



OPUWO, CAPITAL OF THE KUNENE REGION

Tourist Mecca of Namibia & Untapped Oasis for Investment

THE OPUWO URBAN STRUCTURE PLAN

December 2022



giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

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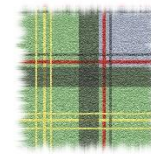


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OPUWO URBAN STRUCTURE PLAN

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1. APPOINTMENT

The Urban and Regional Planning Act, Act No. 5 of 2018, creates the opportunity for local authorities to be proactive in promoting their own development through the preparation of “urban structure plans” that will have ministerial approval and be used thereafter to guide spatial development planning and the making of informed and consistent decisions. Spatial planning is desired to ensure that development is geared towards accommodating ever-growing populations, identifying areas for economic developmental initiatives, expansion of infrastructure and generally coordinating spatial development. These possibilities have already been anticipated in Opuwo. The Opuwo Town Council, in its Strategic Plan as far back as 2016 had already envisaged the drafting of a “structure plan to facilitate the delivery of land through planned surveying of plots”. With this objective in mind at its 2nd Ordinary Council Meeting of 12th April, 2022, Council decided upon Resolution ORD 02 – 12/04/2022 – 05, as follows.

1. *The Council herewith resolves in terms of Section 31 (1) of the Urban and Regional Planning Act, Act No. 5 of 2018, to compile a structure plan for Opuwo;*
2. *The Council takes note that the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) has nominated consultants, namely, Plan Africa Consulting Cc Town and Regional Planners, and its associates, to assist the ISUD team;*
3. *The Council appoints Plan Africa Consulting Cc as its authorised agent in respect of compiling an Opuwo Structure Plan compliant with the requirements of the Urban and Regional Planning Act, Act No. 5 of 2018 and of submitting the Plan to the Urban and Regional Planning Board for approval on its behalf;*
4. *That Council grant a power of attorney to Plan Africa Consulting Cc to undertake the above listed activities on Council's behalf.*

2. SUPPORT PROGRAM

The concept of urbanisation and challenges associated with it are of increasing global concern. Namibia, and Opuwo to be specific, are not exempted from this global concern. It is the only urban centre in the northern half of the Kunene Region. At the rate at which the town is growing, it is becoming crucial to guide the spatial growth of the town to accommodate influx of people while ensuring that the principles of sustainability are considered for the effective functioning of the town. Urban centres as such, are spaces that have economic and innovation opportunities, thus the control of settlement growth for economic efficiency, environmental protection and social interaction are vital to the sustainable development of the town.

The German Federal Ministry for Economic Cooperation and Development (BMZ) through the Inclusive and Sustainable Urban Development (ISUD) project - jointly implemented by the Ministry of Urban and Rural Development (MURD) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH - is supporting Namibian efforts towards improving the living and housing conditions of residents in informal settlements through a participatory town and settlement planning approach. Opuwo is one of the partner towns of the ISUD project and a beneficiary of the support programme, which for Opuwo included the drafting of an Urban Structure Plan.



View of land west of Opuwo

In terms of the Urban and Regional Planning Act, Section 32, the Urban Structure Plan must:

- ensure that spatial planning promotes social and economic inclusion;
- ensure that there is equity in the spatial planning system;
- redress past imbalances in respect of access to land, land ownership and land allocation.

Preparation of the Opuwo Structure Plan followed the guidelines set out in the GUIDE TO THE URBAN AND REGIONAL PLANNING ACT, 2018 (third consultative draft) compiled in September 2021 commissioned by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) as part of its support program for Namibia.



View over Opuwo residential area with floodplain and informal settlement in the background

3: EXECUTIVE SUMMARY

The urban structure plan aims to move Opuwo from where it is now, to where it wants to be in 20 years' time. Compilation of this Urban Structure Plan for Opuwo recognizes the town's status as Regional Capital. Government activities have become and will remain a mainstay of its economy. Economic support and employment generation will be given by an eastwards expanding central business district, provision of land for supporting mining activities in the vicinity, trucking and warehousing as well as tourism. Commercial areas will include new provisions for roadside vending and will grow to include a new north-south corridor serving settlements that are to be guided to the eastern edge of the town.

3.1 The Status Quo

The planning approach was led by a thorough town review. Challenges were identified as population growth, very-low income and transient population settlement, and settlement taking place outside of Town Council control, uncertainty over future economic opportunities and a desire to support existing identified economic activities, a desire to optimise on traditional attractive aspects of the population with benefits to the tourism industry, and to improve on open space allocations for the general benefit, provision of Infrastructure, natural environmental limitations such as topography, drainage and climate, as well as the availability of developable land for future expansion.

Where problems have arisen has been in the uncontrolled informal settlements that have surrounded the established townships and invaded land designated for other activities. These informal settlements are not laid out so as to optimise on land usage and facilitate the provision of infrastructure. There is no shortage of land for settlement. The challenge has been and continues to be, the management of settlement and financing so as to enable serviceable infrastructure to be supplied to all sections of the population. Existing infrastructure has been overwhelmed in part, stormwater flows cause damage, the sewage oxidation ponds are dangerously overloaded, and the solid waste site is in need of replacement. The challenges of providing adequate services to ever-widening settlement areas will increase unless addressed.

The arid nature of the climate and the dangers arising from climate change dictate that urban densification should be encouraged. Topographical and infrastructural constraints suggest future growth be guided towards the east and the north.

3.2 Projections

A medium population projection of 15,000 people for Opuwo is adopted as the baseline for projecting into the future. Based on available data, projections have been made for the study period 2021 – 2041. The projected demand for land arising from the projected growth in the number of households is then compared to the supply of developable land within the town boundaries. Sixty two percent of the land

must be provided for the ultra-low and 25% of the available land to the low-income groups since together these two groups comprise nearly 90% of the total population of Opuwo.

3.3 Five Strategic Objectives

The major developmental issues facing Opuwo derived from the status quo evaluation and from discussions with residents can be categorised, evaluated and converted into five key strategic objectives for Opuwo, namely:

1. To be a town that uses its land resources optimally and sustainably having an inclusive settlement pattern and functional structure of land usage.
2. To be an environmentally aware community with development objectives that conserve and utilize natural features optimally.
3. To be economically lively and prospering and attractive for investors.
4. To have a regulatory system supportive of private initiatives and responsive to growth and change.
5. To have functional cost-effective infrastructure.

Integral to the above are the following spatial guidelines that were adopted in the analysis:

- To direct growth away from environmentally sensitive areas, particularly the very sensitive flood zones, steep slopes and ridgelines;
- To direct growth towards more level land which can be serviced the most economically; &
- To promote a more compact spatially integrated town.

3.4 The Analysis

Issues being examined are categorised under five headings namely (A) population growth and direction of settlement, (B) land availability and town boundaries, (C) environment and topography, (D) infrastructure and (E) economic activity. The analysis follows a path of assessing the current situation, identifying pressures created and the current responses, positing specific strategic objectives for each item, indicating spatial and policy responses and how they might be applied both spatially and as administrative policies.

Opuwo remains a struggling community in one of the poorer regions of Namibia. It will continue to depend on Central Government financial support. Urban expansion with its historic predominance of low income immigrants will likely not in itself provide sufficient income to address the skilled manpower shortage and ensure adequate levels of engineering infrastructure. Opuwo offers unique economic opportunities for those in government, tourism, mining, and agriculture, activities largely bringing in income from outside Opuwo, as well as opportunities in the more general economic support activities of retail, wholesale, medicine, education, and industry which circulate mainly internally generated income.



Market on main shopping street (C41)



Active small scale businesses on C41

3.5 Recommendations

Based on the analysis, a set of major strategies for growth in each of eight directions was derived. They are accompanied by a set of 62 recommended policies and guidelines that would take Opuwo forward towards achieving its spatial strategies. They will also improve business conditions especially for hawkers, intensify land usage and promote densification creating a more compact and functional town. They are supplemented by 23 recommendations for guiding and regulating buildings and land use.

Strategies applicable to the established build up areas can be achieved through development control. Regulation of land-usage is exercised through title deed restrictions. Title deeds have to be amended in line with a densification approach to facilitate more intensive and improved land usage. Private initiatives by land-owners to increase intensity of land usage will have multiple impacts, they will for instance:

- Increased tax revenue to the town;
- Improved adaptability to accommodate growth and development without new townships;
- Pressure for infrastructural upgrade.

The future introduction of a zoning scheme is recommended as this will facilitate land-use management, change and development.

3.6 Major Spatial Recommendations

The main spatial recommendations are categorised by spatial orientation as follows.

3.6.1 The South: The Floodplain And Pedestrian Route Connecting Institutional Buildings, Agricultural And Traditional Commercial Areas

The wide floodplain within a 1 in 50-year flood horizon has been demarcated. The main recommendations are that the usage of the floodplain be controlled by the Town Council, making provision for a cultural centre with a living museum, tourist and general pedestrian routes, a handicraft and fresh produce market, urban agriculture on defined plots, sports fields for nearby schools, and space for livestock auction pens.

3.6.2 The North: Extension of Commercial Land and Provision for Anticipated Mixed Industrial and Residential Development

The main recommendations are for the placement of a new waste-water treatment plant in the far northern extremity with a sewer connecting southwards, the increased intensification of business and high density housing (flats) along the C43, the reservation of a large area of land for any major new mixed private development that might arise stimulated by mining activities and developments on the Kunene River, and the reservation of steep but developable mountain slopes for high income households.

3.6.3 The East: Residential and Commercial Expansion and a New Business Corridor

The main recommendations are for new township extensions for low income and ultra-low income households with a supportive business corridor that will also carry main electrical, water and sewer service lines with regularly spaced ablution blocks. Proposals are made that the corridor be wide enough to include pedestrian amenities, be tree-lined, and have bicycle lanes.

3.6.4 The Marginalised Periphery: Informal uncontrolled settlement

The main recommendations are that the peripheral informal settlements within Opuwo's boundaries be upgraded when opportunity and finance allows, that business development be supported in some localities and that households on sites endangered in the floodplain be given opportunity to relocate.

3.6.5 The West: Conservation and Tourism

The main recommendation is that development to the west be restricted to only self-sustaining activities such as facilities for tourism such as a tourist camp site, recreation, a cemetery, and a landfill site.

3.6.6 The Centre: The Central Business District and its Periphery

The major observation is that the business core has ample provision for expansion in Opuwo Extension 7. It is recommended that more intensive development be promoted in the two parallel arms of the business area that stretch northwards along the C43 and the new road following the line of the old airport runway.

3.6.7 The Peri-Urban Area: Extension of Town Boundaries

The main conclusion is that inclusion of these settlements within town boundaries is inevitable but that in the meantime the Regional Council is the responsible authority.

3.6.8 The Road Hierarchy

The major feature is a new south to north road parallel to the present main street along the C43 serving the proposed new eastern suburbs with various east-west connections.



Tourist attraction. Photo: Eunice Shapanaa



Health hazard: informal settlement approaching sewage settlement ponds

3.7 Concluding Priorities

The Opuwo Town Council will formulate its policies, plans and laws in accordance with the objectives of the Urban and Regional Planning Act, Act 5 of 2018, and hence with the Opuwo Urban Structure Plan approved in terms of the Act.

Priorities 1

- Development of the “Orutjandja East Integrated Development Plan” on farm portions 1174, 1175 and 1176 and adjacent peri-urban areas.
- Development of the “Orutjandja West and Floodplain Integrated Development Plan”.
- Continued upgrading of the informal settlement clusters: Old and New Katutura, and Okatuuo.
- Completion of the upgrading of existing sewer ponds.
- Project initiation for the construction of a new sewer treatment plant.
- Commencement of the upgrading of the existing land fill.
- Promotion of and compliance to the Urban Structure Plan recommendations.
- Management of sprawl and growth of informal settlements.

Priorities 2

- Upgrading of Otuzemba VIP and surrounding informal settlements.
- Pre-planning of vacant areas along the C43 road to Etanga, adjacent to the current SDFN housing development.
- Upgrading of Orutjandja West (near the town centre) guided by the integrated development plan produced in phase 1.
- Project inception of new land fill site outside town boundaries.
- Continued development of the new sewer treatment plant.
- Drafting of a Zoning Scheme.

Supporting Measures

- Development and Integration of a Local Development Strategy.
- Development of an Environmental and Climate Mitigation Plan.
- Expansion of Town Boundaries.
- Development of Sustainable Urban Mobility Strategies.

The report acknowledging that urban expansion shown in the Urban Structure Plan will take place and must be managed by the Town Council. Following this plan will facilitate urban settlement in places most easily and cost-effectively served with engineering infrastructure and will contribute to Opuwo becoming a tourist mecca and as an oasis for investment.

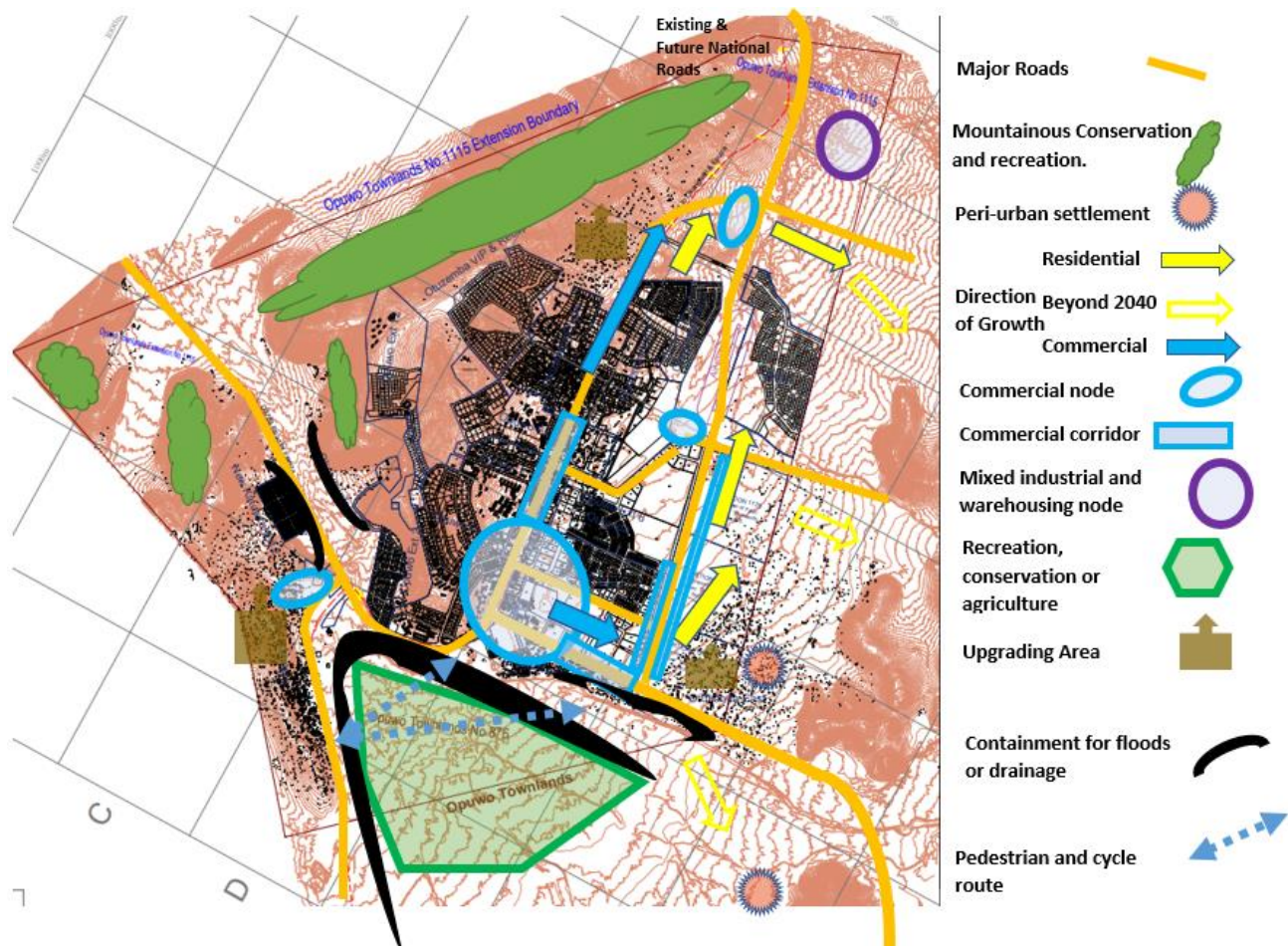


Figure 14: Future Directions of Urban Growth: Schematic plan indicating the anticipated directions of growth of different urban components and concentration nodes of particular land uses.



General view over Opuwo housing



Opuwo main shopping street (C41)

4. LEGAL BACKGROUND AND OBJECTIVES OF AN URBAN STRUCTURE PLAN FOR OPUWO

An Urban Structure Plan (USP), prepared in accordance with the Urban and Regional Planning Act of 2018, is the highest order of local strategic policy. The legal requirements of the Urban and Regional Planning Act 5 of 2018 (GG 6631) were brought into force on 3 September 2020 by GN 222/2020 (GG 7327). The Act sets out the broader purposes of a USP in Chapter 4, Part 3 Sections 32 which includes giving effect to objectives set out in Section 2 and principles and standards set out in Section 3 of the Act.

In summary and in respect of Opuwo, its aims are –

- ensure that spatial planning promotes social and economic inclusion;
- ensure that there is equity in the spatial planning system;
- to provide a long-term sustainable spatial development strategy;
- indicate desirable land uses and promote predictability in the use of land;
- to ensure efficient application of scarce financial resources in space;
- to coordinate and guide private & public actions in the physical environment and land development

This is the first Urban Structure Plan for the Region. There is no National Structure Plan or Regional Structure Plan in place with which it must be aligned. It is expected that aspects of this Plan will be incorporated into any subsequent regional structure plan.

The preparation of this Urban Structure Plan has followed a transparent and participatory process to ensure that all inhabitants and institutions have an opportunity to make meaningful contributions. In terms of Section 33 of Act 5, the structure plan deals with spatial aspects and potential for social and economic development of the relevant local authority area and consists of a statement of policies, plans, background studies, reports or maps.

The Structure Plan needs to be a user-friendly document in terms of format and size which will enable the Opuwo Town Council and investors in the town to take informed decisions on issues it deems locally important.

In short, it moves from where Opuwo is now, to where it wants to be in 20 years' time.



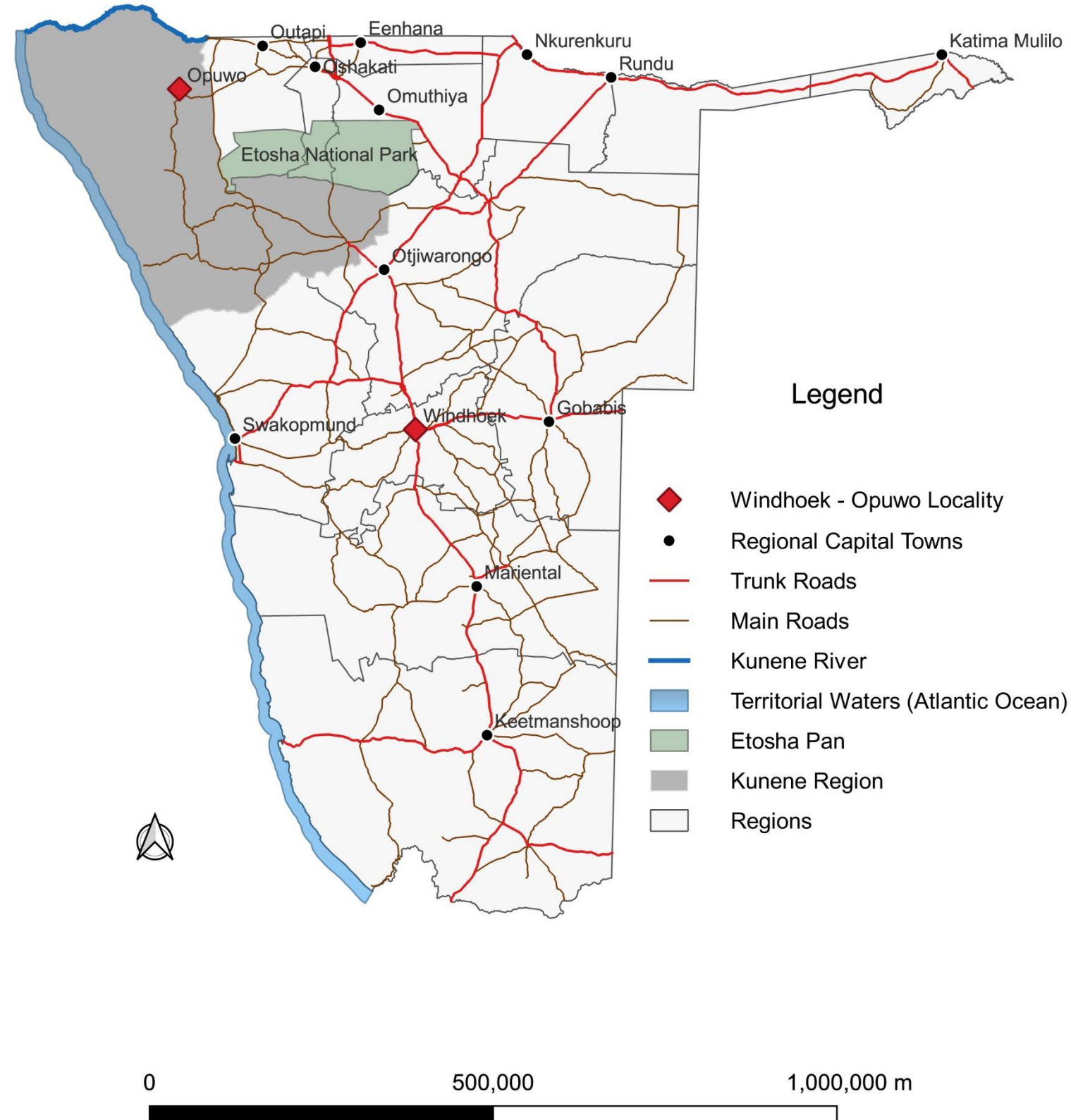
Peri-urban settlement with electrical infrastructure



Informal settlement (low density)

Namibian Context Map

Figure 1: Namibian Context
Context: Map of Namibia
 showing location of
Opuwo, and other major
urban centres.



5. STATUS QUO REVIEW

A status quo study was undertaken (see attached Annexure G, “Status Quo Report”) and the results providing spatial direction are incorporated into the descriptions and analyses that follow thereafter.

This section is divided into three parts. They are:

- Regional context and role
- Town Council Administration
- Review of developmental categories, namely:
 - Environment and Topography (climate, topography, natural resource use and limits, water & floodplain)
 - Land Availability and Town Boundaries (Urban Spatial Structure and Land Ownership.)
 - Infrastructure
 - Population and Socio–Economic Conditions.
 - Economic Activity

Additional descriptions of the various factors characterizing the population, household and future land requirements are contained in the accompanying reports, “Status Quo Report” and “Opuwo Population Projections, Land Demand and Affordability” attached as annexures G and H respectively.

A full analysis from the current situation, the pressures created, the current responses, strategic objectives to alleviate or rectify the situations, applications of available spatial levers, resulting in policies and guidelines is attached under five category headings in Annexures, A to E. The five categories identified as Key Drivers of change in Opuwo are:

- a) Population Growth and Direction of Settlement
- b) Land Availability & Town Boundaries
- c) Topography (slopes and drainage)
- d) Infrastructure
- e) Economic Activity

Proposals are derived from the analyses and transcribed into the statements on the application of spatial levers: policies and guidelines

5.1 Regional Context and Role

Opuwo town was founded in the 1920’s and over the years developed into a settlement that provided services to the surrounding areas. The town was proclaimed in 1992, gazetted in 1995 and became autonomous in 2000. The historical growth and development of Opuwo as a small isolated rural town was significantly changed by the declaration of the town as the regional capital at the turn of the century.

The location of Opuwo nationally and within the Kunene Region is portrayed in *Figure 1* and *Figure 2*. Opuwo is located on a crossroads with the highest development intensity at the intersection of the C41 the road from Omakange, where it meets the C43 which connects Opuwo to Sesfontein to the south and Epupa falls to the north. The C41 is a tarred and is the main road connecting Opuwo to the more populated areas of Namibia. The D3703 branches off from the C43 and connects Opuwo to the west and with the Etanga settlement.

Roads connecting smaller villages to Opuwo are essential for access to the services offered by government and the private sector services. They are poorly maintained gravel roads that navigate through mountainous terrain. As a result, they are prone to washaways during the rainy season.

According to the 2015/16 National Housing Income and Expenditure estimates, the Kunene Region comprised only 4.2% or 95,610 people out of the 2,280,716 Namibian population. The Region contained 21,468 households being 3.9% of the total of households nationally with an average household size of 4.5 persons per household. This sparse population is spread unequally throughout the Region. Opuwo lies in one of the least populated areas. It is vital for the equitable distribution of government services to the far-flung rural populations of Epupa, Sesfontein and Opuwo Constituencies. The 2011 census recorded a total of 53,000 people in these three constituencies.

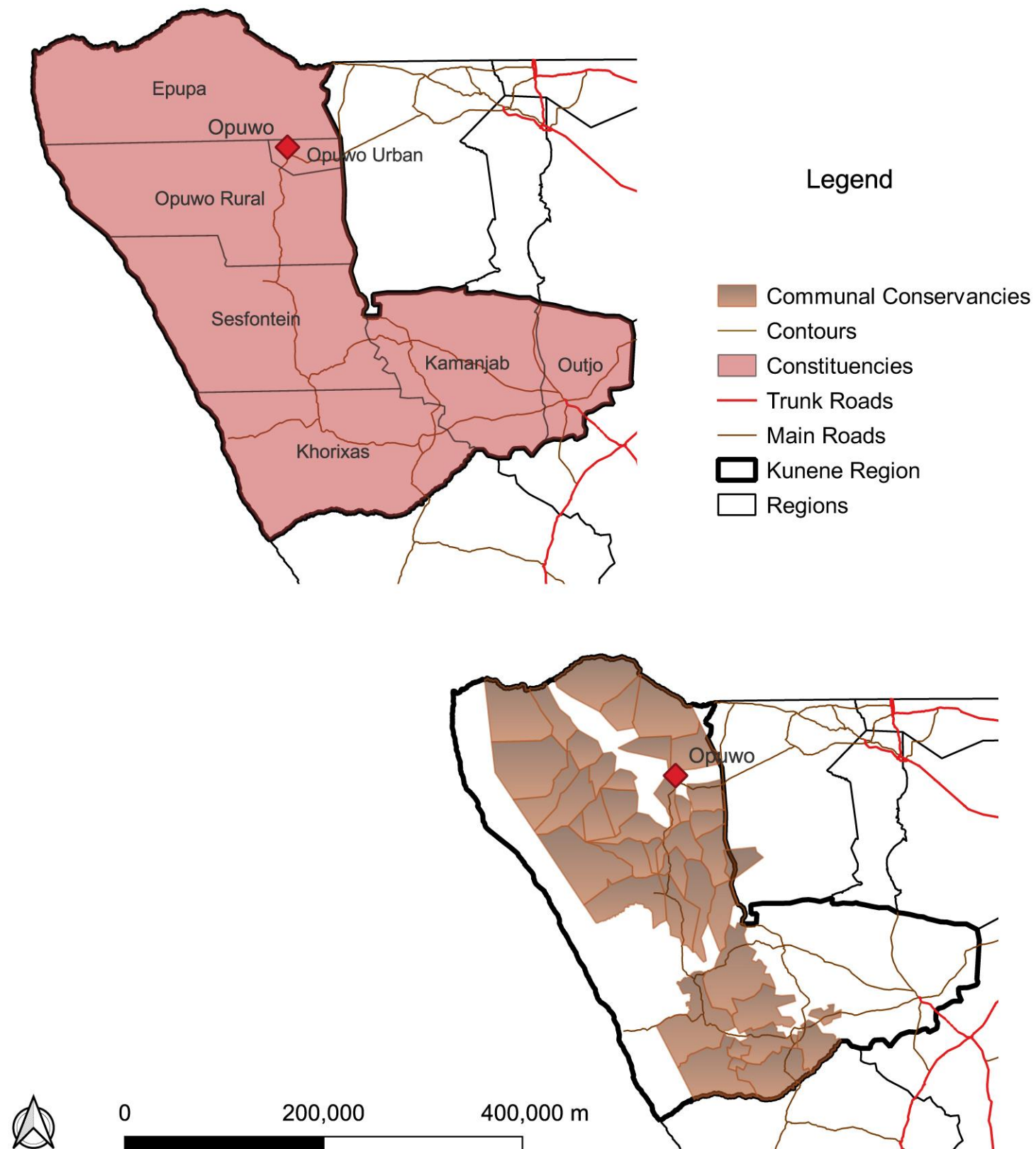
The town’s spatial growth has been shaped by the national roads with government institutions concentrating on the western side of the C43 and private businesses elsewhere along the C43 and C41 District Roads. Private sector business development has historically been reliant on agriculture. Government employment and spending by the government sector has been the major factor in population and economic growth over the past two decades. Furthermore, the private sector is increasingly being promoted by two additional factors of economic importance. They are:

- The unusual and beautiful landscapes, wildlife, and culture attract tourists to the Kunene Region, and
- The Kunene Region as a whole has many non-fuel mineral resources such as iron, cobalt, marble, granite and sodalite with continual exploration happening in the region around Opuwo.

Economic issues are addressed later in this report.

