# VOLUME II – BACKGROUND DOCUMENT

## Draft document: for discussion purposes

## FOREWORD

To be completed

## ACKNOWLEDGEMENTS

## EXECUTIVE SUMMARY

## ACRONYMS AND ABBREVIATIONS

UNAM University of Namibia

NTA Namibia Training Authority

NamPower – Namibian Power Utility Provider

NamWater – Namibian Water Corporation

# SECTION I – BACKGROUND

# CHAPTER 1 – INTRODUCTION

The Keetmanshoop Municipality has decided to develop a Structure Plan for the local authority area under its jurisdiction that will assist in responsibly and sustainably guiding and managing the effects of the ever increasing pressure on the natural and man-made environment of the town. Pressure on the environment is caused by the increase in the town's population, by people's economic activities and their social interactions. Often it is difficult to make planning decisions without a long-term guidance document. The Structure Plan has the aim of guiding the planning approach adopted by Council.

## 1.1 PURPOSE OF THE STRUCTURE PLAN

A Structure Plan is a local strategic plan/document aimed at providing information and direction to a local authority, specifically on 5 key elements, namely the natural environment, the economy, the infrastructural set-up, the socio-economic setting and the urban environment. As such, the Plan is to guide the political and administrative leaders, engineers, investors and planners with high-level development guidelines and land-delivery policies, supported by research and informed assumptions. The aim of a Structure Plan is to provide specific development guidelines as far as land-use is concerned. These are depicted as individual precinct plans, followed by general implementation guidelines. The Structure Plan should inform the Keetmanshoop Municipality so that an integrated and holistic future-orientated planning approach can be adopted on the sustainable use of the available resources (natural and man-made), on the allocation of land for urban expansion, as well as on maximising the development potential of Keetmanshoop within a regional context.

It is not the intention of the Council to impede future development or to reduce the positive economic impact that development creates. The aim is that the envisaged development takes place in a cohesive way and to provide the basic guidelines that will ensure that future developments are sustainable by identifying potential environmental concerns or requirements well in advance. The urban environment cannot be seen in isolation from the natural and social environments as the future and stability of each component are intrinsically linked.

There are clearly a number of challenges that need to be met when developing Keetmanshoop in the future, but these challenges are not insurmountable and development can take place in a way that will have a positive impact on the socio economic conditions of people living both within the study area and beyond.

In order for the Plan to be successful, it should also be considered as a publicly-owned document, accessible to the public and consulted before planning decisions are made. Transparency in the planning process is of the utmost importance within a democratic society, and broad, grass-root public support is required for any plan of this nature to be successful.

The Structure Plan should also be a reference document for state-owned enterprises such as NamPower, Regional Electricity Distributors, NamWater, Roads Authority, Directorate of Civil Aviation, TransNamib, Telecom Namibia, as well as for local, regional and national education providers, and the various public and private health services when planning their own future developments in and around Keetmanshoop. By working together in a spirit of communication and cooperation, common goals can be achieved with the minimum of redundant work and expenditure.

It is anticipated that the Keetmanshoop Structure Plan will be considered by the National Planning Commission Secretariat (NPCS) and the Ministry of Urban and Rural Development when implementing, monitoring and evaluating the overall development framework of the Fourth National Development Plan (NDP 4).

The purpose of this document is not to provide for detailed environmental or engineering solutions, but to rather inform future studies so that developments can take place in a responsible and sustainable manner. It should be noted that some challenges with regard to development will require additional environmental and engineering solutions. However, local and detailed environmental or engineering solutions are beyond the scope of this report.

Of significant importance to the document is the fulfilment of the requirements set by the Environmental Management Act (and the regulations in support of this Act) in terms of environmental clearance certifications and approvals that must be obtained for existing and new developments. This study acknowledges the environmental conditions found in the study area and provides some high-level input on environmental management principles. Environmental clearance certification needs to be obtained by the Town Council and by investors on a project-by-project basis.

Developers will still be required to produce Environmental Impact Assessments (EIA) and Environmental Management Plans (EMP) for each individual development initiative, but the Structure Plan will provide a framework for planning and decision-making.

For monitoring and review purposes, the Plan provides guidance to the Council when preparing annual budgets and addressing the developmental needs of Keetmanshoop.

When discussing 'development' in Keetmanshoop, planners are not just describing the physical expansion of the Town, but also the improvement of the urban fabric as it exists today, which is referred to as consolidation.

## 1.2 LEGAL STATUS OF THE STRUCTURE PLAN

The Urban Planning Bill once enacted will require that all Villages, Towns and Municipality to draw up an urban structure plan for the areas under their jurisdiction. Built into this requirement the Namibian Planning Advisory Board (NAMPAB) and Townships Board also requires that applications submitted to these boards are to be accompanied by a structure plan so as to also guide the decision making of these two boards.

While the Structure Plan is a policy document with the purpose to guide and organise the various forms of land-use and the utilisation of the available natural and man-made resources in such a way as to optimise the living conditions

of the residents of Keetmanshoop for years to come, the Town Planning Scheme, which is a statutory document, regulates and prescribes specific land-uses that are permissible on each surveyed and registered land unit with the Deeds Office and located within the area of jurisdiction of the Keetmanshoop Municipality.

## 1.3 PLANNING HORIZON

The Keetmanshoop Structure Plan will have a planning horizon of between 25 and 30 years. It should be noted that a Structure Plan is to be considered to be a 'live' document and as such should be reviewed and updated at least every five years. The Development Projects to be implemented however, should be reviewed and updated on an annual base and aligned with the Capital Budged of the Local Authority.

## 1.4 OVERVIEW OF THE PROCESS FOLLOWED

The planning philosophy that informs the compilation of this Structure Plan is based first and foremost on fostering the idea of "place-making". At the local-level there is the need for branding, i.e. questions need to be posed about what is Keetmanshoop? What is Keetmanshoop offering locally, regionally, nationally and internationally? At the local scale, how are neighbourhoods or precincts within Keetmanshoop functioning?

The approach to planning needs to ensure that Keetmanshoop as a whole functions correctly, creating an enabling urban environment where people can live in a dignified manner, creating people-centred environments that respect the environment.

This entails that all aspects contributing to the urban environment need to be balanced without allowing one aspect to dominate, by, for example, allowing transport engineering to dictate all other spatial considerations, or allowing economic considerations to immediately override all environmental considerations.

In short, the future planning of Keetmanshoop must be undertaken for the benefit of the public at large.

The methodology followed by the consultant when preparing the Structure Plan focused on a participatory study approach where the local community of Keetmanshoop, the Keetmanshoop Municipality, the Erongo Regional Council, national and local stakeholders, as well as the private sector, were all seen as important partners in the process and involved and informed throughout the projects development.

The below-mentioned basic steps were followed when preparing the Structure Plan:

(a) An initial and informal meeting was held with the Client to introduce the Consultant's team, to provide the opportunity for any questions and for any clarifications to be made by both sides to the scope of the initial brief, the planning and design process, the objectives and expected output of the study, and for drawings and reports to be exchanged for the purpose of the initial desktop status quo analysis.

(b) National stakeholders were informed of the objective of the Study and of Stubenrauch Planning Consultants (SPC's) appointment to assist in the drafting of the Structure Plan, after which documents were exchanged.

(c) The public, national and local stakeholders were informed about the upcoming structure plan and requested to register as Interested and Affected Parties.

(d) A First Strategic Workshop, held at the offices of the Keetmanshoop Municipality, SPC presented initial findings and ideas, and the Council was able to express its aspirations for the project and any expected outcomes. The outcome of the workshop informed a further refinement of the scope of the project.

(e) Primary source documents were collated, site visits made and initial ideas explored.

(f) Existing literature relevant to Keetmanshoop was consulted, and findings from research and public engagement were fed back into the project.

(g) Local stakeholder meetings were held in Keetmanshoop with local stakeholders to discuss the future of the town, initial ideas and concepts.

(h) A public meeting was held in Keetmanshoop to introduce the concept of the structure plan and to collect ideas and proposals on what should change within the town to ensure development.

(i) National stakeholder meetings were held in Windhoek with national partners to discuss upcoming future projects; capacities and some of the concept ideas for which approval was needed from these stakeholders.

(j) Analysis of the information obtained through stakeholder consultation; literatures were done and detailed concepts were developed.

(k) An additional Strategic Workshop, held at the offices of the Keetmanshoop Municipality, SPC presented detailed design concepts and refined long term planning ideas, the Council was able to make inputs and contribute to the development of the project. The outcome of the workshop informed a further refinement of the scope of the project.

(l) The public and stakeholders were informed of the upcoming public meeting to discuss the draft concept.

(m) After consultation with the Town Council, a 'Public Scoping Exercise' was held in Keetmanshoop at which the public and any interested and affected party were invited to review the work undertaken so far, provide feedback and comment, and to raise issues they may affect the future development of Keetmanshoop. All feedback provided during the consultations were reviewed and, where appropriate, incorporated into the design process.

(n) Council and the public were given a month to scrutinise the documents which were available from the consultant and at the Town Council and to provide comments in written format to the consultant.

(o) Relevant feedback received was incorporated into the final document.

(p) Submission of the final document for concluding consideration and approval by Council was set.

(q) The Keetmanshoop Structure Plan was adopted by the Council as key policy document that.

## 1.5 DOCUMENT STRUCTURE

The Keetmanshoop Structure Plan consists of one document with two sections. Section I contains the relevant baseline information such as the

- history of the town;
- strategic objectives of the Council;
- the Urban and Natural Environment;
- Population projections
- Demographics and socio-economy of the town
- Spatial projections.

Section II is the Analysis and Structure Plan. This section is the heart of the Structure Plan with proposals and recommendations on the future development of the town as well as action plans for implementation of major projects.

# CHAPTER 2 – DRIVERS OF URBAN GROWTH IN KEETMANSHOOP

This chapter provides an overview of the main drivers of growth within the town of Keetmanshoop from the man-made to the political and natural drivers.

## 2.1 HISTORY OF THE TOWN

The history of Keetmanshoop starts with the discovery of a fountain by the Nama chief Tseib around 1850's. Chief Tseib, it is said, happened upon the muddy fountain which he called "#Nu-#Goaes" which meant black mud /"Swartmodder" and which he decided to live at *(www.keetmanshoopmunicipality.orga.na/history.php).*

In later years, the missionary S. Hahn visited Swartmodder and found a strong fountain surrounded by large camel thorn trees. He then decided to build a church and the fist Rhenish Mission Church was built in 1869. The name change took place after Johann Keetmann, the chairman of the missionary society, made a donation to the mission. The town was then renamed to Keetmanshoop in his honour when he passed away. Slowly the town of Keetmanshoop started to develop with the general post office being constructed in 1910, the railway station building in 1908 and the first train arriving in Keetmanshoop in 1908. (Kotze, 2015). Over the years Keetmanshoop developed into a strong administrative town for the !Karas Region with most of the economy focused on the surrounding farms. The !Karas Region is well-known for its small stock farming (sheep farming) and in more recent years for its tourism attractions such as the Fish River Canyon; Ai-Ais and the Sperrgebiet and irrigation next to the Orange River.

## 2.2 ADMINISTRATION OF THE TOWN

Keetmanshoop is a fully autonomous Municipal Council administered through the Local Authorities Act of 1992 (Act 23 of 1992). According to the Local Authorities Act an area declared by the Minister of Urban and Rural Development as a Municipality is governed by an elected municipal council.

The Keetmanshoop Municipality has since administered the infrastructure, has serviced land and made property available under freehold ownership.

