhof, Muldersvlei and Klapmuts stations, plus a node around a new station located between Vlottenburg and Stellenbosch Stations at the Droe Dijker/Woodmill site;
3. the re-opening of the old railway system to Franschhoek to make provision for new dense settlements along the way, possibly with extensions into the Dwarsriver Valley;
4. a multi-modal public transport and non-motorized transport system that provides efficient and safe rail, coach, mini-bus taxi, cycling and pedestrian mobility options;
5. following the SEMF an approach to urban planning that accepts that all future urban development must be embedded within the existing ecosystems in a way that helps restore these ecosystem services instead of degrading them.

Read together, these five points comprise what is called a Transit-Oriented Development (TOD) approach towards future growth and expansion of towns and cities. This spatial perspective has placed TOD-type thinking at the centre of its approach to the town's expansion. It is consistent with the Integrated Urban Development Framework (IUDF), aimed at facilitating the application of the NDP to cities, as well as with the planning principles in SPLUMA and the planning approach of the SEMF.

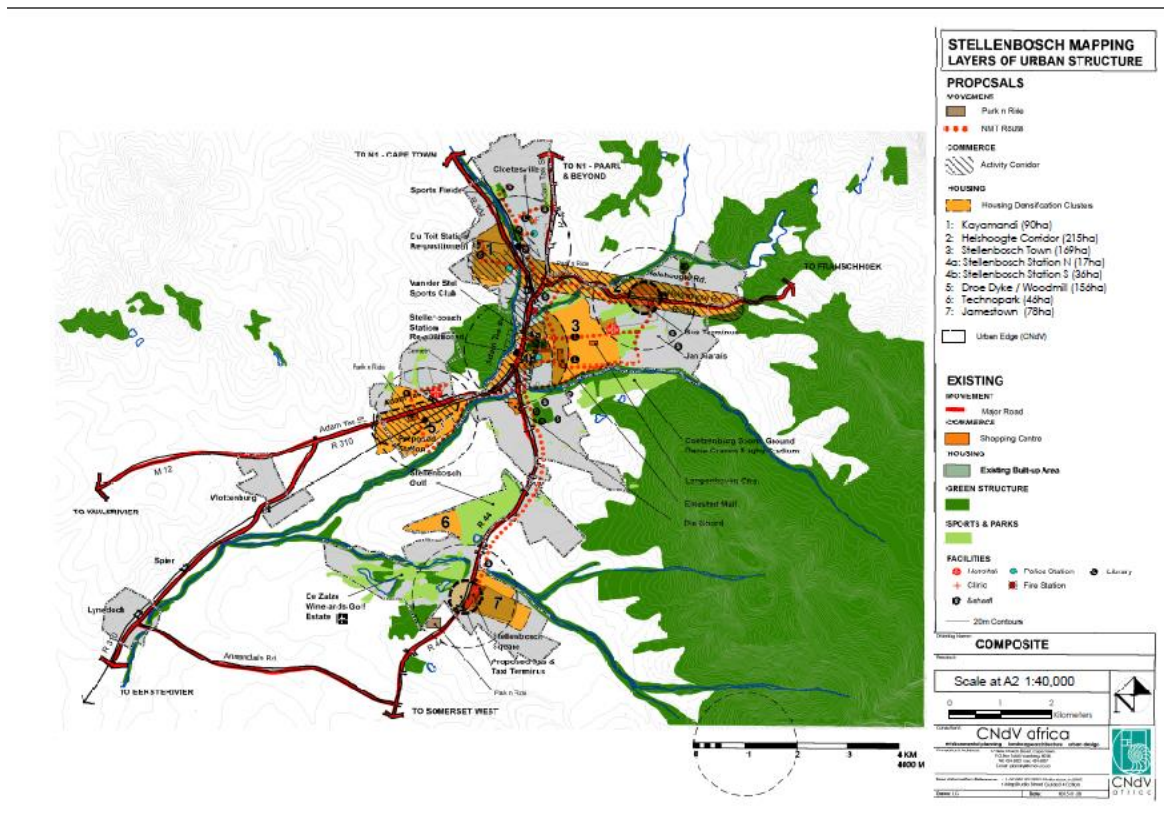
The key opportunity that makes TOD possible in Stellenbosch is the existing railway network the stations located between Lynedoch and Klapmuts. The diagram below demonstrates the location of these stations and hence the future focus of high density urban settlements connected by public transport systems. Only the Jamestown node is not on a railway connection which means a bus-rapid-transit system (BRT) will be required to link Jamestown to Stellenbosch.



The focus of this document is on what can happen within the more narrow boundaries of Stellenbosch town that can catalyse the pattern of urban development envisaged in the above five points. It needs to be noted that this envisaged pattern of urban development breaks a developmental stalemate that has existed in Stellenbosch for at least two decades between those who want to protect the heritage of the core area of Stellenbosch, and developers who have advocated urban sprawl via security estates along the main roads leading into and out of Stellenbosch. The historic core is protected and sprawl is prevented.

Furthermore, it is noted that this envisaged pattern of urban development is highly dependent on infrastructures and services that Stellenbosch Municipality does not control, with special reference to rail services. However, it will be assumed that the recommendations for decentralising public transport planning and investment to Municipalities contained in the IUDF will in fact be implemented. Indeed, Stellenbosch is a perfect laboratory for testing the implementation of this approach.

The spatial representation of the conclusion of the planning processes described above and elaborated in the rest of this document after the policy context has been described is reflected in Map 1. The focus of new development is on brownfield and greenfield sites more or less located within the urban edge of the core town of Stellenbosch. A total of 517square meters of new development potential is envisaged. The recommended strategic focus is the Kayamandi-Helshoogte corridor, including the northern portion of the University precinct. The details of this approach, and the justification, are provided in the remainder of this document.



4. Policy Context

4.1 National Policy Context

4.1.1 National Development Plan 2030 (2012)

The NDP, developed by the National Planning Commission and adopted in 2012, serves as the strategic framework guiding and structuring the country's development imperatives and is supported by the New Growth Path (NGP) plus other national strategies. In principle, it is underpinned by, and seeks to advance, a paradigm of development that sees the role of an enabling government creating the conditions, opportunities and capabilities conducive to sustainable and inclusive economic growth that makes poverty alleviation and the sharp reduction of inequality possible by 2030. The NDP sets out the pillars through which to cultivate and expand a robust, entrepreneurial and innovative economy that will address South Africa's primary challenge of significantly rolling back poverty and inequality. More explicitly, the NDP sets out South Africa's goal of eliminating income poverty by reducing to 0% the 39% of the population who earn less than R419 per month and reducing inequality measured by the Gini Coefficient from 0.69 to 0.6.

The legacy of apartheid spatial settlement patterns that hinder inclusivity and access to economic opportunities, as well as the poor location and under-maintenance of major infrastructure, are two of the nine identified core challenges facing the country's development. Aimed at facilitating a virtuous cycle of expanding opportunity for all, the NDP proposes a program of action that includes the spatial transformation of South Africa's towns, cities and rural settlements given the "enormous social, environmental and financial costs imposed by spatial divides" (NDP Executive Summary 2011: XX). As part of its integrated approach and closely connected to this spatial transformation is the NDP's focus, amongst others, on the transition to a low-carbon economy (Chapter 5) and an inclusive rural economy (Chapter 6), the promotion of safer communities (Chapter 12), a capable and developmental

state (Chapter 13) and an economic infrastructure that supports growth and employment (Chapters 3 and 4).

Of particular relevance for the Stellenbosch SDF are the recommendations set out in *Chapter 8: Transforming Human Settlements and the national space economy*, including the upgrading of all informal settlements on suitable, well-located land; increasing urban densities to support public transport and reduce sprawl; promoting mixed housing strategies and compact urban development in close proximity to services and livelihood opportunities; and investing in public transport infrastructure and systems (with a special focus on commuter rail) to ensure more affordable, safe, reliable and coordinated public transport. The NDP advocates a new spatial vision that has the potential to unlock development potential, overcome inherited spatial divisions, inform infrastructure investment and prioritisation, manage economic and demographic shifts and facilitate more cooperative and collaborative governance. The potential of coordinated spatial planning across all spheres of government is significant for social, economic and environmental transformation in South Africa.

The NDP advocates spatial principles that are consistent with the SSDF:

- spatial justice
- spatial sustainability: sustainable patterns of consumption and production
- spatial resilience: protect, replenish, regenerate ecological systems
- spatial quality: create liveable, vibrant and valued places
- spatial efficiency: efficient commuting patterns and circulation of goods and services

The NDP therefore advocates a spatial vision that is also totally consistent with the SSDF by stating that a SDF should:

- tackle inherited spatial divisions
- unlock development potential
- guide and inform infrastructure investment and prioritisation
- manage contemporary economic and demographic shifts
- facilitate coordination between parts of government
- ensures ecological sustainability

To this end, the NDP proposes neighbourhood spatial compacts to bring civil society, business and the state together to solve problems, and ways of enabling citizens to participate in spatial visioning and planning processes (which is what the Shaping Stellenbosch campaign aimed to achieve).

4.1.2 Integrated Urban Development Framework (2016)

The Draft IUDF gives practical meaning to the new spatial vision captured in the NDP and will, once approved by Cabinet, be South Africa's first policy framework informing urban development. This is significant given the prominence of towns and cities for economic growth and sustainable development in an increasingly urbanised world. In particular, this policy framework marks a 'new deal for South African towns and cities' and is an elaboration of *Chapter 8: Transforming Human Settlements and the national space economy*. It moves from the premise that South African towns and cities which dominate the national economy are not favourably positioned to translate into practical action the emerging international paradigm of resource-efficient urbanism as the basis for competitiveness and sustainability. This has implications for how South Africa might realise the NDP's vision of a transition towards a resource-efficient and inclusive growth path that simultaneously addresses the drastic reduction of poverty, unemployment and inequality by 2030.

The IUDF asserts that well-managed urbanisation in dynamic relation with rural development, as well as coordinated investments in urban economies have the potential to significantly address this challenge. Its transformative vision of *'liveable, safe, resource-efficient cities and towns that are socially integrated, economically inclusive and globally competitive, where residents actively participate in urban life'*, has four overall strategic goals: access, growth, governance and spatial transformation. Eight policy interventions demonstrate how the IUDF aims to guide the realisation of inclusive, resilient and liveable urban settlements in order to address the country's unique development challenges: integrated spatial planning; integrated transport and mobility; integrated sustainable human settlements; integrated urban infrastructure; efficient land governance and management; inclusive economic growth; empowered active citizens and effective urban governance. Outlining South Africa's urban reality, the IUDF expands on the notion of a New Deal for South African Cities and each of the eight policy levers thus contribute to the "NDP's aim for cities to be the country's economic drivers through spatial efficiency and inclusion" (Draft IUDF 2016: 13). This entire approach is consistent with the aims and strategies of this spatial perspective and therefore the SSDF that can emerge from this spatial perspective.

4.1.3 Spatial Planning and Land Use Management Act (2013)

The SPLUMA, adopted in 2013, aims to provide a coherent legislative framework that uniformly and comprehensively regulates spatial planning and land use management in South Africa. The policy framework enables all spheres of government to formulate policies and strategies related to spatial planning and land use management that address, confront and resolve the country's spatial, economic and environmental challenges. Besides providing a consistent framework that demonstrates the relationship between spatial planning and land use management, the SPLUMA's objectives also include addressing the legacy of spatial injustices and regulatory imbalances, providing for inclusive social and economic development, enhancing cooperative governance and intergovernmental relations, and setting out a framework for the appropriate monitoring, coordination and review of spatial planning and land use management policies and plans, with the specific introduction of Municipal Planning Tribunals. The SPLUMA is a legislative framework that reinforces the new spatial vision captured in the NDP particularly in respect to how spatial planning and land use management mechanisms can contribute towards the reduction of poverty and inequality. This is grounded in five development principles set out in Chapter 2 of the SPLUMA:

- spatial justice: the redress of development imbalances through improved equitable access, especially for marginalised and previously disadvantaged communities;
- spatial sustainability: the promotion of socio-economic and environmentally sustainable planning systems;
- spatial efficiency: the optimisation of existing resources and infrastructure and the streamlining of development application procedures;
- spatial resilience: a flexibility that replenishes and regenerates ecological systems whilst also protecting sustainable livelihoods in vulnerable communities;
- good administration: an integrated approach of cooperative governance and well-coordinated inter-governmental procedures.