Figure 2: Regional Constituencies and Communal Conservancies: Map of Region showing location of Opuwo, political

Kunene Constituencies and Communal Conservancies



The governmental role derives from Opuwo’s designation as Regional Capital. Opuwo hosts a large number of Government Departmental Offices and important governmental regional service facilities such as those for agriculture, education and health. The following ministries, departments, parastatals and institutions have premises in Opuwo.

- Kunene Regional Council
- Ministry of Home Affairs and the Namibian Police
- Ministry of Agriculture, Water and Forestry
- Ministry of Environment and Tourism
- Ministry of Labour, Industrial Relations and Employment Creation
- Ministry of Land Reform
- Ministry of Finance
- Ministry of Works and Transport
- Ministry of Health and Social Services
- Magistrates Court
- Namibia Posts and Telecommunication Holding
- Namibia Red Cross Society
- Namibia Roads Authority
- Regional constituency offices of various political parties
- Namibian Water Corporations (NAMWATER)
- Northern Namibia’s Regional Electricity Distributer (NORED)
- Ministry of Education
- Ministry of Veteran Affairs
- Ministry of Sport
- Namibia University of Science and Technology
- Telecom Namibia
- Mobile Telecommunications LTD (MTC)
- Namibia Institute of Pathology
- Opuwo State Hospital

5.2 Town Council Administration

5.2.1. Governmental Structure

Democratic government in Namibia is structured into three tiers; national, regional, and local. Opuwo Town Council has a legal mandate to provide services to the customers of Opuwo Town Council as per the provisions of the local Authority Act, Act No 23 of 1992, section 30/amended Local Authority Act of 2000 and other enabling legislation. The seven member Opuwo Town Council has been democratically elected to administer the town and guide its spatial development making use of both local and central government sourced funds.

5.2.2. Spatial Planning and Control

Spatial development is guided and regulated in terms of the Local authorities Act, Act 23 of 1992, the Urban and Regional Planning Act, Act 5 of 2018, promulgated building regulations, title deed conditions and the physical extension of infrastructure. The Town Council sets out strategic plans that are revised after 5 years. The Council makes use of a computerised data system that allows it to effectively plan service delivery to its residents by ensuring that strategic decisions are in place and made to benefit the residents of the town.

An urban structure plan as envisaged in the Act, will fill an existing gap by providing a strategic policy document with a 20 year time horizon and on which future 5-year plans can be based. The current vision for Opuwo is for it to be efficient, effective, transparent and the most liveable town in service delivery (Opuwo Strategic Plan 2016-2021). To achieve this vision, to address spatial inadequacies and inequities that are present in the system, the Opuwo Council will use this Structure Plan to address these issues and to guide it on:

- locations where funds can be best invested, and
- suitable choice of timing for making those investments.

The Town Council of Opuwo has had to work to bring together the community (both from the urban and rural areas of the Region) to ensure that the town’s development is inclusive and to enable the Council to meet its mission and vision whilst fostering social and economic growth.

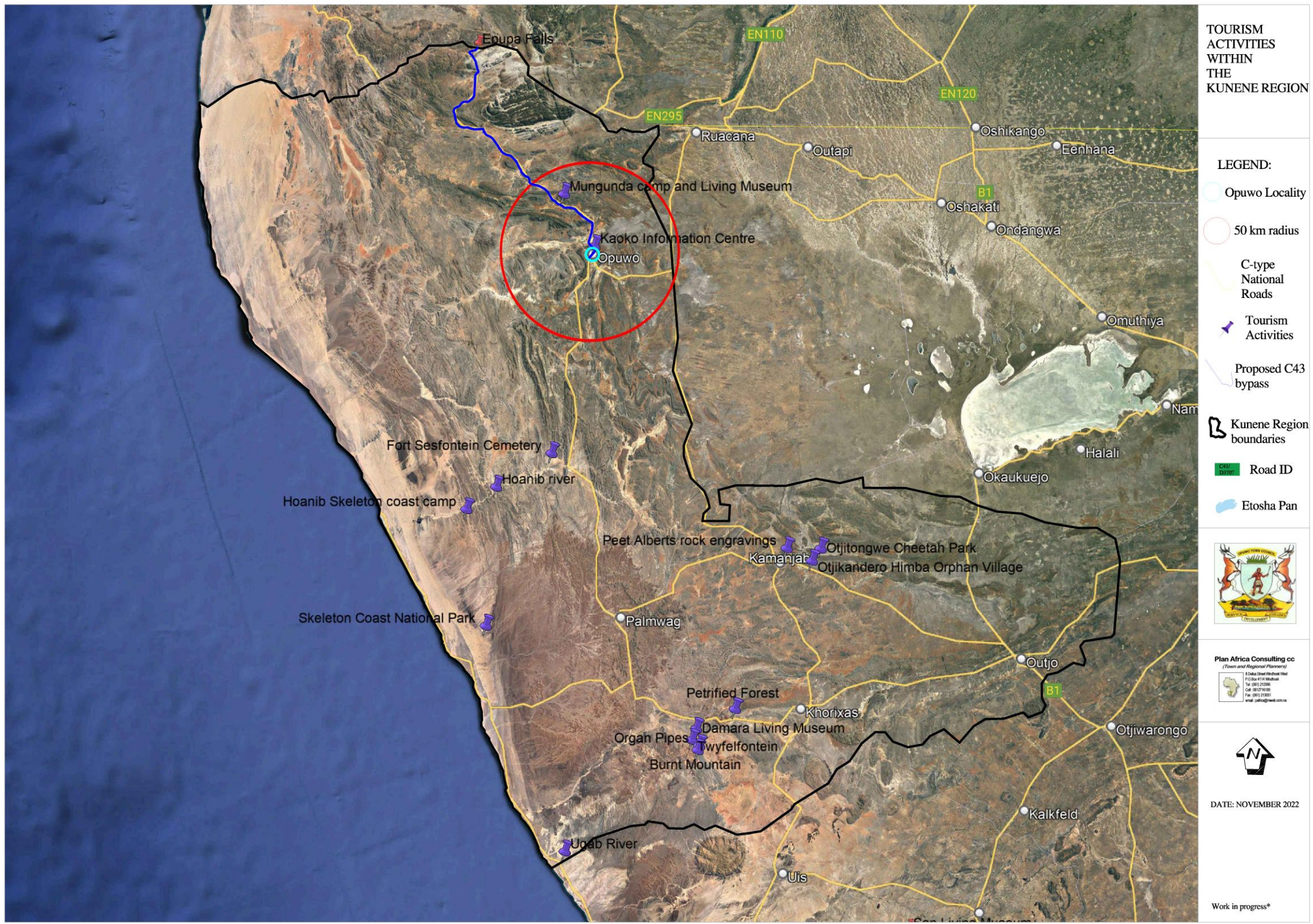
5.2.3. Identified Shortcomings in Provision of Facilities

Facilities that the Town Council, listed below are specified facilities or elements of infrastructure that needed attention or were lacking and whose establishment, the Town Council would encourage.

Engineering Infrastructure

- Lack of an effective stormwater drainage system
- Lack of efficient water purification plant
- Lack of adequate street lighting
- Poor state of oxidation pond

Figure 3: Tourism Activities within the Kunene Region: Map of Region showing major tourist destinations.



Other Facilities

- No shopping malls
- No tourist or business information centre
- No private schools
- No upper market residences
- Lack of tertiary and vocational training centres
- Undeveloped tourist attractions
- Lack of community hall in informal settlement areas
- No taxi rank or bus terminus
- A need to further improve the trade fair site and the open market site
- A need to maintain a clean town, reduce dust and add trees.

Currently (2022) the Town Council is handicapped by a shortage of equipment and machinery and has limited technical staff available to inspect, assess and address items requiring routine maintenance.

5.2.4. Financial Constraints

The Opuwo Town administration is dominated by the above listed items both in the Councillors general interaction with its public and in its capital programme. While keeping the salary component of its expenditure within the Ministerial limitations, and its operational income and expenditure near level, its capital expenditure is significantly devoted to extension of services and infrastructure. Capital expenditure makes up about 25% of total expenditure. It can vary widely. Actual capital expenditure dropped from approximately N\$13 million to N\$6½ million between 2020 and 2021. It is annually supported by transfers from other sources such as central government, the sale of services and erven, and income from local authority taxes and “permissions to occupy”. For instance, Central Government will provide a grant of N\$5,000,000 for the construction of service infrastructure and fund the capital budget with a further N\$1,000,000 for the 2021/2022 financial year. Deficits can also quickly accumulate. Details are available from the Opuwo Budget for the Fiscal Year 1 July, 2021 to the 30th June, 2022.

5.3 Natural Environment (climate, topography, natural resource use and limits, water & floodplain)

5.3.1 General Features

Opuwo has a semi-arid climate with sparse rainfall of 250 mm to 300 mm mainly between January and March each year. Atlas of Namibia Team, 2022, Atlas of Namibia: its land, water and life, Namibia Nature Foundation, Windhoek; [https://atlasofnamibia.online/chapter-](https://atlasofnamibia.online/chapter-3/rainfall-patterns)

[3/rainfall-patterns](https://atlasofnamibia.online/chapter-3/rainfall-patterns). Temperature and precipitation patterns over the Region are displayed in *Figure 5*.

Soils are shallow, vegetative cover is sparse, able only to support low densities of livestock. Mopane trees appear to be successful although they are slow growing. Details on climate, soil, vegetation, geology, et al may be found in the Atlas; Namibia Team, 2022, Atlas of Namibia: its land, water and life, Namibia Nature Foundation, Windhoek; <https://atlasofnamibia.online/>.

The net result is that the town can be severely affected by climatic variations and especially by drought which puts pressure on the water resources and drives immigration from the surrounding rural area.

5.3.2 Cadastral and Topographical Description

The proclaimed town of Opuwo comprises two farm portions, namely Opuwo Townlands No. 876 of 982.4251 hectares and Opuwo Townlands Extension No. 1115 of 801.5320 hectares. The total proclaimed town area is 1,783.9 hectares (17,839,571 square metres). The main urban area is laid out on Opuwo Townlands No. 876. The topography and cadastral boundaries are illustrated in *Figure 6* which shows the surveyed cadastral boundaries and the topography based on 1-metre interval contour lines. This is supplemented by *Figure 7* which adds an aerial overlay to show existing structures as of 2022.

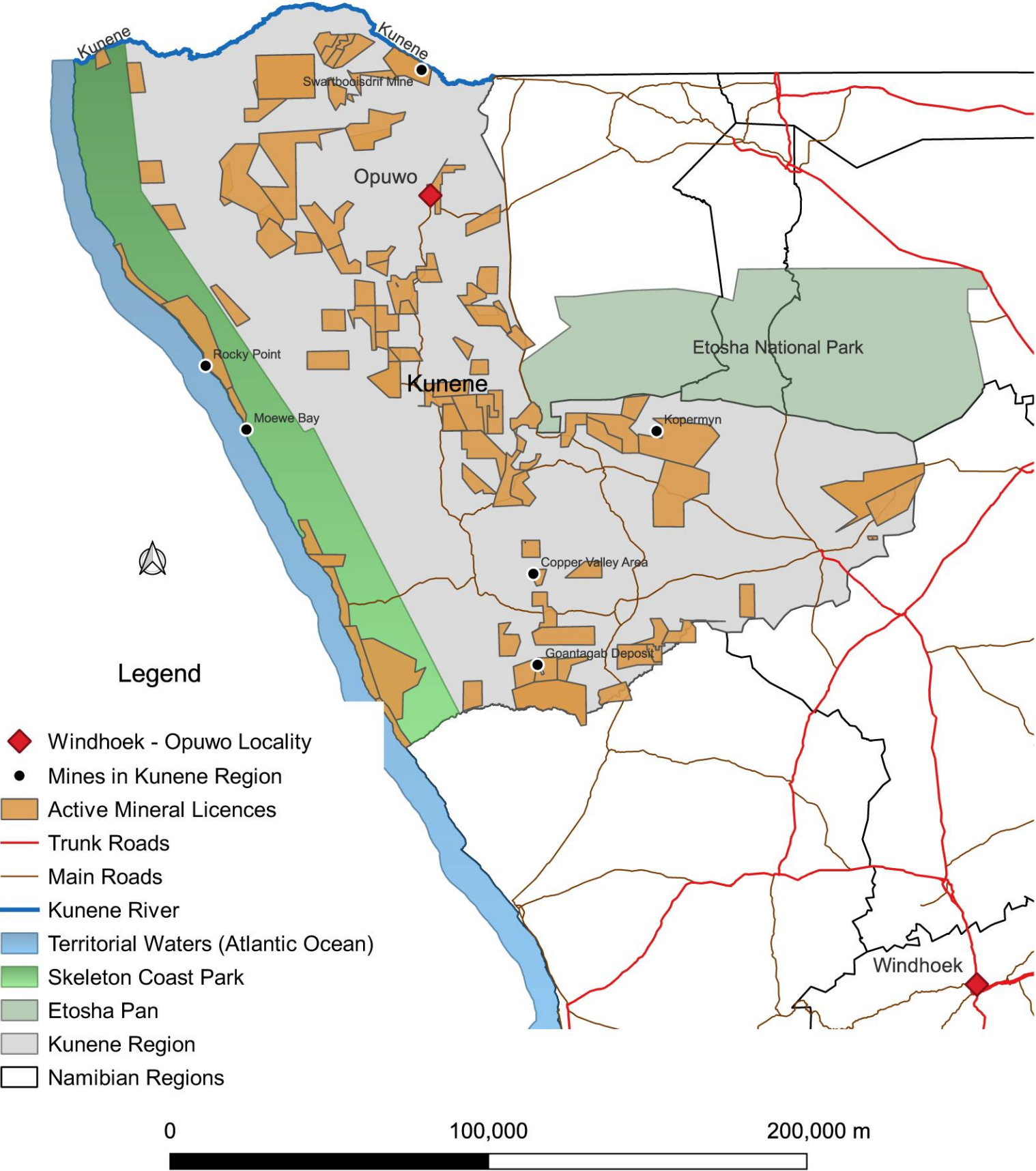
As appears on the two figures, the town lies along the eastern flank of a mountainous ridge facing a shallow valley floor. The mountain blocks intensive expansion to the west. Urban settlement extends up the eastern slopes to the ridgeline, avoiding land with slopes greater than 1 in 5. Most of the settled area and space for expansion drains into a corridor that exits the valley in a north-westwards direction.

5.3.3 Ephemeral Rivers & Floodplains

A notable feature of Opuwo is the large relatively unoccupied flood hazard area on the southern side of the town containing the junctions of 5 ephemeral rivers. They make-up the catchment of an ephemeral river that exits the valley at the southern edge of the ridge-line. Another smaller river collects from ephemeral rivers on the eastern side of the main valley and carries these flows past the northern edge of the ridge-line. Plans showing the catchments are included in *Figure 17*. The flows are not all readily visible on the surface. The floodplain was calculated in 2022 specifically for this Report by Chris Muir a Professional Engineer. It is shown on both *figures 6 and 7*. The figures outline where the water level could reach for the one in 50 year return period. The southern catchment stretches a full 59 kilometres to the south with an area of 583 km². The floodplain severely limits the southern expansion of the town.

Mining Activity in the Kunene Region

Figure 4: Mining Activity in the Kunene Region: Map showing locations of active mineral licenses.



The floodplain demarcation already impacts existing settlements as is illustrated in figures 16 and 17. It presents a major challenge to the Town Council since, in terms of the Local Authorities Act 23 of 1992, Section 90 (1) *A local authority council shall at all times keep the natural channel and the banks of every public watercourse situated in its area within the lines indicating the maximum level likely to be reached on an average every 50 years by flood-waters into which –*

(a) any water is discharged by a local authority council from any waterworks or water-main in terms of section 34(1)(e);

(b) any stormwater is drained by a local authority council in terms of section 38(1)(d),

clean and free from any artificial or natural obstruction other than any building lawfully erected at any time before the commencement of this Act which is likely to interfere with the flow of such watercourse or create a danger that such flood-water can threaten the safety or lives or property of any person.

Flooding poses a major hazard in the south. Unpredictable weather patterns such as might accompany climate change make the threat of flooding a major risk.

The ephemeral rivers that drain into the valley that slopes down to the north are badly eroded in parts and present a continual challenge to new township establishment and settlement. The catchments amount to maybe a thirtieth of the southern catchment area as illustrated in Figure 17. The main dangers lies in unattended erosion and ponding due to slow runoff and soil drainage.

5.3.4 Assessment of Developable Land & Existing Usage

Of the area within the town's boundaries of 1,783 hectares, about 24% is too steep or inaccessible for economic development while 16% lies within the 1:50 year flood line. Urban settlement (formal and informal) takes up 30% of the land, leaving about 30% for future settlement. This 30% is categorised as follows.

- 6% is outside of the main northern drainage system that will be served by a planned new sewage system and is not advised for residential settlement. It would be unduly expensive to develop.
- 3% is on the upper steep slopes of the hillside making it relatively expensive to service with streets but is very accessible.
- 9% is level land immediately east of the built up area and is mostly already planned but with low occupancy. It includes some surrounding portions of unplanned vacant land.
- 12% is unplanned vacant level land along the northern and eastern edges of the town and within the northern drainage system.

The full breakdown is described in the table below. Areas of developable land will become the target of land demand projections. They are identified in Figure 11.

Most developable land is situated in the northern drainage area, marked off by mountainous land to the west and the east visible in Figure 7. Its southern boundary is the watershed which is located close to the line formed by the elevated national road, the C41. This northern drainage area is affected by stormwater flows. Various minor ephemeral channels converge into a single main stream running northwards. The longest runs for about 5 kilometres from its watershed. Some severe erosion has taken hold at these points of confluence and must be addressed as part of the town's future engineering infrastructure.



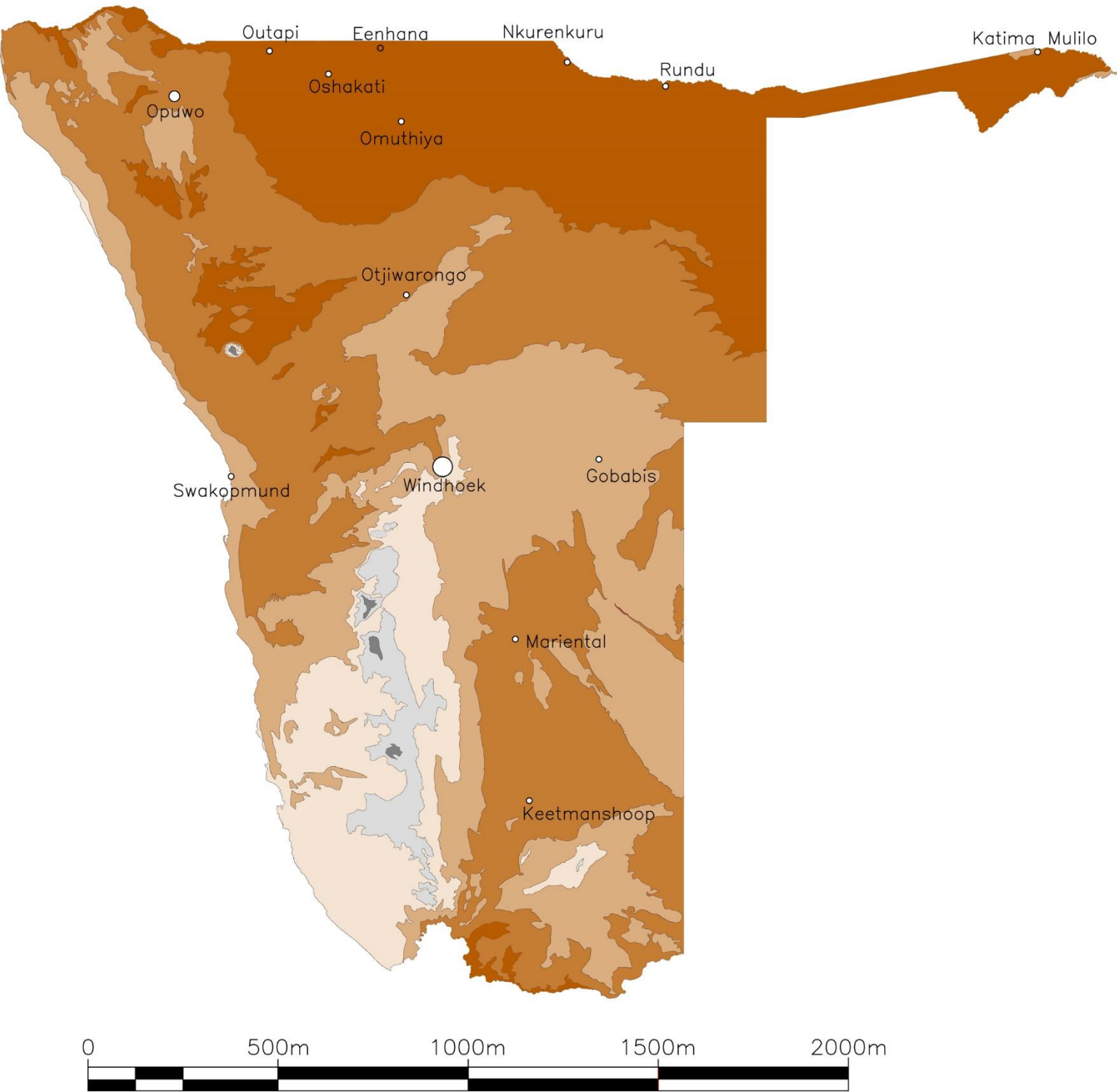
View of formal residential township



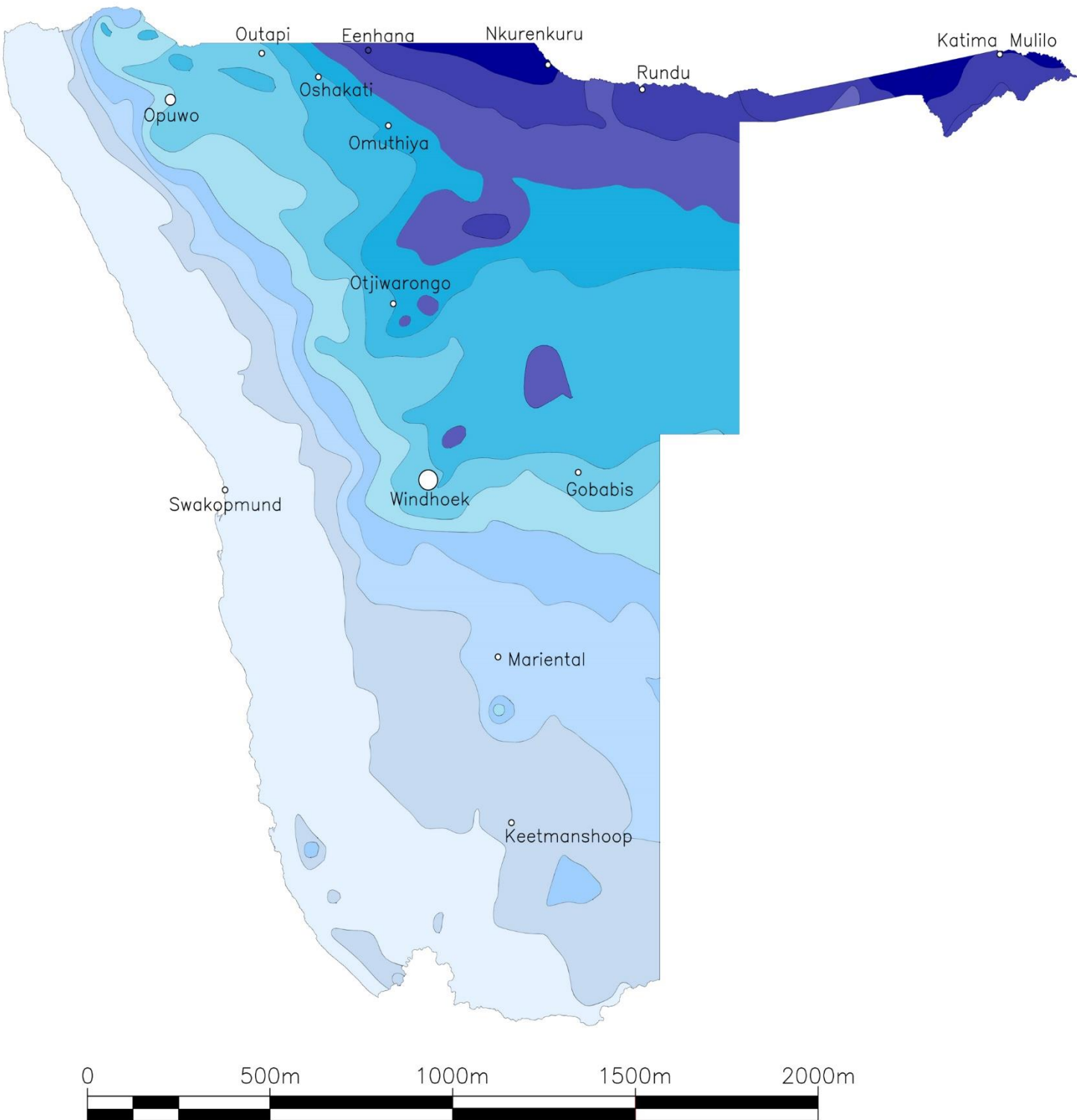
Informal livestock trading

Figure 5:
Temperature and
Rainfall Patterns of
the Kunene Region.

National Annual Average Temperature Map



National Annual Average Rainfall Map



Legend— Average Annual Temperature (°C)

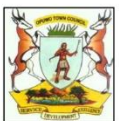
24 – 26	22 – 24	20 – 22	18 – 20
16 – 18	14 – 16	12 – 14	○ Regional capitals



DATE: NOVEMBER 2022

Legend— Average Annual Rainfall (mm)

>650	550–600	450–500	350–400	250–300	150–200
600–650	500–550	400–450	300–350	200–250	100–150
<100	○ Regional capitals				



DATE: NOVEMBER 2022

Table 1:

DESCRIPTION OF CATEGORY	Breakdown by Portions	Areas of Portions		AREA BY CATEGORY	
		Hectares	%	Hectares	%
Proclaimed Local Authority Area				1783.9571	100.0000
	Opuwo Townlands No. 876	982.4251	55.0700		
	Opuwo Townlands No. 1115	801.5320	44.9300		
	Total Area of Townlands	1783.9571	100.0000		
Land naturally unsuitable for intensive urban settlement				712.7266	39.9520
	Steep mountainous land; gradient > 1/3	129.0000	7.2311		
	Fairly steep land: 1/3 ≥ gradient > 1/5	61.0000	3.4194		
	Mountainous isolated Land: 1/5 ≥ gradient > 1/8 or otherwise inaccessible	234.7266	13.1576		
	Flood Plain: 1 in 50 year return period	208.0000	11.6595		
	Flood Plain: Enclosed island	80.0000	4.4844		
	Total Area naturally unsuitable for intensive urban settlement	712.7266	39.9520		
Occupied Land with urban settlement				535	29.9895
	Main formally built-up & occupied townships	340.0000	19.0588		
	Informal settlement	195.0000	10.9308		
	Total Area occupied	535.0000	29.9895		
Developable Land outside northern drainage system	Refer to Figure 11			107.5415	6.0283
	A	41.6709	2.3359		
	B	5.1893	0.2909		
	C	38.9270	2.1821		
	D	10.8618	0.6089		
	E	6.5105	0.3649		
	L	4.3820	0.2456		
	Total Area	107.5415	6.0283		
Accessible marginally steep Land	Refer to Figure 11			57.3736	3.2161
	F	13.3651	0.7492		
	G	6.3142	0.3539		
	H	37.6943	2.1130		
	Total Accessible marginally steep Land	57.3736	3.2161		
Planned Areas (Infill possible in areas not yet fully occupied)				158.0000	8.8567
	Portions of Extensions 7 & 8, north to Otuzemba Ext. 2 including unplanned intervening vacant land.	100.0000	5.6055		
	New Katutura	8.0000	0.4484		
	Development Workshop Township	50.0000	2.8028		
	Available Land Infill in planned areas	158.0000	8.8567		
Developable Land suitable for urban settlement inside northern drainage system	Refer to Figure 11			213.3154	11.9574
	I	35.9069	2.0128		
	J	19.0843	1.0698		
	K	158.3242	8.8749		
	Total Developable Land	213.3154	11.9574		
Sum of Constituent portions		1783.9571	100.0000		

Urban Spatial Structure and Land Ownership.

5.4.1 Spread of Urban Settlement

The area of Opuwo town and townlands is 1,783 hectares. The whole urban settlement of 535 hectares (Table 1) lies within 3 kilometres of the C41 and C43 road junction. The spread of the urban area is displayed in *Figure 7*. It is not a compact town. It has a loose linear shape from the informal settlements south of the river and the floodplain up to new townships establishments along the line of the C43 in the north. If not addressed, continued spread to the north and south will add to the travel time of those residents at the extremities, the need for motorized transport, and the costs of extending infrastructure (particularly to the south). A more compact pattern will be considered.

Because distances are still relatively short, walking is the dominant way of getting around. Commercial activity lines the two national roads that converge on Opuwo. Measured from the traffic light controlled junction of the C41 and the C43, commercial activities extend for about 1,000 metres along the C43 running northwards, and for about 400 metres along the C41 running eastwards. Most governmental offices and government service facility sites parallel the C43 on its western sides. The planned heart of the expanded Opuwo town centre lies in a block of commercially reserved land east of the C43 and north of the C41. Much of the rest of the urban settlement is residential with a scattering of shops and institutions (schools, churches, etc.).