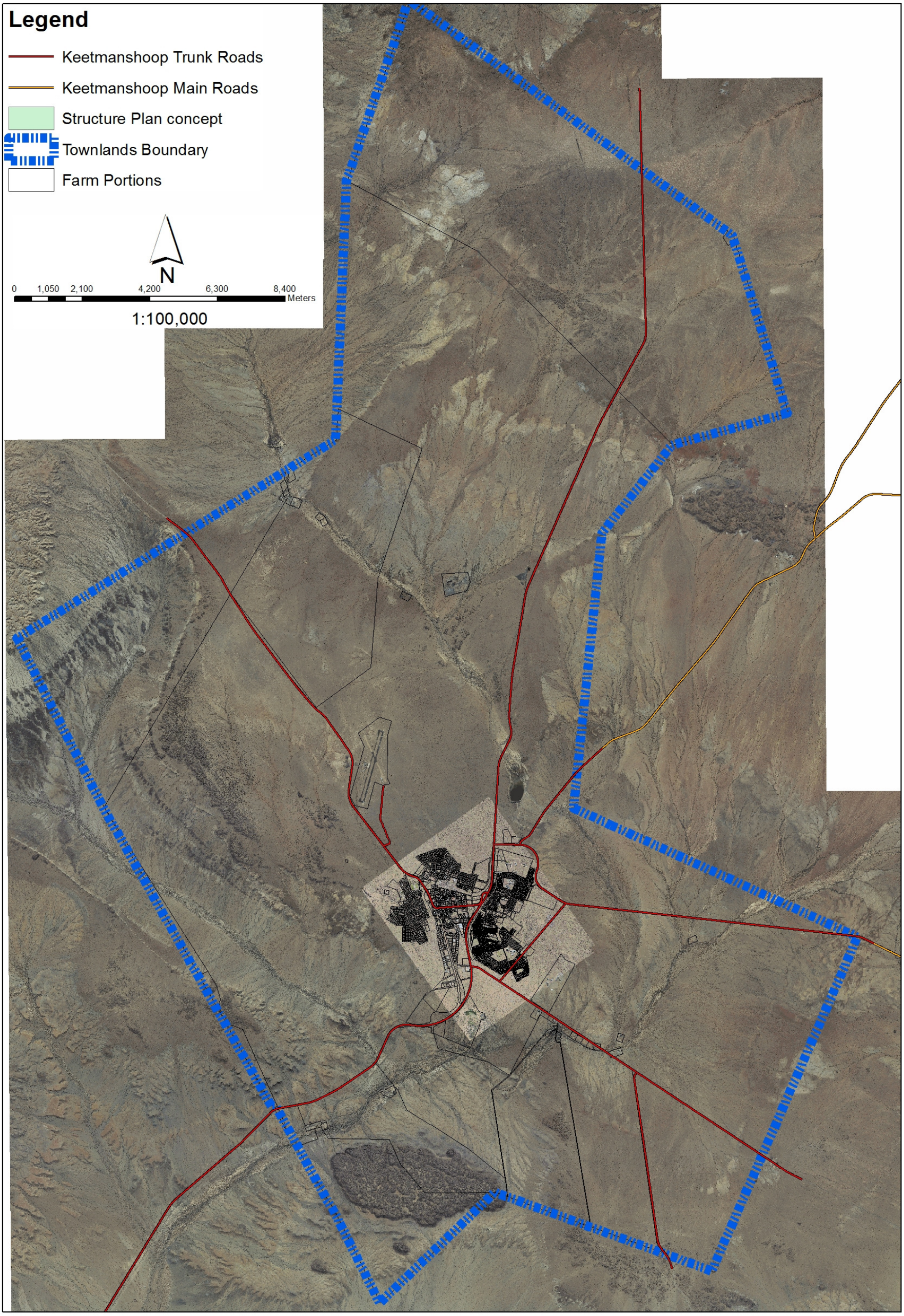
Development in Keetmanshoop has taken place but has not been in accordance with any overall master plan or overriding planning philosophy. Planning has taken place on a piecemeal basis, with many planning decisions being made in an *ad hoc* manner.

Keetmanshoop town falls within the Keetmanshoop Urban Constituency which includes the entire townlands area of the Keetmanshoop Municipality. The townlands of Keetmanshoop comprising of some approximately 52,300hectares is governed by the Keetmanshoop Municipality. The total population of the Keetmanshoop Urban Constituency/ town of Keetmanshoop in 2011 was 19,447 (NSA, 2014).

The Figure below summarises the functions and powers of the local authorities as provided by the Local Authorities Act.

FIGURE 1: POWERS OF LOCAL AUTHORITIES IN TERMS OF THE LOCAL AUTHORITIES ACT

| **All Local Authorities** | **Towns and Municipalities** | **Municipalities** |
|---|---|---|
| Water supply<br>Cemeteries<br>Sewerage and drainage<br>Streets and public places<br>Markets<br>Refuse disposal<br>Pounds<br>Bands and orchestras<br>Beautification of local areas<br>Promotion of tourism<br>Power to accept donations from sources inside Namibia<br>Power to buy and sell land and buildings<br>Power to set fees for services provided<br>Power to operate farms on town lands | Supply electricity and gas<br>Dipping tanks<br>Ambulance services<br>Fire brigades<br>Construct and maintain community buildings and structures<br>Power to buy and sell property other than land and buildings | Public transport<br>Quarries<br>Housing schemes<br>Museums and libraries<br>Abattoirs<br>Aerodromes<br>Plant nurseries<br>Parking areas<br>Railway sidings<br>Traffic services<br>Bursaries<br>Storage of perishable goods<br>Power to confer honours for services to community<br>Power to enter into joint business ventures<br>Power to privatise functions and services |


Legend
Keetmanshoop Trunk Roads
Keetmanshoop Main Roads
Structure Plan concept
Townlands Boundary
Farm Portions
N
0 1,050 2,100 4,200 6,300 8,400
Meters
1:100,000

## 2.3 KEY DRIVERS, CHALLENGES AND OPPORTUNITIES OF URBAN GROWTH

The key drivers section attempts to broadly identify the aspects that drive development and the economy of the town.

***Locality***

In terms of locality the town is extremely well positioned within the Namibian transport corridors. The town is located on the only main transport route from South Africa to Windhoek and the rest of the country. The town is also on the cross-roads to Lüderitz, one of the two harbours in Namibia and Rosh Pinah and Oranjemund two of the bigger mining towns in Namibia. Needless to say, the town see some heavy traffic from visitors and transport alike. The spin-off benefits are therefore not only from trade, but also normal traffic to and from South Africa. The goal of the town should be to increase spin-off benefits from the passing trade.

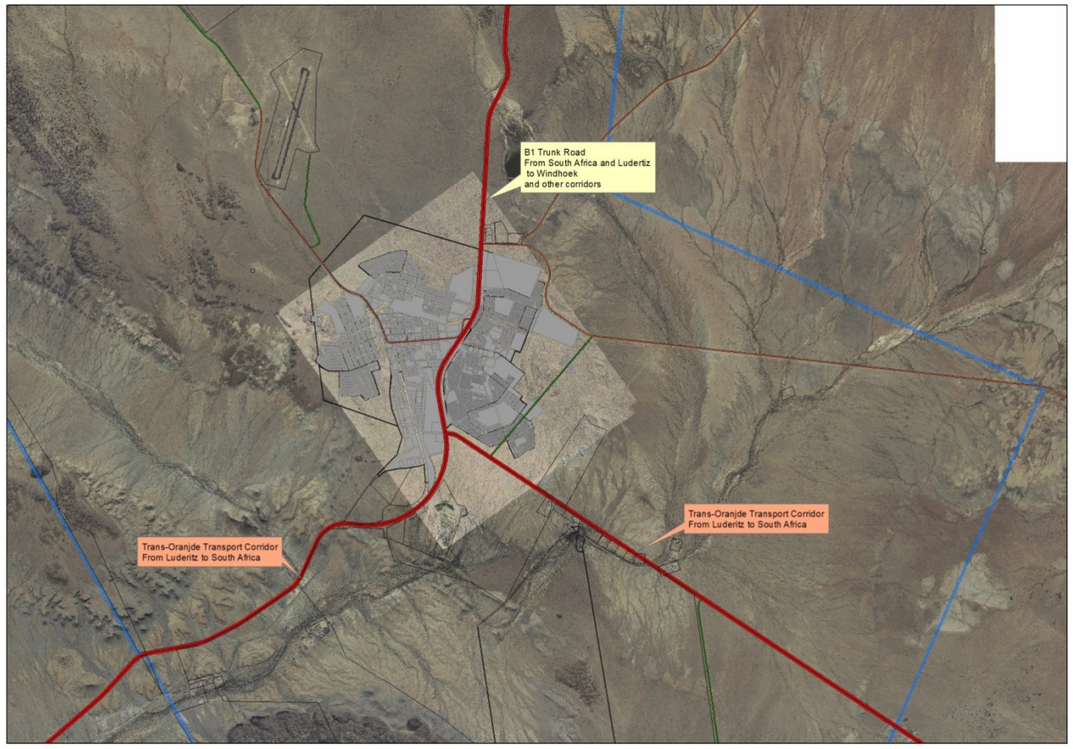




FIGURE 2KEETMANSHOOP IN RELATION TO REGIONAL TRADE

***Government institutions***

Keetmanshoop is the administrative capital of the /Karas Region. As administrative capital the town is in a fortunate position as line ministries are based in town, bringing with it the settlement of employees within town and buying power. This administrative sector, together with the supporting farming sector, drives the economy of the town. The government sector and industries supporting this sector is therefore an important factor for the town. Increasing this sector with the Unam campus will help grow the economy of the town, not only through the employees of Unam but also the student component of the town that will need accommodation, services and recreation.

***Farming community***

The farming community in the //Karas Region is based on mostly small stock farming (sheep and goat). This sector is reliant on service providers and as Keetmanshoop has the largest service sector the farming community do support the service industry in town. Any external factors, such as policies and droughts affecting the farming community, will also have an impact on the economy of Keetmanshoop. The communal farming sector and the commercial resettlement sector are steadily growing with the region with a total of 66 commercial farms bought under the Resettlement Scheme in 2010 (SPC, 2011). Apart from the livestock farming sector, the irrigation sector at the Orange River and Naute Dam also contributes significantly to the economy of the region. The Naute Irrigation project is about 132 hectares in extent with dates and grapes being the main product grown at the scheme. The upcoming irrigation scheme at the Neckartal Dam promises to add to the economic livelihood in the region. It is not clear at this point where employees of the irrigation at Neckartal will be housed, ideally this should be in Keetmanshoop, but realistically the transportation costs might deter this from happening.

***B1 Trunk Road and restrictions***

The B1 trunk road is a potential for the town as it links traffic from South Africa to the rest of Namibia either to Lüderitz or northwards to further connect with other transport corridors to neighbouring SADC. On the other hand, the access restrictions, building lines and road reserves play a role in the integration of the town. As the town is situated on both side of the road, the access restrictions makes integration between Keetmanshoop town and Tseiblaagte/Krönlein difficult.

***Railway restrictions*** – *limited level access points* –The railway line is both an opportunity and a challenge to development in town. It is a challenge because of the limited level crossings that TransNamib allows over the railway lines. Within Keetmanshoop the railway lines dissects the town on the western side meaning that suburbs of Westdene and Noordhoek has limited integration with the rest of town becau*se of* the railway. Informally access is being taken over the railway line by communities, but unfortunately these access points have not been formally granted. This means that any time a formal township is established on the other side of the railway line TransNamib must give permission for any crossings. In town situations, TransNamib is hesitant to give to many access points as it can become an issue of risk.

***Small tax base***

Due to its relatively low population, the town has a small rates and tax base, which also results in a lower economic profile for the town.

***Neckartal dam and spin-off opportunities***

Even though it is highly likely that employees of the irrigation scheme at Neckartal dam will be housed at the irrigation scheme, having such a large workforce in proximity to Keetmanshoop will have some spin-off benefits for the town, either by supporting the service industries in town every weekend or end of the month, or by supporting the town by purchasing of properties in town.

***Tourism potential in hinterland***

The /Karas Region is known for a number of well-known tourism attractions. Even though these attractions are not within the town, it does provide some opportunities for the town to gain from.

***Townlands area*** – the Keetmanshoop Municipality is in a fortunate position in that it has sufficient townlands available for development. Care needs to be taken in allocating land to developers not fulfilling the development agreements. These townlands can also cater for a variety of activities, from industries to low key nature estates and tourism. This places the Municipality in a good position to attract investors to Keetmanshoop.