SPLUMA also makes provision for a set of land use planning principles and objectives. These are listed below, with those principles highlighted that are particularly pertinent to the strategic approach expressed in the SSDF elaborated in the sections that follow:

- (1) To promote sound and sustainable land use planning practice, a competent authority must –
- a) acknowledge the right of owners to develop land in accordance with current use rights;
 - b) consider the rightful and reasonable interests of affected communities when changing use rights;
 - c) seek solutions to the conflicting interests of the various sectors and stakeholders involved in, or affected by, development and resources;
 - d) coordinate the spatial planning and development management activities of public institutions in the applicable area of jurisdiction;
 - e) ensure efficient administrative practices concerning land use planning;
 - f) build the capacity of political representatives and employees to –
 - (i) integrate spatial planning and development management;
 - (ii) further development in a sustainable manner;
 - g) consider the current and future availability of infrastructure;
 - h) ensure that land use planning heeds the aesthetic properties of landscapes and the ecology;
 - and
 - i) ensure the physically safe use of land, with due regard to factors such as geological formations and flood plains.
- (3) To promote socio-economic integration in land use planning, a competent authority must –
- a) address historically distorted spatial patterns of settlement;
 - b) encourage mixed land use;
 - c) discourage urban sprawl, through the maintenance of urban edges;
 - d) promote the integration of settlement, infrastructure and social facilities with public transportation;
 - e) consider the use of instruments, such as –
 - (i) contributions towards low-cost housing and social facilities; or
 - (ii) the provision of low-cost housing and social facilities;
 - (iii) to accommodate the impact of proposed development;
 - f) address the reasons for, and counter the illegal occupation of land;
 - g) consider the appropriate location of nodes, including social facilities, for rural farm and forestry workers;
 - h) strive to achieve integrated, socio-economically efficient, energy-efficient and transport-efficient cities and towns;
 - i) promote the quality and functionality of the public spatial environment;
 - j) ensure the optimal utilisation of existing resources, including the utilisation of aspects of the environment that facilitate tourism;
 - k) discourage the inappropriate conversion of –
 - (i) areas with existing agricultural activity; and
 - (ii) areas with high agricultural potential.
- (4) To promote environmental integration in land use planning, a competent authority must –
- a) strive towards ecologically, socially and economically sustainable development, taking into account –
 - (i) the economic potential of the relevant area or region;
 - (ii) biodiversity;
 - (iii) social needs;
 - (iv) cultural heritage resources;
 - (v) agricultural resources
 - b) ensure that development heeds the natural processes that control the relevant area;
 - c) strive to achieve development that is harmonised with the ecological characteristics of the environment;
 - d) promote the conservation and management of biodiversity;

- e) *discourage development in unsuitable environments such as —*
 - (i) *areas with a high water table;*
 - (ii) *swamps;*
 - (iii) *flood plains;*
 - (iv) *steep slopes;*
 - (v) *areas sensitive to drift-sands and sea-level rise;*
 - (vi) *areas with high biodiversity importance;*
 - (vii) *areas with important cultural and scenic landscapes —*
- f) *minimise the fragmentation of natural habitat in ecological corridors and areas with high biodiversity importance;*
- g) *facilitate soil conservation and the control of pollution;*
- h) *address the land use implications of —*
 - (i) *the provision and conservation of energy;*
 - (ii) *the management of the demand for energy;*
 - (iii) *climate change mitigation and climate change adaptation strategies;*
 - i) *protect the cultural heritage and tourism resources of the Municipality.*

4.1.4 National Strategy for Sustainable Development and Action Plan (2011-2014)

In 2008 the National Framework for Sustainable Development (NFSD) was approved and signalled a reorientation of policy thinking towards the promotion of effective stewardship of South Africa's national, social and economic resources. The NFSD outlines this vision for a sustainable society: "South Africa aspires to be a sustainable, economically prosperous and self-reliant nation that safeguards its democracy by meeting the fundamental human needs of its people, by managing its limited ecological resources responsibly for current and future generations, and by advancing efficient and effective integrated planning and governance through national, regional and global collaboration." It goes further by advocating a systems approach to sustainable development, where the economic and socio-political systems and the ecosystem are embedded within each other and underpinned by appropriate governance and legitimate regulatory frameworks.

This was followed in 2011 by the National Strategy for Sustainable Development and Action Plan (2011-2014) (NSSD) which builds on the 2008 NFSD, as well as several initiatives that were launched by the business sector, government, NGOs, civil society, academia and other key role players to address issues of sustainability in South Africa. The NSSD is presented as a proactive strategy, one which is enabling rather than prescriptive in its orientation. To this effect, the NSSD addresses three key issues in achieving a more sustainable development path—the redirection of development towards sustainability, changing behaviour, values and attitudes, and restructuring governance systems and building capacity. It recognises that sustainable development is a long term commitment combining environmental protection, social equity and economic efficiency, together, aligned with and reinforcing of the vision and values of the country, as captured in the NDP. Following the vision for a sustainable society, the goals of the NSSD are as follows::

1. Develop and promote new social and economic goals based on ecological sustainability and build a culture that recognises that socioeconomic systems are dependent and embedded in ecosystems.
2. Increase awareness and understanding of the value of ecosystem services in human wellbeing.

3. Ensure effective integration of sustainability principles in all policies, planning and decision-making at national, provincial and local levels.
4. Ensure effective system wide integration and collaboration across all functions and sectors.
5. Monitor, evaluate and report performance.

Further, five strategic priorities are elaborated through the Action Plan, with 20 headline indicators used to monitor the implementation thereof:

1. Enhancing systems for integrated planning and implementation.
2. Sustaining our ecosystems and using natural resources efficiently.
3. Towards a green economy.
4. Building sustainable communities.
5. Responding effectively to climate change.

Informed by these goals and strategic objectives, the NSSD Action Plan outlines various interrelated initiatives that promote sustainable development—113 interventions across the country are identified for implementation and monitoring, as overseen by the Department of Environmental Affairs and its National Committee on Sustainable Development. A strong emphasis is placed on ensuring that enabling institutional arrangements support the country’s development reorientation towards sustainability. Progress with the NSSD will inform the update known as ‘NSSD2’.

4.2 Provincial Policy Context

4.2.1 OneCape 2040 (2012)

On behalf of the Western Cape Government (WCG) and the City of Cape Town (CCT), the Economic Development Partnership (EDP) was mandated to develop the OneCape agenda for joint action and collaboration on economic development in the Western Cape in 2012. In line with Provincial Strategic objectives, derived from the NDP, OneCape 2040 intends to stimulate a transition towards a more inclusive, competitive and resilient economic future for the region. In order to realise the vision of the Western Cape as “a highly-skilled, innovation-driven, resource-efficient, connected, high-opportunity and collaborative society”, OneCape 2040 serves as a reference point by providing a common direction and a long term regional perspective. It is positioned as a framework which facilitates alignment and partnership between public, private and civil society stakeholders by assigning roles and responsibilities for the broad range of stakeholders across each of the phased transition components, namely the knowledge, economic access, ecological, cultural, settlement and institutional transitions. Integral to each of these is a supportive regulatory environment, appropriate infrastructure, financial arrangements and an enabling spatial framework. OneCape 2040 is thus underpinned by a spatial focus on regional economic development with an emphasis on connectivity and concentration through regional transport corridors linking economic centres and nodes of competitiveness. Ultimately, this holistic approach aims to achieve an inclusive and caring society whilst also positioning the Western Cape as a relevant and competitive region within a global context.

4.2.2 WCG Provincial Spatial Development Framework (2014)

The PSDF was adopted in 2014 and is a legislative framework facilitating optimal development and investment in the province that simultaneously redresses the apartheid spatial legacy and supports economic competitiveness in the Western Cape. As the spatial expression of the Provincial Strategic Plan that underpins the vision of the province’s future captured in OneCape 2040, the PSDF outlines the key spatial transitions that are required to transform the region’s space economy (see figure below). The PSDF’s spatial agenda is grounded in an integrated and transversal governance approach. Whilst adding value to local planning processes and guiding municipal IDPs and SDFs, the PSDF also provides the basis for coordinating, integrating and aligning the delivery of national and provincial programs. Three core inter-related themes demonstrate how the PSDF aims at accelerating and giving momentum to the spatial transformation of the Western Cape—developing integrated and sustainable human settlements; opening up opportunities in the space economy; and the sustainable use of provincial resources and assets.



The SSDF is perfectly

FIG.14 THE 4 SPATIAL THEMES AND THEIR ASSOCIATED ELEMENTS

consistent with the PSDF, especially with respect to reducing sprawl and emphasizing mobility for all via transit-oriented development rather than car-based development that benefits the better off sections of society. Furthermore, the SSDF is also consistent with the PSDF with respect to the emphasis on resources and spatial integration.

4.2.3 Western Cape Infrastructure Framework (2013)

The WCIF, compiled by the Western Cape Provincial Government, is intended to align the planning, delivery and management of infrastructure, provided by all stakeholders (national government, provincial government, local government, parastatals and the private sector), to the strategic agenda and vision for the Western Cape, which is in turn supportive of national development imperatives. The objectives of this framework are to:

- Outline strategic decisions and trade-offs that need to be made to achieve the provincial 2050 vision in a complex and changing environment.
- Identify and guide the planning and execution of major infrastructure interventions for the period 2012-2040.
- Mobilise and direct new investments.
- Facilitate partnerships and collaboration.

In order to do so, a thorough investigation of the status quo of infrastructure in the province is outlined in the document accounting for deficits resulting from historic underinvestment in maintenance and rehabilitation as well as the demands for new infrastructure provision in each of the five major infrastructure ‘systems’—energy, water, transport, settlement and ICT—together with strategic priorities within each. This provides the foundation for a shift in the approach to infrastructure planning—one that satisfies current needs and backlogs, maintains the existing infrastructure, and plans proactively for a desired future outcome. This future vision for infrastructure in the province is distilled from three guiding documents: the draft Provincial Strategic Plan (containing the 11 Provincial Strategic Objectives), the One Cape 2040 Vision, and the draft Green Economy Strategy Framework. The 2040 vision requires a number of transitions, to shift fundamentally the way that infrastructure is provided and the *type* of infrastructure that is provided in the Western Cape. Key transitions in each of the infrastructure systems are identified and developed in line with ‘business-as-usual’ and ‘optimised’ development scenarios to demonstrate implications of alternative development agendas. A strong emphasis is placed on the integration of infrastructure systems; this has implications for the institutional, financial and spatial aspects of infrastructure planning, a range of which are explored in the WCIF. Guidelines on the application of the WCIF include the alignment with formal planning processes within the province, the creation of a framework for engagement across sectors together with a process for decision making and finally comprehensive monitoring and evaluation of implementation.

4.3 Municipal context

4.3.1 Integrated Development Plan (2014)

Stellenbosch Municipality’s IDP is a five year strategic plan guiding development in the region that primarily, informs the municipality’s budget. It sets out the priorities for capital expenditure in line with the municipality’s strategic vision of becoming the ‘Innovation Capital of South Africa’. Underpinning its commitment to delivering cost-effective services that provide the most enabling environment for civil and corporate stakeholders are the values of character leadership, transformation and innovation. In pursuit of its vision to be the ‘Innovation Capital of South Africa’, Stellenbosch Municipality identifies five core strategic focus areas namely, *Preferred Investment Destination, Greenest Municipality, Safest Valley, Dignified Living* and *Good Governance and Compliance*. As the 13th largest economy nationally, Stellenbosch Municipality is positioned as a prominent economic node in the region. With a strong focus on providing an enabling environment for sustained, inclusive economic growth, SM recognises that economic success depends on the provision and maintenance of infrastructure and how activities are organised in space.

4.3.2 Local Economic Development Strategy and Action Plan (2014)

Stellenbosch Municipality’s LED Strategy and Action Plan developed in 2014, is aimed at the systematic identification, development and utilisation of economic opportunity that benefits local businesses and shifts the economic trajectory towards realising a more inclusive and sustainable growth path. This was framed against the vision of moving towards a 8% growth rate. The strategy recognises that an inclusive pattern of economic growth needs to be carefully crafted and managed in such a way that it

systematically reduces the region's levels of poverty, unemployment and inequality. This depends on the creation of an enabling, healthy and competitive business environment in which the local municipal authority takes a leading and facilitative role. Furthermore, this requires leveraging Stellenbosch Municipality's strong knowledge sector, Stellenbosch University in particular, together with key competitive advantages. As the outcome of a Participatory Appraisal of Competitive Advantage (PACA) process which mobilised and leveraged broad stakeholder participation and contributions, the LED strategy sets out an economic development action plan and a package of prioritised initiatives. These need to deliver on the following objectives: increase the overall size of the economy (GDP); make it easier for small enterprises to succeed in competitive markets (i.e. broadening participation in the economy); grow citizen net worth with respect to property values; and build a public sector that values and supports its citizens who convert economic opportunity into reality—creating jobs, wealth and increased municipal revenue. This portfolio of improvement initiatives was identified to support improvement in Stellenbosch's five key sectors: tourism, agriculture and agri-processing, knowledge intensive sectors, property related developments and a responsive and enabling municipality. Furthermore, the LED strategy stresses the development of sufficient supportive institutional capacity and continual monitoring and evaluation as the action plan moves towards implementation.

4.3.3 Stellenbosch 2017 Housing Strategy (2008)

This Integrated Human Settlement Plan, approved in 2008, and elaborated in the 2009 report, Analysis and Evaluation of Key Stellenbosch ISHSP Sites undertaken by the Winelands District Municipality. This was followed up with the formulation of a Housing Pipeline by Stellenbosch Municipality in 2010. Provision for a range of housing typologies is supportive of the WCO24 SDF's proposed spatial configuration comprising of interconnected and tightly configured settlements. The Housing Strategy envisages the delivery of roughly 20 500 residential units in Greater Stellenbosch in response to the housing backlog. This comprises the following range of housing typologies: informal settlement upgrading; RDP, social and community transitional housing; formalised home ownership; private rental and employer housing. Currently, a process is underway in conjunction with the WCG and an appointed Professional Resource Team, to develop a comprehensive IHS Development Strategy to operationalise and implement the approved housing pipeline.

4.3.4 Stellenbosch Environmental Management Framework (2014)

With its overarching goal of enabling sustainability in the Stellenbosch municipal region, the SEMF functions as Stellenbosch Municipality's dedicated environmental management policy. As a long term sustainability framework the SEMF provides a uniform, effective and comprehensive system of environmental planning with major implications for spatial planning. Indeed, the SSDF should be interpreted as one of the most important tools for realising the aims and objectives of the SEMF. It is a critical instrument in guiding the use of regional natural resources but also for aligning spatial planning and land use management with the NDP and Municipality's vision. In this way, the SEMF provides the spatial and environmental rationale for future IDPs and SDFs in terms of nationally-defined principles of sustainability. It was prepared according to a bioregional planning approach—land-use planning and management that promotes sustainable development by recognising the relationship between, and giving practical effect to, *environmental integrity, human-well-being* and *economic efficiency* within a defined geographical space. It strives to give effect to an environmental vision of “a municipality and communities that recognise the vital importance of their rich natural capital and manage these in a manner that ensures sustainability and fulfils the needs of all concerned.” This holistic approach to the governance of the environment demands joint action and partnership in realising this shared vision. The SEMF recognises the relationship between the built and natural environment and the manner in which human settlements impact the quality of the natural environment, hence the importance of aligning with the WCO24 SDF and SSDF in particular. The SEMF

thus recommends a logical spatial form that promotes sustainability in how settlements and the built environment interact with the natural systems they are embedded within. It further supports the goal of accelerating change towards improved human and environmental wellbeing, demonstrating that the alleviation of poverty and inequality require environmentally sustainable solutions that balance economic growth and social development.