Formal settlement extensions with registered erven extend north of the C41 and parallel the C43 on its eastern side. The older proclaimed residential areas, roughly those paralleling the C43 and extending about 1,000 metres from the intersection of the C43 and C41, have been developed at a low density. Residential erf sizes range from about 450 m² to about 800 m² in the older formal residential areas and upper slopes with some larger sites of about 1,000 m² closer to the C43. They offer considerable opportunities for infill and densification. This is demonstrated in *Figure 20*. Even the informal settlements illustrated in *Figure 7* and highlighted in *Figure 9* show possibilities for densification.

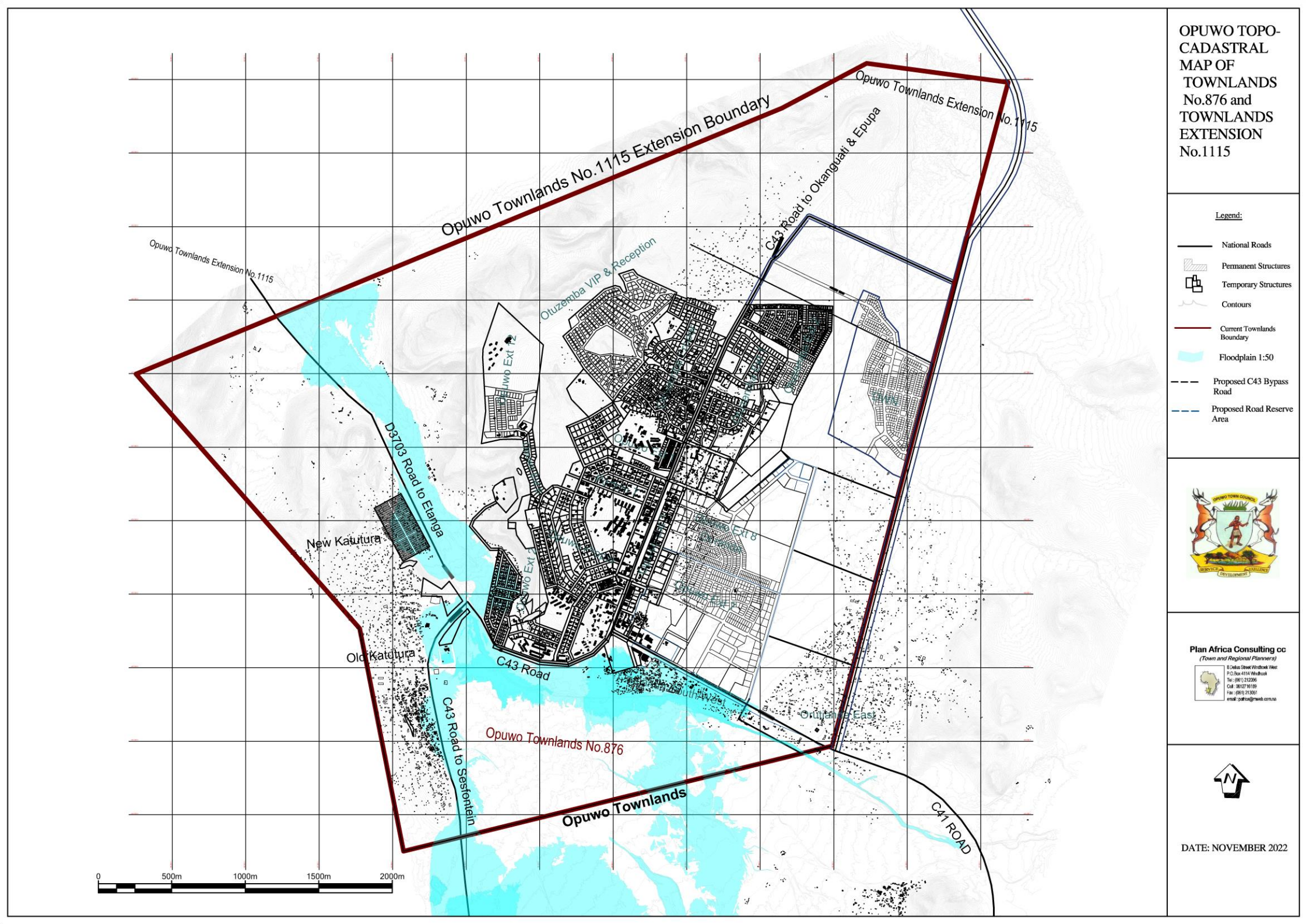
Beyond the one kilometre distance northwards from the C41 along the C43, smaller erven between 300 m² and 400 m² become common with erven and shacks on subdivisions which appear to be down to 250 m² in extent.

The existing legally approved land-usage is regulated by title deed conditions. No application has yet been made for a zoning scheme for Opuwo. The existing legal usage is displayed in *Figure 8* and labelled zoning.

5.4.2 Informal Settlements

Informal settlements have occupied less desirable locations bordering the ephemeral flood zone in the south, some of the hillside on the northern side of the town, and land around the sewage settlement ponds now poorly located in the midst of Opuwo's formal urban extensions. In many cases the informal households have set up rural style fenced homesteads containing a number of small detached dwellings accommodating different members of an extended family.

Figure 6: Opuwo
Topocadastral Map:
Map showing the
land form based on
1-metre interval
contour lines and the
surveyed cadastral
boundaries.



Some of these internal units within the fenced area might be considered separate households in their own right. These are people who have come from a previously disadvantaged group (Ovahimba and Ovadhembamba) who have a semi-nomadic lifestyle and rely on animal husbandry as a means of production and survival through trading. Some maintain both urban and rural lifestyles between which they move depending on rainfall and cattle grazing opportunities. With urban settlement immigrants from rural areas found themselves having to integrate their lifestyle, culture, and traditional beliefs with modernization within the town. Some homes are being “regularised” by establishing clear boundaries and introducing service lines such as access corridors.

The locations of major informal settlements are shown in *Figure 9*. The numbers of structures were counted from air-photographs and the results are tabulated below.

Numbers of Structures in the Main Peripheral Informal Settlements					
A structure may be an occupied or vacant dwelling, a store, a workshop, a shop, an ablution block, or a garage.					
LOCATION	APPROXIMATE NUMBER 2022	NUMBER IN FLOOD PLAIN	AVERAGE DENSITY OF STRUCTURES	APPROX. AREA OF SETTLEMENT IN HA	GIZ ESTIMATED NUMBERS OF STRUCTURES IN 2021
			Structure per gross hectare		
New Katutura	440	12	11.0	40	272
Old Katutura	1400	150	25.0	56	942
Otuzemba VIP Reception	250	0	5.6	45	217
Orutjanda Southwest	500	500	33.3	15	532
Orutjanda East in Opuwo	770	0	11.0	70	561
Orutjanda East Peri-urban	830	0	9.8	85	
Okatuo Informal	56	0	8.0	7	56
TOTAL	4246	662	13.4	318	2580
There is a scattering of structures throughout the townlands that have not been included.					

That informal settlement is a significant component of the Opuwo community is evident from estimates that there are 1,478 “semi-formal” erven such as Otuzemba VIP on the hillside west of the Main Road, the C43, through the town, with a bit under 10% used for commercial purposes, and in excess of 3,400 informal structures, not all necessarily occupied, located within the town boundaries. Orutjande East crosses the town boundaries so that much of it is peri-urban. GIZ counted 1321 structures in Otuzemba VIP in 2021 where the houses or structures are on a formally laid-out system of erven.

There is great uncertainty as to the average household size for the informal settlement structures. Most studies, discussed in Annexure G, use an average household size of 5.2 for the Region. These informal structures unfortunately cannot be viewed as a household as their sizes vary from one roomed structures to clusters of related households. A GIZ survey in March 2021 of Old Katutura found that household sizes vary from one person per household to a maximum of 33 people per household in a grouping of structures. The average household size is 6.11 people while the mode for household size is 1 which is the most common occurring household size. Taking this into account, an average of 2 persons per structure (not per household) might be more realistic.

The same survey of Old Katutura showed that 50% of households had lived in the settlement for 5 or more years. It recorded that only 40% of respondents reported earning more than N\$1,500.00 per month. If these statistics are representative of new growth and influx then

planning should make adequate provision for this impoverished group and ensure that adequate affordable settlement opportunities are available.

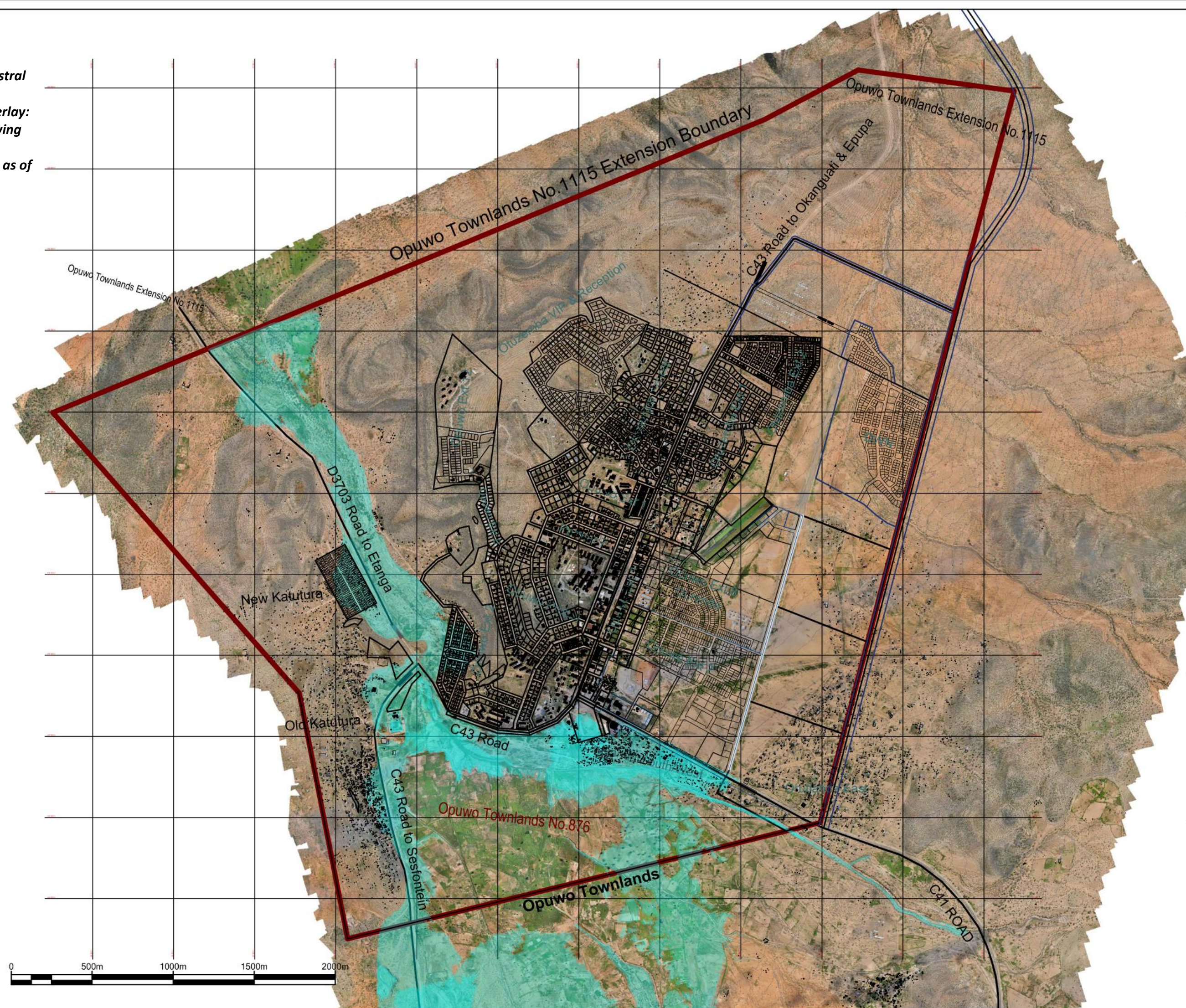
5.4.3 Registered Townships

The Valuation Roll 2020-2025 provides insight into the town’s formal make-up. Actual land-usage based on the nature of the buildings recorded in entries in the Valuation Roll is shown in table 2. There were 1501 entries in the Roll. 746 for Opuwo and extensions 1,2,3 & 6. 755 for Otuzemba & Extension 1. In some cases more than one type of building was present under an entry and these buildings are separately recorded in the table. In other cases subdivisions have taken place and whilst each new site is separately recorded in the Roll these subdivisions have not been registered. The ownership records are a guide to the distribution of ownership but do not reflect the numbers of registered erven.

Table 2: INFORMATION DERIVED FROM 1501 ENTRIES IN THE OPUWO VALUATION ROLL OF THE NUMBERS OF DIFFERENT TYPES OF BUILDINGS AND OF PROPERTY OWNERSHIP.









NATURE OF BUILDING	NUMBER S	OWNERSHIP		PERCENTAGE
Houses	1,036	Private		41.4
Buildings of flats	10	Government		12.9
Shops, bars and other businesses	53	Service Provider & Regional Council		0.3
Warehousing	4	NHE		3.3
Private offices	5	Not registered	built	18.6
Hospital	1	Town Council	built	13.6
Government offices and facilities	33	Town Council	vacant	4.5
Schools	9	Not registered	vacant	7.3
TOTAL BUILDINGS	1,528	TOTAL NUMBER	1,501	100
Vacant erven	403	116 in Opuwo and 287 in Otuzemba		

Figure 7:
Opuwo
Topocadastral
Map with
Aerial Overlay:
Map showing
existing
structures as of
2022.



**OPUWO TOPO-
 CADASTRAL
 MAP WITH
 AERIAL
 PHOTOGRAPHY
 OVERLAY**

Legend:

-  National Roads
-  Permanent Structures
-  Temporary Structures
-  Contours
-  Current Townlands Boundary
-  Floodplain 1:50
-  Proposed C43 Bypass Road
-  Proposed Road Reserve Area



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Ownership derived from the Valuation Roll demonstrates a dynamic situation. Nearly 42% the entries are even registered in the names of private individuals, firms and service suppliers. 13% are in the name of the Government of Namibia. The Namibia Housing Enterprise (NHE) has 3.3% registered in its name, mostly in Otuzemba Extension 1.

The remaining entries may be even still be in the ownership of the Town Council although many have been allocated for private development. Transfer of ownership may be pending or not have been reported in the Roll. They include 32% that are built upon mostly by private individuals or firms. This group comprises 13.6% of the entries registered in the name of the Town Council and 18.6% that are unregistered. Then there are 4.5% that are registered in the name of the Town Council and are vacant. The remaining 7.3% of entries appearing in the Valuation Roll are unregistered and vacant, still in Council ownership.

Vacant erven as a percentage of the 1,501 entries is a high 27%. This suggests that the provision of registerable erven is well ahead of the immediate needs of the more affluent sector and that more provision is needed of affordable options for the growth of less affluent households.

The dominance of the Town Council as land owner gives it an administrative and maintenance burden. It must manage leases, maintain existing structures where maintenance is not covered by a lease, and keep properties in a clean condition. Land sales and registration of land transfers will reduce these costs and generate revenue from an enlarged property tax base.

5.4.4 Peri-Urban Settlement

Significant settlement is also taking place outside of the town's boundaries on its eastern side. These are essentially urban settlements sharing similar characteristics to settlements inside the town boundaries. They have been approved by traditional authorities without much thought having been given to any planned layout or servicing.

They are illustrated in *Figure 10*.

Space must be found for future population growth. It is evident from the relatively low settlement densities that pervade, that provision of land and intensification of occupancy can be made for future extension of residential areas for all income levels. A study of vacant land concluded that there is enough vacant committed (already planned) or uncommitted, to last Opuwo until 2040. Available vacant land for future development is shown in *Figure 11*. It shows the occurrence of vacant land that can be used for future township establishment after eliminating land already occupied, undevelopable or preplanned.

5.5 Infrastructure

5.5.1 Serviced Erven

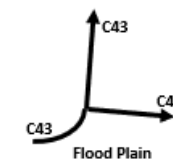
There are 1,501 entries on the Opuwo Valuation Roll. Full service provision (access roads, water, sewers, electricity, drainage, solid waste removal) is provided to formal townships. Some street

lighting is present in a few central places. Progress is on-going with upgrading of informal settlements and phased servicing of formally established townships.

5.5.2 Roads

The town is the focus of a transportation network made up of four distinct national roads. See *Figure 6*. They serve the mining, tourism and government support sectors as well as customers to the commercial centre of Opuwo. The main entrance road comes from the East being the tarred C41 from Omakange. It has a street reserve width of 36 metres facilitating commercial activities up to its junction with the C43. It then continues westwards to Etanga. The C43 comes from Sesfontein in the South forming the main street through Opuwo before exiting in the North with branches leading to the Epupa Falls and Okanguati settlement and Ruacana. It has a street reserve of 30 metres through Opuwo. This reserve width widens to 45 metres for a distance of about 5 street blocks for the section through the business area. This additional width facilitates business activities and allows space for vehicle parking along its edges. These national roads through the town are surfaced. The width of their street reserves provides ample space for parallel access lanes, on-street parking and public transport (taxis or buses).

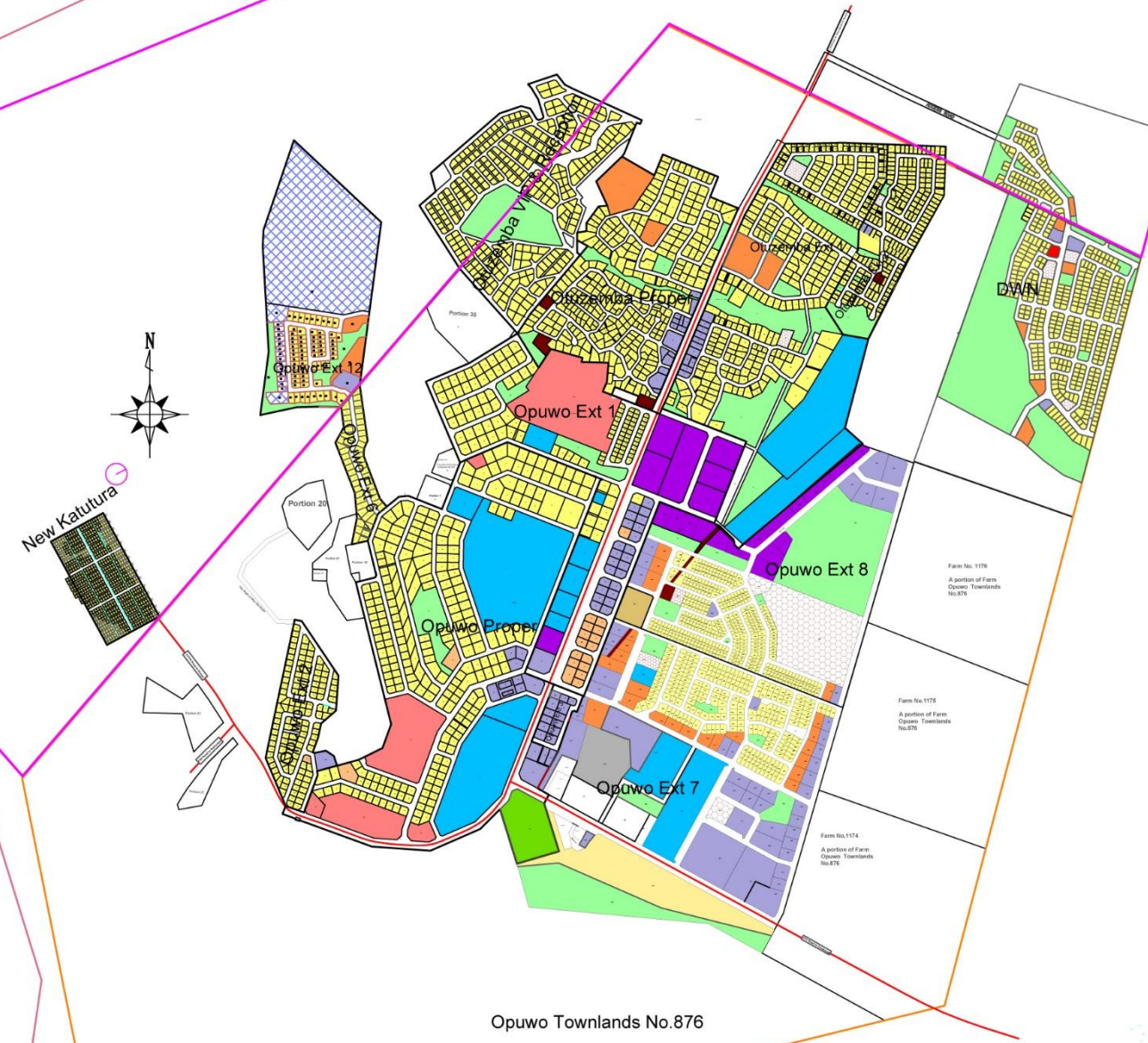
The junction of the two routes of the national roads describe a central "L" shape with a tail. The junction is controlled by traffic lights. The floodplain lies to the south.



The national roads are important elements guiding urban growth. They attract businesses and formal and informal settlement. All the proclaimed townships of Opuwo connect back to these two roads.

There are approximately 4.9 km of surfaced roads and 52.6 km of gravel in 2022 according to a 2022 study of the Windhoek Consulting Engineers Volume 1, Introduction and Conclusions, Final Report 20th October, 2022 drafted for the Bulk Infrastructural Assessment of Opuwo. (WCE). Roads in the areas with approved township street layouts have street reserve widths that vary from 20 metres down to 13 metres. In a few places buildings encroach into the street reserves. In the informal settlements, most streets or access ways vary between 10 and 5 metres in width.

Figure 8: Land-Usage in terms of Title Deed Conditions (Zoning)



Opuwo

OPUWO EXTENSION 1
EXTRACT

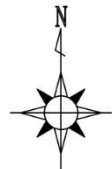
ZONING LEGEND

- Single Residential
- General Residential
- Business
- General Administration
- Sports Grounds
- Education
- Church
- Industrial
- Public Open Space
- Institutional
- Parastatal
- Undetermined
- Hospitality
- Trunk Roads
- Proposed Boundary
- Opuwo Townlands No. 876
- Opuwo Townlands No. 1115



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Scale: 1:17000
SEPTEMBER 2021



The following quotations are taken from the Windhoek Consulting Engineers Volume 1, Introduction and Conclusions, Final Report 20th October, 2022 drafted for the Bulk Infrastructural Assessment of Opuwo.

The Road Network of Opuwo currently consists of approximately 4.91 km of surfaced roads (8.54%) and 52,57 km of dirt and gravel roads (91.46%). Only the higher income areas have proper gravel roads while the lower income areas and informal settlements are serviced by dirt/gravel roads and tracks. The existing Roads Infrastructure in Opuwo is deteriorating and as a result the Consultant was appointed by the Client to setup a simplified Pavement Management System (PMS) on the existing Roads Infrastructure and to setup a Prioritization Schedule for the development of future Bulk Road Infrastructure required to service the future demand.

The route to Epupa is being reviewed for upgrading to carry traffic from the planned Baynes Hydroelectric Power generation facility on the Kunene River and from south-western Angola. Current planning replaces the present C43 with a new road running along the north-south line of the now closed airstrip. The airstrip occupies the western edge of three large land blocks, namely Farms 174, 175 and 176, and a new township, Opuwo Extension 4, being developed in the north-east by the Development Workshop Namibia (DWN). This area is partially vacant and partially encroached by informal settlements. It may be some unspecified period of years before this new route is constructed.

5.5.3 Stormwater

Stormwater drainage is noticeably poor during heavy rainfalls. This is due to the relatively flat topography and minimal drainage infrastructure. Erosion takes place on the hillside and ponding is evident on the lower areas such as the town centre itself. Short term remedial actions are required. Additionally, provision of adequate well-engineered drainage is a challenge that must be faced in the design of every new township extension. Since erosion follows heavy short duration storms, barriers can be put in place that can help to slow down the flow of water or divert the flow into safer channels. A barrier can be made up of partially buried building rubble or stone laid across the direction of flow. The result is a small weir that slows down the flow and retains some of the water. Silting of the up-stream area will fill in the cavities that might be left. Secondary, man-made channels may have to be put in place in accordance with engineering designs to carry quantities of water to points where it can be safely discharged. Over time planting can be done with plant roots holding and anchoring the soil. These channels have the potential to become interconnecting pedestrian footpaths (public open spaces) through new settlement areas.

The following quotations are taken from the Windhoek Consulting Engineers Volume 1, Introduction and Conclusions, Final Report 20th October, 2022 drafted for the Bulk Infrastructural Assessment of Opuwo.

From the assessment conducted and results obtained on the bulk stormwater infrastructure of Opuwo Town, the following conclusions can be drawn:

- The investigations and analysis performed during this bulk stormwater assessment, highlights some serious challenges with regards to the lack of- and/or insufficiency of stormwater infrastructure in Opuwo. Significant ponding takes place in residential areas as well as in the CBD which are situated on very flat topography with little or no stormwater discharge infrastructure. General maintenance is poor resulting in blockages and the existing infrastructure not functioning optimally. This was clearly visible during the site visit when ponding and flooding occurred at several places after a small rain event.

5.5.4 Sewage

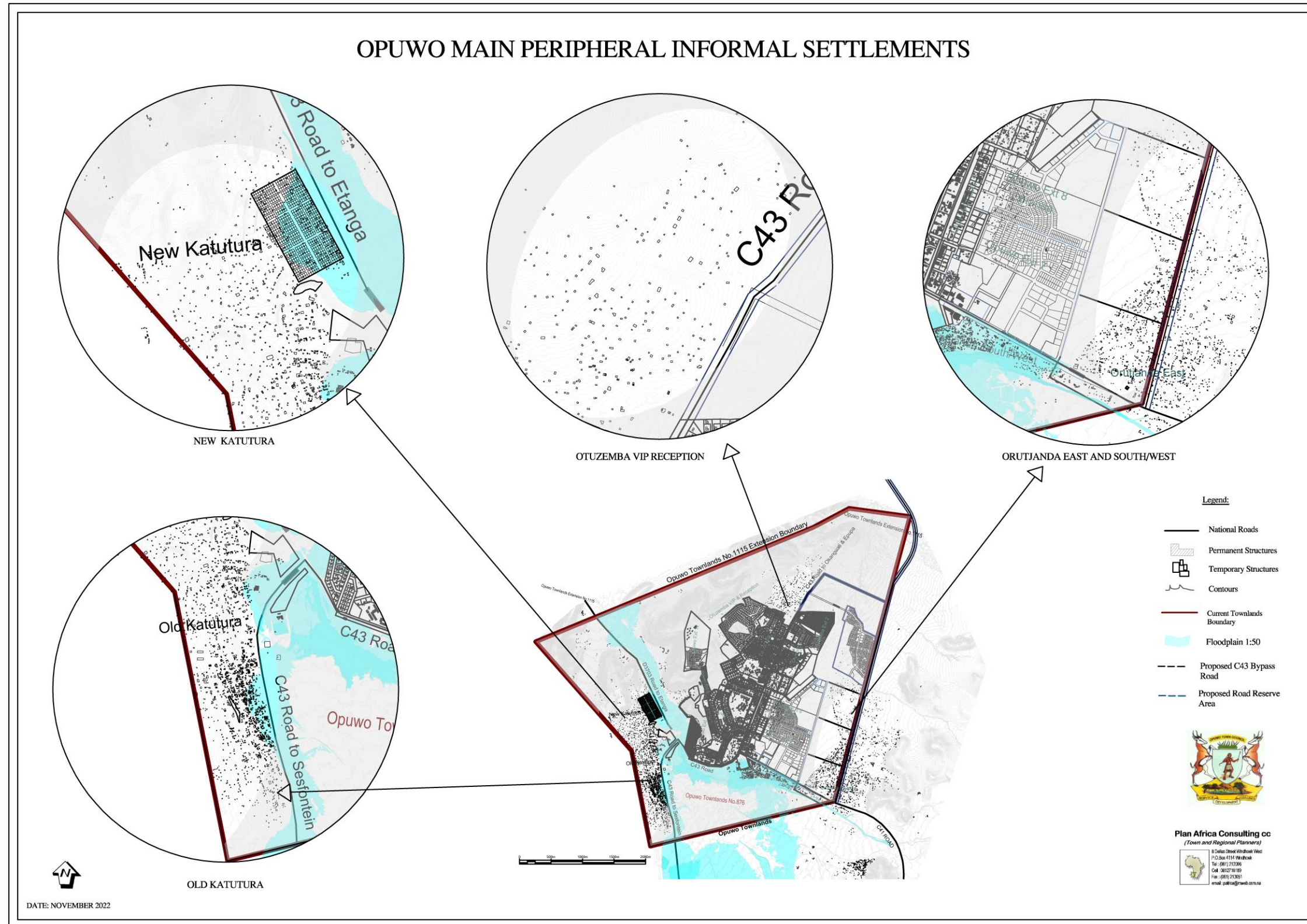
Sewage in Opuwo is piped to centrally located oxidation ponds. These ponds lie on a natural drainage system that runs due north and then north-west out of the valley. Sewage from settlements on the southern part of town, notably south of the flood plan is pumped over the watershed into the northern drainage area. The central location of the oxidation ponds poses a major health problem since informal development has crept up to its edges and formal development is planned to surround the ponds. The sewerage oxidation ponds are permanently full and overflow with a distinct odour surrounding them. Houses are a stone's throw away from the facility and children play within its surroundings. Oxidation ponds according to the WCE study are recommended for a population not exceeding 5,000 persons.