***Airport – upgrade to national travel***

The Karas Integrated Regional Land Use Plan (SPC, 2011) recommended the upgrading of the Keetmanshoop airport. This is a proposal strongly supported by the Structure Plan. The upgrading of the airport for local flights can be positive for the town. Fresh produce can then be traded easier and quicker with other centres, tourist can then utilise the airport to reach destinations such as the Fish River Canyon, Sperrgebiet and Lüderitz much easier and quicker. Together with the upgrading of the airport to allow for local flights, there must also be opportunities such as car hire rentals. The potential of establishing an airport industry related hub close to the airport is another potential.

***Van Rhyn dam***

The Van Rhyn dam is a beautiful area, especially when the dam has water. Even with the dam dried up, the area has potential for recreational activities such as camping, nature estates and day-camping facilities.

**Chapter findings**

# CHAPTER 3 – NATIONAL AND LOCAL STRATEGIES

Planning needs to take into account national, regional and local strategies. Namibia has two excellent national strategies which are to drive development, the Vision 2030 and NDP 4.

## 3.1 VISION 2030

Vision 2030 drives for the creation of enabling environments through sustainable development. Vision 2030 prescribes the following objectives for urban areas:

- Healthy, self-sufficient rural populations and reduced rates of rural-to-urban migration
- Well planned, well managed, clean safe and aesthetically pleasing urban areas
- Recreation facilities (parks, monuments, museums etc) available in cities
- Equitable access to land and essential services
- Opportunities for innovative and sustainable employment
- Pro-active, citizens with high levels of civic pride, involved in decision-making.

Vision 2030 further cautions against lack of planning which paves the way for environmental degradation; urbanisation that spills over into sensitive areas or areas that could be useful for agriculture purposes and the loss of green spaces; uncontrolled urban sprawl and informal areas and poor waste and hazardous waste control.

Vision 2030 encourages responsible architecture that takes the environment into account when designing; making towns cycling friendly to reduce traffic congestion and mitigate effects of Global warming and well managed, effective and environmental friendly waste management.

## 3.2 NDP 4

NDP 4 has adopted three overarching goals, namely (i) high and sustained economic growth, (ii) employment creation and (iii) increased income equality. To reach these goals, basic economic development enablers are put in place, including an enabling environment, improved education, skills management and health, to assist in addressing extreme poverty, and upgrade the public infrastructure to reach Vision 2030.

NDP4 has identified key focal areas to create the momentum necessary for high economic growth: (i) logistics, (ii) tourism, (iii) manufacturing and (iv) agriculture.

(i) Logistics: Namibia is to establish itself as a regional leader in logistics and distribution.
(ii) Tourism: Namibia is to become a leading tourist destination on the continent
(iii) Manufacturing: Namibia is to increase the contribution of general manufacturing by 50% and should have identified upstream and down-stream economic activities in the mineral sector
(iv) Agriculture: Agriculture production to increase and result in agriculture experiencing average real growth of 4% per annum.

NDP 4 also proposes that municipalities along the corridor routes should make land available for upgrading and developing state-of-the area storage facilities and that the perception of these towns should be changed to reflect their increasing importance as major regional distribution centres (Republic of Namibia, 2012).

## 3.3 KEETMANSHOOP STRATEGIC PLAN

The Keetmanshoop Municipality's mission statement declares the following:

**Mission**

Keetmanshoop Municipality is committed to the provision of quality affordable services to its residents in accordance with sound governance principles whilst creating an enabling environment that fosters economic growth and investment (Keetmanshoop Municipality, 2012).

**The Town's Vision:**

Keetmanshoop to be a vibrant business hub where investors would like to establish their enterprises because the town is a model of good governance, with a clean, crime-free environment and a strong sense of community and common purpose (Keetmanshoop Municipality, 2012).

This is a strong and clear vision that clearly shows the intention of the Council to attract investors.

**Core Values:**

- Respect
- Transparency
- Trust
- Honesty
- Modesty/ Selflessness

The Council identified the following strategic priorities:

- Governance and Service delivery
- Infrastructure development and maintenance
- Human and financial resource productivity
- Effective internal and external communications
- Social and economic development

(Keetmanshoop Municipality, 2012).

The Council, together with the business sector also identified five key critical growth points during a public-private dialogue held in November 2014. During this dialogue the following key growth points were identified:

- Agriculture/ Agro-processing industries – value additional to agricultural products grown in the region. Urban farming is an important component
- Manufacturing – the need to create jobs through investments made in the manufacturing sector.
- Logistics – the excellent geographical location of Keetmanshoop in terms of Logistics is another growth point.
- Hospitality and tourism – creation of leisure and recreation for local residents
- Real estate – catering for the increased demand for residential properties

- Retail – catering for the increased demand for business/ retail opportunities

(Keetmanshoop Municipality, 2012)

## 3.4 CHAPTER FINDINGS

Situational the town of Keetmanshoop is within three of the focal areas of the NDP 4 – that of (i) logistics; (ii) tourism and (iii) agriculture. The fact that the economic development of town has been slow is unfortunate, as the town is within a position to reap benefits from these three sectors.

# CHAPTER 4 – NATIONAL, REGIONAL AND LOCAL CONTEXT

This Chapter provides a snap shot overview of the role and function that Keetmanshoop plays within the context of Namibia's national and regional development.

## 4.1 KEETMANSHOOP IN NATIONAL CONTEXT

Keetmanshoop is one of the few towns in Namibia that has a strong history. Keetmanshoop is the regional capital of the //Karas Region and is within a strong small stock farming industry.

Over the years this farming industry has been seen to decrease mainly for two reasons, the drought seasons and the 6:1 export policy of the government. On the other hand the region is quite suitable for wildlife farming and hunting and is known for these activities. The region is also known for its tourism attractions such as the Fish River Canyon, Orange River, Ai-Ais Hot springs and the Sperrgebiet.

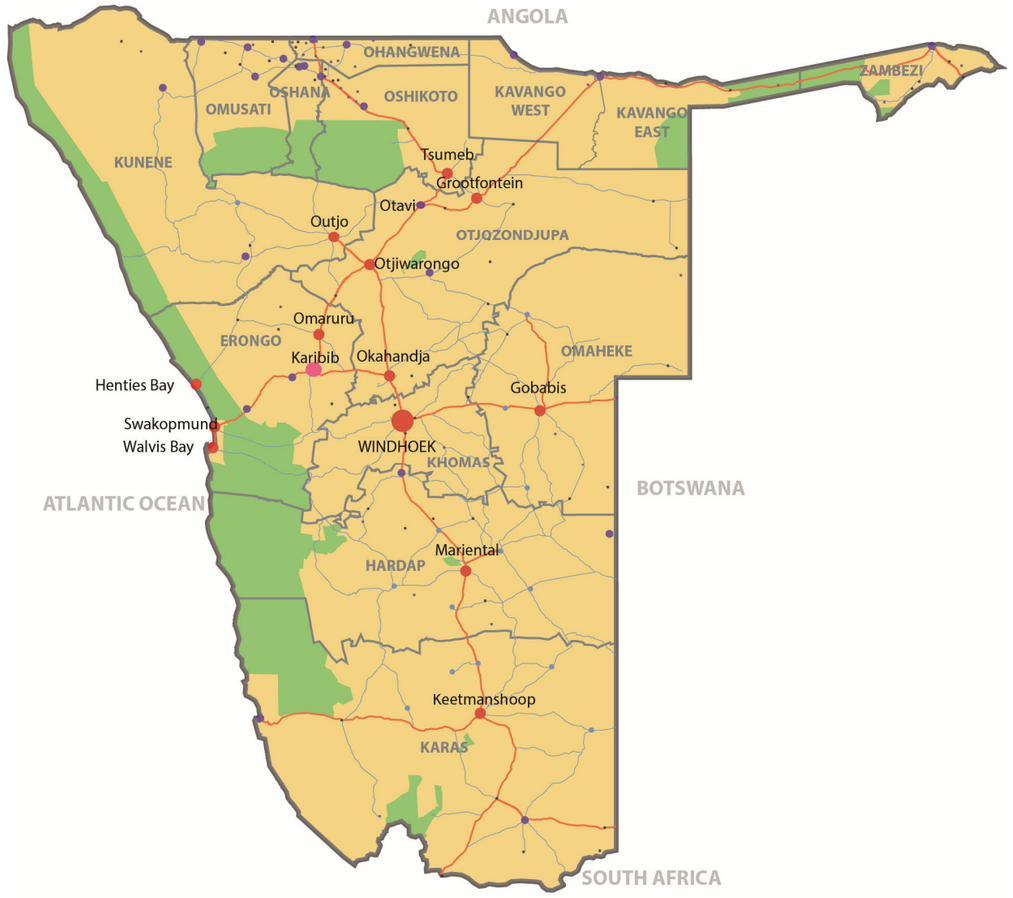
Keetmanshoop is geographically well located within the //Karas Region and on the main route to and from South Africa. This means that all traffic to and from South Africa has to pass through the town of Keetmanshoop. This corridor links up with the Trans-Cunene, Trans-Caprivi and Trans-Kalahari Corridors that then further link up with other SADC corridors. The town is also served with a railway line that links up with Lüderitz and the harbour and links with South Africa through Karasburg, Upington to Johannesburg and Pretoria.

Keetmanshoop being so far south and relatively remotely located in terms of the Namibian capital and other service centres, however also means that communities have to rely on services being provided in town or having to travel approximately 500km to Windhoek.

## 4.1 KEETMANSHOOP IN REGIONAL CONTEXT

The //Karas Region is the southernmost region of Namibia's 14 political regions. With a total land area of 161,086 km², the region occupies 19.6% (almost one-fifth) of the country's total land surface and it is the largest region, in terms of land, in the country (Karas Poverty Profile, 2007). The //Karas Region has a relatively small population compared to the vast land cover. With 77,421 people residing in the region this means a density of 0.5 persons per km² ( (NSA, 2014).

The //Karas Region is diverse in terms of economic activity with mining, agriculture, fisheries and tourism making up the largest economic sectors in the Region. The economy is largely primary sector oriented.




The Mining and Quarrying sector provides 27.50% of the employment opportunities for the economically active population of the //Karas Region while the Agriculture, Hunting and Forestry sector provides 19.42% (Karas Regional Development Plan 2003).

Although well known for its diverse and arid landscapes and wildlife, cultural diversity and economic development potential exists within the mining, fishing and tourism sectors. The region is sparsely populated and relatively underdeveloped when compared with Namibia's other regions. This is mainly as result of the arid nature of the region within the western and southern parts of the region which makes human habitation and animal husbandry (inclusive of commercial farming) difficult to achieve (SPC, 2011).

Bordered by the Hardap Region to the North, Botswana to the East, South Africa to the South and the Atlantic Ocean to the West, the //Karas Region plays an important role in terms of Namibia's economic linkage to SADC and international trading partners.

The region is characterized by a variety of landscapes from the desert on the coast to mountains, plains and canyons. In the central part and to the south, the Huns Mountain area forms the Fish River Canyon, the second largest canyon in the world. In the west, an unspoiled and remote desert coastline and the Namib dunes can be found (SPC, 2011). The world's oldest desert, the Namib, lies between the escarpment and the coastline. This area is mainly covered by dunes with some ephemeral rivers that cut through the sedimentary deposits and end up as small lakes surrounded by sand during good rainy seasons. These rivers play an important role in the fragile ecosystem of the Namib Desert. A flat plain, the Kalk Plateau, dominates the interior area of the region. It is characterized by the isolated drainage systems and pans, which occur in that area. The world's second largest canyon, the Fish River Canyon which is 549 meters deep and 2.7 kilometres across at its widest point and ends up in the Orange River. In the south, the flat plains of the interior are diverted by the Groot and Klein Karas Mountains. The Groot Karas Mountain forms the origin of several south flowing rivers, all ending up in the Orange River. Together with the Klein Karas Mountains they form the origin of the west flowing river, the Löwen River that feeds the Naute Dam (SPC, 2011).