4.3.5 Comprehensive Integrated Transport Plan

Stellenbosch's CIP is a required sector plan for Stellenbosch Municipality. As a Type 1 planning authority the CIP gives effect to the requirements and provisions of the National Land Transport Act (2009). Transport plans are developed in order to enhance the effective functioning of cities, towns and rural areas through the integrated planning of the range of transport infrastructure, facilities and services. This must be done in alignment with, and in support of economic and livelihood opportunities, give prioritisation to development along public transport corridors thus stimulating inclusive economic growth and development. The Stellenbosch CIP derives its vision and objectives from the National Land Transport Act (Act 4 of 2009), Moving South Africa: Towards a Transport Strategy for 2020, together with the Western Cape Provincial Land Transport Framework. The CIP highlights key issues and concerns relating to transport in the municipal area and outlines a transport register for the region that takes into consideration the close relationship between Stellenbosch Municipality and Stellenbosch University transport planning imperatives. Further, the CIP emphasises the relationship between transport planning and land use planning, especially in an urban context, where spatial development and transport planning need to balance environmental integrity with social and economic development. At the time of the CIP's completion, Stellenbosch Municipality was without an approved SDF; the CIP referenced an urgent need for the Municipality to enforce a clear strategic spatial vision informing transport planning. The report goes on to outline a five year action plan, and detailed interventions, based upon a transport needs assessment and includes strategies pertaining to public transport operations and infrastructure (Non Motorised Transport included), freight transport and others, related to road and public transport safety. Ultimately, transport, and in particular, the provision of adequate public transport, is positioned as a critical priority area for socio-economic development and the CIP highlights how Stellenbosch Municipality is at a critical point in its history in terms of the transportation systems available to its inhabitants.

4.3.6 Summary

It should be clear from the summary of national, provincial and local policy documents that there is a overwhelming preference that future development needs to overcome the spatial divisions inherited from apartheid. This can best be done via integrated planning that promotes high density transit-oriented development and sustainable use of resources. Car-based urban development benefits the better off sections of society, and locating the urban poor on the peripheries reinforces apartheid-type spatial divisions. Furthermore, it is clear that job-creating economic growth is a priority. However, this will only be achieved when agglomerations of investment, services, productive activities, and education and knowledge activities are created by local municipalities that have adopted clear Spatial Development Frameworks that are rigorously implemented. Haphazard approvals of proposals by developers on the peripheries of urban areas must be avoided at all costs.

5. Overview of the Greater Stellenbosch SDF

5.1 Approach

The process to formulate the Greater Stellenbosch SDF (which is the framework within which the SSDF has been formulated for Stellenbosch town) was initiated in 2010 and the final version of the SDF was adopted in February 2013.

The 2013 SDF is structured around 7 key development principles (reworded here to capture the updated meaning of these principles):

- **PROVIDE PUBLIC TRANSPORT FOR ALL:** Develop more opportunities for all income groups to live and/or work within 1km of a train station or bus stop. It should not be necessary to have a car to be a citizen of Stellenbosch.
- **CREATE WALKABLE NEIGHBOURHOODS:** Provide safe spaces to walk and/or cycle between home, work, shops and services.
- **GROW THE ECONOMY SO THAT MORE PEOPLE CAN GET JOBS:** Provide spaces to support the growth of existing businesses, stimulate the development of new businesses and create new employment and training opportunities for the poor.
- **MAKE WISE USE OF OUR LAND:** Make better use of the land available in town to build more affordable multi-storey homes and flats to accommodate more people, instead of building in surrounding natural and farming areas.
- **CONSERVE, RESTORE AND REGENERATE OUR RESOURCES:** Ensure that everyone has affordable services by saving electricity, providing more renewable energy, recycling all wastes (rubbish and sewage) and making sure that water is used carefully so that our children and their children will always have water.
- **GROW MORE FOOD FOR OURSELVES:** Make best use of the fertile land within and outside the town to grow food, and improve access to healthy and affordable food for all income groups.
- **CARE FOR OUR HERITAGE:** Protect historic architecture and views, and prevent the pollution and destruction of the beautiful wilderness areas, parks, natural spaces, rivers, rolling hills and mountains.

In order to make public transport viable and prevent uncontrolled urban sprawl, the SDF advocated denser development around 14 'nodes' that are well-served with public transport (or have the potential to be). These nodes are as follows:

1. Stellenbosch Town (Located on the main R44 arterial and railway line)
2. Franschhoek (Located on the R44 and railway line)
3. La Motte (Located 1km away from the R45)
4. Wemmershoek (Located at the confluence of the Berg and Franschhoek Rivers and intersection of the R45 and R303)
5. Groot Drakenstein (Located at the intersection of the R310 to Stellenbosch and the R45 between Franschhoek and the N2)

6. Dwars River Valley (Consisting of the Pniel, Johannesdal, Lanquedoc, and Kylemore settlements near the Helshoogte Road joining Stellenbosch town and Franschhoek)
7. Klapmuts (Located near the intersection of the N1 and R44, straddling the Cape Town - Gauteng railway line, the Old Paarl Road and the road link to Simondium and Franschhoek)
8. Muldersvlei Crossroads (Located with access to the Cape Town - Gauteng railway line, N1, Old Paarl Road and R304)
9. Koelenhof (Located at the intersection of R304 and M23, with a station on the Metro rail suburban route to Stellenbosch town)
10. Jamestown / De Zalze (Located on opposite sides of the R44)
11. Vlottenburg (Located on the R310 and railway line)
12. Spier (Located between the R44 and the R310, and alongside the railway line)
13. Lynedoch (Located at the intersection of the R310 and Annandale Road, at the Lynedoch Railway station)
14. Raithby (Located mainly on Watson Way, far from the main road and rail routes)

Each node requires its own SDF to translate the principles of the Stellenbosch Municipality SDF to the local context. The first of these to be formulated is the Stellenbosch SDF based on this spatial perspective.

5.2 Challenges and Opportunities facing Stellenbosch town

To summarize the primary challenges and opportunities facing Stellenbosch town, these are presented below within the framework set by the approved principles of the Greater Stellenbosch SDF. In other words, the above principles derived from the Greater Stellenbosch SDF are used to frame the specific challenges and opportunities faced by Stellenbosch town. The challenges and opportunities described below are not the outcome of scientific studies. They are derived from the dialogical processes described in Section 6 and elaborated in greater detail in Section 8.

5.2.1 PROVIDE PUBLIC TRANSPORT FOR ALL

Challenges:

Traffic congestion has increased significantly in recent years due to Stellenbosch's economic growth. Specifically, there has been an increase in private vehicle ownership and reduced restrictions on car use by students in central Stellenbosch. The 2004 Transport Master Plan for Stellenbosch found that only 10.1%-11.3% of this traffic is from outside the municipality. Large volumes of vehicles leave the municipality each day, and many of those that move within it have Stellenbosch town as their final destination. The university is a significant generator of traffic.

The majority of Stellenbosch citizens either walk/cycle to their places of work or education, or use public transport. Those who travel through or into Stellenbosch using private cars are increasing in number, resulting in congestion that, in turn, is starting to have negative effects on the economy. In a democratic society it is not appropriate to massively increase expenditures on infrastructures that will continue to reinforce the visible inequalities between those who can afford cars and those who cannot. To accommodate a growing population, infrastructure investments will be required to shift mobility away from private cars and accelerate access to non-motorized mobility (walking, cycling) and public transport (rail, bus, mini-bus taxi). This does not mean that investments in road infrastructure must cease. Investments in roads will always be needed, but not primarily to cater for

the private car and not to the exclusion of other modes of mobility. This also has implications for Provincial and National Government transport planning processes that must take into account both the Greater Stellenbosch SDF and the Stellenbosch SDF.

Opportunities:

- shift towards transit-oriented development (TOD) planning so that all income groups live and/or work within 500m of a train station or bus stop;
- construct more housing on land close to public transport, rather than on the outskirts of the town;
- improve the quality, safety and reliability of existing rail and bus services;
- give public transport priority on the roads;
- disincentivise the use of private vehicles to reduce the number of vehicles on the roads.

Ideas from the public:

“We propose a transport hub where regional buses (e.g. My Citi) can connect to a local bus network. A park and ride system (including bicycles) will also alleviate congestion in the town” [31]

“We propose creating transport corridors (facilitated by public transport) from Stellenbosch station and Enkanini towards Die Braak in central Stellenbosch. This will result in Die Braak becoming a hub for dispersal of pedestrians and cyclists...” [38]

“Install a safe, good speed public transport connection between Stellenbosch and Cape Town, and Stellenbosch and Somerset West. Be fantastic to be able to safely and conveniently be able to travel to Cape Town eg for dinner, and come back again without needing to drive.” [87]

“Being stuck in traffic is one of the worst things to waste one's time on, even in a lovely town like Stellies. Also, it causes for major pollution as people often travel alone in their cars. Why not have Stop-and-Ride sites just on the fringes of Stellies where people can park their cars and take some sort of public transport to their destination in town.” [134]

“If the railway line is dropped one level through town, from entrance to exit, with national and provincial funds such as those that have been made available for upgrading of routes to Stellenbosch, it could provide conditions for developing a smart, sustainable, high-density, multi-use district between the present railway line and the Plankenberg river and along Merriman Avenue to Bird Street.” [194]

5.2.2 CREATE WALKABLE NEIGHBOURHOODS

Challenges:

Following the global urban development patterns that resulted in the rise to dominance of the automobile in urban systems worldwide, the design and layout of Stellenbosch's streets and suburbs have become increasingly oriented toward private cars, and increasingly dangerous for pedestrians and cyclists. In order to reduce traffic congestion, safe routes for pedestrians, cyclists and the disabled

will need to be provided as viable alternatives to the use of cars. A shift from mobility via private cars toward non-motorised transport (NMT) would help to alleviate congestion, reduce greenhouse gas emissions and air pollution, minimise road fatalities and help citizens to integrate physical exercise into their daily routines.

Opportunities:

- provide safe spaces to walk and/or cycle between home, work, shops and services;
- upgrade and expand paths for walking and cycling, including adequate street markings, signage and lighting;
- institute traffic calming measures to make streets safer for pedestrians and cyclists;
- prioritise the development of new housing near NMT routes.



Ideas from the public:

“Ideally, some of the small central streets should be closed for traffic, be it permanently or at certain times. Here I'm thinking of Church street and its surrounds.” [19]

“There are a number of underutilised green spaces in Stellenbosch Central. In order to encourage (greater) community engagement, use of public spaces and awareness and appreciation for the threatened natural renosterbos within this valley, we propose that these green nodes, as well as the neighbourhoods they stand to serve, be linked via a bicycle network” [33]

“The historic centre of Stellenbosch is a unique asset for our town. I think if a central street like Kerkstraat is closed or partially closed for motor traffic it will create a huge improvement in the experience and feel of our town for both tourists and locals.” [82]

“At the moment cycling along Dorp street (and several other streets eg van Riebeeck/Plein and Bird) is pretty dangerous, with the narrow width of the streets and the furrows down the side. Making it harder to drive and easier to cycle would be fantastic!!” [84]

“Turn Stellenbosch Central into a pedestrian only zone, so that the roads become walkways and cycling paths, and only deliveries and disabled people may use the roads in the central few blocks.” [85]

“There is no bridge for pedestrians that are walking from Kayamandi to town. People have to cross the railway line. Through this, people will be in no risk of being hit but a train.” [171]

“Provide public walkways and footpaths along the Eerste River” [236]

5.2.3 GROW THE ECONOMY SO THAT MORE PEOPLE CAN GET JOBS

Challenges:

Stellenbosch town is reputed to be the small town with the most JSE listed or private equity companies in South Africa, and the exceptional growth in the financial services sector in recent years is expected to continue. However, the town also has a growing population of desperately poor people who have moved to Stellenbosch in hope of finding work. Inclusive economic development will depend on a creative mix of the larger formal businesses that need to expand; the proliferation of middle-level businesses across the primary, secondary and tertiary sectors; and the strengthening and integration of smaller and informal businesses into the mainstream economy.

Opportunities:

- open up new areas of commercial activity close to public transport routes or low income areas;
- create well-managed trading spaces in high footfall areas to allow small traders to grow their businesses;
- build new low income housing close to economic zones or close to public transport;
- improve access to affordable and reliable public transport or non-motorised transport options for all income groups to reduce the time and cost of commuting.

Ideas from the public:

“Provide infrastructure for small traders” [50]

“The vendors selling crafts should be allowed to remain in the area but perhaps should be given better quality facilities/premises. Stalls selling local fresh produce would also be a positive addition.” [37]

“Co-develop a mixed use, high-level head-office corridor - from the train station along Adam Tas to the Woodmill/Sawmill site” [116]

“The Woodmill site and the open area [Walle] across the road down to the river must be developed in ways likely to attract and retain excellent innovative talent. An innovation node has to be a safe, live-work-play environment” [188]

5.2.4 MAKE WISE USE OF OUR LAND

Challenges:

One of Stellenbosch's great assets is its vistas of pristine mountainside and farmland areas. Not only do these areas provide aesthetic value and improve quality of life, but they also contribute significantly to the local economy and tourism. However, this land is constantly under threat from private developers wishing to convert it into private housing developments on the periphery of the town. If land is going to be developed, it needs to be done so in an efficient manner that preserves Stellenbosch's ecological and agricultural heritage. For public transport to be financially viable, the predominant model of free-standing homes with their own gardens will need to be shifted toward allowing more dwelling units per hectare.

Opportunities:

- develop underutilised pockets of 'brownfield' land within the existing footprint of the town in a manner that allows for more people to live closer to public transport and work opportunities;
- develop centrally located sites into multi-storey apartment-style dwellings that would make efficient use of available land, and would use less resources than building free-standing homes (due to shared walls and facilities);
- upgrade public spaces like Jan Marais park to allow more people to access safe, attractive outdoor spaces, so that residents do not need their own private gardens.