The following quotations are taken from the Windhoek Consulting Engineers Volume 1, Introduction and Conclusions, Final Report 20th October, 2022 drafted for the Bulk Infrastructural Assessment of Opuwo.

- The state of the existing bulk sanitation and sewage infrastructure in Opuwo Town is very poor. Operation and maintenance are seriously neglected and sewer pump stations in particular are in a very bad state of repair. This can be attributed to budgetary constraints, lack of skilled manpower, lack of suitable equipment, long distances to service centres and infrastructure which is beyond its design and serviceable life.
- The position of the oxidation ponds which are located almost in the middle of town, is a serious point of concern. Oxidation ponds are only recommended for a population of 5,000 or less, while Opuwo already has a population of approximately 15,000. This report recommends that an advanced wastewater treatment plant (WWTP) be constructed in phases, with the first phase to commence as soon as possible. It is proposed that the existing oxidation ponds be kept in operation in conjunction with the Phase 1 WWTP, but be decommissioned when the WWTP is expanded during Phase 2 of its construction. The existing ponds must be rehabilitated and fenced off immediately.

The Report strongly recommends the construction of a new wastewater treatment plant as a matter of urgency and the phased decommissioning of the existing works. An industrial area has been located adjacent to the oxidation ponds. Sale of sites and their development will create a small but useful buffer between the ponds and residential settlement.

Figure 9: Main Peripheral Informal Settlements: Map showing the extent of each of the main settlements all situated on the periphery of the proclaimed townships.



5.5.5 Solid Waste

Opuwo's current dump (or landfill) site is located due south of the town and outside its boundaries. It is open to the public and is used by goats for grazing. Waste material and dust are distributed widely by wind. It poses a health problem particularly for informal households settled in the vicinity. It still has spare capacity but its lifespan may need to be curbed.

The following quotations are taken from the Windhoek Consulting Engineers Volume 1, Introduction and Conclusions, Final Report 20th October, 2022 drafted for the Bulk Infrastructural Assessment of Opuwo.

From the assessment conducted and results obtained, the following main conclusions are drawn with respect to the bulk waste management in Opuwo:

- Opuwo's Bulk Waste Management System and current Landfill Site leaves much to be desired and urgent action is required. The fact that the Ministry of Environment, Forestry and Tourism is taking drastic measures to force Town Councils to abide by the rule of law, should not be the only driver in rectifying the situation. Town Council should provide services relating to solid waste removal and management to ensure an environment which is conducive towards hygienic living conditions and economic activities.
- A systematic approach should be taken to devise a plan of action to implement the guidelines given in this document. Budgetary constraints are always present, but should not be used as an excuse, since the negative environmental impact of a poorly managed landfill site is huge, and people's lives are endangered if proper health and sanitation conditions are not met.
- The current landfill site needs urgent rehabilitation and improvement, but can still be used over the short term.
- New and additional equipment is needed to implement a proper waste removal system.
- The Town Council should embark on an information system to educate residents about waste disposal, reduction, reuse, and prevention of waste.
- The current recycling operations should be encouraged and amplified.
- A new landfill site should be developed once the current landfill site fills up. An Environmental Impact Assessment, as well as geotechnical and groundwater studies will be required. Proper planning and design of the facility according to accepted standards and specifications will be crucial.

Sites for the relocation of the sewage works and for the solid waste dump were investigated and recommendations have been made by Windhoek Consulting Engineers in their report on Bulk Infrastructure Assessment of 20th October, 2022. The desired relocation of an upgraded sewage treatment plant or settlement ponds influences the projected settlement pattern. The extent of the service network and the likely new locations for a sewage treatment works and solid waste dump are shown in the accompanying *Figures 12 and 13*.

Figure 12 provides a map showing proposals for new bulk service lines and a new site for a sewage treatment works, 5 kilometres north along the C43 from the intersection of the C43 with the C41. It must be noted that a buffer area, possibly from 300 to 500 metres wide, will be put in place to separate the works from residential settlement which might be affected by noxious effluents and odours. An industrial township will be less vulnerable and thus better placed as a neighbour to a sewage treatment works.

Figure 13 provides a map showing the existing landfill (dump) site and the proposed new site. The former is just outside the town's southern boundary and the proposed new site is located at a little over 7 kilometres distance measured along the road from the town centre and nestled into the mountains.

5.5.6 Water and Electricity

Bulk water and electricity are supplied by external parastatals NAMWATER and Northern Namibia's Regional Electricity Distributer (NORED). Salinity limits the availability of local water sources. There are some government boreholes in the floodplain.

The following quotations are taken from the Windhoek Consulting Engineers Volume 1, Introduction and Conclusions, Final Report 20th October, 2022 drafted for the Bulk Infrastructural Assessment of Opuwo.

Bulk Water

From the assessment conducted and results obtained, the following main conclusions with respect to the bulk water in Opuwo are drawn:

- The focus of this Bulk Infrastructure Assessment was to investigate and make proposals regarding bulk water infrastructure upgrade and/or expansions to improve the living conditions of the urban poor in the informal settlements and also to ensure adequate supply to planned extensions of town in future. The observations and analysis in this report point towards a serious lack of existing water supply infrastructure in these urban poor areas and recommends specific upgrades to the bulk water supply infrastructure.

Electricity

The existing bulk electricity infrastructure was based on 80% loading of the current installed transformer in the Opuwo Substation and the assumption that all distribution transformers are not supplying at full capacity.

This assumption was made to cater for diversity, as not all residents and institutions use electricity up to their installed Maximum Demand at the same time and the assumption that the electricity distribution system of the town of Opuwo was not designed at the same time allowing for the same After Diversity Maximum Demand (ADMD).

As with other infrastructure the distribution in Opuwo is not comprehensive and some areas are deficient. This common aspect results from the town's low resource base (skilled staff, equipment and finance). Infrastructure management, construction and maintenance is difficult in such circumstances and inadequacies are apparent to the town's disadvantage.

Figure 10:
Settlement Along
and Outside
Opuwo's
Boundaries: Map
showing the extent
of each of the main
essentially urban
settlements
approved by
traditional
authorities situated
close to but outside
of the Town



5.5.7 Servicing Initiatives

Extending services and upgrading of infrastructure are on-going projects especially in the informal settlements. Housing and serviced land has been a big challenge mostly because of illegal occupation and land grabbing but the Town Council is working towards closing this gap through engagements with other stakeholders in especially land development. The Shack-dwellers Federation of Namibia (SDFN) is one such organization that assists low income earners to acquire land for the construction of low-cost housing at an extension near Otuzemba Extension 3. The organization requires that beneficiaries form committees to manage the collection of funds whilst donor funding channelled through the Namibia Housing Action Group (NHAG) allows for some servicing and purchase of land to be made on behalf of the beneficiaries. Another community-based organization which assists the Town Council is the Development Workshop Namibia (DWN). It is an organization responsible for mobilization of communities in informal settlements for sanitation and land development projects to help serve a common purpose where communities are the beneficiaries. Traditional Leaders also take responsibility for mobilization of residents in informal settlements which have a strong recognition for traditional authority governance.

Formalizing the informal settlement is a long-term process which requires both human and financial resources. The land on which these settlements are located within town boundaries belongs to the Town Council. Tenure is informal, that is, there is no registered property title and approved lease with the Town Council. It is partially serviced in those places where Council was able to mobilise its resources and have some degree of designs drafted and, in some cases, implemented. Relocations in Opuwo are very common as most of the informal settlements developed organically. This means that it is difficult to attempt installing services without moving people and it has been one of Council's challenges since the establishment of the town. The current formalisation status of most of the informal settlements in Opuwo is varied as follows:

- New Katutura Ext.2 is semi-formal with a layout and full services but pending approval from the Urban and Regional Planning Board.
- Otuzemba VIP and Ext. 3 have formal layouts but without any services, apart from street clearance or clearing of roads. The mountainous location makes the provision of infrastructure expensive.
- Orutjandja south, Okatuuo informal and southern part of Orutjandja east are entirely informal without any kind of structured layout in place.
- The northern part of Orutjandja east is underway to becoming formalised as it is allocated to the Namibia Housing Enterprise and Namibia Chemist who will undertake the formalisation process.

5.6 Population and Socio–Economic Conditions.

The 2021 population of Opuwo is about 15,000 people. The population is not a stable one and is highly variable with, for instance, temporary residents residing mainly in the rural areas but owning dwellings in Opuwo (known as ghost houses) or attending schools. Migrants come for trading, marketing of produce, drought relief or job seeking. Major attractions are government and service facilities derived from Opuwo's role as regional administrative capital and the institutional framework comprises of all civic buildings (government buildings), educational buildings, churches and hospitality buildings.

Opuwo also has important social facilities that cater for most of the needs of its residents and those that live nearby the town. There are two informal soccer fields and one football stadium. Formally developed public open spaces (parks) are lacking. On the periphery the mountains and watercourses create a generally open perspective. A serious deficit is the lack of a cultural centre for the display of items and performances by cultural groups. A "Traditional Museum" would be a supportive item of such a centre.

Both institutional land uses and agricultural land uses do not and will not be lucrative in terms of rates and taxes even though they take up a significant amount of land percentage wise. Most institutions may by law be exempted from rates and taxes as they would contain public amenities. However at the same time, they serve as main attractions generating a need for mobility of the population. For this reason, they ought to be spatially integrated and be strategically located where they can be readily accessible.

Two reports prepared as part of the OUSP, "Opuwo Status Quo Report" and "Opuwo Population Projections, Land Demand and Affordability" provide and discuss statistics available used to profile the Opuwo population. They are attached as Annexure G and Annexure H respectively. An average household size of 3.9 has been established from historic figures and used in the projection of future numbers of households and hence the demand for housing. The results of a 2022 sample survey of informal settlement households suggests an average household size of 5 to 6 persons exists in the informal settlement areas. These figures and their projections can be interpreted to indicate the amount of land needed to accommodate future populations. They are separately reported in the section on projections and supply of land below.

Historically the town had a low literacy rate of 62% in the 2011 Kunene Regional Profile. In 2022, primary school attendance was about 3,500 whilst secondary attendance was much lower at just under 400. School attendance in the informal settlements is unquestionably low but not readily quantifiable. It is a major cause for long term concern. Whilst it is expected that new school sites will be provided at an established rate in each new township extension, the youthful population of the informal areas means that extra provision should be made for low income areas. It is suggested that at least one primary school site be provided per 600 households and a secondary school site per 1,500 households.

Schools were contacted about enrolment and numbers of students attending the different schools contacted were supplied for the years 2021 and 2022. The numbers supplied are shown in the following table. The very low percentage of scholars at secondary level is striking. One possibility may be that many are attending schools in other regions. There are no spatial implications. Sites for schools should still be supplied at established rates in every new township.

Figure 11: Available Vacant Land for Future Development: Map showing the land that can be used for future township establishment after eliminating land already occupied, undevelopable or preplanned.

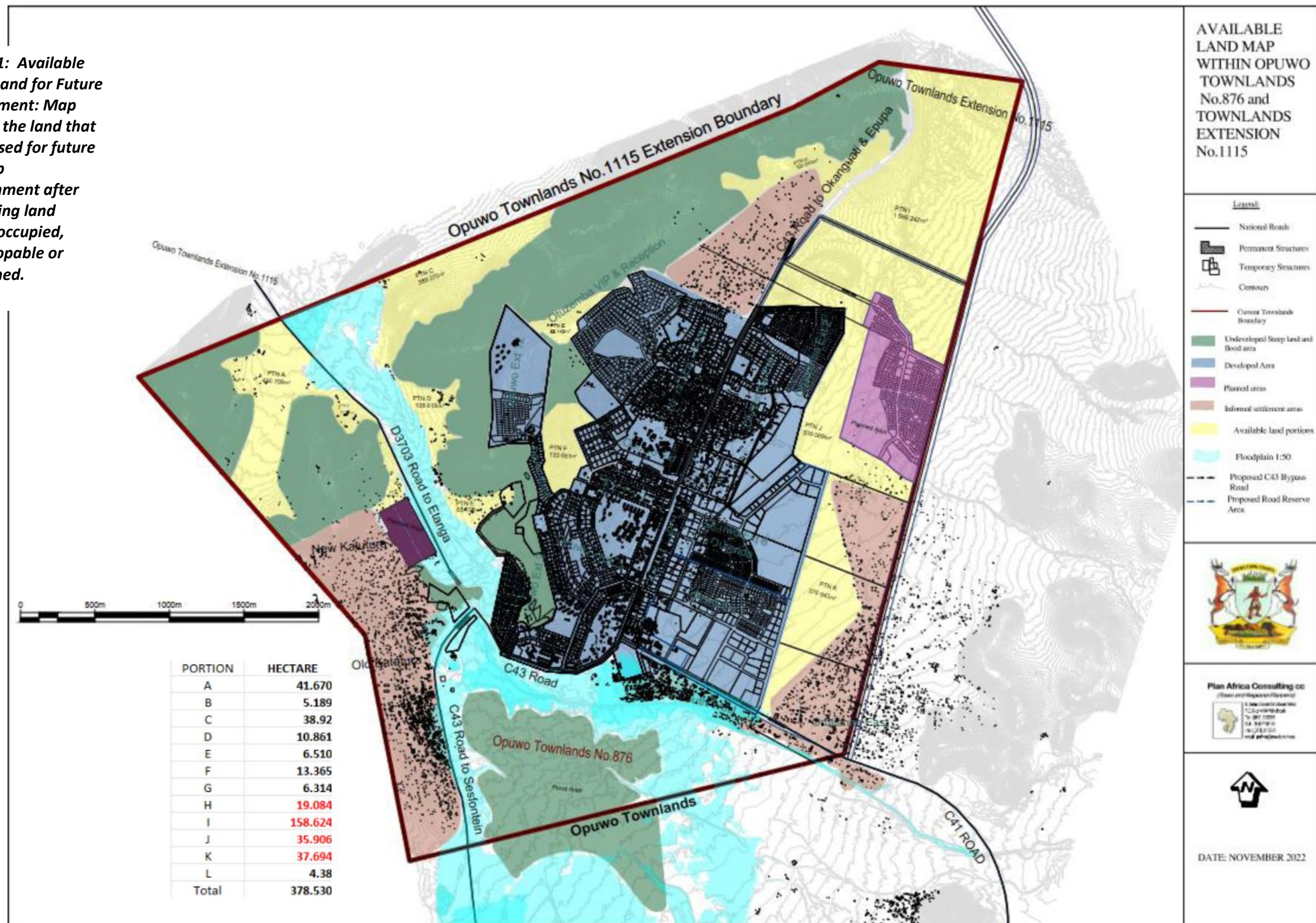


Table 3: REPORTED NUMBERS OF SCHOLARS

REPORTED NUMBERS OF SCHOLARS				
LEVEL	NUMBERS REPORTED			
	CURRENT	%	PREVIOUS	
	2022		2021	
Primary Town	2594		2462	
Primary Rural	892		924	
Primary Boarders				
Total Primary	3486	90.1		
Secondary Town	384	9.9	436	
Secondary Rural				
Secondary Boarders				
Total Secondary	384			
TOTAL Primary+Secondary	3870	100.0		
TOTAL Town	2978			
Tertiary	None			
Pre-Primary	120		111	

5.7 Economic activities

5.7.1 Employment Profile

The Kunene Region, according to the Namibian Government 2018 Labour Force Survey, has a relatively low proportion of wages and salary earners. This appears to be applicable to Opuwo. This situation does not bode well for housing development as it indicates a low number of individuals with fixed incomes that are regular and consistent which is an essential requirement for mortgage bonds from financial intermediaries.

Opuwo offers unique economic opportunities for those in government, tourism, mining, and agriculture, activities largely bringing in income from outside Opuwo, as well as opportunities in the more general economic support activities of retail, wholesale, medicine, education, and industry which mainly circulate internally generated income. People travel from as far as Puros, Sesfontein, Epupa falls, Okanguati, Omakange and Etanga to access governmental and commercial services. That all these opportunities are not fully exploited is apparent from a quick limited sample employment survey of 1,461 employees in the CBD and of other major employers, conducted in February and March 2021 specifically for this report.

EMPLOYMENT SECTOR	%
Government including town and regional councils and parastatals	30
Hospital & Schools	32
Agricultural supplier	2

Hospitality	3
Industry & transport	1
Retail & wholesale including informal sector	26
Private Sector Financial, Medical & Personal Services	6
Other private enterprise	0
Total	100%

The count did not include dispersed retail outlets either formal or informal and it did not include scattered casual workers and cleaners. The government component will be further increased by an expected 80 plus personnel that will occupy the newly constructed Regional Police Headquarters.

The 2022 sample survey of informal settlement households revealed an adult employment rate of about 50% in one area and only 21% in another. Most of these surveyed (about 50%) registered their occupation as “trader”. This can be taken to mean street hawking. Many, if not a majority of these traders are women.

What is evident is that two thirds of formal employment is in government, making this the dominant source of outside income being brought into Opuwo.

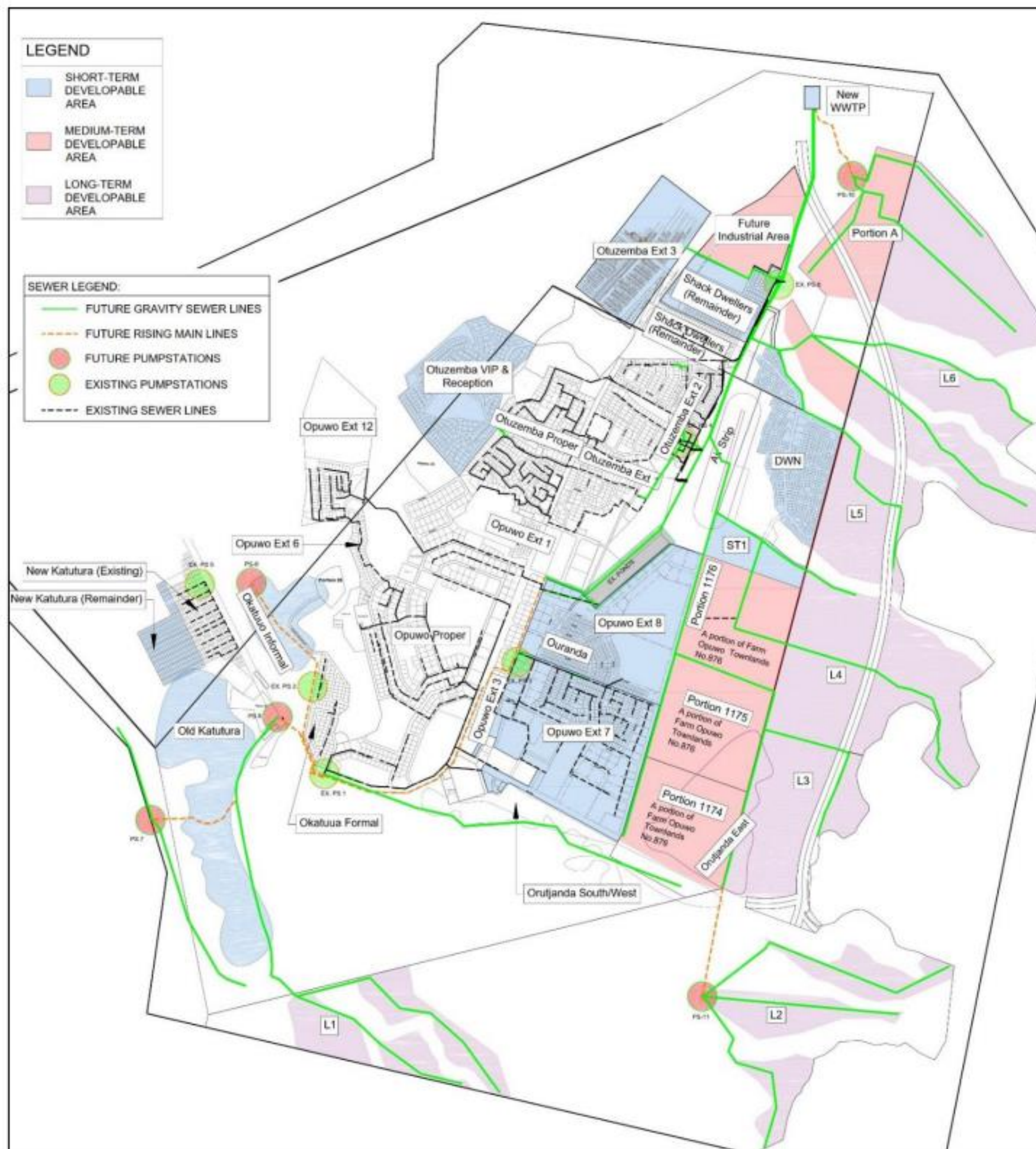
5.7.2 Major Government and Private Sector Employers

In Opuwo, government buildings form a fringe, effectively an office concentration including the Regional Hospital, along the western side of the national road, the C43. Other institutional buildings are more dispersed within the business area. They include the Police Regional Headquarters, offices of the Roads Authority NaTIS (Namibia Traffic Information System), a market, a clinic and grounds for an annual trade fair. Schools are also widely spread. Opuwo is home to a Namibia University of Science and Technology (NUST) distance learning centre.

Major private investments have a strong retail orientation and include enterprises such as Agra, Spar, Woermann Brock Hyper, Pep, Meatco Auction Pens, banks, smaller retail and service industry shops and a vibrant informal market and smaller street vendors. The informal market is focused on the tourism and fresh meat products.

The locations of these enterprises underlies the dominance of the town’s existing Central Business District (CBD) which is anticipated to remain for the 20-year horizon of the Structure Plan.

Figure 12: Proposed Future Bulk Service Lines and Sewage Works: Windhoek Consulting Engineers November 2022 Map showing proposals for new bulk service lines and a new site for a sewage treatment works.



5.7.3 Small Scale and Seasonal Operations

Numerous small retail stalls, are located along the economic corridor. Some comprise only concrete benches and tables for trading. Others contain lockable space and are often built against the back and sidewalls of existing large shops. These traders mostly trade snacks, cheap gadgets, shoes, cellphone covers, and airtime. The Town Council has created an open market about 100 metres from the activity corridor. This location has not proved attractive to traders.

Street hawkers operate all over the town centre but are mostly concentrated along the economic corridor that runs through the town. Street hawkers were observed as being mostly active at shopping centres, the service stations and bottle stores, following foot traffic. All the street hawkers observed were middle aged women, wearing traditional Ovahimba attires and most of them carried their babies. The hawkers mostly sell hand crafted jewelry, cheap shoes and gadgets.

An annual trade fair was launched in 2012 which attracts many visitors. Besides commercial exhibits, it features cultural performances, local handicraft, food stalls with local cuisine, and entertainment. More can be done to enhance Opuwo's attractions and for which land allocations must be anticipated. Access can be a problem for sites without a formally constructed road. For example, the site of the Scents of Africa oil collection and processing plant on Portion 20 of Opuwo Townlands No. 876, which is in itself a tourist attraction, is found only at the end of a rough gravel track. This operation is one that makes use of locally sourced natural materials collected and supplied by women of the rural Ovahimba people and which, after processing, has an international market still poorly developed.

5.7.4 Tourism

The importance of wildlife conservation is emphasized in *Figure 2* which shows the prevalence of these communally managed areas in the Region and around Opuwo all of which bring visitors into Opuwo. Communal conservancies are self-governing, democratic entities, run by their members and possess game management plans. These conservancies have a growing potential to attract tourists. Farming takes place in conservancies and hunting which is governed by quotas. Sites of tourist attractions within the Kunene Region are indicated in *Figure 3*, community conservancies in *Figure 2*, and National Parks in *Figure 4*. They are probably part generators of tourist visits to Opuwo.

The hospitality sector provides accommodation for tourists and other visitors to the town. Tourist facilities are widespread throughout the Region and many tourist visits are transitory. The Opuwo telephone directory lists eight tourist accommodation facilities.

5.7.5 Mining

The Kunene Region as a whole has many non-fuel mineral resources such as iron, cobalt, marble, granite and sodalite. In the relative vicinity of Opuwo there are various claims and mining of smaller copper type minerals such as Dioptase from 10 km to 100 km west of Opuwo and cobalt is mined to the north-west and lithium has been discovered in the north-east. *Figure 4* shows the locations of active mineral licenses.

There was no data of employment generated from mining and agriculture although these two economic sectors will definitely be customers of Opuwo's commercial facilities and thereby contributing to income generation. An increase in industrial and transport related activities arising from mining and the planned Baynes Hydroelectrical Power Station, on the Kunene River bordering Angola approximately 200 kilometres downstream from the Ruacana Hydroelectric Power Station, are expected to bring development to Opuwo and land provision is needed.

5.7.6 Agriculture

There are existing activities within the town that can be categorized as agricultural activities. They comprise crop farming in the floodplain as well as the daily trading of small stock on the outskirts of the town. Open areas in the Town near the C41 are frequently used for trading of livestock with some unregulated butchering. Future provision for livestock trading will be needed as existing open spaces get taken up by formal businesses. Livestock trading will have to move since the animals and activities create odour, attract flies and raise dust. None of these emissions are compatible with a healthy business or residential environment.

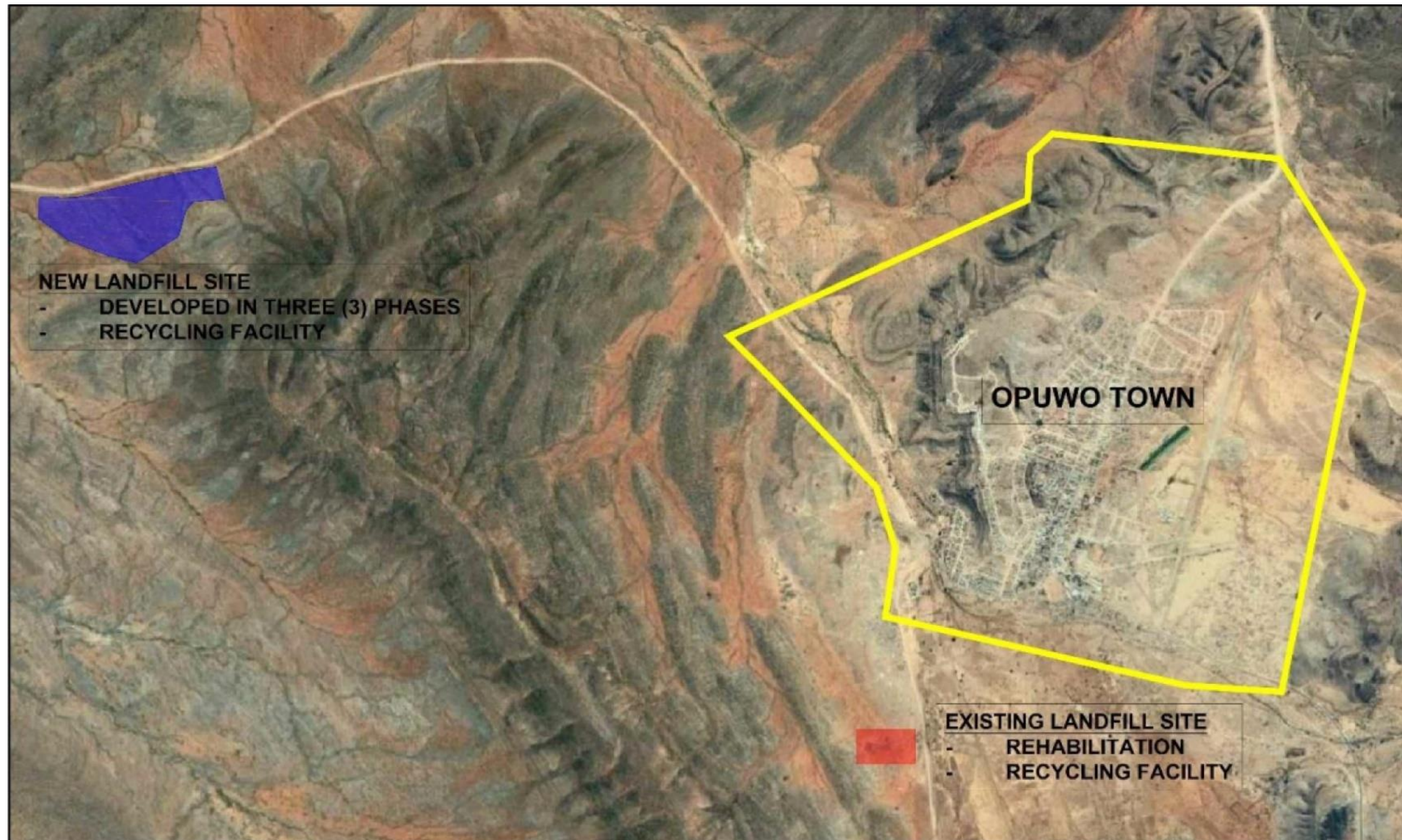
Areas within the 1 in 50 year floodplain might be considered for temporary easily removed commercial structures. Structures erected on stilts are options. This can be combined with additional provision for small scale vendors including one-person micro-enterprises coming from the informal sector. The general perception is that these activities do not belong in a town (urban setting). However, if well managed these activities can be transformed into well-structured urban agricultural activities, forming part of the town's greenery and food supply chain.

5.8 Conclusions from Review

Opuwo struggles financially. The shortage of income makes it difficult to employ enough trained staff for effective management. Further urban expansion is exacerbate this problem. What was once small rural town existing as a service centre for nomadic livestock farmers, and the provision of a limited range of government services has changed. The main impetus for growth and development has been the greatly expanded government sector. This has brought expansion also to other economic sectors notably retail and provision of accommodation (the hospitality sector).