The //Karas Region is governed by the //Karas Regional Council as per the Regional Councils Act 22 (Act 22 of 1992). The Erongo Region is divided into seven (7) constituencies namely:

***Berseba Constituency*** covers the communal area of Berseba and commercial farmland.

***Karasburg East Constituency*** covers the town of Karasburg and commercial farmland.

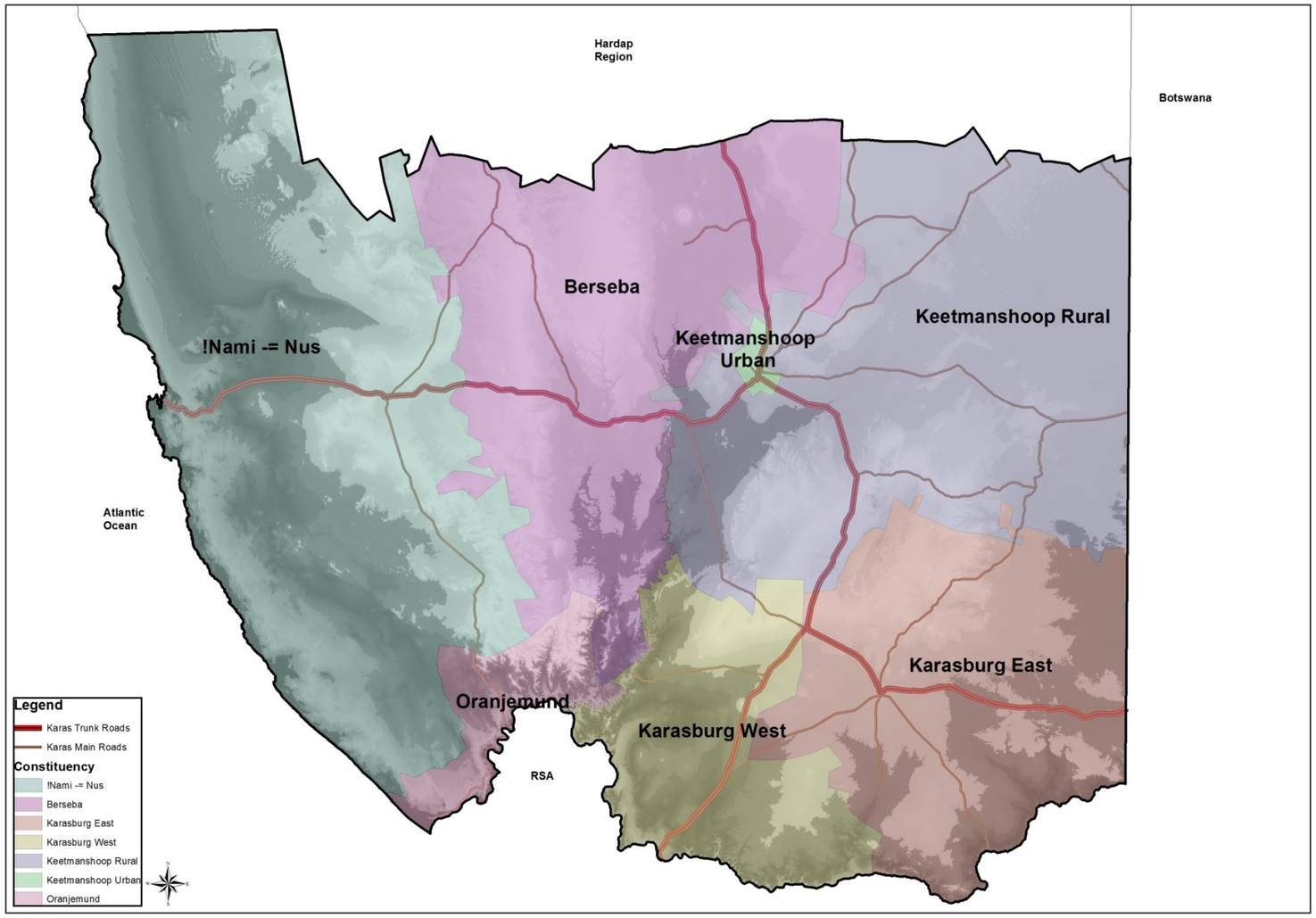
***Karasburg West Constituency*** covers the town of Noordoewer, Grünau and surrounding farmland.

***Keetmanshoop Rural*** is just outside of the Keetmanshoop town and covers commercial farmland to the east of the region.

***Keetmanshoop Urban*** covers the urban area of the Keetmanshoop town and its townlands.

***!Nami≠Nüs Constituency*** covers the town of Lüderitz , the Sperrgebiet National park and part of the Namib Naukluft Park.

***Oranjemund Constituency*** covers the town of Oranjemund, Rosh Pinah and the surrounding rural hinterland.



The main source of income for households in the //Karas Region is from Wages and Salaries (72%), Pension (9%) and farming (5%). The main employment industry in the region was the Agriculture industry (32.4%) followed by the Mining Industry (8.9%). Wholesale and retail trade employed 6% of the workforce. The private sector provided the majority of jobs in the region (49.9%), with the government sector employing 15.8%, the parastatal sector 13.5% and commercial farming sector 8.3% (NSA, 2014).

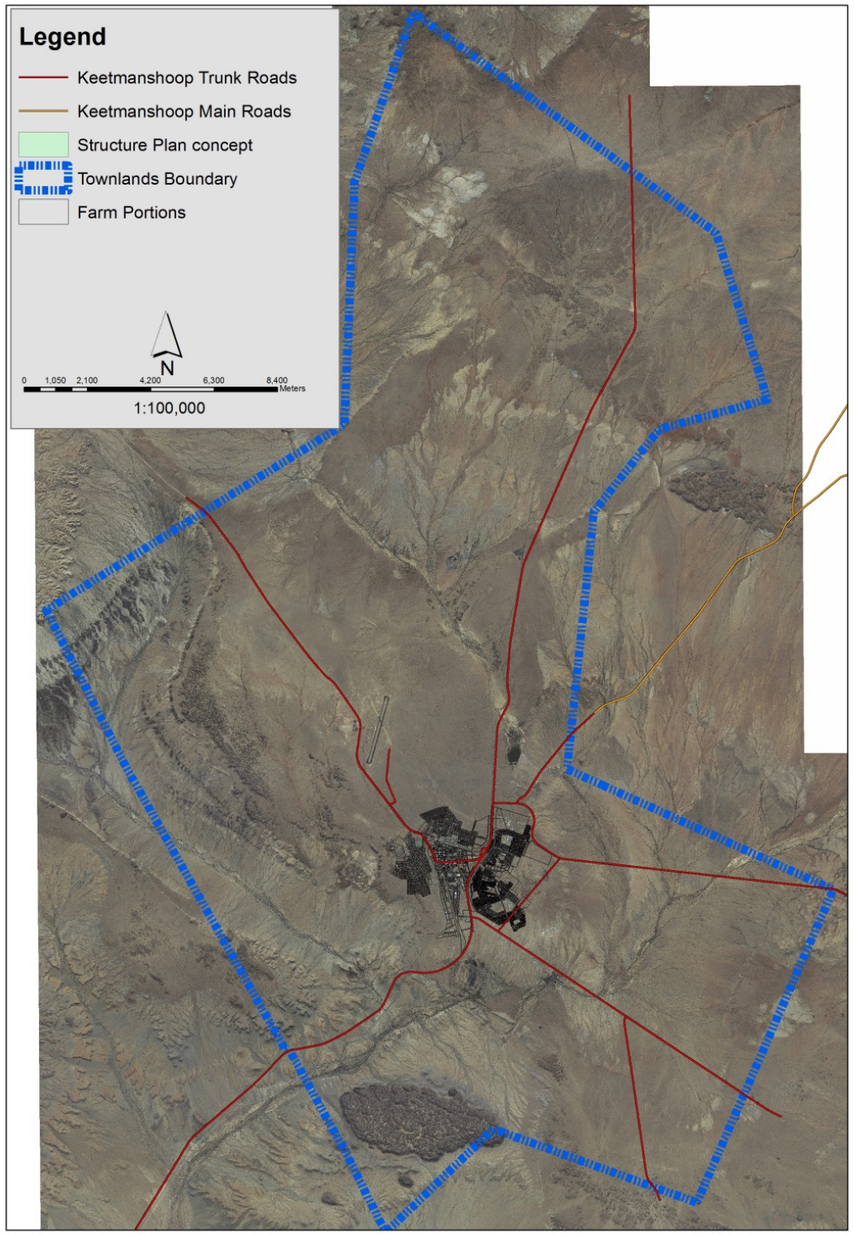
## 4.2 KEETMANSHOOP IN LOCAL CONTEXT

Keetmanshoop is the administrative capital within the //Karas Region. The town is the largest service town within the region and approximately 500km south of the capital city, Windhoek, and approximately 300km north of the border post at Noordoewer. The town is dependent on the large government sector and the farming community for its economy. The town is historically divided by the B1 main road, dividing Tseiblaagte and Krönlein from the town of Keetmanshoop. The town is well served by roads, rail and an airport, although the airport caters mainly for chartered flights and Air Namibia does not fly to Keetmanshoop anymore. The town is geographically well located on the B4 from Lüderitz and Oranjemund, the B1 from Windhoek to South Africa and district roads to Bethanie, Aroab and Koës.

The town of Keetmanshoop has an approximate population of 19,447 and is the biggest town in the region in terms of population and townlands. The Keetmanshoop townlands is extensive and comprise of approximately 52,416 hectares in extent of which the already developable area roughly calculates to 1,600 hectares.

Keetmanshoop is situated in an important geographical location as it is on the Trans-Oranje Corridor that links the harbour of Lüderitz with the eastern provinces of South Africa, via road and railway. Keetmanshoop is also located on one of the busiest transportation roads from South Africa the B1 linking Namibia to South Africa and the rest of SADC.

Keetmanshoop is the only municipal council in the //Karas Region. The municipal councils are the most autonomous administrative units of the local authority categories.




## 4.3 CHAPTER FINDING

# CHAPTER 5 – URBAN ENVIRONMENT

The main road through Keetmanshoop played a large role in the locality of the various townships in Keetmanshoop. Both Krönlein and Tseiblaagte were created east of the B1 main road, with the trunk road acting as a man-made barrier between the townships.

The railway line to the west also created a man-made barrier between town and the Westdene extensions and to the north to Noordhoek extensions. In a way this limited the expansion of the business area situated between these two man-made barriers. The restriction on both the trunk road and the railway line also had an influence on the design of the town.

These restrictions included road and building line restrictions and access to the main road. Limited accesses are given to the proclaimed trunk, main and district roads by roads authority. This leads to a town that has problems with urban integration. The railway line also has a railway reserve and limited access being granted over the railway line. This also leads to integration issues between various townships. These types of restrictions also limit development potential.

Keetmanshoop and its extensions have designed in a relatively easy grid format, making service provision more cost effective and navigation easier. The business area was designed in a grid block format of approximately 90 by 80m making it an easy walkable area.

The town of Keetmanshoop is characterised by low density residential development and low bulk business activities. Most business buildings within the business area are 2 storeys high with most residential buildings low rise of ground floor only. The highest building in Keetmanshoop is the Hospital.

## 5.1 EXISTING URBAN AREA

Keetmanshoop town currently has 5,817 erven which falls within the following extensions:

Keetmanshoop Proper – 1,359 erven

Keetmanshoop Extension 1 – 91 erven

Keetmanshoop Extension 2 – 71 erven

Keetmanshoop Extension 3 – 259 erven

Keetmanshoop Extension 5 – 199 erven

Krönlein Proper – 914 erven

Krönlein Extension 1 – 141 erven

Tseiblaagte Proper – 255 erven

Tseiblaagte Extension 1 – 107 erven

Tseiblaagte Extension 2 – 1,450 erven

Tseiblaagte Extension 3 – 129 erven

Tseiblaagte Extension 4 – 301 erven

Tseiblaagte Extension 5 – 236 erven

Tseiblaagte Extension 6 – 305 erven

Keetmanshoop Extension 3 has been surveyed and the extension must be registered.