Ideas from the public:

"Redevelop FIRE STATION land and homes into a high rise combo and residential housing estate with easy access to town and transport to Franschhoek and CBD of Idas Valley, Cloetesville and CAPE TOWN" [93]

"high density housing must be accompanied by adequate attention to recreational and cultural facilities nearby, and if it is not close to work it must have public transport on hand" [192]

"A high-density, multi-use district with adequate public transport and development conditions that ensure smart green architecture and urban design would stimulate economic activity and upgrading in and integration of Khayamandi and Cloetesville." [195]

5.2.5 CONSERVE, RESTORE AND REGENERATE OUR RESOURCES

Challenges:

Stellenbosch is facing severe environmental challenges caused by a combination of human mismanagement of natural resources and climate change. Many of Stellenbosch's existing infrastructure systems are outdated and inadequate to cope with the size of the town, and this has led to a situation where the rivers are highly polluted and the landfill site is at capacity with few options for expansion. At the same time, some residents do not yet have access to crucial services like running water and sanitation. To improve both the health of the natural environment and quality of life for

the poor on limited Municipal budgets, innovative approaches are required to improve and expand services in a resource efficient manner.

Opportunities:

- improve the efficiency with which energy and water are used in government buildings;
- ensure that all new buildings are built according to national SANS 10400-XA energy-efficiency standards, and operate as water-efficiently as possible;
- minimise the solid waste sent to landfills by providing facilities for waste separation and recycling by households and businesses;
- minimise the waste produced by the Municipality wherever possible by identifying suitable opportunities for re-using resources that would otherwise be dumped in the overflowing sewer system or landfill (e.g. selling partially-treated water from the wastewater treatment works to industry for certain non-potable uses, collecting edible food waste from retailers for distribution to the poor, composting organic waste from households to sell to farmers, or collecting biogas from the landfill and wastewater treatment works to fuel public buses and trains.)

Ideas from the public:

“...power the local bus service off biogas produced from the neighboring Sewage Works” [31]

“Recycling of hard matter, such as glass, tin, plastic and paper, must be privatised with support from the Municipality in providing a sorting facility and the license to operate” [111]

“Every household is supplied with three bins: a large grey and a large blue bin, and a small green bin. The grey bin is for non-recycleble waste, the blue is for recycling, and the green bin for organic waste (food, etc.)” [141]

“Plans for the sewage farm and the dump have to reduce (and if possible eliminate) the smell and the flies. As the challenge in both cases is a growing one, there has to be urgent attention paid to making the area of benefit to the town as a source of energy.” [185]

5.2.6 GROW MORE FOOD FOR OURSELVES

Challenges:

Despite Stellenbosch being a major agricultural area, certain parts of the town have low or no access to affordable, healthy food. While car owners can easily access a number of supermarkets, the poor have very few options and are often forced to eat unhealthy street food with low nutritional value that has negative impacts for their health. Unhealthy citizens are likely to get ill more often, reducing their productivity and placing an unnecessary additional burden on an already struggling health system. At the same time, Stellenbosch has a number of young unemployed people well-suited to farming fruit and vegetables for the local population. Improving access to healthy local food at an affordable price is a way to alleviate pressure on the public health system whilst creating employment opportunities for low-skilled workers.

Opportunities:

- provide more organised market spaces for fresh produce aimed at serving poor communities, or mobile vegetable markets that move through these areas;
- provide land and training for unemployed young people in Stellenbosch to grow fruit and vegetables for sale at markets.
- provide spaces for informal traders who can buy from local farmers and sell directly to the public;
- allocate public land to and provide support for emerging farmers, with incentives to supply local rather than non-local markets.

Ideas from the public:

“Build an undercover fresh produce market in a well located area close to public transport routes where small-scale traders can store and sell fresh fruit and vegetables directly to the public (in particular lower income groups).” [10]

“...provide land for the Stellenbosch Central Community Vegetable Garden. A beautiful, functional and educational food garden with the goal of educating, inspiring and supporting community members across all socio-economic levels to grow their own vegetables, herbs and fruit” [48]

“Plant high quality, attractive, organic food gardens instead of ornamental flowers in under-utilised public spaces” [64]

“Spasies te vind binne in Cloetesville om groente tuine op te rig vir mense om groente en vrugte te bekom.” [214]

“Support to small farmers and food growers to strengthen food security and and create jobs in Stellenbosch - thereby also strengthening the agricultural heritage of the town.” [226]

5.2.7 CARE FOR OUR HERITAGE

Challenges:

Protect historic architecture and views, and prevent the pollution and destruction of the beautiful wilderness areas, parks, natural spaces, rivers, rolling hills and mountains. However, the uncontrolled growth of Stellenbosch will occupy more and more of the natural spaces surrounding it, destroying the green areas and vistas that make it such a beautiful place to live. Similarly, if developers and land owners are allowed to build whatever they like, the historic sense of place in Stellenbosch town that draws tourists from around the world might be lost. Meeting the needs of a growing town whilst protecting those features that make it a desirable place to be is a careful balancing act, and requires strict guidelines on what needs to be protected and how development may take place. The area of central Stellenbosch around Church Street is one of the rare examples in South Africa of how a relatively dense population can be accommodated in a manner that supports the historic feel of the

town whilst creating a pleasant pedestrian environment. The desirability of this way of life is seen in the high property valuations in the area.

Opportunities:

- ensure that new medium- to high-density developments in Stellenbosch draw their design inspiration from the historical core of Stellenbosch so that they can live comfortably alongside heritage buildings;
- focus growth on the existing town instead of expanding beyond its boundaries into farmland or protected natural areas;
- provide well-planned streets, underground parking, cycle paths and beautiful public spaces that allow for multiple uses;
- densify and redevelop existing under-utilised low density areas on the edges of the historic core (e.g. the Adam Tas corridor) in order to alleviate develop pressure on the historic core.

Ideas from the public:

“Sidewalk similar to what we have between Paradyskloof and Jamestown that accommodates walkers, joggers and cyclist. Linking Jamestown and S/West to the south and linking Stellenbosch CBD with Franshoek and Stellenbosch CBD with entrance of Jonkershoek” [67]

“Protection of the historic heritage of Stellenbosch not only because of its irreplaceable intrinsic value, but as an economic asset of immense value through tourism and job creation” [90]

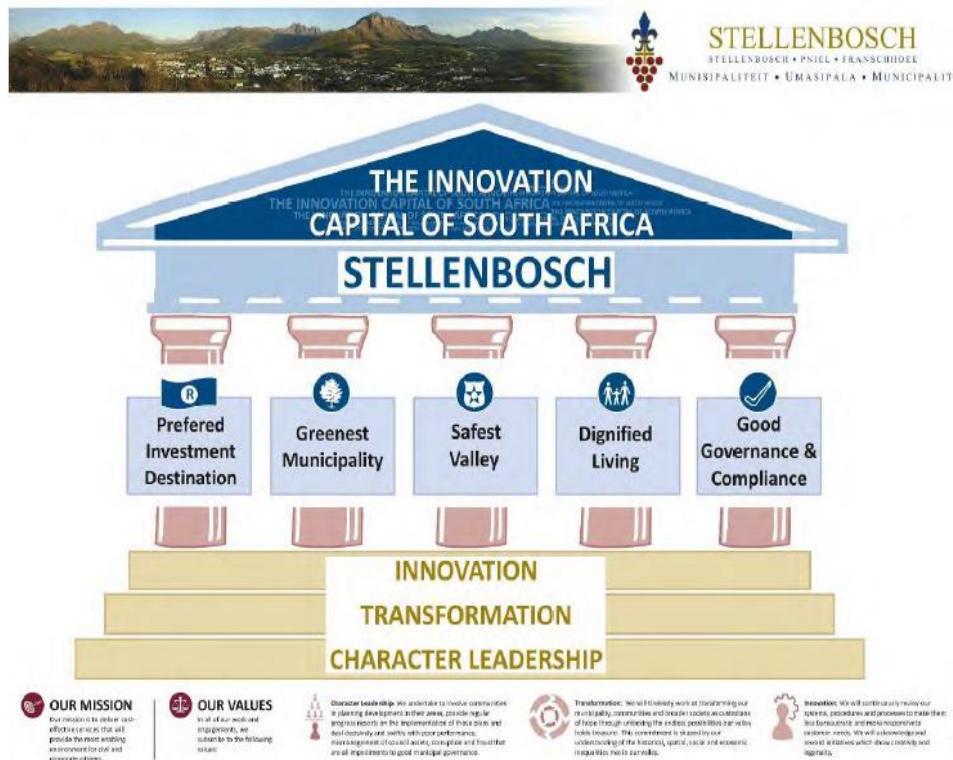
“Upgrading and monitoring of the River: This will help in protecting the nature, and will limit illnesses in the area, especially to children, as they play in the dirty river” [168]

“The western slopes of Stellenbosch Mountain down to Paradyskloof and down to Blaauwklippen Road should be turned into conserved areas in terms of the Protected Areas Act” [203]

6. Strategic Vision and Tools: Sustainable, Inclusive Compact Town

The ambition to become South Africa’s innovation capital provides the point of departure for the process of compiling the SDF. Comprehensive strategic planning is usually conducted by experts who have at their disposal a vast array of technical instruments that enable them to construct complex plans and implementation strategies that are derived from rational scientific analysis. This expensive process generates results that are captured in thick documents that politicians often approve with limited real understanding and overworked officials are expected to implement without the capacity that planning consultants often assume exists. Best global practice has been moving away from this for nearly two decades. The emphasis today across many leading cities is on processes of engagement and dialogue that make it possible for plans to reflect the best that can be imagined by those who have participated in joint planning based on their lived experience of what is going on and what is therefore desirable. Inspired by the Mayor’s ambition for Stellenbosch to become known for innovation, the SSDF was drafted by integrating the results of two innovative processes of dialogue

and engagement. The first entailed the development of strategic scenarios by the Strategic Advice Group (SAG), supported by the Eidos decision-support tools provided by Stellenbosch University's Department of Information Science. The SAG comprised all the most senior municipal officials plus the relevant members of the Mayoral Committee (MAYCO). The second was the Shaping Stellenbosch campaign, a public appreciative inquiry process that ran from November 2013 to August 2014.



The SAG's Scenarios

The SAG held several workshops between June 2013 and August 2014. The aim was to facilitate a dialogue that would result in two outcomes: a set of future scenarios for Stellenbosch, with one of these designated as the preferred scenario; and a strategy comprising a set of tools that will be required to achieve the preferred scenario. To achieve this, Stellenbosch University's Department of Information Science was commissioned to make available the world-renowned Eidos decision-support tools, usually used by large and complex corporations and institutions to compile their long-term plans. This means that the actual scenarios and the preferred scenario were not generated by the consultants, but carefully and in detail by the senior officials and MAYCO members who participated in the workshops. The SAG approved the final set of scenarios and the preferred scenario.

The scenarios and preferred scenario are presented below. The way to use the scenario and tooling combinations is to envision them as narratives. Scenarios set up the intent and context, and tools

are the actions that need to be taken by the municipality. Significantly, the group chose highly consistent narratives which reflects a high level of shared understanding of the challenges and desired futures. Less consistent scenarios would be more difficult to build narratives from, because the stories would not be coherent. It is therefore important to try to build a believable narrative embedded in events that seems plausible. There is no formal measure of probability in these scenarios and tools, they are purely based on consistency between alternatives, and weightings given to the scenario dimensions by the workshop participants. The only form of probability is the 'believability' of the narratives that are created.

The following scenarios were generated:

The **status quo scenario** was described as a town whose mobility systems cater mainly for the private car, has a very limited commitment to sustainability, is seen as a University 'brainport', lacks an approved SDF, commits insufficient funding to address the service backlogs, focusses on middle class and state-subsidised housing, and whose economy is characterised by what was called 'rogue capitalism', i.e. a kind of free-for-all for developers to do more or less what they want resulting in sprawl.

The **hi-tech University Town** scenario was characterised as a town whose mobility system caters mainly for the private car, where poverty is regarded as more important than the environment and the identity of the town comes to be associated in a more pronounced way with a hi-tech economy dominated by the University and tech start-ups. In this scenario there is still no approved SDF to guide development, which means 'rogue capitalism' persists, but the focus shifts towards densification within the existing urban edge. Service backlogs would remain because the focus of investment will be on densification for higher income elites employed in the hi-tech economy.

The **enclaved tech-town scenario** would be the outcome of Stellenbosch being absorbed into the Cape Town metropolitan planning system as an enclave economy that employs a significant number of middle class professionals. Investments would focus on private car-based mobility and middle class and gap housing, plus expansions of the University 'brainport' as a key driver of the economy. Service backlogs would therefore persist and social unrest would increase.

The **heritage tourist town** scenario would be based on the assumption that preserving the heritage architecture and environment of the town is the priority and that this can only be achieved by approving an SDF that provides for this. This would include the integration of public and non-motorised mobility at the expense of the private car, and green issues would be regarded as more important than poverty issues. Service backlogs would continue and social unrest would increase.

The most consistent and therefore the preferred scenario was the **compact, inclusive and sustainable town** scenario. This would be a town with an approved SDF that would be responsive to the rising cost of natural resources and the challenge of poverty by guiding public and private investments into the integration of public and non-motorized transport, building of an inclusive knowledge economy (with the University 'brainport' as the central driver), generating the funding to address existing service backlogs as well as future needs, and densification of residential settlements within the existing urban edge as an alternative to sprawl.

To achieve the preferred scenario, the SAG agreed that an implementation strategy will be needed that comprises the following:

- prioritisation of high density transit-based development, including the provision of extensive non-motorised mobility infrastructure (for pedestrians and bicycles);
- promotion of high density social housing around transport nodes to meet the needs of poorer households;
- the use of municipal properties to promote social transformation and economic growth;
- preservation and extension of the ecosystems that are both necessary for urban development (e.g. the rivers) and for tourism (e.g. biodiversity in conservation areas);
- proactive approach to zoning and rezoning to achieve strategic objectives;
- introduction of advantageous zoning incentives for those developers who fit into the strategic vision of the SDF; and
- introduction of a long-term asset management system that makes long-term planning to achieve the goals of the SDF possible.