The expansion of the formal street and erf layouts to accommodate population growth has been structured, and is adequate and regulated. Where problems have arisen has been in the uncontrolled informal settlements that have surrounded the established townships and invaded land designated for other activities. These informal settlements are not laid out so as to optimise on land usage and facilitate the provision of infrastructure. There is no shortage of land for settlement. The challenge has been and continues to be, the management of settlement and financing so as to enable serviceable infrastructure to be supplied to all sections of the population.

Figure 13: Bulk Waste Management Proposals: Windhoek Consulting Engineers November 2022 Map showing the existing landfill (dump) site and the proposed new site



Existing infrastructure has been overwhelmed in part, stormwater flows cause damage, the sewage oxidation ponds are dangerously overloaded, and the solid waste site is in need of replacement. As is highlighted in the next section, projections suggest that 62% of future land allocations must be for the ultra-low income households. The challenges of providing adequate services to ever-widening settlement areas will increase unless addressed.

The main employment activities concentrate along or in near vicinity to the national roads, the C43 and C41. These are the areas to which the employed and those seeking employment are drawn. It is these employment opportunities that Opuwo would like to see grow for the benefit of its population. The linear formal settlement following the natural advantages of the national roads has been informally extended to the north and south by informal settlement. The extensive floodplain has been a factor in the south facilitating informal settlement on its outer perimeter. Informal settlement is also situated east of the town but with what must be only a transient buffer created by the now defunct airstrip. If this settlement pattern continues, it will add to the challenges of extended infrastructure. It also adds to the personal time and convenience of persons travelling to the business centre.

It is anticipated that the centrally placed sources of employment will remain dominant. New residential settlement could be better integrated with the employment areas if established on the closest vacant land to the business area or by intensifying usage of land in the established areas. This latter option would have to be by the actions of property owners, but can be facilitated by a clear statement of its desirability by the Town Council. Only by taking supportive action can Opuwo increase its attractiveness for private sector development.

Opuwo remains a struggling community in one of the poorer regions of Namibia. It will continue to depend on Central Government financial support. Urban expansion with its historic predominance of low income immigrants will likely not in itself provide sufficient income to address the skilled manpower shortage and ensure adequate levels of engineering infrastructure. Opuwo offers unique economic opportunities for those in government, tourism, mining, and agriculture, activities largely bringing in income from outside Opuwo, as well as opportunities in the more general economic support activities of retail, wholesale, medicine, education, and industry which mainly circulate internally generated income. Good decision-making and central government support will assist Opuwo in meeting these challenges and ensure that Opuwo maintains a stable role as regional administrative capital

6. Projections of Population, Affordability and Demand for Residential Land

An evaluation from available population statistics, affordability levels and the land that might be needed for residential settlement is provided in the report “Opuwo Population Projections, Land Demand and Affordability”. It is attached as Annexure H.

6.1 Population Projections

The lack of current population figures meant that even the baseline 2021 population is the result of projections with high, medium and low lines as explained in Annexure H. They gave figures that varied from a low 11,500 people to a high of 16,200. Reasons for uncertainty are described in the Report and include mobile households who maintain premises in both urban and rural locations.

It was decided to adopt the medium population projection of 15,000 people for Opuwo as the baseline for projecting into the future. Based on this data, projections have been made for the study period 2021 – 2041. The resulting projections from the adopted base line are shown in Graph 1. The projected demand for land arising from the projected growth in the number of households is then compared to the supply of developable land within the town boundaries.

The results are provided hereunder.

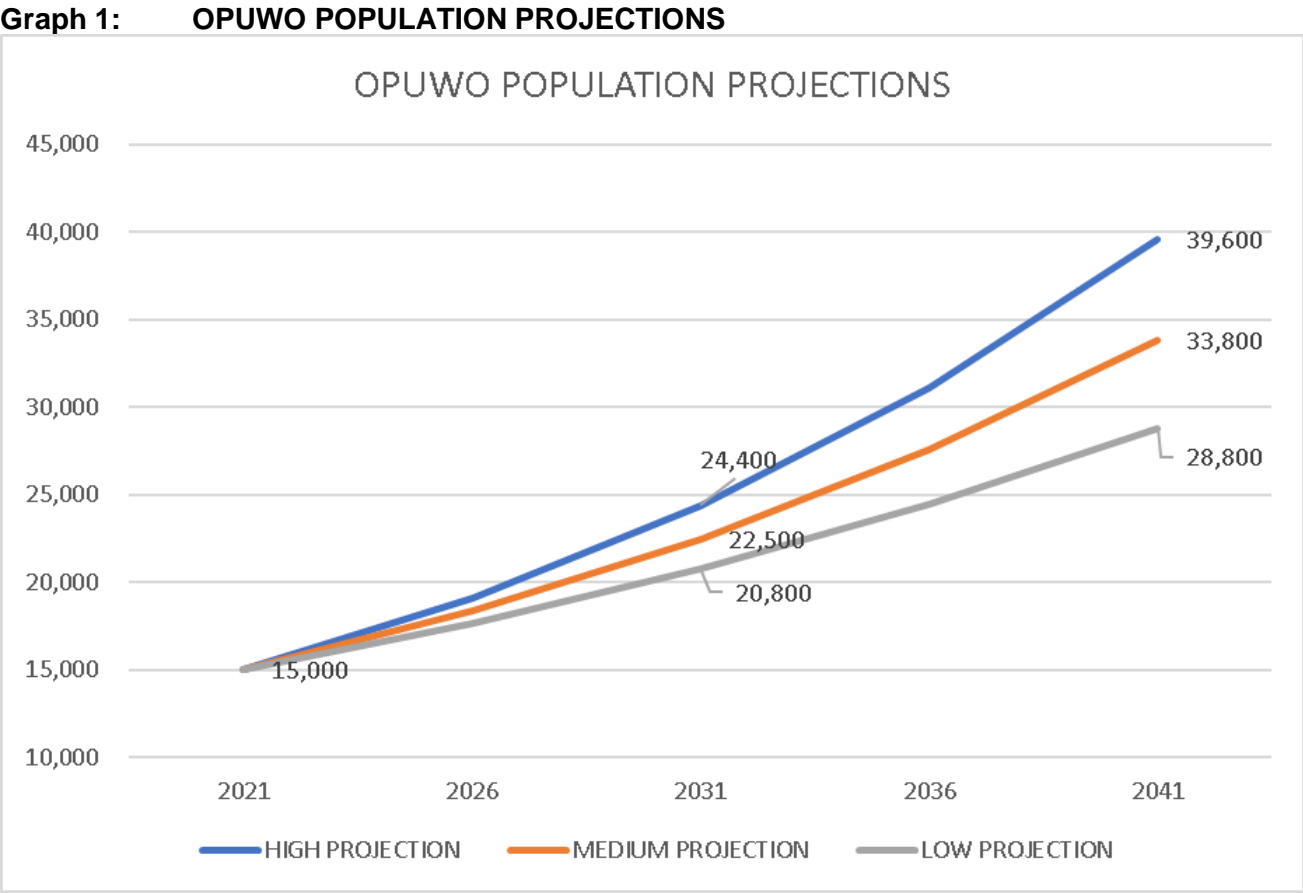


Figure 14: Future Directions of Urban Growth Schematic plan indicating the anticipated directions of growth of different urban components and concentration nodes of particular land uses.

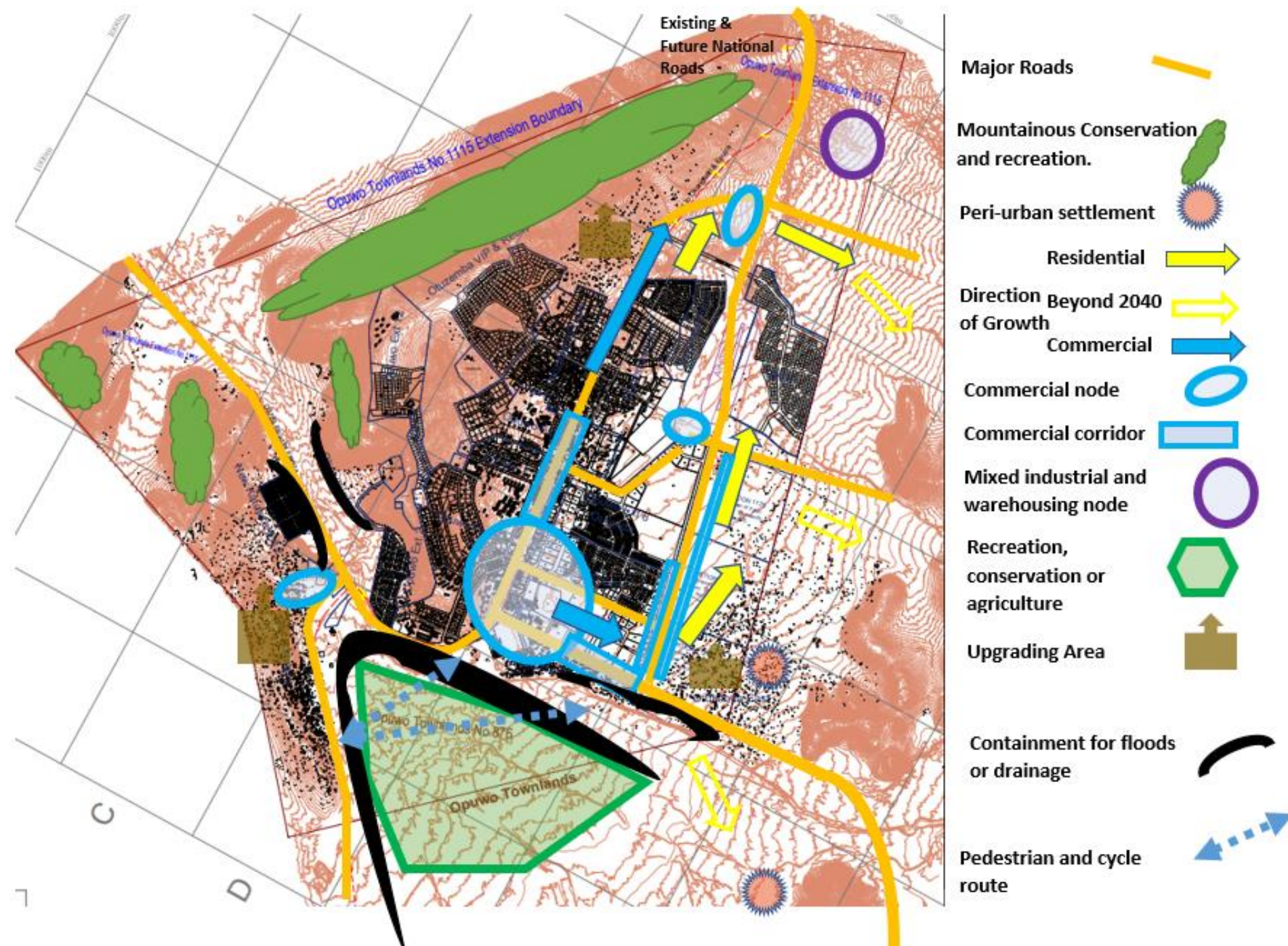


Table 4: PROJECTED POPULATION AND NUMBERS OF HOUSEHOLDS

DESCRIPTION	Growth Rate	2021	2026	2031	2036	2041
Opuwo Projected Population (20% Higher)	4.97%	15,000	19,100	24,400	31,100	39,600
Projected population (Base Population)	4.15%	15,000	18,400	22,500	27,600	33,800
Opuwo Projected Population (20% Lower)	3.32%	15,000	17,700	20,800	24,500	28,800
Kunene Region Projected Population	2.37%	109,800	123,400	138,700	155,900	175,300
Opuwo Population as a Proportion of the Region (Medium)	Medium Projection	13.7%	14.9%	16.2%	17.7%	19.3%

According to the 2011 Census, the average household size for the Kunene Region was 4.6 while the average household size for the urban areas in the Region was 3.9 persons per household. In 2001 the average household size for urban areas in the Kunene Region was 4.3 persons per households. This indicates that the average household size for urban areas in the Region has contracted by more than 0.4 or about -9.3% over ten years or 0.93% annually. Although the number might seem insignificant, it has far reaching implications for the Region as it means that for the same population increase, the number of households grows faster as households become smaller.

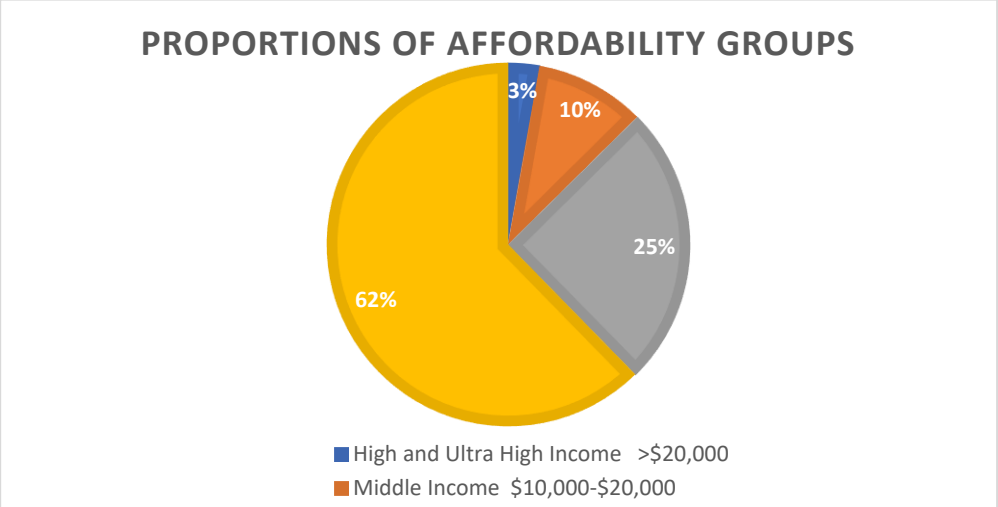
Because of the uncertainty of Opuwo household dynamics over the next 20 years and the rural nature of the population, the land consumption projections for 2041 are based on the average household size of 3.5 calculated for 2021 which is already significantly lower than the 2011 census average household size of 3.9 persons per household.

6.2 Affordability

Taking figures contained in the “Revised National Housing Policy – 2022 (Draft for stakeholder consultation)” one gets the following results. 50% of the households comprising about 63% or 9,360 of the population from the projected 2021 Opuwo population of 15,000 earn less than N\$4,500 per month. These households can only afford a maximum of about N\$170,000 for a housing solution with a loan of 20 years at a subsidized interest of 7.5% per annum. The ultra-low income is classified by the Revised National Housing Policy as people who earn less than N\$5000 per month. Low-income households earn between N\$5,000 and N\$10,000 and make-up further 25% of the population or more than 3,900 persons. Combined these two groups comprise almost 87% of the population.

It is very possible that Opuwo affordability figures will be lower than the national figures suggested above. Nevertheless, given the distribution and quantity of demand for each affordability group, the land demand for each category was projected for the planning 20 years horizon. Sixty two percent of the land must be provided for the ultra-low and 25% of the available land to the low-income groups together these two groups comprise about 90% of the total population of Opuwo.

The Pie diagram below summarises the information on affordability.



6.3 Projected Demand for Residential Land

It is suggested that Council concentrates its land delivery efforts on the two groups that will require the highest percentage of residential land. As shown in the projections below the ultra-low and the low-income groups will require a total of about 8,500 erven or sites by 2041. Growth in the high and medium income groups is estimated to add only an additional 1,200 households by 2041.

Graph 2: POPULATION PROJECTION OF AFFORDABILITY GROUPS

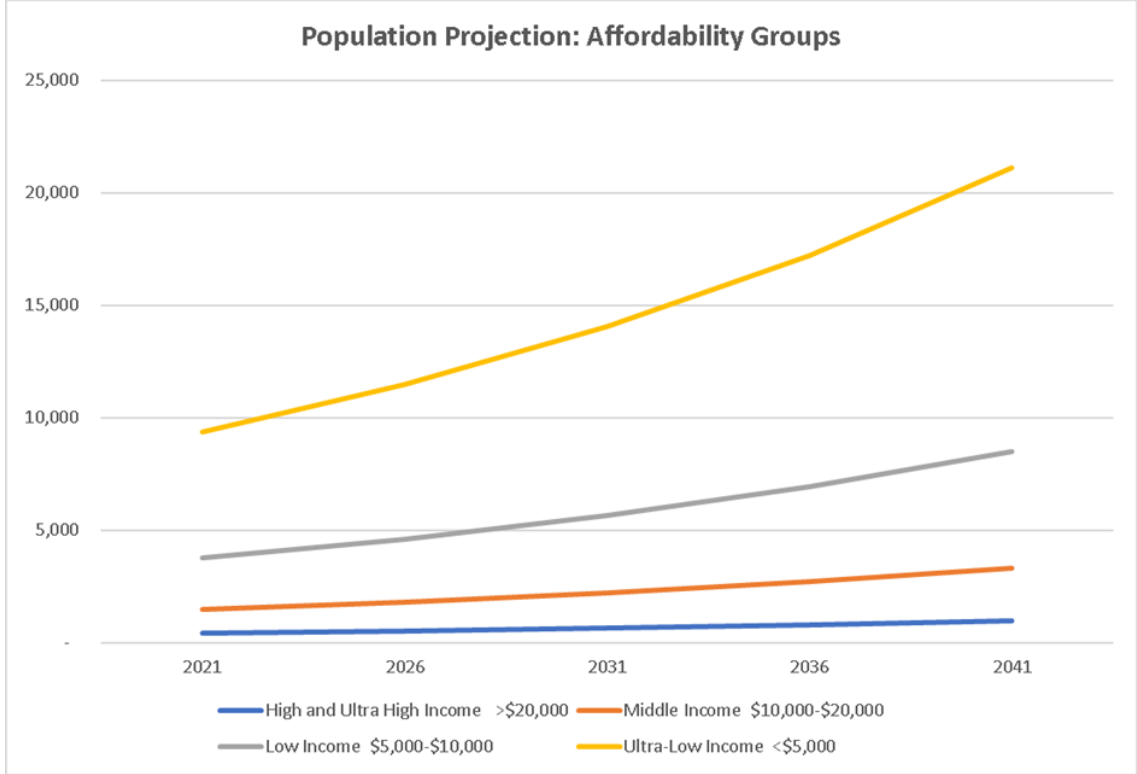


Figure 15: Schematic Presentation of Future Land usage in and around Opuwo

Figure 15: Schematic Presentation of Future Land usage in and around Opuwo

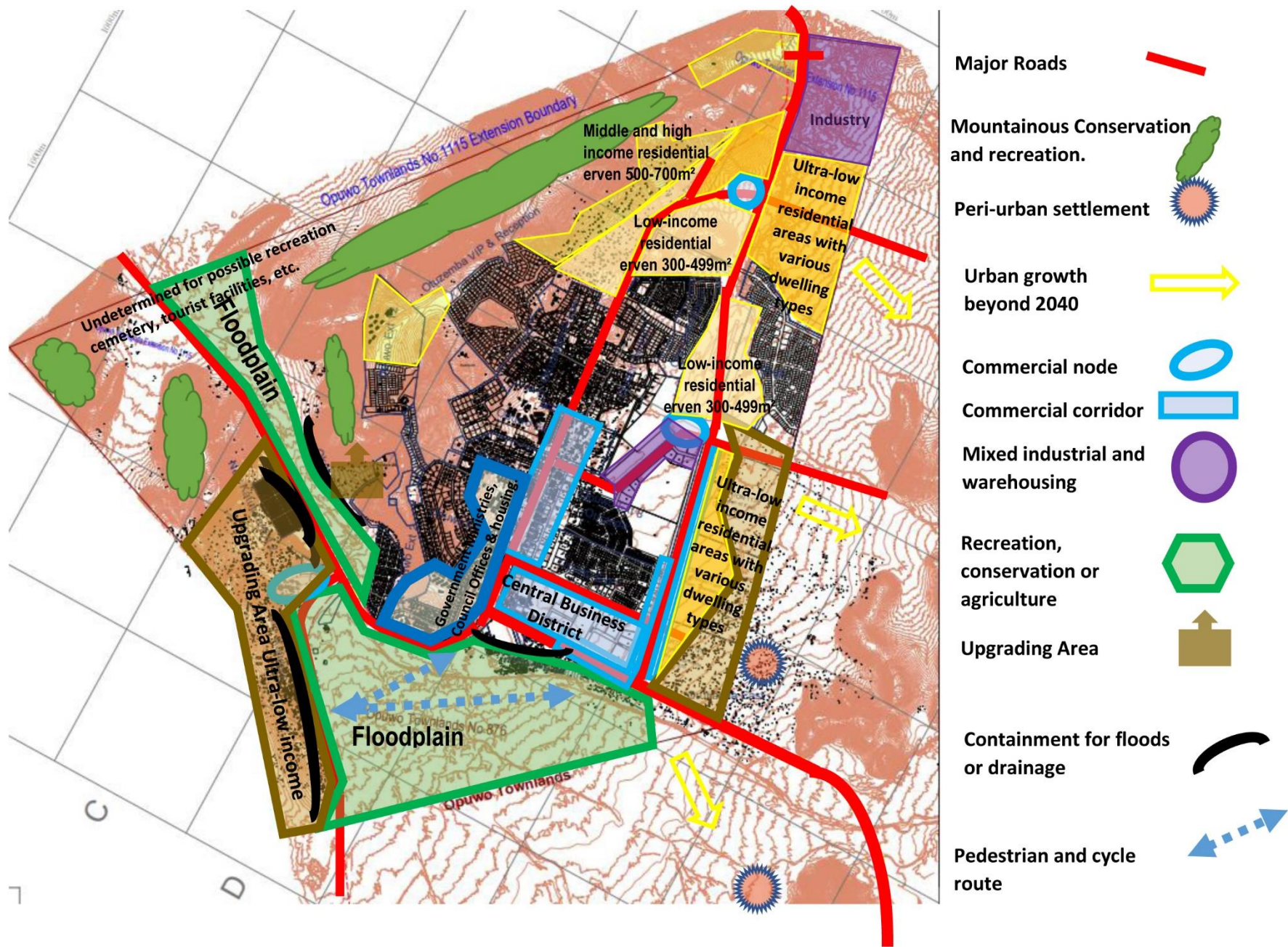


Table 5: LAND REQUIREMENTS PER AFFORDABILITY GROUP

TABLE: LAND REQUIREMENT PER AFFORDABILITY GROUP							
	DESCRIPTION	Growth Rate	2021	2026	2031	2036	2041
G R O U P 1	High and Ultra High Income Population	4.15%	420	515	631	773	947
	Households -High and Ultra High Income	3.5	120	147	180	221	271
	Land Required (HA) (Erf size 500 + 40% Roads and Open Space		8.40	10.29	12.61	15.46	18.94
G R O U P 2	Middle Income Population	4.15%	1,470	1,801	2,208	2,705	3,315
	Households - Middle Income	3.5	420	515	631	773	947
	Land Required (HA) (Erf size 500 + 40% Roads and Open Space		29.40	36.03	44.15	54.10	66.30
G R O U P 3	Low Income Population	4.15%	3,765	4,614	5,654	6,929	8,491
	Households - Low Income	3.5	1,076	1,318	1,615	1,980	2,426
	Land Required (HA) (Erf size 300 + 40% Roads and Open Space		45.18	55.37	67.85	83.14	101.89
G R O U P 4	Ultra-Low Income Population	4.15%	9,360	11,470	14,056	17,225	21,109
	Households - Ultra-Low Income Income	3.5	2,674	3,277	4,016	4,921	6,031
	Land Required (HA) (Erf size 300 + 40% Roads and Open Space		112.32	137.64	168.67	206.70	253.30
	Total Population		15,015	18,400	22,549	27,632	33,862
	Total Households		4,290	5,257	6,442	7,895	9,675

In Table 1, land occupied by the present urban settlement of Opuwo formal and informal, was approximately 535 hectare. According to the projected land consumption in Table 5 above the population in 2021 required only 195.3 hectares of land for residential purposes even assuming households residing on individual erven in standard type balanced residential townships. Projecting the 2021 figure to 2041 suggests that a population of 33,862 persons comprising 9,675 households will require 440.43 hectares of land. If one subtracts the 2021 figure of 195.3 hectare, then one is left with a projected future demand for about 245 hectare of dedicated land for residential purposes. Given that the supply of available developable land given in Table 1 is about 440 hectares, there is plenty of land within the town’s boundaries for development of all forms within the 20-year time frame. What is critical for planning purposes is an acceptance that the major consumer of land for residential purposes will be for the ultra-low income group.

Densification, as recommended elsewhere, both in the size of residential erven and in the redevelopment of existing sites, will reduce the demand for vacant land. Available vacant land will then last well beyond the 20-year horizon of this study. Nevertheless, additional land needs to be procured within the existing planning period to ensure the continued availability of developable land for Opuwo after the 20 years planning horizon.

7. Council and Public Assessments of Main Developmental Issues

Concurrent with the status quo evaluation, consultation began in February, 2022, with joint meetings of the planning team, Town Councillors, Town Council Officials, and a publicised community meeting with residents of Opuwo. Attendees were familiarized with the objectives of a structure plan and all contributed to identifying key spatial objectives for Opuwo. During the consultative meeting, respondents were asked to undertake visioning, namely, given where Opuwo is now, where do they want Opuwo to be 20-years from now?

The following spatial objectives were elicited from the three meetings held:

- Extension of boundaries to encompass and enable proper administration of other nearby settlements and the planned new airport.
- Provision for a large area that might in future serve for activities associated with mining operations and a hydroelectrical scheme north of Opuwo such as industry, offices, housing, and business as well as a truckport.
- Provision for parks and recreation including provision of an area that could be used for the celebration of the people of Opuwo’s cultural heritage that could include a “traditional village”, a museum and library, and improve the tourism based economic sector.
- The better location of a dump site and sewage treatment works.
- The business and especially marketing requirements of farmers in the Region needs a response in the urban structure that allows for the movement of animal stock through the town to places of slaughter or sale; camps for stock on the outskirts of the town, location of associated transient persons, and provision for urban agriculture.

Public consultations in March 2023 produced the following additions.

- A new northern located sewage treatment plant should include a main sewer running the length of the existing C43 as it passes the Otuzemba townships to facilitate service provision to new settlers.
- Building regulations should be simplified for some areas to allow for non-standard residential structures and materials such as (traditional) conical mud and wood structures, and iron sheeting in some new settlement areas on the eastern side of town subject to fire inhibition and health regulations.
- New opportunities for tourists to enjoy visiting Opuwo should include a designated 360 degree high-lying view point.

Concern was expressed about the poor level of control Council could exert over land usage.



Under-utilised market area



Underdevelopment on periphery of CBD

The major developmental issues facing Opuwo derived from the status quo evaluation and from discussions with residents can be categorised under five groupings. They are:

- Population growth, the challenge of very-low income households and transient population settlement, and settlement taking place outside of the town boundaries
- Availability of land both for extensions into vacant (unsettled) areas and for more intensive usage of serviced land, and the challenge of restrictive regulations.
- Natural environmental limitations such as vulnerability to climate changes and particularly drought, topographical limitations, drainage and the floodplain and the challenge to make optimum use of these resources in the public interest.
- Provision of and improvement to Infrastructure and ensuring that extensions to new settlement areas are cost-effective.
- Economic activity: uncertainty over future economic opportunities and the challenge to support existing identified economic activities including a desire to optimise on attractive traditional aspects of the population that benefits the tourism industry

Each of these items are analysed to derive its influence and impact on future spatial development. The scope of the analysis has been somewhat broadened to include supplementary issues that are not part of the identified strategic objectives, but which operate in a closely parallel manner. Particularly, guiding the growth of the town towards a more compact form will improve the spatial integration of economic activities and residential areas as well as affect infrastructural costs beneficially. Poverty now and into the future is anticipated to remain a major limiting factor influencing the nature of urban settlement. This reality must be confronted and accommodated.

8. Key Strategic Spatial Objectives

In accordance with the derivation of issues above, the following headings were adopted in the analysis as key drivers of development for Opuwo.

- a) Population Growth and Direction of Settlement
- b) Land Availability & Town Boundaries
- c) Environment and Topography
- d) Infrastructure
- e) Economic Activity

Analyses of each of these drivers are attached as Annexures A to E. The analyses seeks to give direction to each driver. Each driver is broken down into further subcategories and the analysis leads through to the generation of spatial levers (spatial strategies & policies) that can be adjusted to direct Opuwo’s spatial development. Typically, spatial and policy levers will include items such as **nodes, corridors, infill and densification** area, **containment**, protection, **growth areas, upgrading areas, inclusionary** housing policy, and **peri-urban** settlement. A brief description of each is given in Annexure F.

In the course of the analysis, 62 objectives were identified for future realization and incorporated into the draft OUSP together with possible resulting spatial policies. They can be grouped into five key strategic objectives for Opuwo, namely:

- a) To be a town that uses its land resources optimally and sustainably having an inclusive settlement pattern and functional structure of land usage.
- b) To be an environmentally aware community with development objectives that conserve and utilize natural features optimally.
- c) To be economically lively, prospering and attractive for investors.
- d) To have a regulatory system supportive of private initiatives and responsive to growth and change.
- e) To have functional cost-effective infrastructure.

Integral to the above are the following spatial guidelines that were adopted:

- To direct growth away from environmentally sensitive areas, particularly the very sensitive flood zones, steep slopes and ridgelines;
- To direct growth towards more level land which can be serviced the most economically; &
- To promote a more compact spatially integrated town.