Keetmanshoop Extension 5 was surveyed by the land surveyor, but the General Plan was either not submitted or not approved which means that the Townships Board approval for Extension 5 has lapsed and Extension 5 is not registered. This means that a new application will have to be lodged with Townships Board for renewal of the certificate.

Tseiblaagte Extension 4, 5 and 6 has been surveyed and is in the process of registration.

Krönlein Extension 1 has been approved by Townships Board and the surveying needs to be finalised and submitted to the Surveyor General for approval. Once the General Plan has been approved, the promulgation and registration can take place.

## 5.2 SERVICES AND INFRASTRUCTURE

The next section will briefly describe the services network in town.

### 5.2.1 WATER PROVISION

Keetmanshoop bulk water is supplied by NamWater from the Naute Dam Scheme. Raw water is pumped to a water treatment plant and three terminal reservoirs in Keetmanshoop. The Naute Dam is situated about 45km south-west of Keetmanshoop and has a capacity of 83Mm³. The pipeline from Naute Dam to the reservoirs has a capacity of 408m³/h and the three reservoirs have a capacity of 9,900m³. This is a supply of water for 2 days (Kok, 2015).

The biggest constraint towards the water provision is the high quantities of water loss through the municipal reticulation network. It is estimated by NamWater (Kok, 2015), that losses due to water leakages are roughly 110m³ per night. According to NamWater, the Naute Scheme has sufficient water for future developments, but upgrading of the master bulk services will have to be done as well as the municipal reticulation system that will need to be upgraded to cut losses.

After reaching the NamWater reservoirs, water is then distributed to residents of Keetmanshoop via various municipal reticulation networks. Most of the network consists of old asbestos pipes, which does not cope well under pressure, leading to constant pipe bursts. Water is also pumped to the reservoirs at Donkie Draai from where it is then distributed to the town. The Donkie Draai reservoir must always have water in order to ensure constant water supply and pressure to the town.

Old pipes and water losses are a real problem for the Keetmanshoop Municipality.

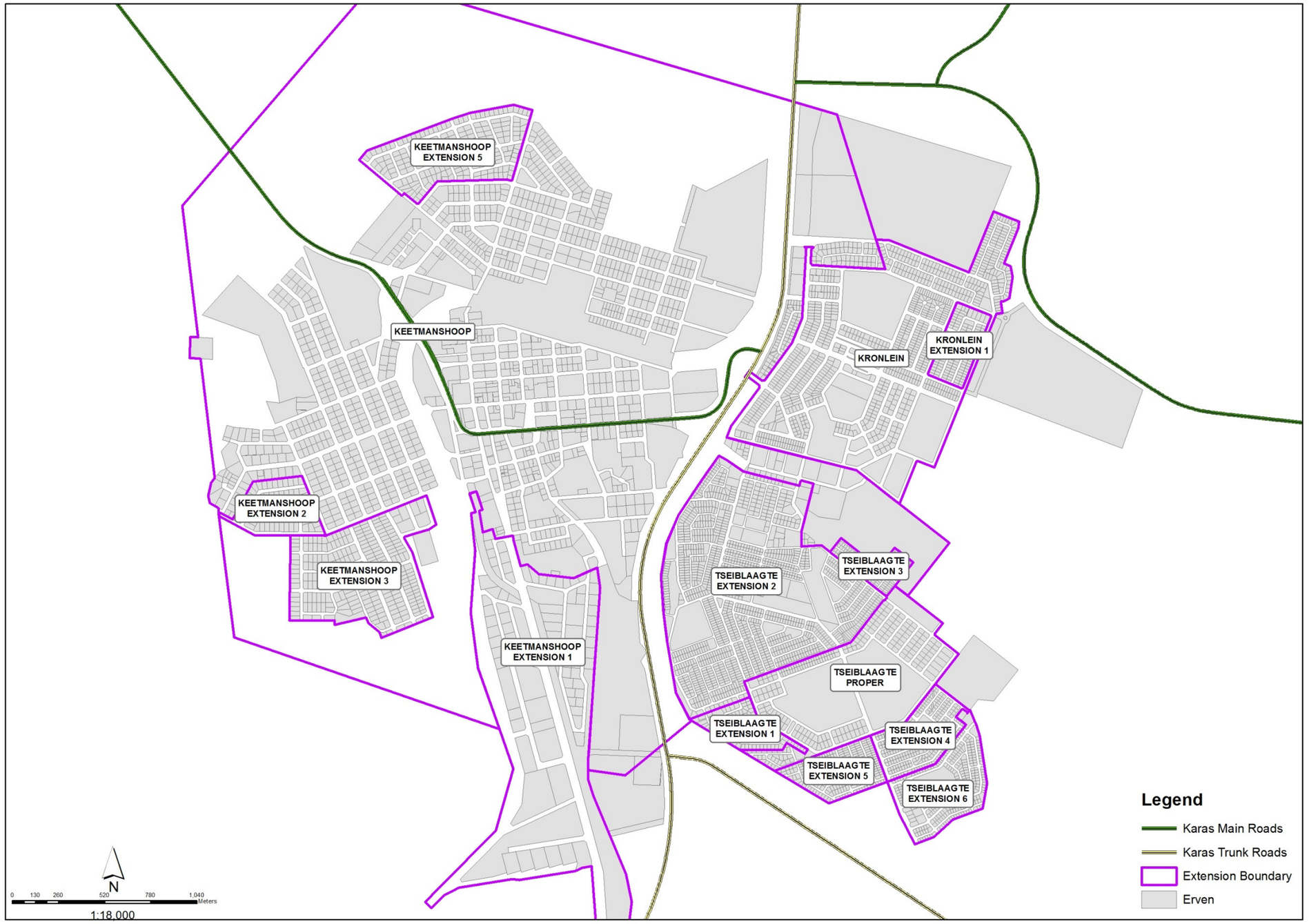



FIGURE 3 EXISTING TOWN

### 5.2.2 ELECTRICITY PROVISION

Bulk electricity is provided to town by NamPower from distribution lines from Kokerboom station roughly 25km north-east of Keetmanshoop. The main distribution line is a 66kV overhead line to the western substation. From the substation electricity is taken via the municipal network to the town.

### 5.2.3 SEWAGE PROVISION

The sewage treatment plant of Keetmanshoop is situated south of the town. The sewage treatment facility has sufficient capacity for the existing townships and planned townships. There is sufficient provision of additional facilities if the need arises. The sewage gravitates to the ponds with only one pump station needed at the Hospital. The problem comes in the moment new townships are planned to the north of town and to the east of the Krönlein and Tseiblaagte extensions. This will mean sewage pumps will have to be established to sewage to the treatment facility.

There is a concern that the sewage spills from the pipelines and the treatment facility ends up in the Skaap River pollution the underground resources.

### 5.2.4 EDUCATIONAL AND INSTITUTIONAL FACILITIES

Keetmanshoop has nine (9) schools that combined roughly accommodates 7,500 pupils. Unam is currently in the process of constructing a satellite campus in Keetmanshoop as well as the Namibia Training Authority (NTA). It is expected that with these two institutions established in town an influx of students will occur.

Keetmanshoop has a police station, a fire station, a hospital, magistrates court and a number of line ministerial offices.

### 5.2.5 ROAD INFRASTRUCTURE AND NETWORK

The B1 (T/103) passes through the town of Keetmanshoop. At the round-about where the road split to Lüderitz and Grünua the road to Grünau turns into the T/102 and the road to Lüderitz the B4 becomes the T/401. Trunk Roads have a 15m building restriction and a 30m road reserve on either side of the road resulting in a corridor of 45metres on either side of the road in which no permanent structures, streets or services may be permitted. Access points onto Trunk Roads are restricted to distances of not less than 400metres within the town itself and 1,000m outside of the town boundaries.

The current main street of Keetmanshoop is the Main Road M/088. To the north and east of town two main roads link Keetmanshoop to Koës and Aroab via the M/023 and M/0027. Main road restrictions are 45metres either side of the road of which 15meters are a building restriction and 30metres the road reserve. Access points onto main roads are limited to not less than 350metres from other points.