It is worth noting that the above measures are consistent with the SEMF document.

Shaping Stellenbosch

The Shaping Stellenbosch Campaign (SSC) ran from August 2013 to August 2014, culminating in a deadline for submissions from the public that have been integrated into this draft SDF. The SSC was motivated by a desire to ensure that the citizens of Stellenbosch were given an opportunity to express their vision for the town as a whole, and their neighbourhoods. However, it was necessary to find a method that overcame the general tendency in Stellenbosch for citizens to use public participation processes merely to complain about what the Municipality is or is not doing. As a result an 'Appreciative Inquiry' methodology was adopted that is premised on the assumption that when given a chance people welcome the opportunity to be positive about the future. The SSC used a specially designed website, newspaper adverts, flyers and street posters to invite people to submit their proposals online or at designated public facilities. Citizens were requested to submit positive forward-looking proposals that aligned with the principles of the Greater Stellenbosch SDF (see Section 5.2). They were requested to stipulate the geographical area they had in mind.

To empower citizens to effectively participate, the SSC team organized a wide range of engagements with ward councillors, ward committees, business groups, civil society groups and individuals. The first round of consultations took place with all ward councillors, followed up by meetings with ward committees. After this, 72 formal engagements with various groups took place. The purpose of all these engagements with ward councillors, ward committees and other groupings was to encourage as many people as possible to submit proposals, in particular via the website. These formal engagements and many more informal engagements were complemented by four major workshops that were attended by a wide cross-section of organisations. Although initially regarded with suspicion by nearly all concerned, by far the majority realized that the SSC was in fact an authentic attempt by the Municipality to elicit the views of Stellenbosch citizens. As the campaign progressed it became clear that this was not simply about eliciting inputs into the process of drafting

the SDF, this was also about creating new relationships of trust between the Municipality and the citizens. This is crucial because an innovation-oriented SDF cannot be implemented in an environment characterised by mistrust. Trust is widely regarded worldwide as a precondition for the flourishing of innovations.

By August 2014 a total of over 200 ideas were submitted from around 108 stakeholders. These were then clustered into thirteen thematic areas: mobility; community facilities; roads; housing; utilities and services; parks; ecosystems; tourism; safety and management. Significantly, the majority of the proposals fell within the mobility and roads cluster, followed by parks and recreation, and safety as other strong secondary clusters. Of the 214 ideas, 75% were relevant to the SDF with the remainder pertaining to other municipal functions such as community development or safety. Reflecting on the submissions, it became clear that although people had found formulating a practical proposal a challenging technical exercise, the support provided as part of the campaign approach and the guidance afforded by the series of clear principles from the Greater Stellenbosch SDF made it more manageable. Having gone through the screening and filtering process, around 80 proposals emerged as suitable for further consideration in terms of their applicability to the spatial development framework. Each proposal was captured on an easy to read spreadsheet which was shared with relevant municipal representatives. Everyone who submitted a proposal received a personal letter thanking them for their submission and what the next steps would be. One person responded to this as follows: *“Thank you very much for the information and especially also for the tone of your letter. I feel included and am looking forward to seeing and discussing your plans.”*

Significantly, the vast majority of the proposals received seemed to be consistent with the preferred scenario developed by the SAG, i.e. the idea of a *compact, inclusive sustainable town*. The fact that the largest number of proposals related to mobility confirmed the SAG conclusion that transit-based high density development should be the primary focus of the implementation strategy. As already pointed out, this is also consistent with national policy guidelines at the national, provincial and local levels, in particular the PSDF and SLUMA.

Merging the SAG’s Preferred Scenario with the public inputs via Shaping Stellenbosch

A spatial mapping workshop took place in October 2014 to align the inputs generated by the SSC with the preferred scenario generated by the SAG. A group of officials from the planning and engineering departments, assisted by consultants, transformed the SSC proposals and SAG scenario into a spatial expression of the emerging narrative encapsulated in the vision of a *compact, inclusive and sustainable town*. A set of around 12 development nodes within the Stellenbosch town were identified (later reduced to 7 for the final version of the plan). Each were assessed in terms of three criteria over and above the implicit consideration of the seven broad SDF principles: firstly the alignment with a transit-oriented development approach which prioritises investments in public transport; secondly the potential for inclusion of poorer households, especially in terms of broad access to economic and livelihood opportunities; and finally their infrastructure readiness over the short, medium to long term. This workshop succeeded in imagining the spatial and infrastructural particularities of this emerging narrative of a *compact, inclusive and sustainable town*. The final proposed spatial framework presented in this draft SSDF stems primarily from this workshop and the process of refinement that took place in the weeks thereafter.

Two things are worth noting at this stage. Firstly, that the inputs from the public aligned remarkably closely with the preferences of the SAG. This suggests that officials and MAYCO members are well attuned to the preferences of Stellenbosch citizens. Secondly, the final outcome is remarkably consistent with the developmental perspective advocated in the SEMF and PSDF.

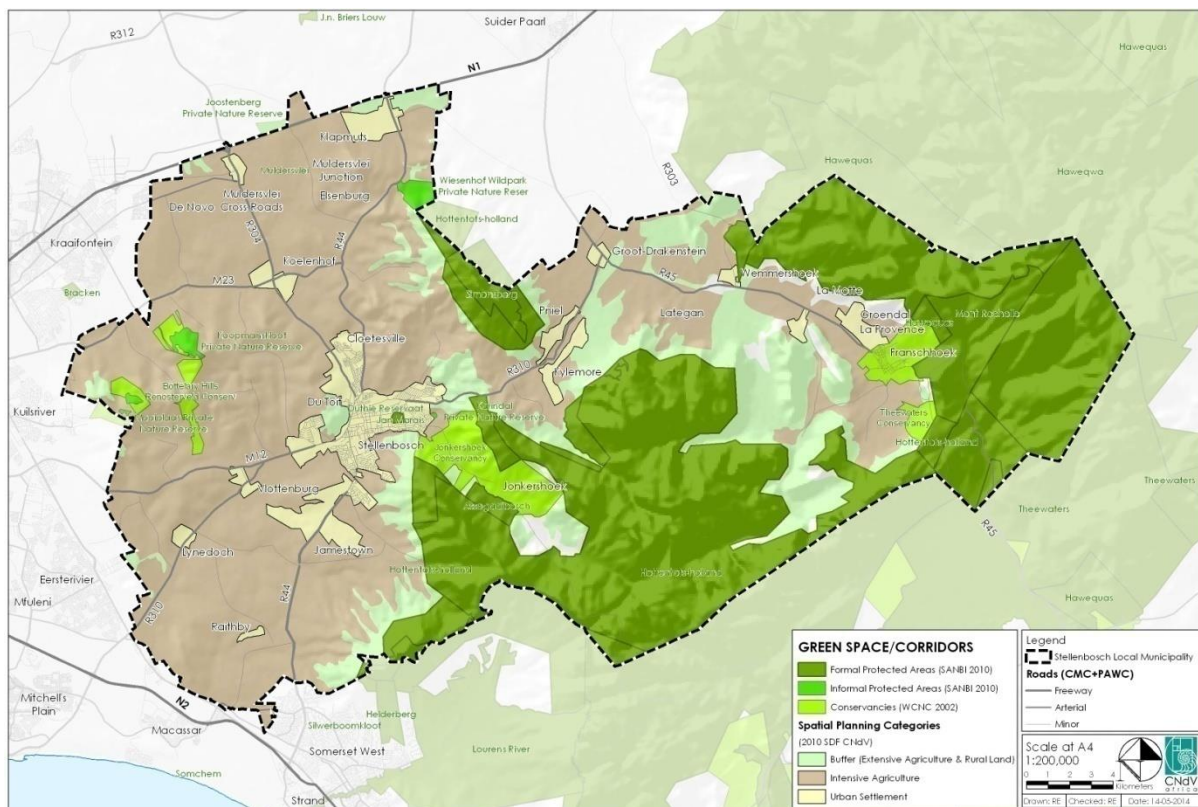
7. Structuring Axes

7.1 Overview of main structuring axes

An SDF cannot simply be the expression of an idealistic vision as articulated by key actors and citizens. It also needs to be informed by the actually existing geo-physical realities and built infrastructures. This is what is referred to here as the structuring axes, i.e. those geo-physical and built infrastructures that become both constraints and opportunities for structuring development trajectories in the future.

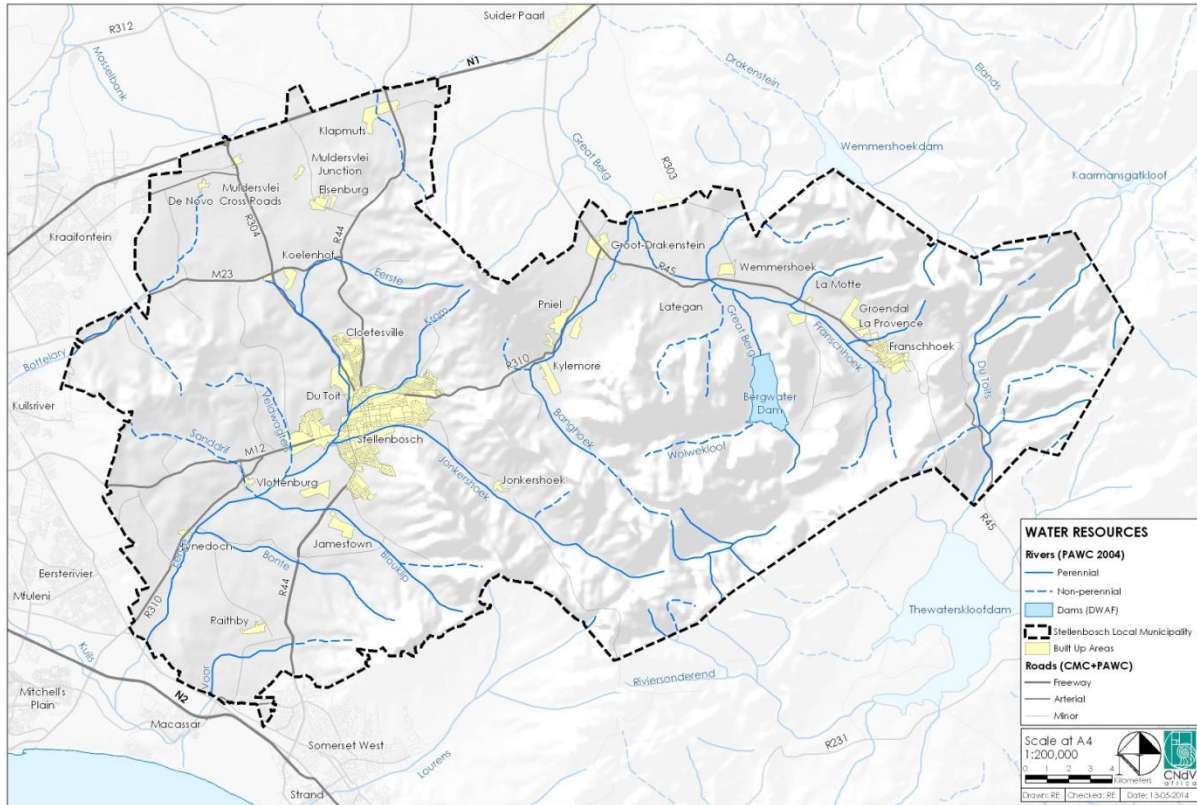
Innovation-driven sustainable economic growth in Stellenbosch cannot take place without consciously opening up new bioregionally appropriate areas for urban expansion and densifying existing developed areas. The SDF principles articulated in Section 5 must guide how this growth must take place. The IDP refers specifically to the need for 6,000 additional ratepayers (without clarifying the distribution across property values). Inclusive urban expansion and densification within the Stellenbosch bioregion must be shaped by the following structuring axes:

Green lungs: these include the conservation areas, public open spaces and valuable agricultural lands (including the commonage) that will be required for food production. To protect these natural assets a strategy of low density suburban sprawl must be avoided.



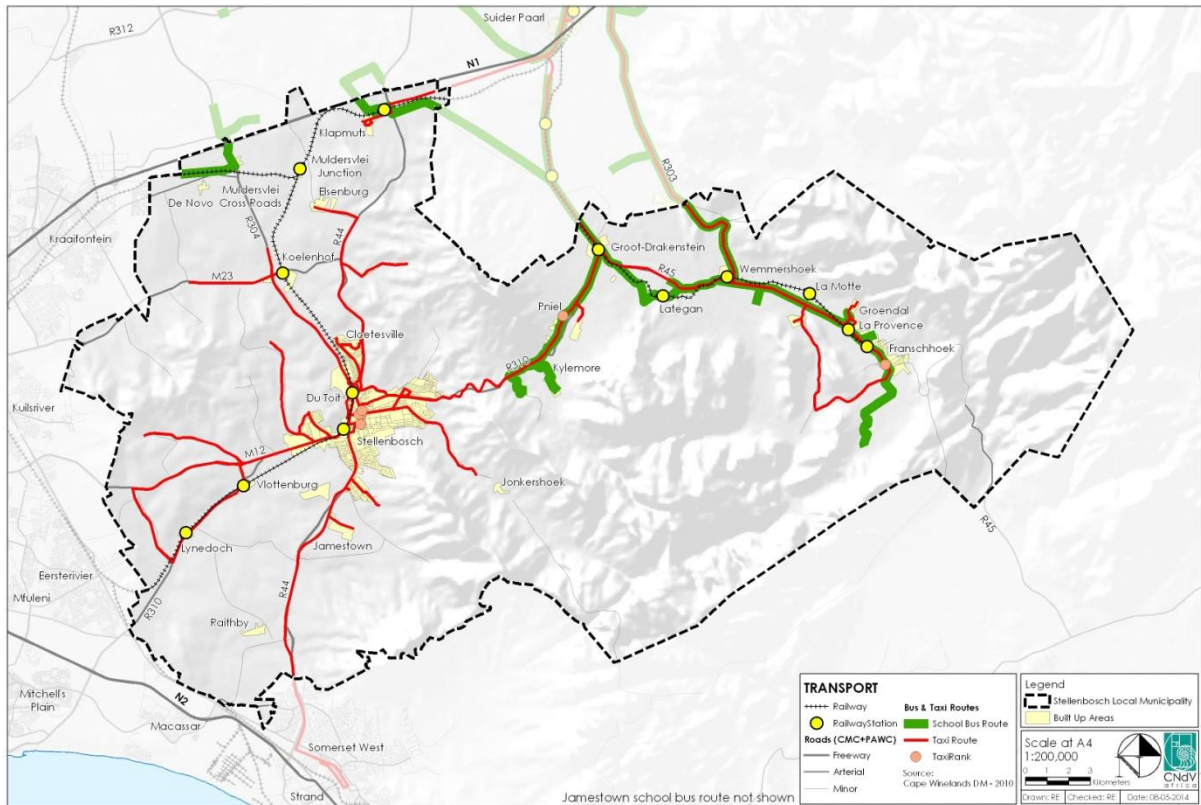
Stellenbosch Municipality's 'Green Lungs'

Blue veins: these include the rivers, dams, water sources and sanitation sinks of the Stellenbosch bioregion. If water-efficiency and ecological sanitation do not become central tenets of future urban development, Stellenbosch will face severe water shortages and ongoing pollution of its river systems.