It was these 62 objectives and the analyses that led to policy proposals set out in the working draft of the OUSP that the Town Council authorized in November 2022 for distribution to stakeholders and public discussion.



Solid waste dump

The map illustrates the layout of Opuwo Townlands North 6, highlighting urban agriculture and infrastructure. Key features include:

- Infrastructure:** C43 Road, C43 Road to Sesfontein, and a Pedestrian bridge.
- Landmarks:** School sports fields, Cultural Centre with Museum & amphitheater, and a Site for University Campus and Regional Sports Stadium.
- Urban Agriculture:** A Proposed new stock trading area, current stock trading area, and Refreshments.
- Icons:** A bus, a pedestrian bridge, refreshments, and a person running.
- Watermark:** Activate Windows.

9. Strategies: Application of Spatial levers.

Recommendations are made on creating an easily identifiable and integrated system of **nodes** and **corridors** that will fulfil Opuwo's long term goals. They must meet the requirements of a regional capital and be economically developable with limited capital means. The combined limitations of the mountainous surroundings, the floodplain and factors affecting infrastructure lead future urban expansion to the north-east, east, south, and south-west of the present urban area. All settlement in these various directions will be guided by the Town Council based on this Urban Structure Plan.

It is important to note that the spatial guideline of directing growth towards more level land which can be serviced the most economically is intimately tied to the establishment of a new waste water treatment plant located in the north of the valley. This new facility is key to achieving the five strategic objectives. Without it, the town council will be distracted by the problems of an overloaded sanitary system limiting its abilities to create new affordable and sustainable residential settlements, distracting it from the optimal utilisation of its natural features, denying it the opportunity to attract investors, and hampering its ability to support private initiatives for densification of the existing urban area and introducing new industrial and business development, all due to malfunctioning infrastructure. The future for Opuwo has to be led by the establishment of this new water treatment facility and of a main connecting sewer down the centre of the valley as proposed in the report: Bulk Waste Management Proposals: Windhoek Consulting Engineers November 2022.

Descriptions of the main strategies in each direction follow. Spatial recommendations are summarised schematically in two diagrams.

Figure 14: Schematic diagram showing Future Growth: Map gives a schematic outline of the anticipated directions of growth of different urban components and concentration nodes of particular land uses.

Figure 15: Schematic Presentation of Future Land Usage in and around Opuwo.

9.1 The South: The Floodplain And Pedestrian Route Connecting Institutional Buildings, Agricultural And Traditional Commercial Areas

Proposals are made for the Floodplain as shown in *Figure 16*. The land most likely to be inundated by flood waters it to be avoided for any permanent structures and care must be taken in the use of even temporary structures that will be lost should a flood eventuate. Agricultural activities have shown some viability. The proposals below suggest additional uses that could be planned so as to give this vast area useful importance in the greater Opuwo urban structure.

The aim is to combine institutional activities together with regulated urban agricultural land uses including pens for livestock sales. These activities are to be interconnected by establishing a **corridor** which would be predominantly pedestrian. The strategic objectives in this regard are aimed at

integrating the institutional and agricultural frameworks with the surrounding commercial and industrial **nodes**. The route will transverse the floodplain and connect the most southern residential settlement with the town centre.

The concept requires establishing a major cultural centre in the form of a traditional museum while linking it to the agricultural activities. The idea is to develop the museum as an attractive semi-traditional building with an amphitheatre to allow the Ovahimba and Ovazemba people to display traditional products such as jewellery and herbs and conduct cultural performances. Structures must be erected that will withstand any flooding such as by being raised above natural ground height, by barriers or by being easily removable in the event of a flood warning. It could also be the site for display of products from the Scents of Africa oil collection and processing plant with explanations by Ovahimba on how these oils are traditionally used. The centre must become an interactive set of buildings possibly administered by cultural groups. The cultural centre should be the subject of a detailed architectural design concept.

The corridor to become a secondary linkage that is predominantly pedestrian in character and therefore not directly competing with the business corridors that are readily accessed by vehicles. The spatial integration of this corridor is to take advantage of the terrain and the tradition of the locals to daily walk around the town in anticipation of contacting tourists. The new facility would then create a living museum effect so that locals can congregate around the museum daily. Tourists would then be guided to this locality. It must not be isolated. It helps that it serves as a short cut for people from the southern settlements to reach the town centre. It is imperative that this corridor exist alongside commercial activities and it must have motor vehicle parking for tourists in close vicinity. A footbridge could be erected to cross the deeper stormwater channel.

The Urban Agricultural area would be supportive in two ways. It would provide fresh produce that can be sold at a market component of the cultural village, and it would sustain an atmosphere of activity in the immediate surroundings. This would be reinforced by the formal allocation of nearby land for traditional livestock auction pens. Care should be taken to protect existing boreholes in the floodplain.

Should it become possible for Opuwo to host a university campus or a regional sports facility, as might be expected for the Regional Capital, a good option would be a location to the south. Specifically it could be located on land in the vicinity of but not jeopardised by the floodplain lying immediately south of the Orutjandja South settlement and close to the C41 national road for ease of access and within an area that could have a sewer connection to a northerly sewage works. More generally land within the floodplain can be used for public sports facilities and already is being used to serve schools located on the edge of the floodplain. Later extension of such facilities would not be hampered by the current town boundary.

Informal settlement in "Old Katutura" encroaches onto the floodplain. The possibility of using the C43 to Sesfontein that acts as an eastern boundary to the settlement to alleviate the danger should be investigated.

A separate study should be undertaken to provide a design for the floodplain that would accommodate the proposals with minimal environmental danger.

9.2 The North: Extension of Commercial Land and Provision for Anticipated Mixed Industrial and Residential Development

Unoccupied land is available in the north. Reservation of vacant land in the North is guided by three integrative factors. The proposed new national road bypass will have a connecting point about three to four kilometres north of the present intersection of the C41 and C43. This new intersection will initiate commercial development in general. Simultaneously it will become a major junction for access to land to be reserved for anticipated mixed development that arises from trucking, traffic through Opuwo to a new hydro-electric power generator on the Kunene River and the growth in mining activities in the northern half of the Region. Land at this distance will not be needed in the near future for the projected population growth. It can therefore be safely reserved for any large demand for residential, business, transport, warehousing and industrial activities, that can arise, possibly at short notice, in the future. Existing proclaimed townships can accommodate present incremental growth. The northern area already has access to water and to power from the 60 KV power line from the Ruacana Power Station entering the Opuwo valley from the North. The new sewage treatment works will also be located along the C43, 5 kilometres beyond the C41 in the north, meaning that full service provision is available for future formal development in this direction.

Intervening vacant land stretching from the proposed new waste water treatment plant in the north to the watershed formed by the C41 in the south will be gradually settled over the next 10 years starting from the south. Commercial and intensive residential settlement will be encouraged to gradually follow the twin lines of the existing national road, the C43, and the proposed new national road on the eastern side of Opuwo that will follow the line of the abandoned airstrip. Both start from the C41 at the town's business heart. An important proposal is that intervening land, which includes privately owned land, be encouraged to intensify land usage and particularly to densify residential usage to accommodate any influx of population. It can also provide sites for private clinics and privately developed entertainment facilities

The mountain slopes along the western side of the C43 should preferably be allocated to high income residential settlement. Households in this group are better able to finance the higher infrastructural costs. It should also be the location of a designated 360 degree high-lying view point and walking trails on the steeper western slopes. The present spread of informal settlement known as the Otuzemba VIP reception should be curbed and households relocated to the flatter land in the east that will be closer to the expanding business area and cheaper to service.

9.3 The East: Residential and Commercial Expansion and a New Business Corridor

Growth projections have the present population growing in extending settlements to the east of the present urban area. This will make use of better terrain for settlement and promote a more compact town. As explained in the projections of Annexure H, sixty two percent of the land must be provided for the ultra-low and 25% of the available land to the low-income groups together these two groups comprise about 90% of the total population of Opuwo. There is sufficient vacant land available within

the Town boundaries to accommodate the growth in households for a 20-year time horizon. New settlement will be guided to and facilitated on land within the town boundaries served by the new wastewater treatment works and with an objective of making settlement more inclusive. Essentially, the area Portion K in *Figure 11* is designated for ultra-low and low-income settlement with the latter lying closest to the service lines. This proposal builds upon an existing situation where parts of Farms 1174, 1175 and 1176 have already been informally settled. Portion K comprises the 37,6943 hectares of the three blocks that has not yet been occupied. This amount of land should be enough for about 600 erven. The situation should be reappraised once this land nears full occupation.

It is intended that all new settlement be directed to this area whether economically self-sustaining or poor households previously marginalised and forced to settle informally on the periphery. Distances range from one to two kilometres from the town centre. The whole area is therefore convenient for settlement including for those without transport vehicles. As a result the town will become more spatially integrated.

For households in need of settlement options but with extremely limited resources it is proposed that services and particularly sanitation services be supported by laying south to north running service lines (road, sewer, electricity and water). A new gravity sewer main would run downwards from the watershed of the C41 road, through or past the existing oxidation ponds continuing on to the proposed new waste water treatment plant close to the town boundary at the northern end of the valley. The service lines on this eastern lying vacant land would form a new business corridor edging on currently vacant land and providing also a route for the new national road planned to connect the C41 to the North.

This corridor would provide new settlement areas such as on Farms 174, 175 and 176, with intermittent but essential public facilities such as ablution facilities and opportunities for businesses and social facilities. These might be privately and publicly operated and owned. Time, and investment capital should be directed to these new settlement areas for the very poor as a priority with communal services and ablution blocks as proposed. This is strongly motivated to ensure that future settlements by poor households moving to Opuwo are not marginalised as has happened in the past. The alternative would be ever expanding loosely and expensively serviced informal settlements totally beyond the supportive abilities of the Town Council.

Action will be taken at an early stage to put in place a street layout on the vacant remainders of Farms 174, 175 and 176 on the eastern side of the town up to the present edge of informally encroached land. Sites will be created and offered to households lying in the flood danger zone designated by the 1 in 50 year flood line, households informally settled on steep land, and households that might be displaced by the proposed new national road alignment. A line of ablution facilities will be erected to serve these new areas pending future extensions into the settlement areas. To ensure that action is taken with minimum delay, the Town Council will consider making available portions of this land with their street layouts for lease or purchase by private entrepreneurs for administration, servicing and subletting or sale to poor households on terms to be approved by Council.

The present planned extension of the town's business centre is also eastwards. There appears to be enough land already designated for business use to make up a future strong business core. This business core follows the main road, the C41, up to the proposed new north running road. A more compact urban pattern can be developed focusing on this business core.

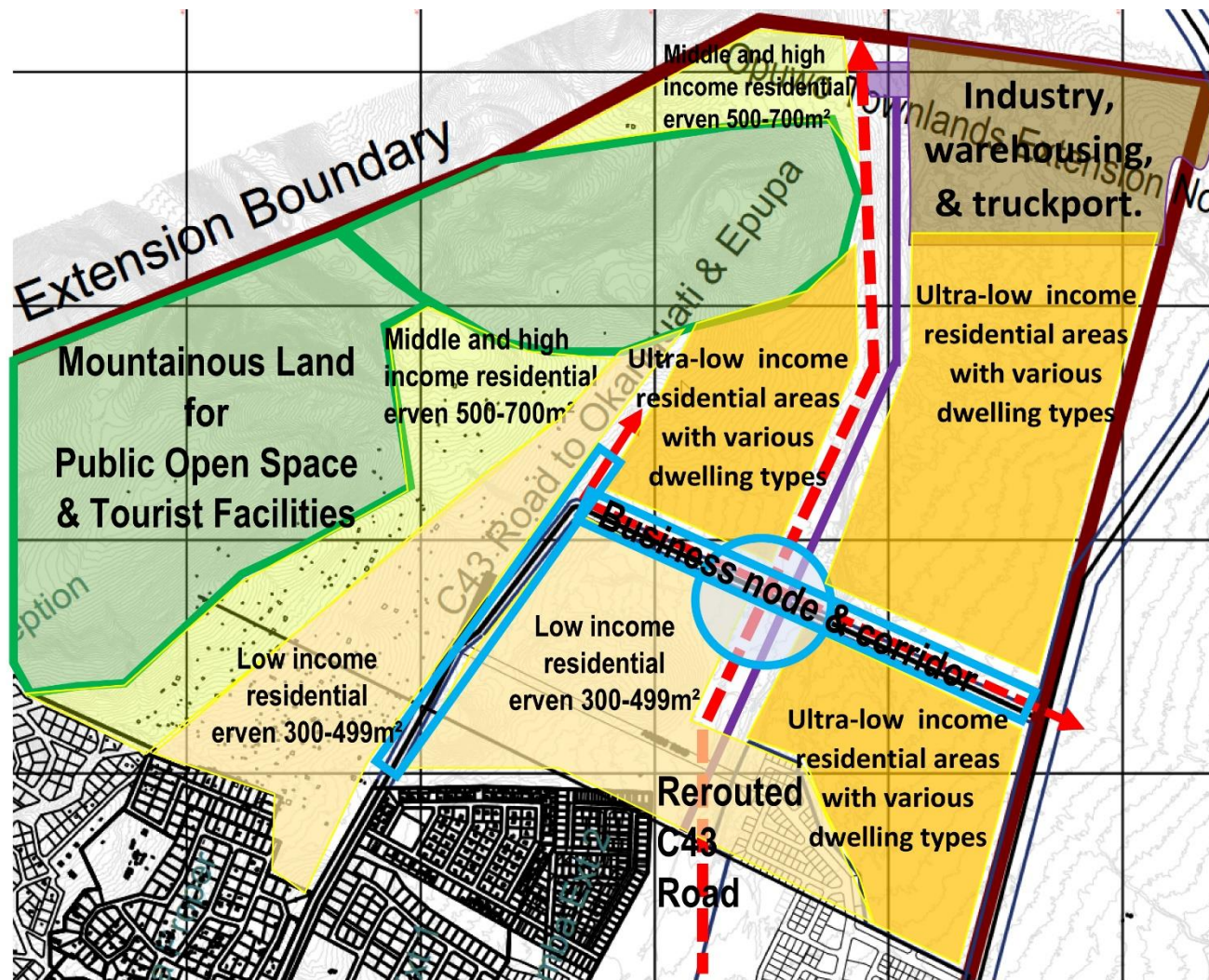


Figure 18: THE NORTH: Future Northern Extensions
Schematic plan showing main land allocations for residential settlement, industry and extension of commercial corridors. Indicated are the approximate location of a new waste water treatment plant, and a route for services such as sewer connecting southwards serving new settlements. Steep slopes are recommended for high income housing.

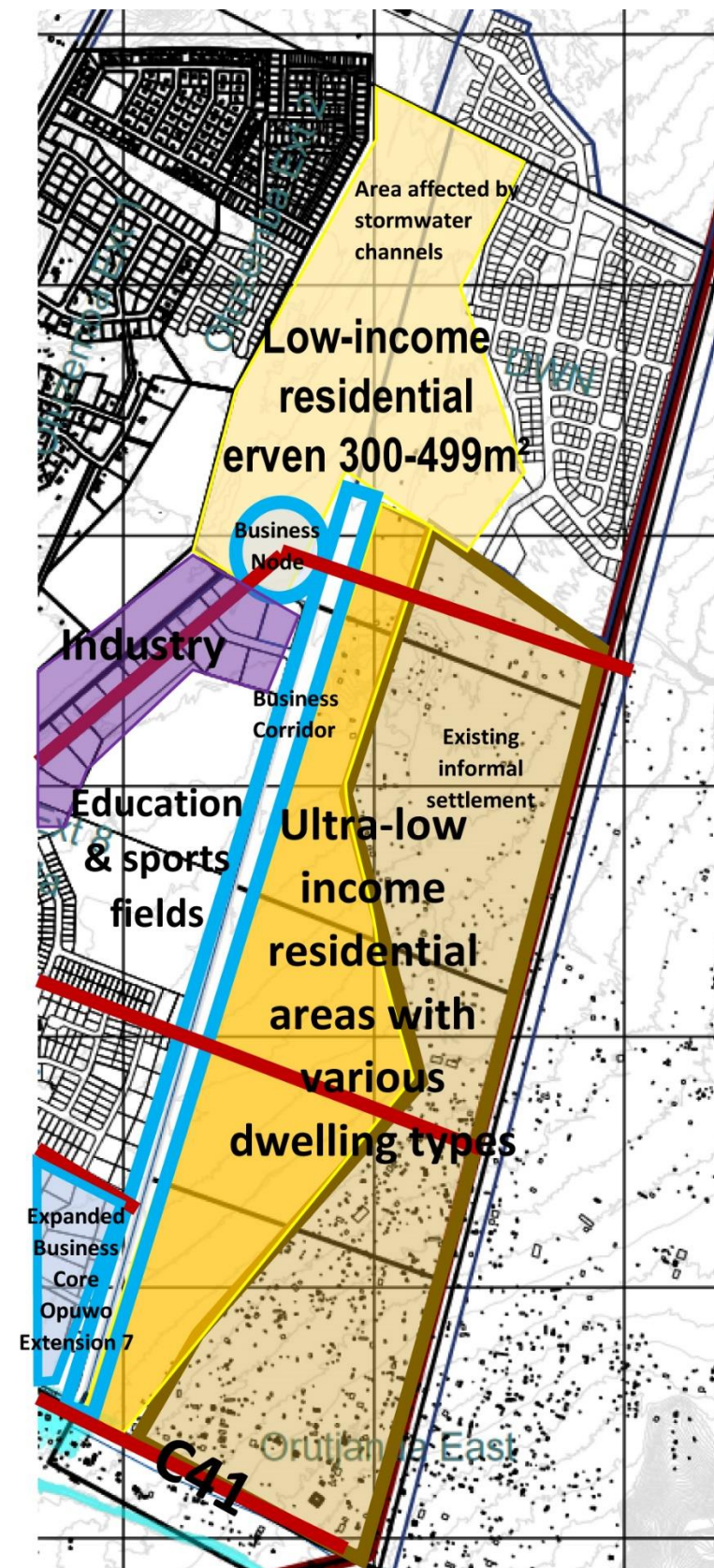


Figure 19: THE EAST: Residential and Commercial Expansion with a New Business Corridor.
Schematic plan showing new township extensions for low income and ultra-low-income households with a supportive business corridor that will also carry main electrical, water and sewer service lines with regularly spaced ablution blocks. The corridor should be wide enough to include pedestrian amenities, be tree-lined, and have bicycle lanes.

Two business corridors will thus run northwards from the business core. One is already partially in existence. It follows the existing C43 northwards. It comprises a mixture of activities that will over time be further developed intensifying the commercial nature of the corridor. A second parallel business corridor is envisaged as a wide commercial corridor providing a continuous line of new business opportunities which will include sites for small scale marketing. It will primarily serve the proposed new eastern settlement on, inter alia, Farms 1174, 1175 and 1176. Pedestrian facilities will be important in its design which should be interrelated with the proposed line of ablution facilities.

The new corridor follows the line of and is parallel to a proposed new national road, It offers a multitude of opportunities. Adjacent land is in Council ownership. It should be the source of sites for private hospitals or clinics, for tertiary and vocational training centres and private schools. Proposals for such sites should be integrated into new township designs. The corridor would become a major pedestrian route and it is proposed that a pedestrian pathway be constructed (paved) alongside the road and be furnished with shade, trees if possible, and benches and be suitable for cycling should that mode of transport become established. The width of this corridor is intended to allow the safe herding of livestock entering the town from the north to reach livestock pens on the south side where trading has traditionally taken place.

All new business subdivisions need to make provision for supportive hawking by poorer members of the community, noticeably by women, either along the road reserve or in small market sites intermingling with formal commercial sites. Creating sites close to public facilities such as the proposed line of ablution facilities would be a good option. These proposals are repeated under the discussion of strategies for the central business district.

9.4 The Marginalised Periphery: Informal uncontrolled settlement

There are two categories of marginal development. The more important one is that of informal settlement that has taken place along the outer edges of the formal settlement. These settlements will not be moved. Over time services can be extended where they may not already exist. This will be a second priority after the establishment as first priority of new areas on the eastern side of the town with a better living environment for the very poor. Infrastructural upgrading of peripheral marginalised areas will depend heavily on donor funding. The larger of these settlements are shown in *Figure 9*.

Guidance will be given on locating and supporting commercial activities and densification after adequate infrastructure has been put in place. One option for the area designated as Old Katutura along the C43 southwards to Sesfontein is that, sites along the C43 road with adequate space that their activities not obstruct the free movement of traffic along the C43, be granted business rights. There are already such businesses in operation.

Households presently resident in these outlying places will be given the chance to voluntarily relocate to a structured environment where the Town Council can provide better amenities and infrastructure. Those most vulnerable with dwellings endangered by lying in the floodplain will be prioritised. Residents will be made aware of the dangers. It is most unlikely that these households will have the ability to protect their structures and themselves by elevating the structure on stilts. Relocation is advised; however, it will not be enforced.

The second category comprises households who have built fairly solid formal structures on land outside the town boundary with permission of Traditional Authorities. They are discussed under the section on peri-urban settlement below.

9.5 The West: Conservation and Tourism

Development to the west, that is west of New Katutura and Okatuuu, will be restricted to only self-sustaining activities of which tourism such as a tourist camp site, and recreation are seen as major land-users. A number of factors dictate this outlook. They are the mountainous terrain, the ephemeral river and associated dangerous floodplain both dictating an environmentally conservative approach, and the lack of economically viable infrastructural services. See Figure 15 in this respect. The result is that there is little land in the West within the town's borders that can be considered for development. Furthermore, distances of developable land from the town centre are greater than those for vacant land lying to the East.

One option that should be further studied, is the possibility of locating a cemetery in this direction. As the main regional administrative centre Opuwo will be in need of a new larger cemetery in the future. Land to the west may be found suitable for this purpose. A cemetery would not need any major investment in infrastructure and would not have the same vulnerability to flooding as would housing.

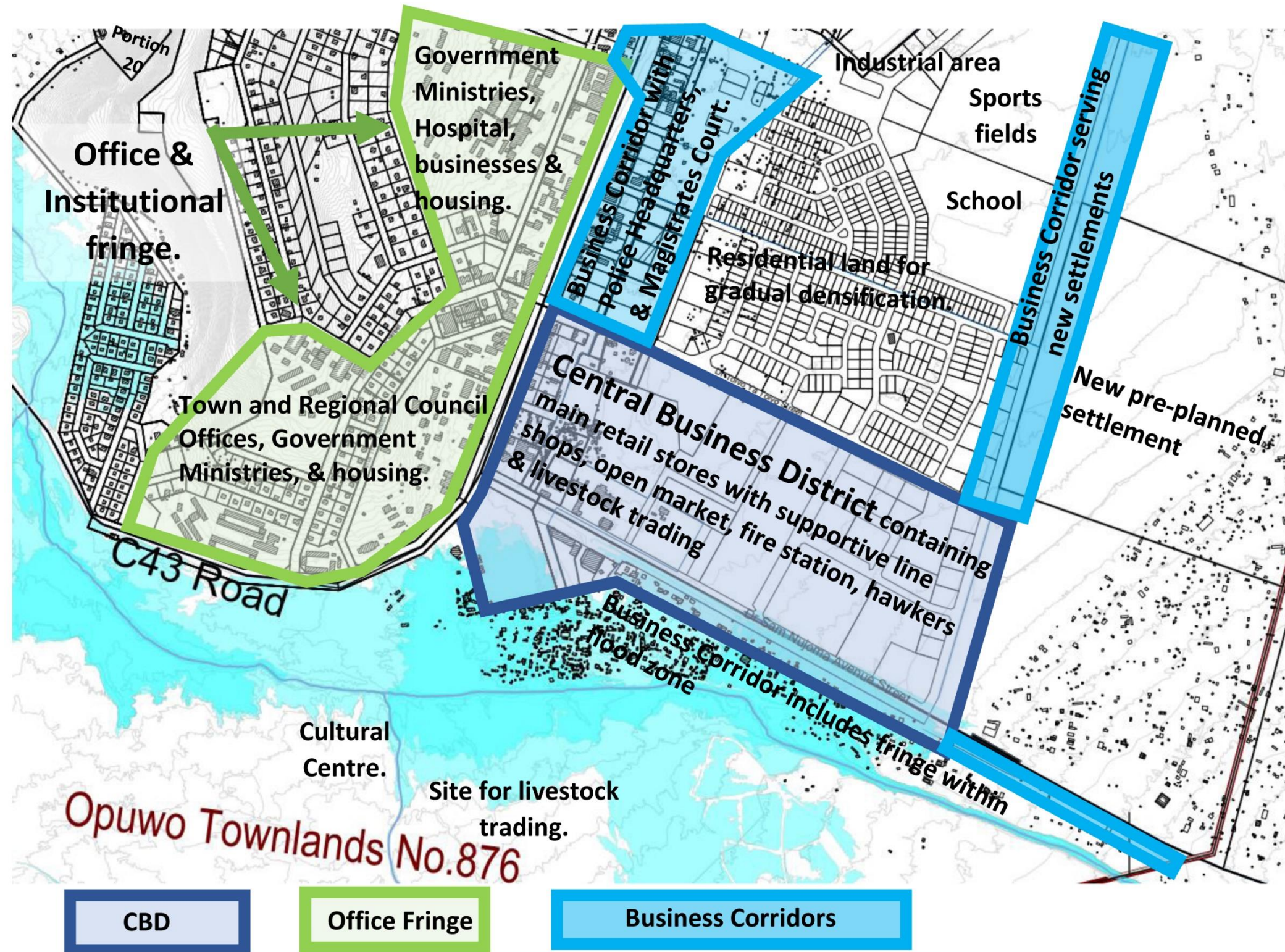
It is to be noted that the engineering proposals for a new landfill site to replace the existing dump, place it about 7km west of Opuwo and outside its boundaries. The recommended site and the rural nature of the intervening space is shown in *Figure 13*.

9.6 The Centre: The Central Business District and its Periphery

The present business heart of Opuwo lies adjacent to the traffic light controlled intersect of the C41 and C43. The older private businesses occupying about 10 hectares, are located on portions of townlands east and north of this intersection. Government, Regional Council and Town Council offices, and institutions such as the hospital and a school fringe the C43 on its western side. As one moves northwards from the intersection, they become mixed with private businesses on both sides of the C43 and with residential development.

The nearby residential areas have erf sizes ranging from about 450 m² to about 800 m² in the older formal residential areas and upper mountain slopes with some larger sites of about 1,000 m² along the C43 up about one kilometre distance northwards from the C41 along the C43. There is considerable space on many of these erven for densification. Densification should be supported on these sites as policy, applicable at and when land-owners apply for additional development rights. Each application must be treated on individual merit related to infrastructure adequacy, what neighbours will tolerate and environmental considerations. However a doubling in density (a doubling in the number of allowed dwelling units) should be taken as a minimum objective.

Figure 20: Land usage and intended usage in the expanded Central Business District
Schematic plan shows existing and planned expansion of the CBD bounded by a western office and institutional fringe and extending in the form of business corridors eastwards and northwards. Existing buildings appear on the plan showing the 2021 extent of development and the vast quantity of available vacant land for the future.



The design and establishment of Opuwo Extension 7 has designated a block of land 400 metres in breadth and 1,000 metres in length along the C41 essentially for private business development and general administrative purposes. The latter currently comprise some parastatal facilities, a public market and a fire station. The market site is the venue for the popular annual trade show.

The land provision for private businesses is approximately 17 hectare while provision for general administrative purposes is 10 hectare. The land uses created by the establishment of this township are displayed in *Figure 8*. Land designated for private business development is mostly vacant. Even land already occupied by the various governmental and administrative agencies and private businesses is under-developed and capable of significant intensification of usage and redevelopment. This situation is visually apparent on *Figures 6 and 7* and in *Figure 23*. The town of Opuwo might triple in population before land designated for administrative and business purposes will approach anything like full occupation.

Development proposals for the Central Business District are portrayed in *Figure 20*. No additional provision is proposed for business or administrative purposes in the CBD. Two recommendations are made regarding the two business corridors stretching northwards from the CBD. Business and high density residential usage should be promoted along both corridors. In the case of the more western one, erven are already partially developed. The recommendation is then that the Town Council encourage and allow further intensification or redevelopment. In the case of the eastern corridor, the proposed business corridor covers land paralleling the defunct airstrip. It stretches northwards to serve new settlement areas proposed for the eastern side of the town. It is intended that the corridor becomes a major movement route for pedestrians with amenities such as trees and shaded benches, and for taxis and cyclists as well as providing the width for livestock drives through town. This land is vacant. It is important for Council to establish in the Opuwo community minds a corridor pattern of business usage as soon as possible. Future extensions will then come naturally. To do this, the adjacent business land should be serviced and sold as a priority ahead of business land in the CBD that is set back from the C41 and the corridor.

It is intended that small scale hawking and marketing be part of the expanded business activities. The present open public market is a little off-centre and not very conducive for trading. Two proposals are made in this respect.

Street trading, especially of cultural items should be permitted with hawkers being registered by the Town Council. Sites for selling should be on the main business streets. Some limits might be placed on where hawking might take place by erecting notices on poles that designate a limited area of say 20 metres from the pole for hawkers and other street service providers to operate.

In the longer term, the corner site at the intersection of the national road, the C41 and the proposed business corridor can be designated as a new open public market. Since this site is already being used for livestock trading, the conversion can be readily done when other businesses open in that vicinity and the livestock trading site with its unhygienic flies, odour and dust, has been moved to a permanent location. This same locality could be an option for an intertown transport terminus.