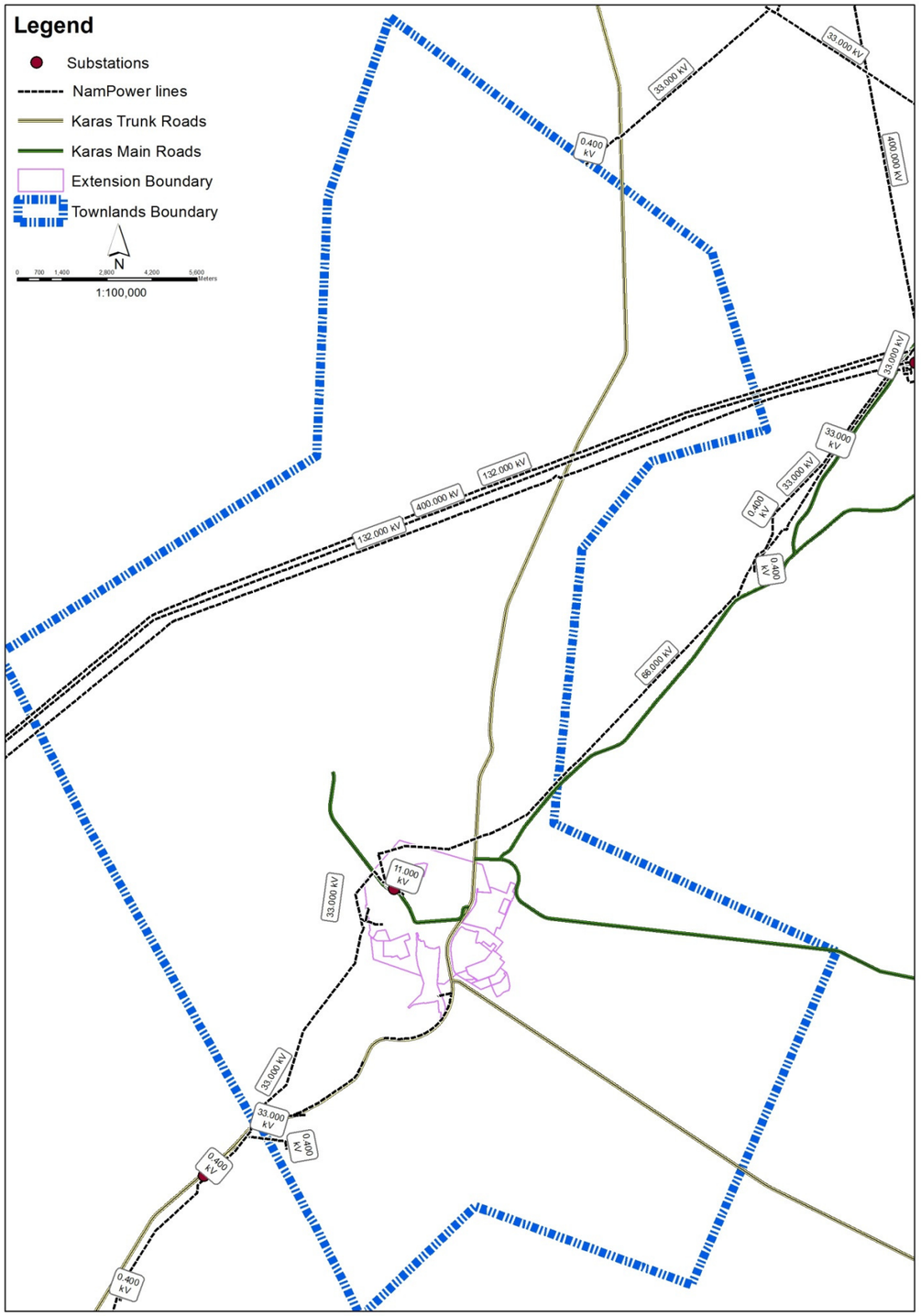



FIGURE 5 NAMPOWER LINES

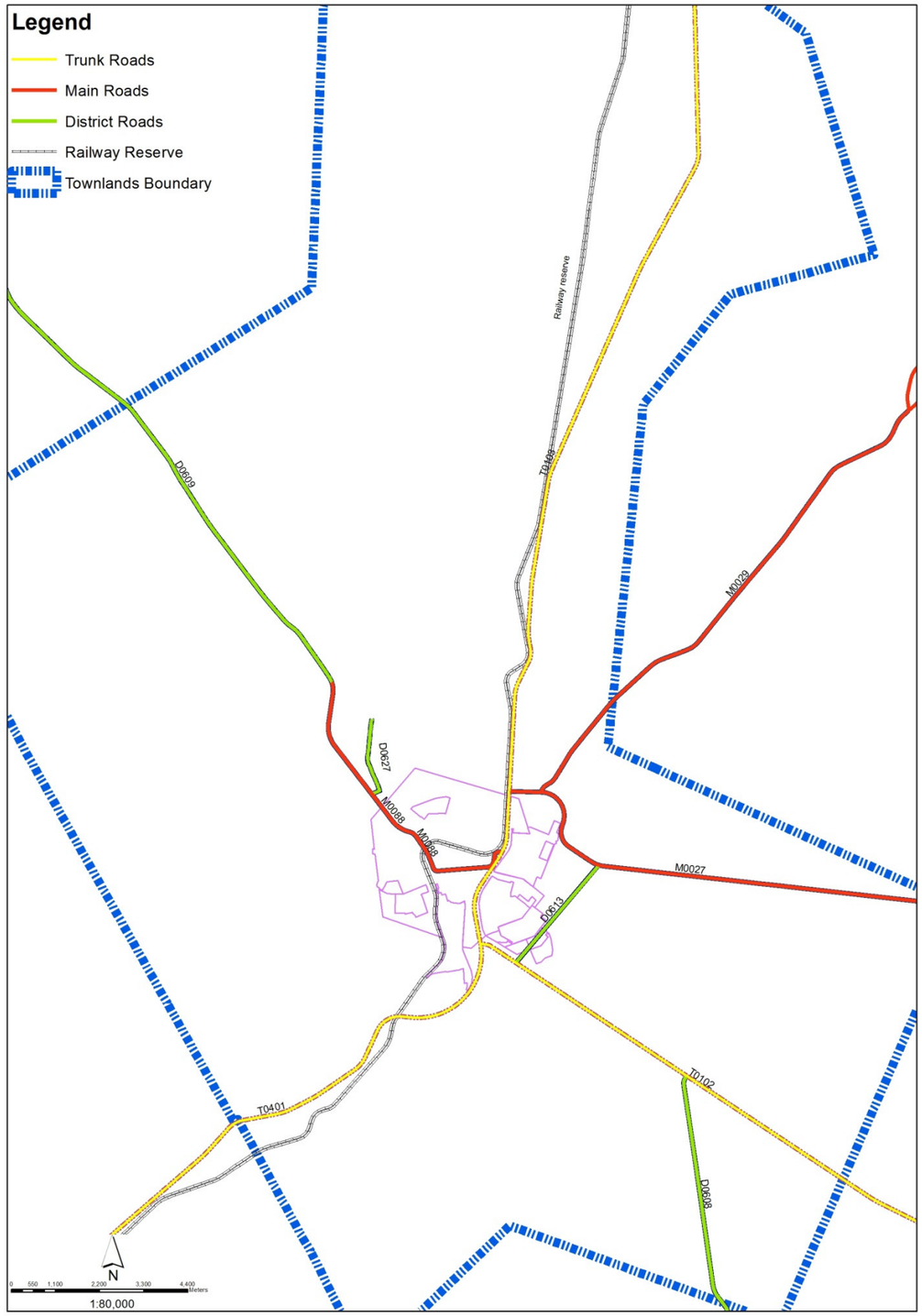



FIGURE 4 ROAD AND RAILWAY LINES

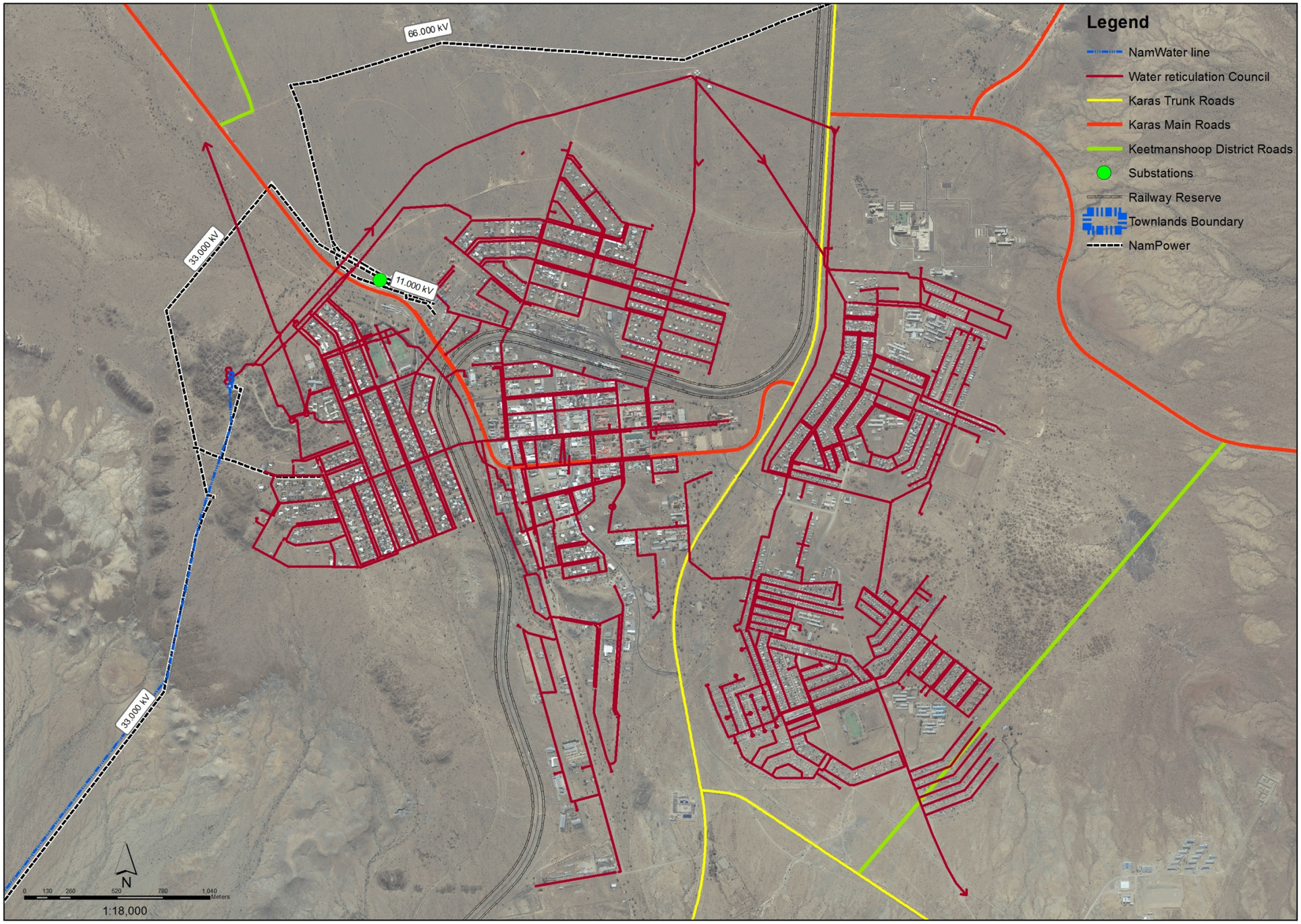



FIGURE 6 WATER RETICULATION NETWORK


FIGURE 7 INSTITUTIONAL AND EDUCATIONAL FACILITIES

# CHAPTER 6 – NATURAL ENVIRONMENT

Chapter 6 provides a very brief background into the natural environment of Keetmanshoop by considering climate, ecology, the local environment, constraints and opportunities.

## 6.1 GEOLOGY

Keetmanshoop is within the western fringe of the Kalahari Basin and served by two major drainage systems, the Fish River to the west and the Auob River to the east. The area is underlain by flat-laying strata and is between 950 to 1,020m above sea-level. The area consists of 3 types of geological formations of the Karoo Sequence:

- Uppermost Karoo – Dolerite sills
- Prince Albert Formation – Greenish grey shale with sandstone lenses
- Dwyka formation – bluish mudstone/ shale with various rock fragments, intercalations of sandstones and conglomerates (Geological Survey of Namibia, 2006).

## 6.2 LANDSCAPES, BIOMES, VEGETATION AND SOIL

Keetmanshoop is situated within the Nama-Karoo Basin, which is "*a large, flat lying plateau dominates much of southern Namibia. Sedimentary rocks deposited in the Nama Basin and later in the same area in the Karoo Basin form the foundations of the landscape. The basin slopes from the north, where elevations are about 1,400m above sea level, to the south, where altitudes are approximately 900m above sea level. The Fish, Löwen and Konkiep rivers drain the landscape, all flowing south to the Orange River*" (Mendelsohn, 2002).

FIGURE 8 GEOLOGY OF THE AREA

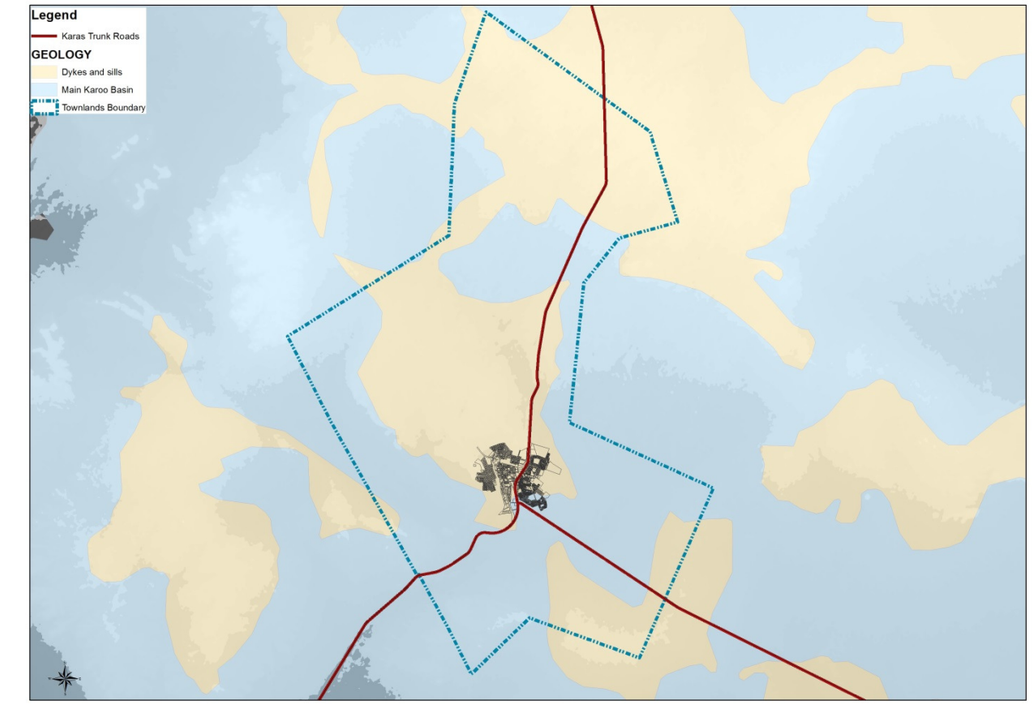
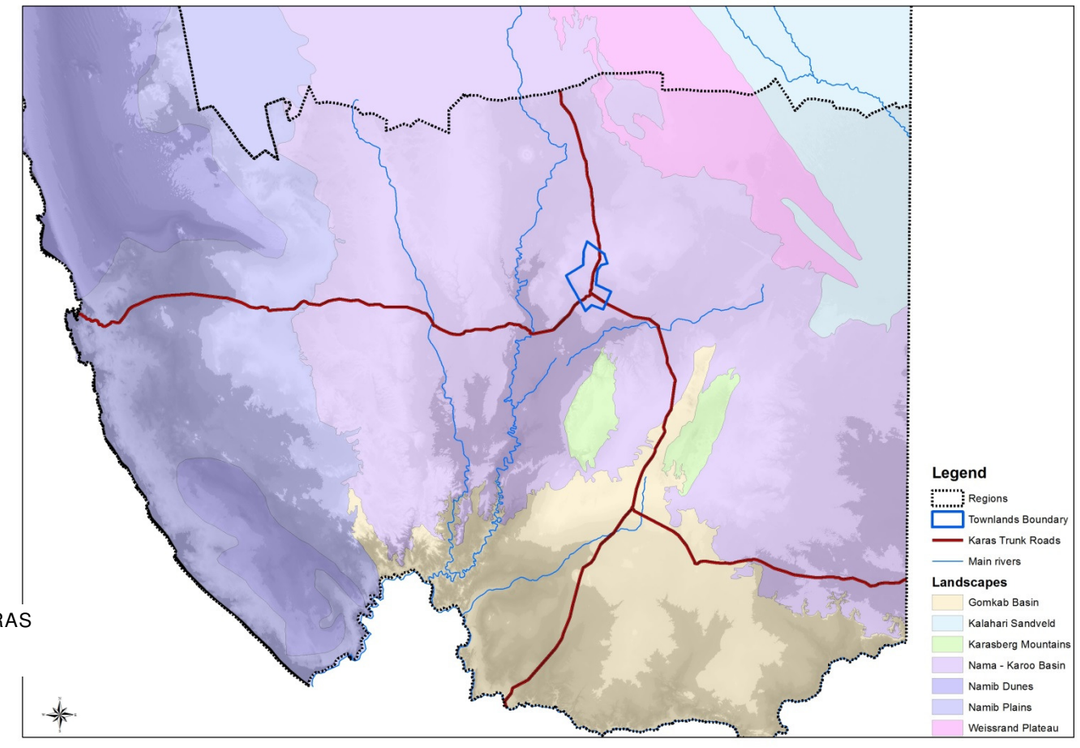