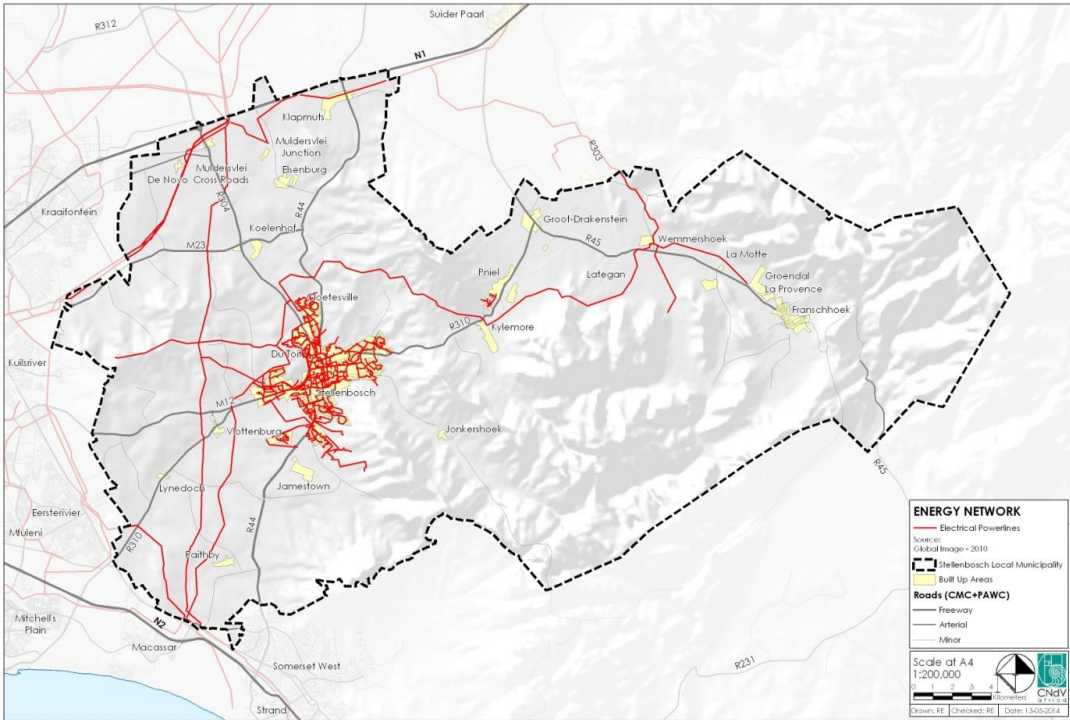
Stellenbosch Municipality's rivers

Brown arms: these include the existing primary mobility nodes and corridors, specifically the congested road network and neglected under-utilised rail network. The rail network in particular provides a unique opportunity for Stellenbosch, especially in light of ongoing engagements with PRASA and the Western Cape Provincial Government both of whom favour the idea of increasing the importance of rail-based commuting linked to bus and taxi services. The seven stations located respectively at Lynedoch, Vlotenburg, Stellenbosch, du Toit, Koelenhof, Muldersvlei and Klapmuts can become the primary transit nodes around which a new generation of major high density urban developments can materialize over the next two decades, starting with the proposed transit-oriented development strategy for Stellenbosch station.



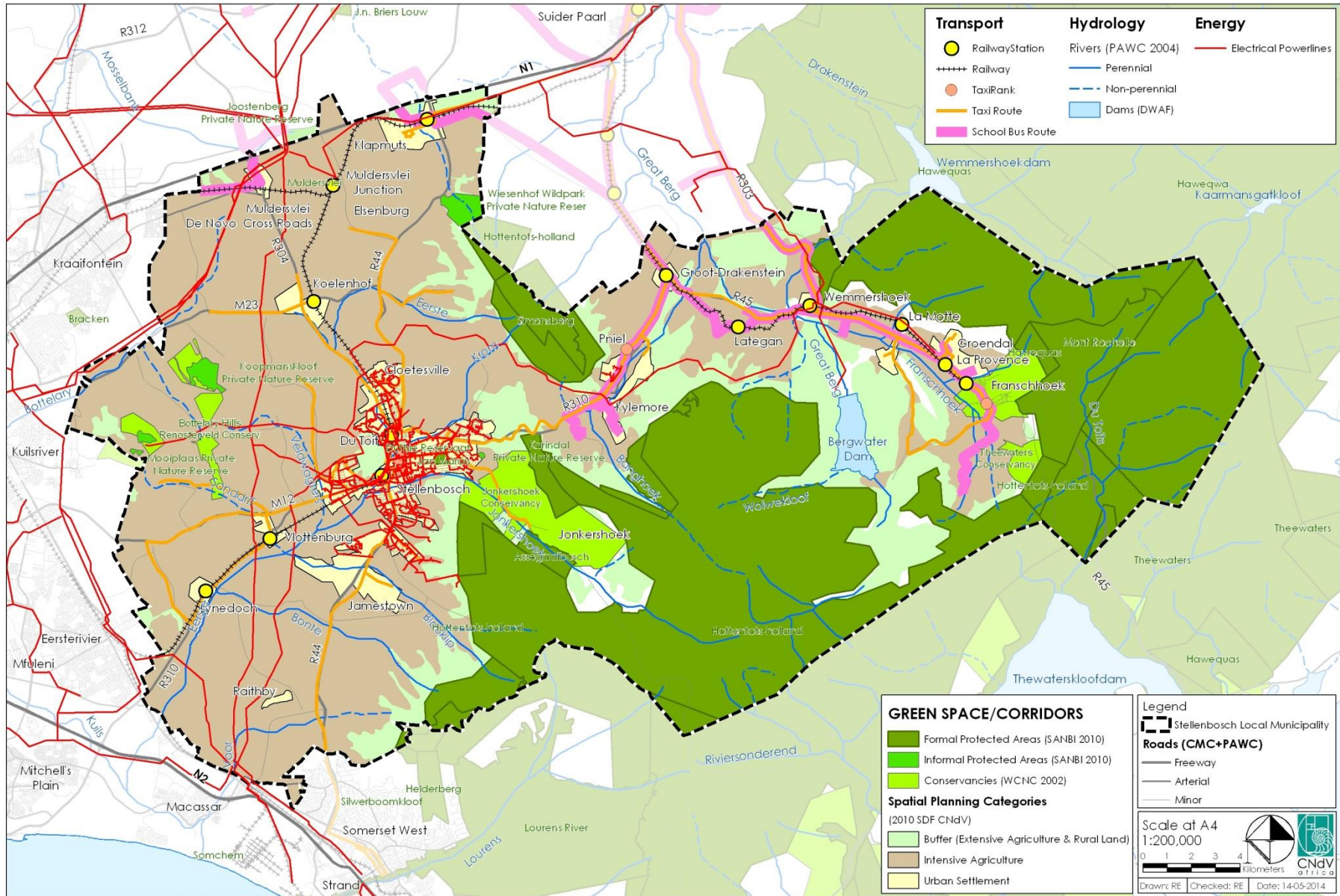
Stellenbosch Municipality's 'Brown Arms'

Red Heart: this refers to the over-loaded energy system that Stellenbosch is dependent on, specifically the increasingly expensive coal/nuclear-based energy sources and the 11KVA long-distance transmission system that has reached capacity. Now that global investments in renewable energy have exceeded investments in fossil fuel-based energy since 2009, Stellenbosch is now in a position to benefit from the introduction of proven renewable energy systems, including embedded photovoltaic systems for all buildings and solar hot water heating systems.



Stellenbosch Municipality's 'Red Heart'

Fusing these structuring axes together gives rise to a composite view that clearly defines the opportunities and constraints for the future urban development of Stellenbosch town.



Composite view of structuring axes

All four structuring axes bring into focus innovations needed to overcome key development constraints:

- green lungs: by densifying within the urban edge, this will ensure that urban expansion takes place in a way that helps to protect and strengthen the bioregion's available eco-system services and local food supplies;
- blue veins: minimise water risks and ensure water security for all in a growing economy by efficiently using water and adhering to water sensitive planning and design;
- brown arms: in order to reduce road congestion while increasing the size of the population and creating more jobs it will be necessary to build high density urban nodes around upgraded train stations and bus routes, and this in turn will mean improving the viability, accessibility and affordability of public transport and non-motorised mobility while at the same time improving road access on a limited basis (investments in road-based mobility must be primarily aimed at increasing the actual flow and volume of people and goods, not merely private cars carrying a limited number of people per unit);
- red heart: increase the total quantity of clean renewable energy supply into the Stellenbosch energy system in order to overcome long-term supply constraints and rising costs of fossil fuel-based energy supply systems.

7.2 Structuring Axes: Detailed Guidelines

A matrix of overlaying structuring axes for Stellenbosch town will need to be compiled as part of a detailed SDF.

In summary, the four structuring axes must ensure that future urban developments:

- following the detailed guidelines of the SEMF, are managed at the bioregional scale in ways that at least minimize negative impacts on public open spaces, conservation areas and productive agricultural land, or at best contribute actively to improving the quality of these bioregional resources both directly through physical design or indirectly via rating systems that generate the funds for restorative activities;
- following the detailed guidelines of the SEMF, can access sufficient water supplies in a 'water-wise manner' without compromising the ecosystems that these supplies depend on, while at the same time going beyond just minimizing pollution by actively contributing to the restoration of the water systems Stellenbosch depends on;
- are concentrated around upgraded and/or new public transport nodes/service points that are either high density greenfields developments (i.e. not less than 35 dwelling units/ha) or brownfields developments that increase densities;
- are designed in accordance with advanced sustainable energy principles, including energy efficiency, embedded solar PV systems and/or off-site generation units that generate more energy than what these new urban developments require.

8. Spatial Perspective: Framework of Strategic Opportunities for Incorporation into the SSDF

8.1 Reading the Spatial Perspective

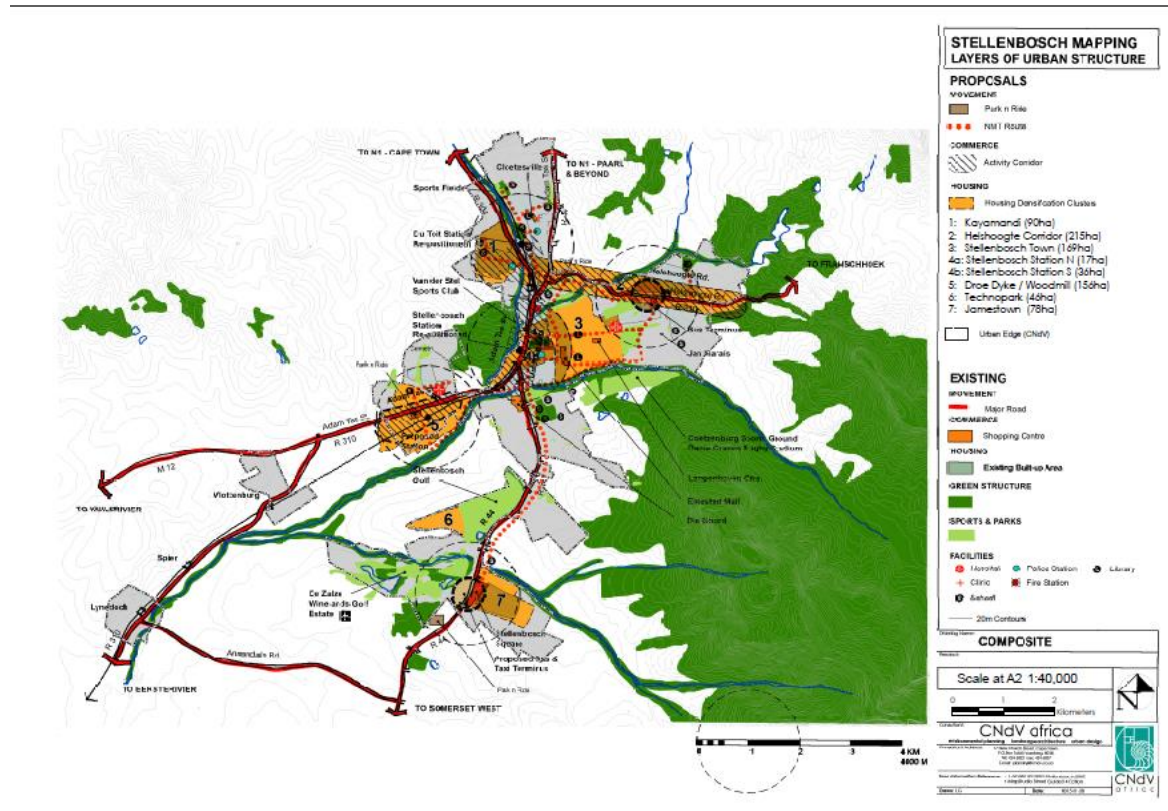
The spatial perspective described below is the outcome of the following processes:

- various national and provincial planning processes that emphasize the need to promote sustainable urban development, in particular the NDP;
- the approval of the Greater Stellenbosch SDF in 2013 that put in place the guiding principles and the notion that Stellenbosch must in future develop as a network of high density urban nodes connected by public and non-motorized transport rather than via the promotion of low density suburban sprawl;
- the approval of the SEMF that put in place the principles and planning framework for managing urban development in an ecologically sustainable manner;
- the preferred scenario generated by the SAG;
- the inputs provided by the public via the Shaping Stellenbosch campaign; and
- the discussions in the Rector-Mayor Forum, in particular the sub-committees of this forum, specifically the Infrastructure Innovation Committee (that met every two weeks for nearly two years) and the Integrated Planning Committee.