9.7 The Peri-Urban Area: Extension of Town Boundaries

The issue of urban settlement outside of town boundaries has long been of concern. The two largest are shown in *Figure 10*. Settlers have built fairly solid formal structures of a permanent nature. Registered land title cannot be given at this stage. They are not the current responsibility of the Town Council. The responsible authority for urban settlement outside of town boundaries is the Regional Council in terms of Section 31 of the Regional Councils Act, 1992 (Act No. 22 of 1992). This body must take responsibility to manage these peripheral settlements and for the provision of engineering infrastructure and other services.

Council believes that urban settlement on the periphery of Opuwo is ultimately going to become its responsibility. Inclusion would give these peri-urban residents a say in Opuwo administration and the right to vote in a representative on to Council. It would also facilitate provision of infrastructure to these households as and when it can be afforded.

Proposals made on relocating critical engineering infrastructure have also to be considered. The proposed new site for a waste water treatment plant lies at Opuwo's extreme northern border whilst the existing dump and land-fill site is already outside town boundaries.

In order to include these households, Council has negotiated with the traditional authorities for a 2.5 kilometre extension of Opuwo's boundaries in all directions. This enlargement is shown in *Figure 22*. It offers the following advantages.

- It includes the existing peri-urban settlement of Ortjanda East.
- It incorporates the Okondaunue Village situated about 1.5 kilometres outside the boundaries to the south-east with its school.
- It provides Council with more responsibility to direct new settlement in an eastern and south-eastern direction and to restrict settlement to the west.
- It brings Council with more control over existing and proposed engineering infrastructure located at its present boundary extremities, though the proposed new landfill site would still lie outside the expanded boundaries.

9.8 The Road Hierarchy

Opuwo has a hierarchy of streets based around the national roads. The internal streets connect with and penetrate into the proclaimed townships. The main ones are shown in the first diagram below. Not all these roads are constructed, but they do provide a framework for development. The proposals made in this report recommend a new business corridor shown in blocked line along the same alignment as the old airport runway. It then serves existing settlements and all new townships that are proposed for establishment on its eastern side and new townships to the north.

Figure 21: Future possible Road Network
Schematic plan showing existing major roads in solid lines and possible future roads in dashed lines.

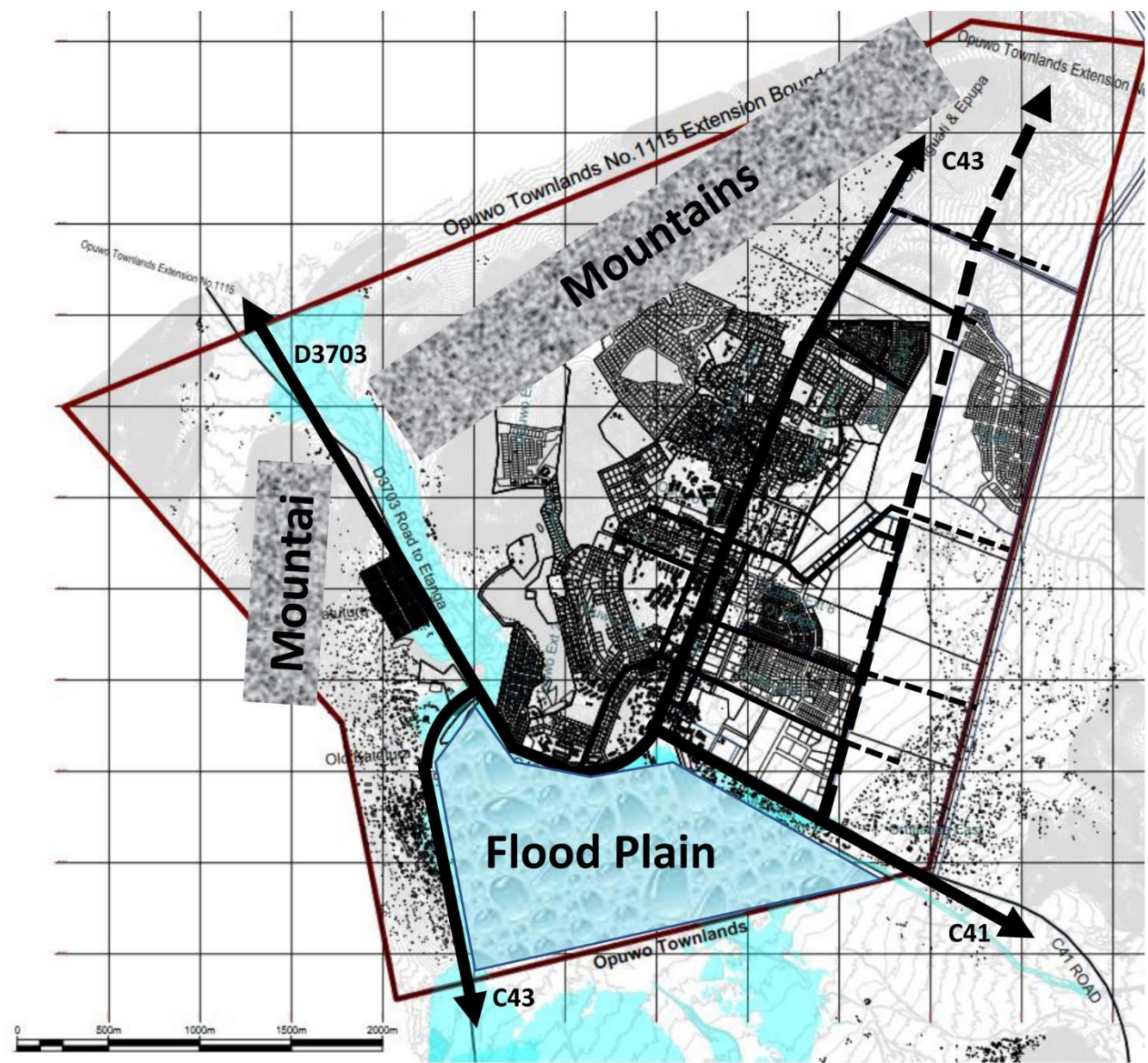
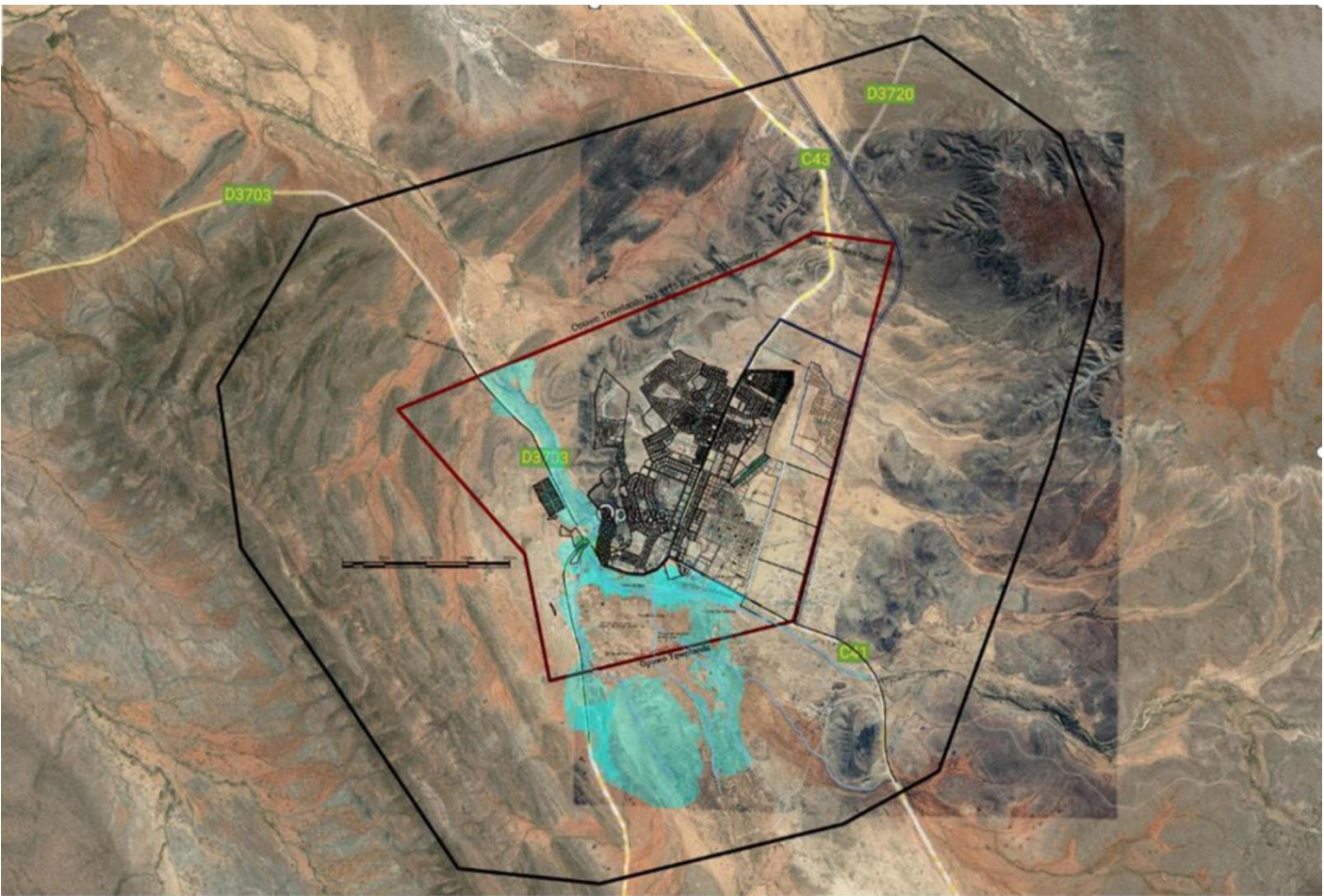


Figure 22: Extension of Opuwo Town Boundaries
Schematic plan overlaid on Google earth map showing an approximately 2.5 kilometre extension of Opuwo town boundaries



This route might also be the replacement route for the C43 northwards. In which event, the recommendations anticipate what would happen for any realignment of the national road in proximity to Opuwo. It would draw commercial development in its direction. In this case the commercial development will be structured and serviced, and not just another case of uncontrolled squatting. The present intersection of the C41 and C43 is controlled by traffic lights. It is suggested that Intersections on to the realigned national road should be designed as traffic circles to take advantage of available vacant land and save on extended electrical lines and accompanying maintenance aspects.

10. Application of Spatial levers: Policies and Guidelines.

The following are the recommended Policies and Guidelines derived from the analyses and set out under each of the Key Drivers.

10.1 (A) Population Growth And Direction Of Settlement

10.1.1 SPATIAL

Based on the analysis of availability of easily developable land with the most economic costs of service provision, the following proposals are made.

- **Growth areas** for all types of development extend eastwards and outwards and across the town boundaries
- **Nodes** are created in proximity to junctions of the town roads and, in two cases with national roads
- **Corridors** extend from nodes along the main roads back towards the present town centre.
- **Infill and densification** is recommended for the current urbanised area of mixed commercial and higher residential land-use.
- **Peri-urban settlement** accommodates overspill from Opuwo in certain outside areas on the eastern side of Opuwo that have easy access to roads leading back into Opuwo. It is proposed that expansion continue but in a formalised way with appropriate layout plans that facilitate balanced urban development.
- **Inclusionary housing policy** will be achieved by the rational application of available resources with the following priorities:
 - a. The demarcation of level (relatively) vacant land essentially situated on the eastern side of Opuwo, as growth areas for ultra-low-income settlement;

- b. The design of layouts that are used to allocate sites to applicants;
 - c. The instigation of local community liaison committees for communications with the Town Council;
 - d. The provision of various levels of servicing in collaboration with community liaison committees as may be financially viable;
 - e. The upgrading of existing informal settlements with established community liaison committees.
- **Growth area** requirement over the 20-year planning period have been estimated and land allocations have been made in a phased manner with most new settlement lying to the east of the present Opuwo.
 - **Upgrade areas** have been identified. Applications may be made in these areas by property owners to increase and improve development rights.

10.1.2 POLICY

- The Town Council will facilitate amendment of property title conditions by introducing a zoning scheme and land-use policies so as to allow more options for an increased mix of compatible land-uses on the same erf and to indicate where such zoning and policies can best be applied in line with this Structure Plan.
- The Town Council will encourage high-income housing to be privately developed on land with steeper slopes so that the additional development and maintenance costs, especially those for access, can be carried by the wealthier residents.
- Town Council policy is to promote and facilitate commercial development and increased residential densities along business corridors and demarcated high-density areas.
- Relevant authorities and service providers will harmonise development regulations and practices and service provision.
- Township and street layout plans will be drafted for phased expansion of ultra-low-income settlement so that it takes place within parameters that will facilitate later provision of services.
- All future ultra-low-income settlement is to take place only in areas that are planned and which the authorities will endeavour to provide with, at least, the most elementary services. There should be no new informal settlement areas.
- The Flexible Land Tenure legislation will only be used where it is feasible and desirable, such as where existing informal settlement cannot be easily subdivided, and service provision limited to providing residential blocks with service access points.
- The Town Council, Regional Council, Service Providers, and other relevant authorities are acquainted with this Structure Plan and have been requested to mutually support endeavours to develop Opuwo in compliance with the Plan.
- Allocation of land for development in line with this Plan will be undertaken timeously.

Figure 23: Illustrative Photographs of Low Density Development



The abundance of open land and single storey buildings illustrates the level of under-development around the town centre north of the junction of the C43 and C41.



Underutilized land partially occupied by government offices.



Change in residential housing densities from 1,000 m² erven to 250 m² erven along the main road, the C43, at about 1 kilometre from the town centre.



New housing for low and middle income households at moderate densities on erven of 300 – 400m².



Development plan for Opuwo Extension 7 imposed on an aerial photograph showing 208 residential erven of 500 to 600 m² in yellow and an abundance (40) business erven in blue for long-term formal private sector business expansion. Existing business buildings appear as the grey rectangular shapes on the aerial photograph.

- A zoning scheme underwritten by this Structure Plan will include regulations (with building codes) to permit a wide variety of housing types and mixed land-uses.
- Town planning layout designs will be guided by the land-use distribution contained in this Structure Plan so as:
 - a. To create walkable communities;
 - b. To follow established guidelines for creating balanced communities;
 - c. To concentrate critical community services near or facilitate access to homes, jobs, and transit routes;
 - d. To economise on service provision.

10.2 (B) Land Availability & Town Boundaries

10.2.1 SPATIAL

- **Growth areas** extend eastwards and outwards taking up land situated both within and outside of the 2022 town boundaries.
 - a. developable land within town boundaries has been allocated to certain predominant land-uses for settlement and occupation by proponents of those land-uses with services to follow in phases by agreement with developers or as finances permit.
 - b. land outside the current footprint and demarcated as growth areas for the town is already and will increasingly be important in accommodating growth over-spill.
- **Upgrading** with densification is demarcated for certain non-exclusionary areas and a doubling of present densities is proposed for the whole of Opuwo.
- Policy options will allow densification at short notice should the town experience a relatively large influx of people.

10.2.2 POLICY

- Land outside the current footprint and demarcated as **growth areas** for the town will either be incorporated into the town or must become a formal proclaimed settlement area administered by the Regional Authority.
- New township establishments will be required to include land demarcated for low-income erven and housing development.
- **Growth areas** on level land have been allocated for site and service and affordable housing development.
- Proposals will be welcomed by the Town Council for development of under-utilised or vacant land within existing townships that is owned by the Town Council or privately owned.
- The development of rental accommodation will be facilitated in the approval process and by the provision of high-density residential sites in all residential areas.

- Allow for single family homes to include additional residential units to encourage low-priced rental options.

10.3 (C) Environment and Topography (Slopes & Drainage)

10.3.1 SPATIAL

- The mountainous ridge blocks intensive westwards expansion such that new **growth areas** have a north-south orientation with mostly eastward expansion possibilities.
- **Growth areas** have been envisaged for land with general slopes of even up to 1:3 provided that infrastructure servicing costs can be limited so as not to place undue strain and expenses to extend infrastructure.
- High income erven can and should be situated on land with slopes greater than 1:5 since they can cover the higher developmental costs especially for access roads.
- Low-income growth is directed to fairly level land to minimise on costs of service provision and associated development costs.
- Agricultural use of areas subject to irregular flooding should continue.
- Portions of Mountainous land and flood areas are designated for public recreational use (public open space).
- Steep mountainous areas and enclosed valleys will be protected against urban intrusion.
- The eastwards extension of the townlands is proposed so as to enlarge the available extent of level land available as **Growth Area** for households at all income levels.
- Expansion will extend over town boundaries and is to be done in an orderly and regulated manner.
- Sensitive areas in floodplains and mountains have been demarcated for protective regulatory provisions. When a zoning scheme is introduced, vacant land not explicitly designated for any other use should be zoned as public open space.
- All development that is endangered in the floodplain, or which poses an environmental hazard will be **contained**. Climate change may bring extreme storms and stormwater flows that will cover the floodplain and may go beyond. Only development that does not exacerbate environmental conflicts and is compatible with the sensitive conditions will be permitted subject to appropriate environment conditions. Small scale agriculture is considered as feasible subject to conditions that will avoid land-degradation and pollution of water resources.
- The powerline reserve that crosses the Opuwo Valley in a south-east to north-west direction will be used as a stormwater collector **Corridor** and as a connection **Corridor** for public open spaces through adjacent residential areas.



Informal housing approaching sewage ponds

- Identified conservation areas (**nodes**) which cover natural, heritage and economic resources, and features that provide and enhance the sense of place, ecological **corridors**, and open space systems have been partially designated.
- The banks and stream beds of externally visible ephemeral watercourses will be preserved by imposing a no-building zone containing the watercourse extending say 5-metres from the outer edge of the riverbank.
- Mapping of the 1 in 50-year flood line and enclosed floodplain has been completed and is to be included on development plans and zoning plans with appropriate limitations on development.
- Cultural bodies need to identify the land portions that may be classified as having importance for their cultural heritage and that these designated areas be protected by regulation and zoning.

10.3.2 POLICY

- Land has been identified for public investment to accommodate low-income households on a large scale.
- Development proposals including township layouts will be required to promote a compact town form and development with ready access to open space in compactly developed places.
- Upgrading of development rights will be facilitated for developers to increase densities and floor areas in return for a development charge that can be used by Council for service upgrading purposes.
- The Town Council will divide the flood area and its vulnerable enclosed land into regular portions for lease as agricultural plots and for open space recreation. A livestock auctioning site with fencing and temporary structures would be accommodated.
- Vacant land deemed vulnerable to environmental degradation and in need of protection such as very steep land, will be considered for designation as “public open space”.
- Council led development will focus on areas within the existing townlands most easily connected to existing bulk infrastructure and in accordance with this Structure Plan.
- Council will support efforts by the Regional Council in any endeavours to **contain** peripheral **peri-urban settlement** in co-operation with other relevant authorities and service providers including incorporation into the area of jurisdiction of the Town Council.
- Council will promote land-uses that are suitable for placement on or near the floodplain and will eliminate dangerous and environmentally damaging activities and drainage issues including those from current activities.
- Developers are advised to ensure secure foundations in clay soils.
- The Town Council will make better situated land in **growth areas** available for households in the floodplain or likely to be affected by flooding to relocate.
- Provision for stormwater drainage **corridors**, which will also serve as connecting pedestrian and service **corridors**, is required of all new township establishment layouts.

- New developments are to avoid identified river systems, wetlands, aquifers, aquifer recharge and discharge areas.
- Infrastructure planning and design will follow “green” guidelines and be informed of hydrogeological risks.
- Town management will encourage planting of suitably adapted vegetation and especially trees. The option of tree planting down the proposed new central north-south commercial street will be pursued.
- Proposals that create a network of continuous trails, corridors, and greenways will be supported.
- All new township proposals will be scrutinised by the Town Council for conformity with the environmental proposals of this Structure Plan and Ministerial environmental clearance requirements. Environmental management personnel are to ensure environmental compliance.
- Council will establish heritage and natural conservation areas covering places and objects of aesthetic, archaeological, architectural, cultural, historical, scientific, or social significance, and regulate on how they might be used and investigate which items or monuments might be declared as such under the National Heritage Act, 2004 (Act No. 27 of 2004).
- Town management will encourage planting of suitably adapted vegetation and especially trees.
- Settlement patterns with higher densities that will be more sustainable in accommodating climatic restrictions and have a lower impact on land degradation will be promoted.
- A Climate Change management strategy and mitigation plan is required with focus on regulations that:
 - a. Curb growth of an urban heat island
 - b. Noxious fume emissions
 - c. Developing parks and gardens in settled urban areas
 - d. Reforestation as appropriate in conservation areas.

10.4 (D) Infrastructure

10.4.1 SPATIAL

- All development that is endangered in the floodplain will be **contained**. Residential settlement will be stopped. No expansion will be permitted of industrial and commercial activities that have already occupied sites in the floodplain.
- Land portions, privately and publicly owned, which are served by the existing infrastructural systems, should be individually assessed for **upgrading** by densification, re-development or intensification of land usage.



Vacant land east of airstrip

- Areas have been designated for **inclusionary housing policy** such as site and service settlement, which will most economically connect to water supplies.
- **Growth areas** have been identified for settlement that will most economically connect to electricity supplies.
- Expansion of the urban area is being guided into **growth areas** that take advantage of a superior location for a new wastewater treatment works that is informed by environmental risk assessment (hydrogeology, hydrology, drainage, etc)
- Dry sanitation techniques will be introduced for far-flung settlements outside of the contiguous urban area.
- A policy of providing public or communal facilities with wash basins, shower and toilets in the form of ablution service blocks on the edge of high density low income settlement areas will be followed with the option of licensing out the opportunity of providing facilities to private sector commercial initiatives.
- Alternative provision for solid waste sites (nodes) has been proposed.
- Site and service settlements have been designated for **inclusionary housing policy** which will entail establishing a workable street hierarchy.
- Wide main streets and corridors can:
 - a. provide improved amenities for pedestrians along their length,
 - b. minimise travelling distances,
 - c. create space and routes for bicycles and taxi's.
- Land near the market will be considered for a long-distance transport terminus.
- A direct pedestrian and cycle route will be designated between the settlements on the south-western edge of the town boundary across the floodplain to the town centre in lieu of the absence of a connecting road.
- A new route for the C43 (D3700) is proposed that will leave the present alignment at the northern entrance into the Opuwo Valley and will run 1 kilometre west of and parallel to the existing C43. The new name of the bypass road is the D3700. If it is created, then the possibility is that the portion of the existing road through Opuwo will be deproclaimed and handed over to the Town Council. The design for the bypass along the eastern edge of the present urban area of Opuwo creates a 60-metre-wide road reserve of which, 30 metres width is for the new road and the other 30 metres for parallel service roads possibly one on either side. New commercial Nodes and industrial Growth Areas are orientated to benefit from a realignment. Intersections on to the realigned national road should be designed as traffic circles to take advantage of vacant land and save on extended electrical lines and accompanying maintenance aspects.

10.4.2 POLICY

- The Town Council will put in place requirements for new developments to design and construct adequate stormwater drainage.
- The Town Council will support reduced erf sizes in order to reduce private gardens and therefore the need for water.
- Incentives can be negotiated with Council for water saving initiatives by private developers.
- A Zoning Scheme and policies are put in place that will allow a flexible use of land while remaining environmentally secure.
- All planned urban extensions must prioritise access to water.
- Access to electricity (power supply) is to be facilitated in conjunction with the service provider.
- The 2022 location of the wastewater treatment works will move away from its location in the middle of the settlement.
- Dry sanitation techniques will be introduced for far-flung settlements outside of the contiguous urban area.
- Public or communal ablution service blocks with wash basins, shower, and toilet facilities will be introduced on the edge of high density low income settlement areas and licensing such opportunities out to private sector commercial initiatives will be a consideration.
- Proposals to recycle waste with incentives for households that recycle will be supported.
- Solid waste removal services are to be extended to the entire population of the town including the ultra-low-income settlement areas as opportunity and finances permit.
- An Integrated Solid Waste Management Strategy for Opuwo as per government directive in 2018 will be implemented.
- The continuity of pedestrian walkways and bicycle lands across open areas and along business corridors will be ensured.

10.5 (E) Economic Activity

10.5.1 SPATIAL

- Land for future new and expanded commercial and industrial **nodes and corridors** has been identified that takes advantage of intersections with major roads, but which reduces conflict situations.
- The planned eastwards extension of the main business district is acknowledged as an expanded central **node**.
- Key sectors of tourism and mining support facilities and land, where the town has comparative and competitive local development opportunities have been identified with proposals for their usage and upgrading.



Informal settlement with business site encroaching onto floodplain

- An industrial and business **node** is proposed reserving land for industrial and particularly mining related support facilities, trucking, and warehousing.
- Existing underutilised space for commercial upgrading and possible small scale vending and other forms of trading including that of animals is identified.
- A new north-south **corridor** is designated for commercial development for new commercial initiatives bringing them closer to the future more eastern residential areas which include high density settlement. It must be designed with a street reserve width of 40 metres or more to accommodate livestock drives to a southern market location as well as making provision for future access lanes, on-street parking, a tree lined pedestrian route, public transport (taxis and buses), and possibly public ablution blocks.
- Spaces will be designated by the Town Council in streets along business corridors where vending by small-scale operators will be allowed and traders may erect temporary vending facilities, which can be removed every night.
- Space for upgrading that will enhance the tourism market focusses on a **node** for a museum, an ethnic village, and a handicrafts market to be located on a essentially pedestrian corridor through the floodplain interconnecting the central business centre with the settlements on the south-western edge of the floodplain.
- Conservation areas along watercourses and mountainous in nature will be available for the provision of recreational and tourist facilities.

10.5.2 POLICY

- The Town Council is committed to supporting local business initiatives and especially those in which the Town has a comparative advantage.
- Application procedures to enable business to operate will be simplified.
- Regulations will be put in place to control usage of land in the floodplain to avoid unsustainable environmental degradation.
- Urban agriculture in the floodplain will be regulated by designating plots and allocating them to potential agriculturists in a controlled way subject to conditions that will minimise degradation.
- A location will be demarcated for livestock trading in the floodplain in collaboration with stakeholders, subject to the erection of temporary structure only,
- The government owned land on the western side of the C43 has spare capacity for further development and will remain as an “office” fringe to the central business district with anticipated intensification of institutional activities over time.

- Council will positively consider changes to and increased intensity of commercial activities for which infrastructural capacity exists and which represent improvements to the urban fabric.
- The Town Council will draft regulations to register venders allocated specified sites in streets with a fee to be charged based on the trading opportunities of the specified site.
- Mobile pedlars carrying their goods will be issued with a renewable time-bound identity card to specify that they conform to health and associated regulations.
- The Town Council will register persons operating businesses from their own homes subject to appropriate health and practice regulations and which activities do not adversely affect neighbours.
- The Town Council will support, conserve, and, as appropriate, manage, tourist attractions and associated accommodation facilities.



Very low settlement density on the eastern edge of Opuwo



Erosion, central north, near new township construction



Erosion along the northwest draining ephemeral watercourse.

11. BUILDING CONTROL RECOMMENDATIONS

Major policy proposals are made for guiding and regulating buildings and land use. Although they can be implemented through title deed conditions and application of promulgated building control regulations, these mechanisms are clumsy for the types of control envisaged and have been replaced in most Namibian towns by zoning schemes created in terms of the Urban and Regional Planning Act, Act No, 5 of 2018. The recommendations that follow are drafted as if they are to be included in a zoning scheme although other approaches are possible.

Sections are to be included in an Opuwo Zoning Scheme to achieve the objectives of the Structure Plan.

- a) Density zones that the local authority is authorised to increase in any five-year period to allow a doubling of densities to cater for population growth.
- b) Residential land-use zones that allow for a compatible mixture of non-residential activities especially in designated “**upgrading areas**”, “**nodes**” and “**corridors**”.
- c) Residential zones in which the local authority can authorise accommodation establishments with associated facilities up to a bulk factor of 1.0.
- d) Provision in all Residential zones for a supplementary dwelling half the size of the main dwelling if the main dwelling is a dwelling house.
- e) Provision in Residential zones for traditional housing under suitable conditions for protection of health and danger to neighbours from fire.
- f) Provision in all non-residential zones for at least one residential unit up to a bulk of 0.5 and which, in some cases may be a caretakers unit or owners dwelling unit.
- g) Besides residential zones whose development potential is controlled by “density” zones, there are also residential zones whose development potential is controlled by “bulk” zones.
- h) Building lines that the local authority may relax to buildings on boundaries provided a fire wall is erected.
- i) Provision allowing the local authority to permit commercial activities in designated **nodes** and **corridors**.
- j) An “undetermined” zone applicable to all townlands over which the local authority has power to grant approval for development that conforms to the objectives of the Structure Plan.
- k) The designation of Conservation Areas to protect natural and man-made heritage features. Use of the zone “public open space” may be adequate protection.
- l) Provision for private owners to be granted additional development rights for protection and preservation of natural and man-made heritage features.
- m) A section dedicated to the protection of environmentally sensitive areas and features, natural and man-made, including drilling or excavating for water and mining.