FIGURE 9 LANDSCAPE OF THE //KARAS REGION



The African continent is divided into a number of different biomes. A biome is an area that shares broadly similar plant life and climatic features.

Keetmanshoop town falls within the Nama Karoo biome. The Nama Karoo supports a "*varied assemblage of plant communities, ranging from deciduous shrub vegetation to perennial grasslands and succulent shrubs. Although dwarf shrubs dominate, there is a wealth of plant species due to the great variety of geological substrates, soils and land forms"* (Mendelsohn, 2002). The area is characterised by vegetation of the Karas Dwarf Shrub land that mostly is found in Eutric Leptosols and Petric Calcisol soils. The vegetation is dominated by grasslands and low shrubs (Mendelsohn, 2002).

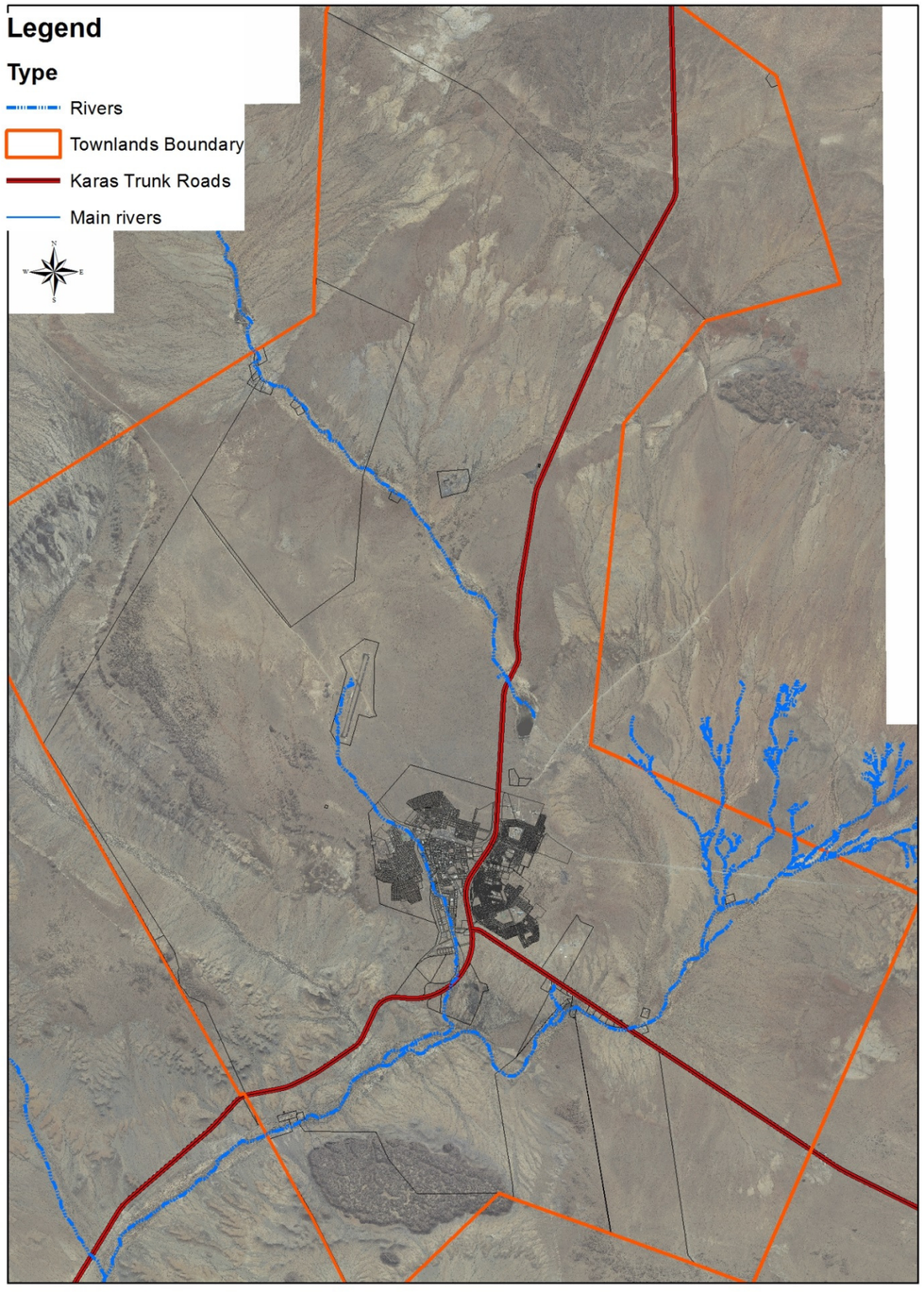
## 6.3 GROUNDWATER AND AQUIFERS

The town of Keetmanshoop and a large part of the //Karas Region falls within the Fish river water basin and Fish River catchment area. The town itself has a number of smaller ephemeral rivers, the largest being the Skaap River that runs through the eastern part of town, southwards to the Naute dam. These river systems are sensitive areas and care should be taken that developments do not pollute these resources as it will eventually influence the water quality of the town.

## 6.4 CLIMATE

Climate variance and conditions play an important role in the design of shelter and the urban environment in general. Urban design elements can be used to mitigate impacts caused by local weather conditions or to utilise opportunities.

As with many towns in Namibia, Keetmanshoop has the potential to capitalise on the sunny and warm weather conditions experienced throughout most of the year. However, climatic conditions also bring along a number of challenges that need to be addressed by planners and developers.



The town of Keetmanshoop is situated in a semi-desert climate, with low rainfall, high evaporation and high day time temperatures. Day time temperatures in summer can reach between 32 - 36 ºC. Night time temperatures in winter can get quite cold, with average temperatures between 4-6 ºC (Mendelsohn, 2002).

Average annual evaporation rates for Keetmanshoop are between 2,520 and 2,660 mm per year. The number of days of frost per year is low – between 1 – 5 days of frost per year (Mendelsohn, 2002).

## 6.5 SUNLIGHT

Namibia's solar energy potential is amongst the world's best. At an annual solar radiation average exceeding 6 kWh / m² per day, this resource has a most significant potential for the supply of energy. Except for photovoltaic electricity and water pumping installations on a limited scale, the use of solar energy for power generation in Namibia remains largely untapped.

Solar energy, as a reliable source of renewable energy, can provide significant quantities of 'green' energy for the long-term sustainable development at local and the national levels. Keetmanshoop falls within the solar radiation category of 5.6 – 5.8 kWh/m² with an average 10 - 11 hours of sunshine per day. This makes the town ideal for solar technology, both in the case of PV panels for the harvesting of electricity and solar collectors for the harvesting of heat.

## 6.6 WIND

Data on the dominant wind direction in a particular locality is important for town planning purposes. The wind direction informs town planners and developers on the location of polluting activities including noise and dust (e.g. stone crushers), odours (e.g. sewerage works), pollutants (e.g. garbage removal sites), etc.

There is only little scientific and official wind data available for Namibia. The only data available for the prevailing wind direction is from the 2002 Atlas of Namibia that shows the predominant wind to be from the north, south and south-east.

FIGURE 11: PREVAILING WINDS IN KEETMANSHOOP AREA

Source: (Mendelsohn, 2002)

## 6.8 RAIN AND RELATIVE HUMIDITY

Keetmanshoop is relatively dry with an annual average rainfall of between 100 – 150mm per year ( (Mendelsohn, 2002).

The main problem with the rainfall is that it is highly variable in terms of amount of rainfall and its distribution. The relatively humidity for the Keetmanshoop area ranges between 50-60% in the highest humidity times (April) and between 10-20% in time of the least humidity (October). (Mendelsohn, 2002)

## 6.9 ARCHITECTURAL HERITAGE

Keetmanshoop has a rich history and a number of architectural heritage buildings. These buildings form part of the history of the town and the uniqueness of the town which should be protected.

| Name of building | Significance | Declared as monument |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

List to be completed

## 6.10 SENSITIVE AREAS

The identification of no-go areas and tread lightly areas are important for town development. The aim of identifying these areas are too broadly identify areas where development should not take place due to environmental sensitive areas or due to potential flooding or even because of difficult terrain. The identification of tread-lightly areas on the other hand is to ensure that developers, planners and the Council are aware of the areas which potentially pose a risk, issue or for which certain mitigation measures have to put in place before development takes places.

'***Sensitive area"***

At the townlands scale, 'no-go' areas can be identified as the areas

- that form part of the network of ephemeral rivers which pass through the town
- on steep slopes
- man-made features such as the military base
- within environmental sensitive area.

Development in or around these areas should be carefully planned so as to not disturb or have an impact on these areas.

Within Keetmanshoop there are the following sensitive areas:

The known ***cemeteries*** have been included in the diagram showing 'no go' areas, but this should not be considered complete as it was not possible to establish conclusively through the public participation process if there are any informal burial grounds that have been used in the past.

The area of the existing ***sewage ponds and*** a 500 metre radius (used as a 'rule of thumb' to discourage children from playing and swimming in the ponds) should also be kept free of development.

It was not possible to identify the ***boreholes*** within town during the course of the Structure Plan site investigations. It is however advised that development are to be careful around boreholes and that a general rule of thumb of at least 50m surrounding a borehole should be free of development.

The area within 250m from the current fence of the ***NDF military base*** will be kept as a "buffer zone". This are is not to be developed and be kept free from buildings.

The townlands also has a number of ***ephemeral rivers*** and streams that must be taken into account when undertaking town planning and service provision. Generally such rivers and streams are to be incorporated as open space systems within new town establishments and Council is make an effort to keep these rivers and streams clean from invader trees and bushes and rubbish being dumped.