These intensive processes of dialogue and engagement involving councillors, officials, citizens and the University - that are unique to Stellenbosch – have generated a shared consensus about the future that can now be captured in a plan supported by descriptions of seven key nodes of intervention.

To give expression to the preferred scenario of a compact, inclusive sustainable town, the following guiding framework will be adopted:

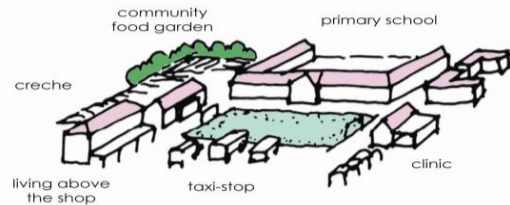
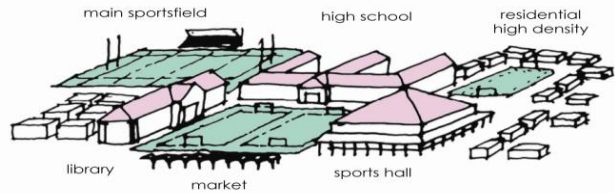
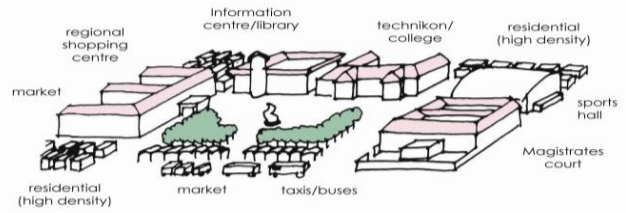
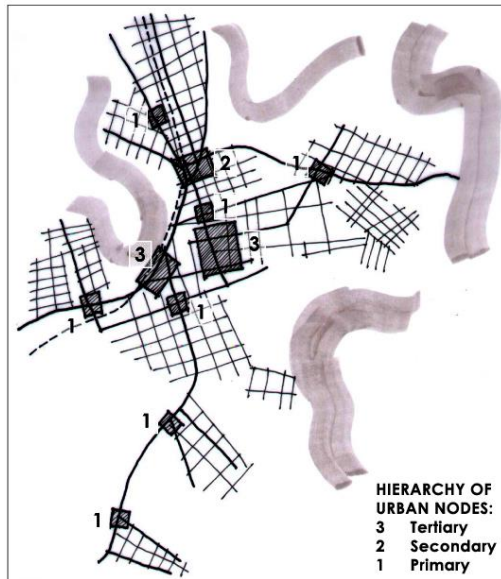
- *a compact town*: future needs will be met by densifying the existing urban footprint, thus remaining more or less within the existing urban edge – this will be achieved by making sure that all new major urban developments take place around transit nodes, including rail, bus and taxi services, with special reference to Stellenbosch and du Toit stations;
- *an inclusive town*: the primary focus for future development will be the area of greatest need, namely the Kayamandi-du Toit station-Helshoogte corridor (that includes Idas Valley and Cloetesville);
- *a sustainable town*: investments in water, sanitation, waste, energy and mobility infrastructures will be guided by the need to be resource efficient, while at the same time development is managed in a way that restores the ecosystems that the Stellenbosch system of production and consumption depends on.



The following specific implementation mechanisms will be used:

- high density transit-based developments will be given priority;
- high density social housing around transport nodes to meet the needs of poorer households will be given top priority;
- municipal properties will be used to promote social transformation and economic growth;
- a proactive approach to zoning and rezoning to achieve strategic objectives will be adopted (e.g. the proposed Special Planning Categories referred to in the SEMF);
- advantageous zoning incentives for those developers who fit into the strategic vision of the SDF will be made available.
- a long-term asset management system that makes long-term planning to achieve the goals of the SDF possible will be introduced.

To illustrate how the implementation mechanisms can be used to transform spatial form, it is possible to envisage Stellenbosch in terms of a hierarchy of interconnected high density nodes:

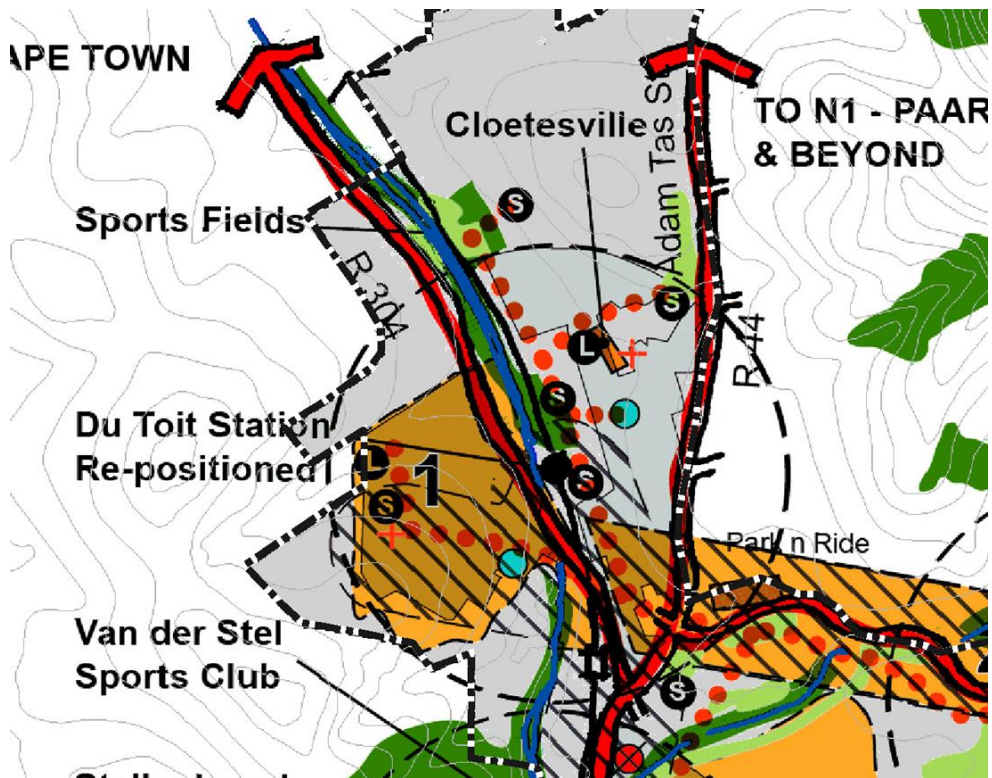


The plan envisages the construction of ??? square meters of additional floor-space, which is equal to % of the existing floor-space in the Stellenbosch town area. This reveals that without urban sprawl it will be possible to make provision for urban expansion in ways that meets the needs of all income groups.

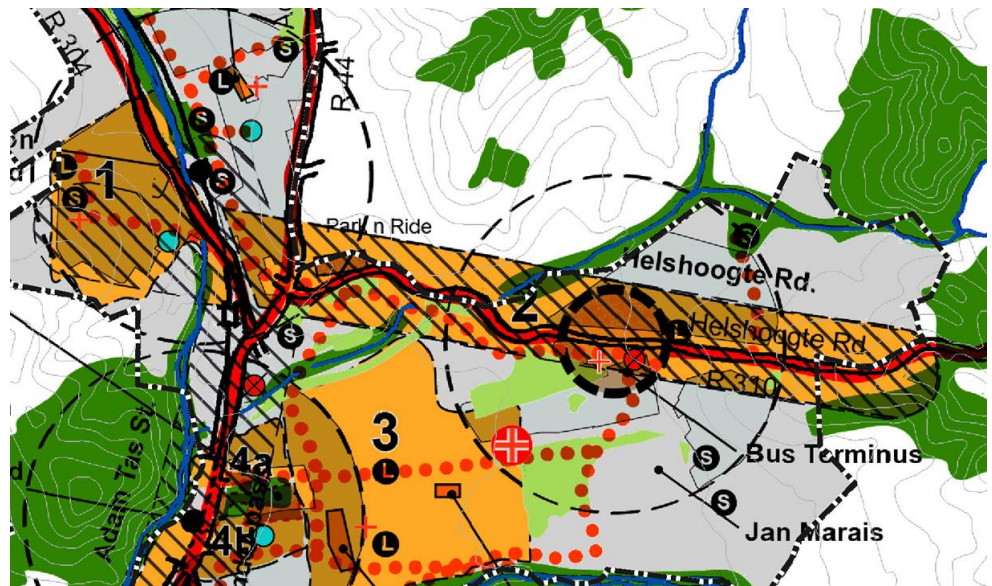
8.2 Nodal Plans

The following nodal plans are envisaged that must be completed during the implementation phase:

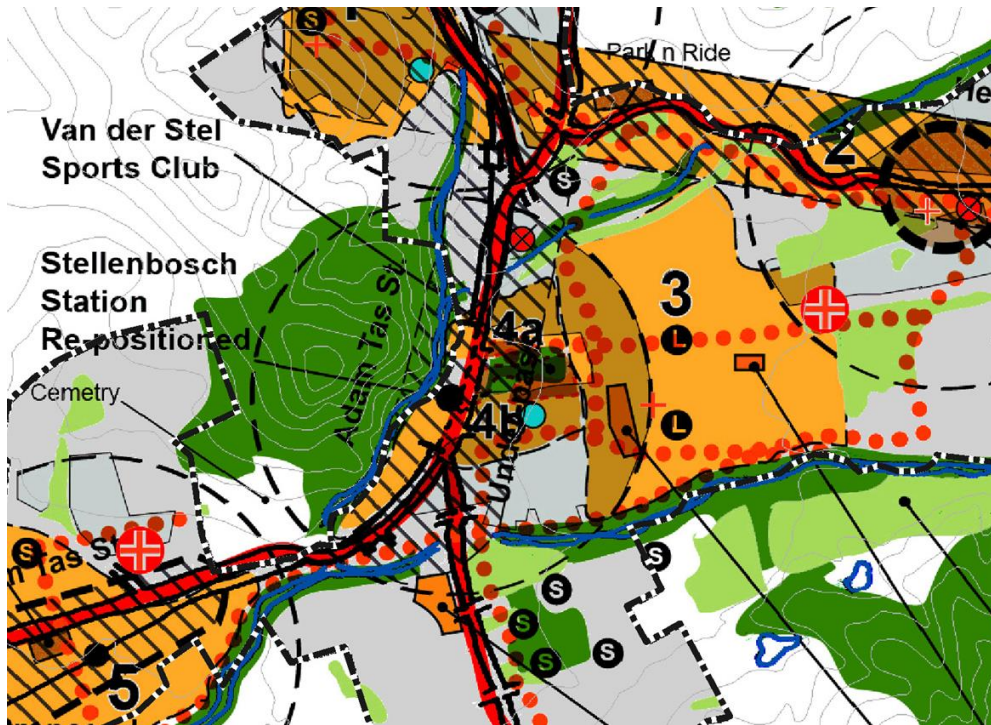
1. Kayamandi (90ha)



2. Helshoogte Corridor, including Idas Valley and Cloetesville (215ha)



3. Stellenbosch town, including the University precinct (169ha)



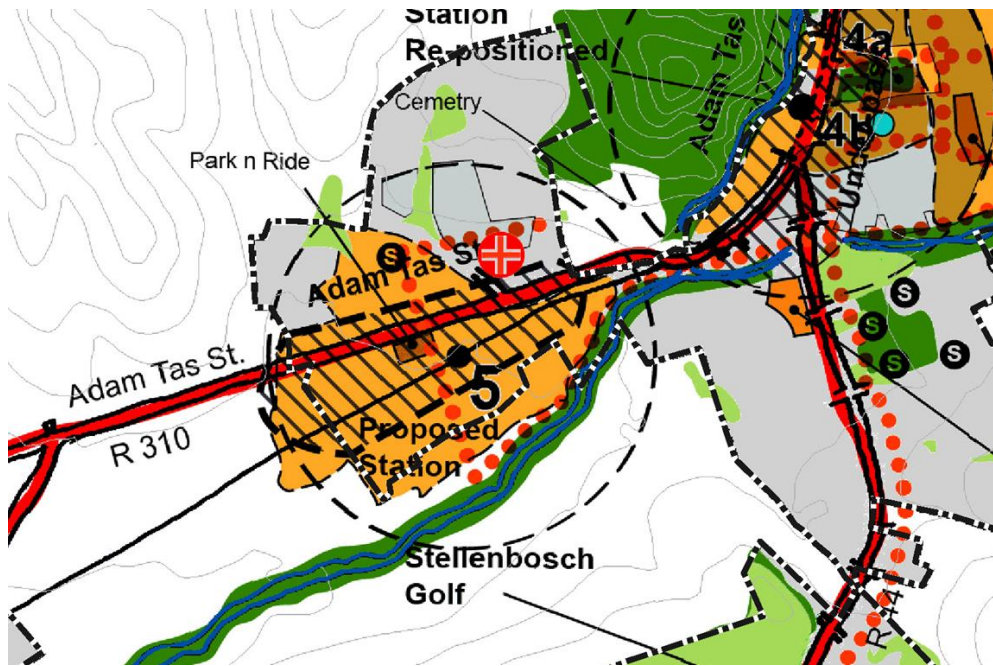
4. Adam Tas Corridor

4a. Stellenbosch station North (du Toit) (17ha)

4b. Stellenbosch station South (Stellenbosch) (36ha)