The ***B1 main road*** and the district roads within the townlands are an advantage and disadvantage to the town. The biggest constraint with the main road and district roads are the road reserves and building restrictions of these roads. This means that in normal circumstances a trunk road will have a road reserve of 100m (50m either side measured from the central line of the road). In urban areas, this is usually relaxed by Roads Authority to 60m (30m either side measured from the central line of the road. Within this 30m road reserve no buildings or structures may be constructed. Added onto the 30m is an additional 15m building restriction which adds up to 45m (measured from the centre line of the road) in which no buildings or permanent structures are allowed. These areas are no-go areas within the Keetmanshoop Townlands.

The ***railway reserve*** is 60meteres (30m from the centre line of the track to either side) wide. This 60m reserve is a no-go area where no permanent structures are allowed.

Caution is to be used when planning developments in proximity to the ***shooting ranges.***

***Tread lightly areas***

Tread-lightly refers to areas within the townlands where detailed thought and consideration will be required with possible mitigation measures before development can take place. It does not mean development cannot take place within such areas, but it also does not mean that development can take place within these areas. It highlights the areas where care should be taken when undertaking development and that most likely certain mitigation measures will have to be put in place for development.

***Topographical Changes to the south-west of the Town:*** The hills and mountains to the south-west of town are identified as tread-lightly. These areas have steep slopes and not ideal for intensive urban development. Ideally these mountains and ranges should be kept free of intense developments and rather utilised for low-key eco-tourism or low-key nature estate developments.

***Potential Flood Areas:*** Although the ephemeral rivers themselves have been marked as 'no- go' areas, these areas are surrounded by other low lying areas that will potentially be at risk of flooding and therefore any areas along the paths of these rivers will be marked 'Tread-Lightly' in recognition of their flooding potential. The area to the east of the B1 road, between the road and Krönlein/Tseiblaagte has been known to flood during heavy downpours. These areas, if used for urban development, ought to be channelized to prevent flooding.

***Existing Dump Site:*** It is proposed that the over the long term the existing dump site should be relocated. In recognition of the disruption to the soil conditions and other challenges associated with dump sites, this too is marked 'Tread-Lightly'.

***500m radius*** around the sewage ponds are also marked as tread lightly. As a rule of thumb a 500m radius is to be kept free from residential development.

## 6.11 CHAPTER FINDINGS

FIGURE 12 SENSITIVE AND TREAD LIGHTLY

# CHAPTER 7 – DEMOGRAPHICS AND SOCIO-ECONOMY

The next chapter will provide some understanding of the demography of the /Karas Region and the town of Keetmanshoop. As the latest census mostly deals with providing a regional overview, these figures will focus more on the regional statistics.

## 7.1 POPULATION

The total population of the //Karas Region in 2011 was 77,421 indicating an annual growth rate of 1.1%, which is lower than the national growth rate of 1.4%. The town of Keetmanshoop had a population of 19,447 in 2011 showing an annual growth rate of 3.2% (NSA, 2014).

## 7.2 DEMOGRAPHY

The Keetmanshoop Urban Constituency had a population density of 37.1 people per km². The Keetmanshoop Urban Constituency has a relatively intermediate aged population with a median age of 25 years, with more than 62% of the population between the ages of 15-59. A population is considered 'intermediate' when it has a median age of between 20 and 29 years (NSA, 2014).

The male population is slightly higher than the female population in the Keetmanshoop Urban Constituency with 51.3% male and 48.7% female. This can be attributed to the dominance of the mining and agriculture sector in the constituency (NSA, 2014). The average household size in the Keetmanshoop Constituency is 4.2 persons per household.

## 7.3 TYPE OF HOUSING UNIT AND TENURE

In Keetmanshoop Urban Constituency 61% of the population owns their own house, while the rental sector makes up 31.7% of the population (NSA, 2014). Housing conditions in the Keetmanshoop Urban Conditions are not very crowded with an average of 1.6 persons per room. More than 74% of the population in the constituency lives in cement / brick houses with 20.7% of the population living in corrugated iron houses.

## 7.4 SOURCE OF ENERGY FOR COOKING AND LIGHTING

The main source of energy for cooking within the Keetmanshoop Constituency is from the grid power supply (57.9%), while 31.1% uses gas and 10.2% uses charcoal for cooking.

The main source of energy for lights in the constituency is from the grid power supply (86.5%) and 11% from candles.

## 7.5 ACCESS TO WATER SUPPLY AND SANITATION

The main source of water for drinking and cooking within the Keetmanshoop Constituency are from on or other form of pipe water, with more than 96% of the population having access to safe water (NSA, 2014).

## 7.6 WASTE AND GARBAGE DISPOSAL

Keetmanshoop Urban Constituency seems to have a good track record of waste and garbage disposal with 96% disposing of waste and garbage through the regular municipal collection system. Unfortunately there are still a small percentage (1.4%) that illegal dump their garbage and rubbish on the roadside (NSA, 2014)

## 7.7 SOURCE OF INCOME AND EMPLOYMENT RATE

The main source of income within the Keetmanshoop Urban Constituency is from wages and salaries (72.6%), and with 10% from old-age pension; 6.4% from business activities and 5.36% from cash remittances (NSA, 2014).

The private sector employees 49.9% of the employed sector within the //Karas Region, while the government sector employees 15.8% and the parastatal sector 13.5%. The main employment industry is the agriculture sector with roughly 32.4% employed in this sector; followed by public administration and defence with 8.5% (NSA, 2014). The Keetmanshoop Urban Constituency has an unemployment rate of 27.7% (NSA, 2014).

## 7.8 EDUCATION AND LITERACY RATE

The Keetmanshoop Urban Constituency has a literacy rate of 97%. Of the population within the constituency 3% never attended school; 12 % are currently at school and 83% left school. (NSA, 2014)

# CHAPTER 8 – POPULATION PROJECTIONS AND SPATIAL GROWTH

There are two growth scenario's foreseen for the town of Keetmanshoop

- Status quo remains with annual growth of the town being 3.2 %.
- Second scenario is based on the regional annual growth rate of 1.1%, which is a slower rate.

It is the consultants assumption that the growth of the town will fall somewhere between these figures over the long term, but in the short to medium term could be much higher.

It is therefore recommended that the Municipality plan for the higher figure over the short term, and assesses this on a needs basis as time goes on.

When using projections on the population figures, the following must be considered:

- The increase in population figures are estimates based on trends and not scientifically calculated growth rates (population growth rates are calculated by the Namibian Statistical Agency on a regional basis only and not for individual towns).
- The calculation of future population figures for towns in Namibia makes projections from the actual rate with which the population grew between 2001 and 2011 (1991 figures are not available)
- We know that the household population of Keetmanshoop, as measured in the census of 2011 was 4,304 ( (NSA, 2014).
- The average household size of the population in the Keetmanshoop Urban constituency is 4.2 persons per household (NSA, 2014).
- The Structure Plan makes recommendations for increases in density along activity corridors, and within central residential areas, however, as the majority of this land is privately owned and redevelopment of these properties requires investment, it is not possible to predict how quickly these areas will densify.
- One of the aims of the Structure Plan is to put Keetmanshoop in a position where it can be **proactively** delivering land, **before** it is required.

Given that the process from the start of the planning process to the completion of buildings is currently around three years, and the town does not want to be in a position after three years of running out serviced land, it is advised that Council start planning for serviced erven in 2016 to be ready for delivery in 2019 and this strategy is to be followed on a continuous basis.

**Because** accurate projections about long term population growth are difficult to make, in 2020 the Council must then assess:

i) If they are currently oversupplying land, in which case no further extensions need to be planned for delivery in 2020.

ii) If population growth has matched the population projections, in which case the Council can continue planning at the same rate.

iii) If population growth is growing much faster than the projections, in which case the Council should increase the rate of land delivery for 2020 and 2025 after which time the results of the 2021 census can be referenced to project future population growth rates once more.

## 8.1 ESTIMATING THE HOUSEHOLD POPULATION

To estimate the future household population, we have used three projections:

a) The first takes the existing household population of the town of Keetmanshoop in 2011 (19,447) and multiplies it by the population growth rate of Keetmanshoop Urban constituency as recorded between 2001 and 2011, which is a 3.2% annual growth rate.

b) The second takes the existing household population of Keetmanshoop town in 2011 and multiplies it by the annual population growth rate of Namibia (1.4%) as a whole as recorded in 2011.

c) The third takes the existing household population of Keetmanshoop town in 2011 and multiplies it by the annual population growth rate of the //Karas Region (1.1%) as a whole as recorded in 2011.

The table below provides an overview of the various growth projection scenarios.

TABLE 1 : POPULATION PROJECTIONS FOR KEETMANSHOOP

| Year | 2011 | 2015 | 2020 | 2025 | 2030 | Erven required by 2030 (based on 1 erf per household) |
|---|---|---|---|---|---|---|
| Estimated population **(Constituency rate 2.1%)** | 19,447 | 23,939 | 26,561 | 26,561 | **29,469** | |
| Households (constituency average 4.2) | | 5,137 | 5,700 | 6,324 | **7,016** | **7,016** |
| Estimated population **(National rate 1.4%)** | 19,447 | 20,847 | 22,348 | 23,956 | **25,681** | |
| Households (National average 4.4) | | 4,739 | 5,079 | 5,445 | **5,837** | **5,837** |
| Estimated Population **(//Karas Region annual rate 1.1%)** | 19,447 | 20,540 | 21,695 | 22,915 | **24,203** | |
| Households (Regional average 3.6) | | 5,706 | 6,026 | 6,365 | **6,723** | **6,723** |

*The figures above do not take into account external migration such as investors, holiday makers and other migration factors.*

The town of Keetmanshoop current has 5,187 erven. Based on the calculation above, in the case growth continues annually as per the current constituency growth rate of 2.1%, this will mean that by 2020 Keetmanshoop must have 5,700 erven and in 2030 have 7,016 erven available.

*Note that these figures does not take into account other migratory factors and investment, retirement factors, people wishing to have a second home in Keetmanshoop etc and the figure might be higher.* Caution should be used when simply relaying on these population figures for spatial requirements of erven. There are a number of factors that will play a role in the need for serviced erven. Council also needs to grow the town and one of the ways to ensure growth is to provide serviced erven that can attract investors to the town.

## 8.2 SPATIAL REQUIREMENT FOR 2030

The demand for erven in Keetmanshoop is estimated at 50% for affordable erven (higher densities) and 50% for lower densities. This percentile split is an assumption of the consultant. Town specific statistics are not yet available for Keetmanshoop regarding the difference in demand between low income and middle to high income housing, therefore the 50/50 split used.

- Therefore, based on the constituency growth projection an estimated **1,829** additional erven (approx..5 extensions will be required by 2030. This will then spatially calculate to the following areas needed:

***Higher densities*** at 50% = 915 erven

***Lower densities:*** at 50% = 915 erven

Given the need for 1,829 erven it is estimated that the following spatial requirements will be needed by 2030:

***Higher density, Low income spatial requirements:***

915 x 330m$^2$ (average high density erven size) =301,785 m$^2$

***Middle to upper income spatial requirements:***

915x 750m$^2$ (average middle - upper density erven size) = 685,875 m$^2$

***Plus*** an additional 35 % for non-residential uses (roads / infrastructure / Public Open Space etc)

**Total size = 1,333,341 m$^2$**

So the spatial requirement for 1,829 erven by 2030 will be approximately 133 hectares*

*Please note that the figures does not take into account the spatial requirements for other uses, such as business, industrial and institutional uses which will be needed in support of any residential activities. It is estimated that an additional 60 hectares will be needed for Industrial, Business, Office, General Residential and Institutional activities.

It is important when considering demographic data to be aware of the terms used. 'A household consists of a person or a group of persons who live together in the same homestead/compound but not necessarily in the same dwelling unit. They have a common catering arrangement (cook and eat together), and are answerable to the same household head. It is important to remember that members of a household need not necessarily be related, either by blood or marriage'. (Source: Namibia 2011 Population and Housing Census Main Report, 2013)

## CONCLUSION

To be completed

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