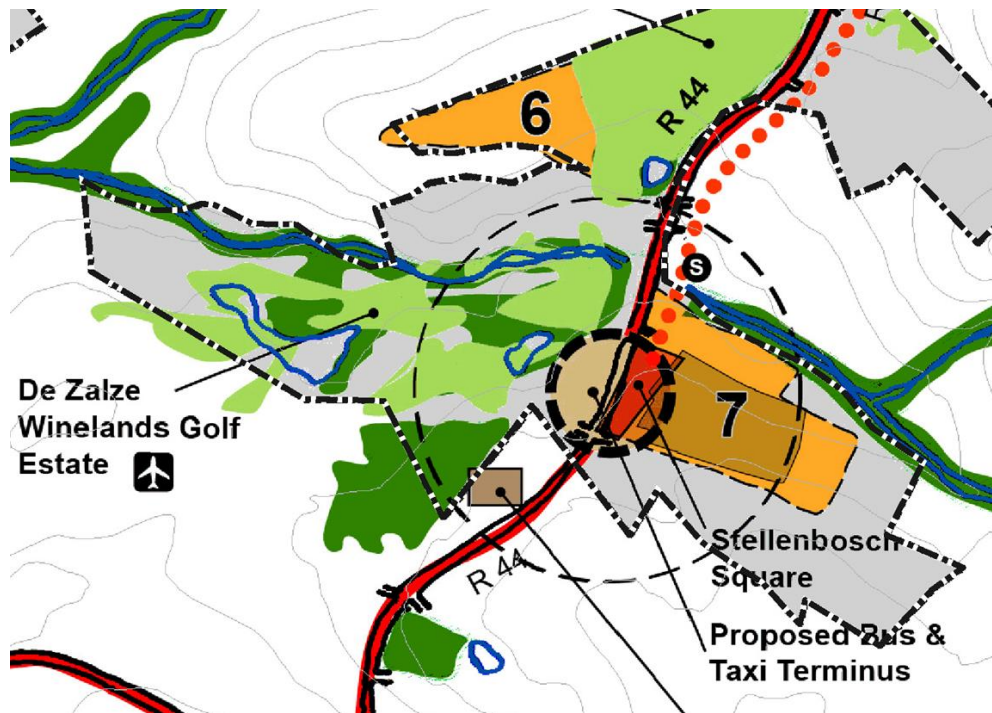
5. Droe Dyke/Woodmill (156ha)



6. Technopark (46ha)



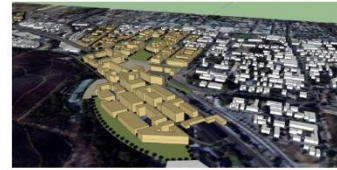
7. Jamestown (78ha)



8.3 Stellenbosch Station Precinct

In October 2014 the consulting firm Royal Haskoning DHV presented a report to Stellenbosch Municipality entitled Transit Orientated Development: A Concept for the Town of Stellenbosch (Working Draft). The brief was to investigate the possibility of creating a high density node around Stellenbosch station. In essence, the report recommended moving the station up to the entrance of Merriman Avenue and relocating the Van Der Stel Sports ground to another less central location (e.g. to the bottom of the Nietverbij land). If the road was then sunk so that traffic could be conducted through a tunnel underneath the railway, this would remove the very serious congestion along Adam Stas and establish the basis for a TOD high density node that would see the redevelopment of the van der Stel grounds for mixed use residential development. As reflected in the diagrams below, this would create the opportunity for a major new development node.

5.8.2 Meriman Gateway



VIEW TOWARDS BIRD STREET FROM OUDE MOLEN



VIEW TOWARD STATION ALONG MERRIMAN



NEW PEDESTRIAN SPINE FROM BIRD TO THE STATION

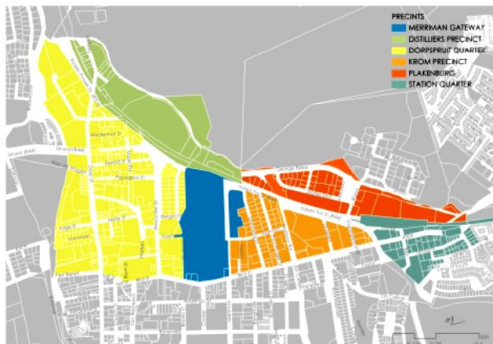


FIGURE 10: DEVELOPMENT PRECINCTS



FIGURE 11: DEVELOPMENT POTENTIAL

TABLE 2: FULL ZONING TAKE UP (HIGHER DENSITY OPTION)

DEVELOPABILITY	AREA (m ²)	F.A.R.	POTENTIAL FLOOR AREA	LAND USE MIX	COMMERCIAL (m ²)	INDUSTRIAL (m ²)	RESIDENTIAL (m ²)
HIGH POTENTIAL	172,769		734,266		367,133		367,133
Merriman Gateway	172,769	4.25	734,266	50-0-50	367,133	0	367,133
MEDIUM POTENTIAL	392,973		884,190		385,876	168,085	341,360
Merriman Gateway	1,488	2.25	3,348	100-0-0	3,348	0	-
Distillers Precinct	100,496	2.25	226,117	33-33-33	75,749	757,49	75,749
Dorpspuit Quarter	115,958	2.25	260,906	50-0-50	130,453	0	130,453
Krom Precinct	83,547	2.25	187,980	50-0-50	93,990	0	93,990
Plakenburg	4,178	2.25	9,400	40-40-20	3,760	3760	1,880
Station Quarter	87,306	2.25	196,440	40-40-20	78,576	78576	39,288
LOW POTENTIAL	723,860		1,628,685		745,125	211,013	670,344
Merriman Gateway	2,504	2.25	5,635	100-0-0	5,635	0	-
Distillers Precinct	97,940	2.25	220,365	33-33-33	72,721	72721	72,721
Dorpspuit Quarter	379,279	2.25	853,379	50-0-50	426,689	0	426,689
Krom Precinct	90,478	2.25	203,575	50-0-50	101,787	0	101,787
Plakenburg	127,889	2.25	287,750	40-40-20	115,100	115,100	57,550
Station Quarter	25,770	2.25	57,982	40-40-20	23,193	23193	11,596
TOTALS	1,289,602		3,247,141		1,498,133	369,098	1,378,837

TABLE 3: REDUCED ZONING TAKE UP (LOWER DENSITY OPTION)

DEVELOPABILITY	AREA (m ²)	F.A.R.	POTENTIAL FLOOR AREA	LAND USE MIX	COMMERCIAL (m ²)	INDUSTRIAL (m ²)	RESIDENTIAL (m ²)
HIGH POTENTIAL	172,769		388,729		194,365		194,365
Merriman Gateway	172,769	2.25	388,729	50-0-50	194,365	-	194,365
MEDIUM POTENTIAL	392,973		392,973		171,500	70,059	151,514
Merriman Gateway	1,488	1.00	1,488	100-0-0	1,488	-	-
Distillers Precinct	100,496	1.00	100,496	33-33-33	33,666	33,465	33,465
Dorpspuit Quarter	115,958	1.00	115,958	50-0-50	57,979	-	57,979
Krom Precinct	83,547	1.00	83,547	50-0-50	41,773	-	41,773
Plakenburg	4,178	1.00	4,178	40-40-10	1,671	1,671	836
Station Quarter	87,306	1.00	87,306	40-40-10	34,923	34,923	17,461
LOW POTENTIAL	723,860		723,860		331,460	94,077	298,224
Merriman Gateway	2,504	1.00	2,504	100-0-0	2,504	-	-
Distillers Precinct	97,940	1.00	97,940	33-33-33	32,614	32,614	32,614
Dorpspuit Quarter	379,279	1.00	379,279	50-0-50	189,640	-	189,640
Krom Precinct	90,478	1.00	90,478	50-0-50	45,239	-	45,239
Plakenburg	127,889	1.00	127,889	40-40-10	51,156	51,156	25,578
Station Quarter	25,770	1.00	25,770	40-40-10	10,308	10,308	5,154
TOTALS	1,289,602		1,505,562		697,325	164,136	644,103

It was calculated by Royal Haskoning DHV that the full potential of the developable area amounted to 1,5 million square meters. To put this in perspective, the total developed floor space in the V&A Waterfront is 347 640 square meters, and 463 040 square meters was developed in Century City. As

the above Table shows, only the high potential developable area on its own in the Stellenbosch Station Precinct (otherwise known as the Merriman Gateway) was calculated to be 734 000 (split equally between commercial and residential use) – this is still more than the V&A Waterfront and the Century City developments. The report goes on to demonstrate the economic advantages and service implications. This report clearly shows that densification is economically more cost effective, returns are higher and the potential for integrating the different parts of Stellenbosch are much greater than if the same investment was made in car-based sprawl that benefits the better sections of society and reinforces racial divisions.

8.4 Expanding Stellenbosch University

To date the general approach adopted by the Municipality and the University is that the University must do all it can to limit further growth within the town. This is tied up with a general perception that the expansion of the University is having a negative impact on certain upper income suburbs and thus changing the character of the town. There are references to the ‘studentification’ of certain parts of Stellenbosch town. However, it also needs to be recognised that the University is a major economic driver and major employer. It can only be expected to expand and thus increase employment levels and contribute more to the tax base if the spatial framework and infrastructure investments are such that this makes sense. A compact, inclusive and sustainable town is exactly the kind of urban space that a University needs, especially if this means that accessible residential and non-residential facilities are made available along public transit and non-motorized transit routes. Instead of discouraging the expansion of the University, the SSDF should encourage the expansion of the University into the proposed Adam Tas Corridor (and in particular around du Toit station) and thus away from the suburban environment. Indeed, just like the University of the Witwatersrand became a major force in the redevelopment of Braamfontein in Johannesburg by buying up low value properties and investing in them, so too could Stellenbosch University become a major force for the redevelopment of the zones around the Stellenbosch and du Toit stations where premium spaces are undervalued and underutilised.

8.5 Spatial Planning Categories

Detailed nodal planning should adhere to the spatial planning categories in the approved SEMF.

9. Systemic Interventions

To support the opportunity-based nodal plans described in in Section 8.2, the following supporting plans will be required:

1. the Stellenbosch Environmental Management Framework that lays out in very clear terms the detailed guidelines that decision-makers will need to ensure that future urban development is ecologically sustainable, with special reference to water availability and use;
2. the Comprehensive Integrated Transport Plan that will be updated in 2015 must make provision for a long-term mobility investment programme that puts in place the infrastructure needed to realize the transit-based compact, integrated and sustainable town envisaged in this spatial perspective – this plan must include the stations, and how bus and taxi systems can link provide the necessary connectivity into all the major new development nodes, as well as an extensive non-motorised transit infrastructure for pedestrians and cyclists;

3. the 15 year infrastructure investment plan that must ensure that all major services are upgraded in accordance with the spatial prioritization reflected in this spatial perspective, including the adoption of more ecological sustainable technologies in the energy and sanitation sectors where appropriate;
4. an open space and gardens plan;
5. an urban design framework.

10. Next Steps

Mayco and Council need to approve this SSDF and agree on an implementation plan. The implementation plan must include the following:

- a clear mandate must be given that clearly defines this spatial framework as the framework that must be used for all planning and budgeting;
- a communication strategy to ensure all stakeholders and the public are aware of the SSDF;
- form a partnership with Stellenbosch University via the Rector-Mayor Forum that mandates the University to establish a core group of senior academics and postgraduate researchers to establish an integrated transdisciplinary research programme to support the implementation plan with funds that will be raised by the University from donors;
- engage with developers and consultants to educate them about the SSDF;
- instigate catalytic innovation-oriented projects that further the aims of the SSDF.

¹ Statistics South Africa. 2011. Census 2011 Municipal Fact Sheet [Retrieved 9 January 2015]
https://www.statssa.gov.za/Census2011/Products/Census_2011_Municipal_fact_sheet.pdf

² Swilling, M., Sebitosi, B. & Loots, R. 2012. *Sustainable Stellenbosch*. Stellenbosch: Sun Press: p257.

³ Statistics South Africa. 2011. Census 2011 Municipal Fact Sheet [Retrieved 9 January 2015]
https://www.statssa.gov.za/Census2011/Products/Census_2011_Municipal_fact_sheet.pdf

⁴ Stellenbosch Municipality. 2013. 2013/14 Integrated Development Plan – 1st Review of the 3rd Generation IDP (2012/17). p25.

⁵ Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014.

⁶ Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014.

⁷ Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014.

⁸ Stellenbosch Municipality. 2013. 2013/14 Integrated Development Plan – 1st Review of the 3rd Generation IDP (2012/17). p31.

⁹ Statistics South Africa. 2011. Census 2011 Municipal Fact Sheet [Retrieved 9 January 2015]
https://www.statssa.gov.za/Census2011/Products/Census_2011_Municipal_fact_sheet.pdf

¹⁰ Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014.

¹¹ Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014.

¹² Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014.

¹³ Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014.

¹⁴ Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014. p8.

¹⁵ Stellenbosch Municipality. 2014. LED Strategy and Action Plan Draft 0.1. June 2014. p8.

¹⁶ RSA DEAT (Republic of South Africa. Department of Environmental Affairs and Tourism). 2007. Application for nomination of Cape Winelands Biosphere Reserve. Application Prepared by Dennis Moss Partnership: Stellenbosch. P28.

¹⁷ CNdV Africa. 2010a. *Stellenbosch Municipal Spatial Development Framework – draft status quo report*. Report prepared for Stellenbosch Municipality. Stellenbosch. p81.

¹⁸ CNdV Africa. 2010. *Stellenbosch Municipal Spatial Development Framework – draft status quo report*. Report prepared for Stellenbosch Municipality. Stellenbosch. P77.

¹⁹ Stellenbosch Municipality. 2014. Environmental Management Framework Consultative Draft June 2014. p115.

²⁰ Gerber L. 2005. Biodiversity risk assessment of South Africa's municipalities. MSc dissertation. Stellenbosch: Stellenbosch University. p8.

²¹ CNdV Africa. 2010. *Stellenbosch Municipal Spatial Development Framework – draft strategies report*. Report prepared for Stellenbosch Municipality. Stellenbosch: Stellenbosch Municipality.