- n) Authority granted to the local authority to forbid any development on land lacking in services of water, electricity, access, provision for sewage and provision for stormwater.
- o) Provisions that allow for increases in commercial development potential within designated **nodes** and **corridors** up to a bulk of 2.0.
- p) Provision for agricultural activities in areas within the 1 in 50 year flood zone and on townlands subject to conditions for the protection of the environment and groundwater.
- q) Allowing for integrated development of community based charitable activities or child-care centres with and to be located on public open spaces up to a maximum bulk of 0.1.
- r) Provision for recreational facilities and tourist orientated facilities including accommodation establishments and camping grounds to be located in conservation areas up to a maximum bulk of 0.1 subject to conditions for the protection of the natural environmental and heritage features.
- s) A definition of noxious industrial activities that may not be conducted without express approval of the local authority.
- t) A definition of hazardous substances to human health or safety or to the environment which, in designated quantities, may not be stored or used without express approval of the local authority.
- u) Provision for local authority infrastructure, including provision for stormwater flows, to be located within building lines free of compensation to the landowner.
- v) Provisions that allow land owners, neighbourhood groups and community associations to upgrade service provision to designated areas as well as fencing, leveling and paving, in conformity with standards issued by the local authority, in return for agreed reductions in property tax and management of the upgraded areas.
- w) Provision for the charging of a development contribution when development rights are increased, which development contribution may be in the form of a cash payment or the development of social infrastructure.

12. PRIORITIES, PHASING & FINANCIAL IMPLICATIONS

Besides providing guidelines for the integrated social and economic development and land use patterns in Opuwo, the Urban and Regional Planning Act, Act 5 of 2018, under Section 32(b) requires that an urban structure plan “give effect to the objects set out in section 2” and “to the principles and standards referred to in section 3 of the Act”; which principles as set out in section 3(b) “serve as the general framework within which policies, plans and laws, at national, regional and local level of government, relating to spatial planning must be formulated”.

The Opuwo Town Council is legally obliged to formulate its policies, plans and laws in accordance with the objectives of the Act and hence with the Opuwo Urban Structure Plan approved in terms of the Act.



Ephemeral river bed and main water supply pipe

12.1 Financial Implications

Approval of this Structure Plan carries with it no immediate financial implications for the town Council or for any other agency. Financial implications will only arise as and when Council or any other agency embarks upon a particular project for which proposals have been made in this Structure Plan Report.

Proposals made in this Structure Plan carry with them the implications that when undertaken, they will encourage development and with it, opportunities for the Town Council and socio economic development opportunities for the Opuwo community.

Provision of Council services will and must be tied to the availability of capital and financial income engendered by or provided to the town.

12.2 Priorities

The priority measures adopted by the Opuwo Town Council are clustered into three themes; Spatial Planning, Infrastructure Development and Land Management. They are prioritised based on their influence on the sustainable spatial development of the town.

Priority 1: Spatial Planning

Measure	Description	Implementation
Development of the “Orutjandja East Integrated Development Plan” on farm portions 1174, 1175 and 1176 and adjacent peri-urban areas.	A high level spatial plan and development concept that integrates the proposed new Bypass, Orutjanda East informal settlement upgrading, development of surrounding green fields, and surrounding sprawl areas outside the town boundaries. This spatial plan is to guide the detailed layout planning of the area.	Council to contract town planning professionals, with possible co-financing from the Regional Council and support from the Namibia Housing Action Group (NHAG).
Development of the “Orutjandja West and Floodplain Integrated Development Plan”.	A high level spatial plan and development concept that integrates flood mitigation, upgrading of cultivated fields, cultural and tourist centre, upgrading of Orutjandja West	Council to contract planning and engineering professionals and to collaborate with development partners GIZ-ISUD.

	settlement and mobility linkages to the CBD	
Continued upgrading of the informal settlement clusters: Old and New Katutura, and Okatuuu.	Development of an integrated settlement plan, settlement readjustment and the provision of land rights.	Council to continue collaborating with the GIZ-ISUD project.

Priority 1: Infrastructure:

NB: These measures are coordinated with the recommendations from the current existing Bulk Infrastructure Report.

Measure	Description	Implementation
Completion of the upgrading of existing sewer ponds.	The protection, rehabilitation, and management of existing sewer ponds.	Council to collaborate with Development Workshop Namibia through the KFW funding.
Project initiation for the construction of a new sewer treatment plant.	Feasibility study for a new sewer treatment plant comprising technical, financial, environmental, and operational management studies.	Council to conduct benchmark and technical visits to other towns, and contract consultants to conduct the feasibility study.
Commencement of the upgrading of the existing land fill.	The protection, rehabilitation, and management of the existing land fill, including the provision of waste sorting.	Council to contract consultants (engineers, architects, and environmental experts), and a construction company for the actual implementation.



Rocks, litter and goats

Priority 1: Land Management

Measure	Description	Implementation
Promotion of and compliance to the Urban Structure Plan recommendations	All town developments to be assessed and implemented according the recommendations of the Urban Structure Plan, in terms of land uses, densities and integration with town wide aspects.	Council to ensure a joint understanding of the Urban Structure Plan recommendations and to scrutinise all new and existing developments to ensure compliance with the urban structure plan.
Management of sprawl and growth of informal settlements.	The controlled growth of informal settlements, specifically the continued sprawling of informal settlements into green fields and high laying areas (mountainous areas).	Council to establish neighbourhood committees in existing informal settlements for the monitoring and prevention of further sprawl. Additionally council is to work with traditional authorities and the Regional Council for the management of settlements falling outside town boundaries.

Priority 2: Spatial Planning

Measure	Description	Implementation
Upgrading of Otuzemba VIP and surrounding informal settlements.	Development of an integrated settlement plan, settlement readjustment and the provision of land rights and subsequent service provision.	Council to contract relevant professional consultants or corporation with the Development Partners or NGOs.

Pre-planning of vacant areas along the C43 road to Etanga, adjacent to the current SDFN housing development.	Layout planning and surveying of the greenfield area for ultra-low and low income residents with the integration of an economic corridor alongside the C43 road to Etanga.	Council to contract relevant professional consultants or engage in cooperation with Development Partners or NGOs.
Upgrading of Orutjandja West (near the town centre) guided by the integrated development plan produced in phase 1.	Development of an integrated settlement plan, settlement readjustment and the provision of land rights and subsequent service provision.	Council to contract relevant professional consultants or engage in cooperation with Development Partners or NGOs.

Priority 2: Infrastructure Development

These measures are coordinated with the recommendations from the current existing Bulk Infrastructure Report

Measure	Description	Implementation
Project inception of new land fill site outside town boundaries.	Feasibility study for the new land fill site comprising technical, financial, environmental, operational management studies and engagement with the Regional Council and the traditional authorities.	Council to conduct benchmark and technical visits to other towns, and contract consultants to conduct the feasibility study.
Continued development of the new sewer treatment plant.	Incremental development of the new sewer treatment plant as per the recommendation of the feasibility studies.	Council to procure the services of engineers and relevant professions for the technical designs and cost estimates.



Sewage settlement ponds

Priority 2: Land Management

Measure	Description	Implementation
Development of a Zoning Scheme	A zoning scheme promotes transparency and consistency in decision-making allowing more options for an increased mix of compatible land-uses, intensification and densification and must be guided by the Urban Structure Plan and infrastructural studies which indicate where such zoning and policies can best be applied.	Council to procure services of a professional town planner.

Priority 3: Supporting Measures

Measure	Description	Implementation
Development and Integration of a Local Development Strategy	The strategy will integrate the development of informal trade, the approach to developing the local tourism industry, urban agriculture and the support for anticipated mining activity surrounding Opuwo.	Council to conduct benchmark visits to other towns, and procure services of consultancy to guide the development of the strategy.
Development of an Environmental and Climate Mitigation Plan	A plan to improve current environmental challenges; dust, heat, draught and to integrate urban resilience measures such as green corridors, nodes, hierarchy of public spaces and the promotion of climate resilient policies.	Council to corporate with NGOs, development agencies, funders, and private sector for support.

Expansion of Town Boundaries	Incorporation of surrounding areas at a 2.5km distance from the town boundaries to accommodate further town expansion and integration of surrounding settlements into townlands.	Close cooperation with MURD, Regional Council, Traditional Authorities and affected residents.
Development of Sustainable Urban Mobility Strategies	To integrate key mobility aspects into the urban fabric; nodes, pedestrian streets, safety, affordability, and affordable options (public transport, cycling, walking etc)	Council to cooperate with NGOs, development agencies, funders, and private sector for support.

13. CONCLUSIONS

In line with its vision to be efficient, effective, transparent and most livable town in service delivery, the Opuwo Town Council will employ and utilize the latest techniques and know how to upgrade its tangibles and intangible resources that will enable the Town Council to reach its highest apex possible that will perfect and enhance service delivery.

The Structure Plan offers guidance for land allocation for the Kunene Region’s capital. It specifically addresses the identified spatial objectives of Council making provision for:

- a large area that might in future serve for activities associated with mining operations and the Baynes Hydroelectrical Power Plant north of Opuwo such as industry, offices, housing, and business as well as a Truckport;
- parks and recreation including provision of an area that could be used for the celebration of the people of Opuwo’s cultural heritage that could include a “traditional village”, a museum and library, and improve the tourism based economic sector;
- the movement of animal stock through the town to places of marketing, slaughter, camps for stock on the outskirts of the town, location of associated transient persons, and provision for urban agriculture.



Natural oil collection and purification industry

- An engineering study has recommended a better location for a landfill (dump) site and a sewage treatment works.
- In its phasing of expansion, provision is made for either extension of boundaries to encompass and enable proper administration of other nearby settlements or that such occupied land outside town boundaries must become a formal proclaimed settlement area administered by the Regional Authority.

The spatial plan improves the settlement opportunities for the less resourced members of the community. It offers a transparent outlook on the town that can guide its private and public spatial developmental decisions over the next 20 years and into the further future. It optimizes application of scarce financial resources. Policy proposals will encourage private development initiatives in and by all sectors. Sustainable and inclusive settlements are the future of urban planning in Opuwo. This has been recognised in the spatial planning and the creation of a vision for the future. As outlined in the Status Quo Review, Opuwo town management struggles with shortages of skilled manpower to properly regulate usage of land and provision of services. Local income resources are and will continue to be very limited and there is heavy dependence on Government transfers. The expected urban expansion shown in the Urban Structure Plan will place an even greater burden on the Town Council. Nevertheless, without this plan, urban settlement will still take place but in areas not easily or cost-effectively served with engineering infrastructure. Administrative costs will rise even more and management will struggle to maintain standards.

As stated in the Opuwo Strategic Plan 2016 – 2021, the Town Council will create and preserve Namibia's most livable community that enhances its natural, cultural, social and economic environments and it will achieve this by continuously improving programs and services that are both accessible and environmentally and fiscally sustainable. In conclusion, timely adoption of this Urban Structure Plan as part of its strategic program offers the most viable and sustainable options for Opuwo's spatial growth.

Opuwo, Capital of the Kunene Region, will grow as the Tourist Mecca of Namibia and as an Oasis for Investment.



ANNEXURE A: ANALYSIS OF POPULATION GROWTH AND DIRECTION OF SETTLEMENT

CATEGORIES	CURRENT SITUATION SHAPERS	PRESSURES CREATED DRIVERS	CURRENT RESPONSE DRIVERS	STRATEGIC OBJECTIVES	SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICY LEVERS	APPLICATION OF SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICIES & GUIDELINES
1. POPULATION GROWN AND DIRECTION OF SETTLEMENT								
Historical Town Form and Recent Trends.	Low density sprawl, Separation of land use on registered erven based on title deed restrictions. Low-density, single use development.	Pressure on provision of services to low density urban settlement.	More of the same with little or no effort towards densification	To optimize the development of flat land and strategically located land. To assess of the development potential of all land within the enlarged town boundary and select the most suitable for particular elements of urban expansion (residential, business, industrial, etc.). To pursue densification, integration, and intensification to address sprawl.	Spatial Analysis of slope, catchment, drainage, service availability and environmental sensitivity to categorise vacant developable land as growth areas for various types of urban development. Analyse the Town's linear structure and identify nodes and corridors most suitable for densification and intensification of usage. Identify undeveloped yet suitable for infill and densification in the current urbanised area to be earmarked, re-zoned or re-purposed for more intensive use such as higher density residential development. Capture the above in a spatial development plan.	Amend the property title conditions by introducing a zoning scheme and land-use policies so as to allow more options for an increased mix of compatible land-uses on the same erf and to indicate where such zoning and policies can best be applied. Accept that development pressure will be highest for commercial establishments along existing corridors and plan for commercial development and increased residential densities along these corridors. Direct high-income housing to be privately developed on land with steeper slopes so that the additional development and maintenance costs, especially those for access, can be carried by the wealthier residents.	Based on the analysis of availability of easily developable land with the most economic costs of service provision, the following proposals are made. Growth areas for all types of development extend eastwards and outwards and across the town boundaries Nodes are created in proximity to junctions of the town roads and, in two cases with national roads Corridors extend from nodes along the main roads back towards the present town centre.	The Town Council will facilitate amendment of property title conditions by introducing a zoning scheme and land-use policies so as to allow more options for an increased mix of compatible land-uses on the same erf and to indicate where such zoning and policies can best be applied in line with this Structure Plan. The Town Council will encourage high-income housing to be privately developed on land with steeper slopes so that the additional development and maintenance costs, especially those for access, can be carried by the wealthier residents.
	Economic segregation of informal settlements with medium density sprawl.	Informal settlements in Opuwo are spatially segregated from especially the major social facilities and institutions that are deemed necessary for everyday wellbeing. Although walking time to the densest informal settlements is less than 30 minutes, many residents from these informal settlements must travel on foot carrying their goods to and from the main retail outlets. Most of the informal settlements have limited or no access to infrastructure. This is an issue for the town Council to extend these services and infrastructure to the informal settlements.	Infrastructure is extended and new formally structured low-cost townships are being provided as and when financial support is made available.	To rationalise localities of new low-cost townships so as to minimise infrastructural extension costs.			Infill and densification is recommended for the current urbanised area of mixed commercial and higher residential land-use.	Town Council policy is to promote and facilitate commercial development and increased residential densities along business corridors and demarcated high-density areas.
	Ad Hoc development is occurring outside the Town's current footprint and particularly development to the east along the national road, the C41, from 1.7 to 3.0 kilometres	Development has only the established transport corridors to give it any coherence. As a result of this ad-hoc nature, it lacks focus and direction towards	The Town Council is approaching higher governmental authorities and traditional authorities to	To incorporate flat land outside of town boundaries, and especially land currently being developed, into the town.	Evaluate an extended boundary area and propose how to deal with township establishment, extension of infrastructure, and		Peri-urban settlement accommodates overspill from Opuwo in certain outside areas on the eastern side of Opuwo that have easy access to roads leading back into Opuwo. It is proposed that expansion	Relevant authorities and service providers will harmonise development regulations and practices and service provision.

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	parallel with the Town's central spine and, also, but to a far lesser extent, westwards.	overall development objectives and adds to the costs of the provision of infrastructure. Development on land outside the town boundaries pays no local authority tax although residents make full use of services available within the town.	obtain approval of the boundary extension. Matter is delayed by desire to have the support of traditional authorities and the reluctance of residents outside the boundaries to accept local authority taxation.	To provide an infrastructural framework that could guide future extension of infrastructure and development in a more cost-effective manner.	development applications in a coordinated way to address peri-urban settlement .		continue but in a formalised way with appropriate layout plans that facilitate balanced urban development.	
Population Growth of the Low-Income Sector	The 2021 population is estimated at between 12,000 and 16,000. A large part of population growth is of those with the least ability to pay for service provision. It is also that segment that does not attract private developers. Many of the people in the town and especially those in the informal settlements come from a previously disadvantaged group (Ovahimba and Ovadhembamba) who have led a semi-nomadic lifestyle and relied on animal husbandry as a means of production and survival through trading. With the desire to improve living standards and the diminishing returns from nomadic life, such people found themselves having to integrate their lifestyle, culture, and traditional beliefs with modernization within the town. Residents especially those in New Katutura/ Katutura Extension 2, are provided with full services but cannot legally own the land through the free-hold system so the local authority is busy with seeking for funds and assistance to have the layout approved under the Flexible Land Tenure System.	Lack of serviced land led to increased informal settlement on the fringes of the Town in unsuitable areas without adequate infrastructure services. Efforts from the Opuwo Town Council are stretched to ensure that all its residents are equally served and recognised through the provision of land that has access to some degree of infrastructure and services. The desire to provide Inclusive and sustainable urban development is severely challenged.	The problems related to informal settlement is fully acknowledged and work has started on trying to understand the extent of informal settlement, its growth and its characteristics more clearly. Informal houses in unplanned areas have been mapped and numbered and plans are afoot to address this phenomenon and provide alternatives to enable it being phased out. Efforts to upgrade the informal settlements, partly in situ and partly through greenfield development are on-going to give opportunity to those with access to funding to construct permanent structures, to allow settlers to be registered and giving them some degree of tenure security. This includes the local authority designing semi-formal layouts that can be formalised with time but providing some form of security whilst they provide partial services and can charge for these services. This is an alternative to forceful removals of occupants.	To formalize the informal settlements and arrest the growth of informal settlement through measures aimed at providing feasible alternatives to informal settlement. To support the compilation of internal spatial and land-use development plans for all informal settlements.	One of the pillars will be Inclusionary Housing Policy through development and upgrading of informal settlements through a combination of in situ upgrading with green-field development to accommodate quality liveable population concentrations. Allocate relatively flat growth areas within the Town boundaries to accommodate the growth in low-income households.	Spatial and land-use development plans are compiled for all informal settlements. Use of Flexible Land Tenure legislation may be a solution in some instances.	Inclusionary Housing Policy will be achieved by the rational application of available resources with the following priorities: a. The demarcation of level (relatively) vacant land essentially situated on the eastern side of Opuwo, as growth areas for ultra-low-income household settlement as viable alternative to informal settlement; b. The design of layouts that are used to allocate sites to applicants; c. The instigation of local community liaison committees for communications with the Town Council; d. The provision of various levels of servicing in collaboration with community liaison committees as may be financially viable; e. The upgrading of existing informal settlements with established community liaison committees.	Township and street layout plans will be drafted for phased expansion of informal settlement so that it takes place within parameters that will facilitate later provision of services. All future ultra-low-income settlement is to take place only in areas that are planned and which the authorities will endeavour to provide with, at least, the most elementary services. The Flexible Land Tenure legislation will only be used where it is feasible and desirable, such as where existing informal settlement cannot be easily subdivided, and service provision limited to providing residential blocks with service access points.

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Human Settlement featuring a high rate of population growth and household formation	Opuwo has a population growth rate of about 7% with a sex ratio of 96 males/100 females. The average household in the town is about 4.0 persons per household with the head of households being males (56%) versus females (45%), the town has a low literacy rate of 62% (Kunene Regional Profile, 2011). There is a low levels of affordability and under supply of affordable housing and serviced land. Developers wanting new and cheaper opportunities are looking outside the Town Boundaries leaving households and the Council to deal with the additional servicing costs that accompany this approach.	New ultra-low-income households, for instance, immigrants, have little option but to settle in informal settlement areas. Informal settlement areas are exploited by more affluent who build shacks for rent. Outlying settlement fails to provide an integrated range of facilities and opportunities within easy access of residents. Additional servicing costs are involved to provide equal development levels.	New formal land subdivision (township establishment) is largely driven by the private sector. Security of tenure is through freehold titles, permission to occupy or some other form of allocation permission.	To identify and provide adequate land to accommodate the projected growth of the population of the Town over the 20-year planning period with due consideration of the entire affordability spectrum. To formulate a set of policies able to ensure that sufficient land can be made available quickly and with minimum cost for all required land uses.	Calculate the growth area requirement over the 20-year planning period and allocate it to different policy levers. Develop a strategy on how to Upgrade Areas by identifying the various types of available land parcels and using other planning levers to accommodate the projected demand. Formulate town planning layout design guidelines to reflect the principles of the USP in spatial terms to minimise cost and maximise affordability. Create walkable Communities. Concentrate critical services near homes, jobs, and transit routes.	All future ultra-low-income settlement is to take place only in areas that are planned and provided with the most elementary services. The pre-allocation of erven should be adopted on a faster rate. Introduce a zoning scheme with building codes to permit a wider variety of housing types. Identify and facilitate the development of vacant and underutilised land. Adopt a policy to incentivise developers who provide affordable rental opportunities.	Growth area requirement over the 20-year planning period have been estimated and land allocations have been made in a phased manner with most new settlement lying to the east of the present Opuwo. Upgrade Areas have been identified. Applications may be made in these areas by property owners to increase and improve development rights.	The Town Council, Regional Council, Service Providers, and other relevant authorities are acquainted with this Structure Plan and have been requested to mutually support endeavours to develop Opuwo in compliance with the Plan. Allocation of land for development in line with this Plan will be undertaken timeously. A zoning scheme underwritten by this Structure Plan will include regulations (with building codes) to permit a wide variety of housing types and mixed land-uses. Town planning layout designs will be guided by the land-use distribution contained in this Structure Plan so as: <ul style="list-style-type: none"> a. To create walkable Communities; b. To follow established guidelines for creating balanced communities; c. To concentrate critical community services near or facilitate access to homes, jobs, and transit routes; To economise on service provision.

ANNEXURE B: ANALYSIS OF LAND AVAILABILITY & TOWN BOUNDARIES

CATEGORIES	CURRENT SITUATION SHAPERS	PRESSURES CREATED DRIVERS	CURRENT RESPONSE DRIVERS	STRATEGIC OBJECTIVES	SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICY LEVERS	APPLICATION OF SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICIES & GUIDELINES
2. LAND AVAILABILITY & TOWN BOUNDARIES								
Availability of Land	The Town has undeveloped land in all directions from the current urban area. Land to the east is currently being planned for township development. The mountainous ridge blocks intensive westwards expansion and forces development to have a north-south orientation with mostly eastward expansion possibilities. Available land to the west is steep and not readily serviced. Land to the south is limited by a wide flood zone during heavy rains. Opportunities still exist for planning vacant land to the north.	Regardless of the availability of land, the provision of services represents a financial challenge. Lack of level serviced land or suitably designated land leads to low-income households settling on marginal un-serviced and potentially unserviceable land. Some private developers have crossed the town boundary on its eastern side to access level land relatively close at 2 km distance along the C41.	Controlled urban expansion has been mostly northwards and eastwards. The Town has undertaken servicing and management in a few areas outside of the main urban current footprint. Efforts are being made to obtain other farmland traditionally managed, especially the areas already settled, for incorporation and future development by the Town.	To identify and provide adequate land to accommodate the projected growth of the population of the Town over the plan period with due consideration of the entire affordability spectrum. To formulate policies that would enable private landowners to develop their land in line with the priorities for land-usage and housing in the Town.	To elaborate on two Growth Area options of: - (1) developable land within the town boundaries, (2) land outside the current footprint and services catchments.	Incentivise developers for the development of low-income erven and housing development. Maximise site and service and affordable housing development on flat land.	Growth Areas extend eastwards and outwards taking up land situated both within and outside of the 2022 town boundaries. (1) developable land within town boundaries has been allocated to certain predominant land-uses for settlement and occupation by proponents of those land-uses with services to follow in phases by agreement with developers or as finances permit. (2) land outside the current footprint and demarcated as growth areas for the town is already and will increasingly be important in accommodating growth over-spill.	Land outside the current footprint and demarcated as growth areas for the town will either be incorporated into the town or must become a formal settlement area administered by the Regional Authority. New township establishments will be required to include land demarcated for low-income erven and housing development. Growth areas on level land have been allocated for site and service and affordable housing development.
Property market patterns and growth pressures	The Town has come through a period where the property market was really lively and many residential, office and business development were established or expanded. This followed the declaration of Opuwo as the Regional Capital leading to the establishment of regional offices for many ministries. This basically came to an end when all relevant ministries had been accommodated.	The development of rental properties is virtually at a standstill.	Virtually no policy response can be discerned.	To facilitate the provision of affordable housing in all parts of the Town, especially in areas closer to the key employment areas. To enable the private sector to accommodate any sudden influx of people generated by economic activity in the near region.	To elaborate on another two growth options namely, Upgrading by - (3) densification in existing townships and (4) development of vacant land within existing townships that is owned by the Town and that is unused, not used intensively enough or demarcated for other purposes and can be re-purposed.	Facilitate the development of rental accommodation. Allow for single family homes to include additional residential units to encourage low-priced rental options.	Upgrading with densification is demarcated for certain non-exclusionary areas and a doubling of present densities is proposed for the whole of Opuwo. Policy options will allow densification at short notice should the Town experience a relatively large influx of people.	Proposals will be welcomed by the Town Council for development of under-utilised or vacant land within existing townships that is owned by the Town Council or privately owned. The development of rental accommodation will be facilitated in the approval process and by the provision of high-density residential sites in all residential areas. Allow for single family homes to include additional residential units to encourage low-priced rental options.

ANNEXURE C: ANALYSIS OF ENVIRONMENT AND TOPOGRAPHY (SLOPES & DRAINAGE)

CATEGORIES	CURRENT SITUATION SHAPERS	PRESSURES CREATED DRIVERS	CURRENT RESPONSE DRIVERS	STRATEGIC OBJECTIVES	SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICY LEVERS	APPLICATION OF SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICIES & GUIDELINES
3. ENVIRONMENT AND TOPOGRAPHY (SLOPES & DRAINAGE)								
Topography and Slopes	Opuwo lies along the eastern flank of a 3,700-metre-long mountainous ridge that rises about 90 metres over the shallow valley below. Most of the south-east facing slopes are developable with the steepest land lying on the western flank of the ridge. Housing and a lodge are established on the ridgeline. Most of Opuwo is located on the gentler lower slopes with the sewage treatment works in the valley draining northwards. Access to the west is round the northern and southern sides of the ridge. The ridge has a narrow river-valley exit on its southern side, before meeting up with further obstructive mountainous land to the south-west. Further to the west the land becomes increasingly mountainous. In all other directions the land opens out into fairly level areas dotted with protruding small rocky mountains. Opuwo is situated on two portions of townlands, numbers 875 and 1115. Most of Opuwo is located on Portion 875. Only 2.1% of the 982 hectare that comprise Townlands No. 875 is too steep to develop. 24.7% of the 801.5 hectare that comprise the more western Townlands No. 1115 is too steep to develop. This portion comprises land north of central Opuwo and along the western fringes of the ridge.	Costs of providing infrastructure, especially streets, limits development options on land steeper than 1:8. Steep land is vulnerable to erosion and other forms of degradation.	Opuwo Town Council has made land available within its boundaries for township establishment in areas where extension of infrastructure is relatively facilitated. Private development has acquired level land from Traditional Authorities east of Opuwo's townland boundaries and has had to deal with the associated problems of providing infrastructure services, especially bulk sanitation, water and electrify, and solid waste removal.	To identify those areas that are suitable for various types, densities and intensities of development within existing service catchments and outside environmentally sensitive areas. To develop a sensitive environment zonation map that clearly outlines wetlands, crucial slope environments, surface and groundwater sensitivity zones.	Lower-middle, medium and higher cost development can occur in Growth Areas with general slopes less than 1:5 provided that infrastructure servicing costs can be limited. Steeper land with higher development costs should be allocated to higher income settlement. Opportunities exist for continued agricultural use of areas subject to irregular flooding. Portions of Mountainous land and flood areas may be designated for public recreational use with or without additional facilities.	Identify areas for public investment to accommodate low-income households on a large scale. Promote a compact town form and development. Ensure ready access to open space in compactly developed places. Offer incentives that encourage developers to increase density. Make proposals on an Environmental Management Policy and framework for the Town Council. Make use of the designation "public open space" as a protective measure on land that is vulnerable to degradation such as steep slopes.	The mountainous ridge blocks intensive westwards expansion such that new Growth Areas have a north-south orientation with mostly eastward expansion possibilities. Growth Areas have been envisaged for land with slopes less than 1:3 provided that infrastructure servicing costs can be limited so as not to place undue strain and expenses to extend infrastructure. High income erven can and should be situated on land with slopes greater than 1:5 since they can cover the higher developmental costs especially for access roads. Low-income growth is directed to fairly level land to minimise on costs of service provision and associated development costs. Agricultural use of areas subject to irregular flooding should continue. Portions of Mountainous land and flood areas are designated for public recreational use (public open space).	Land has been identified for public investment to accommodate low-income households on a large scale. Development proposals including township layouts will be required to promote a compact town form and development with ready access to open space in compactly developed places. Upgrading of development rights will be facilitated for developers to increase density. The Town Council will divide the flood area into regular portions for lease as agricultural plots and for open space recreation. Vacant land deemed vulnerable to environmental degradation and in need of protection will be considered for designation as "public open space".
		The steep topography on the western fringes limits land that is suitable for development, especially for affordable housing, industry, and service provision, which are best accommodated on land flatter than 1:8 although, in some areas along the eastern flank of the ridge, formal development has crept into land with slopes up to 1:5.	Informal settlement has intruded along and into the southern mountain gap and threatens to spread uncontrollably in other areas. The Town Council is endeavouring to provide supportive services.	To identify those areas that are suitable for site and service and low-cost housing within existing service catchments and outside environmentally sensitive areas.	Limit all development that places undue strain and expenses to extend infrastructure. Extend the townlands eastwards so as to enlarge the available extent of level land available as Growth Area for households at all income levels. Contain and incorporate peripheral peri-urban settlement .	Council led development to focus on areas within the existing townlands most easily connected to existing bulk infrastructure.	The eastwards extension of the townlands is proposed so as to enlarge the available extent of level land available as Growth Area for households at all income levels. Expansion will extend over town boundaries and is to be done in an orderly and regulated manner.	Council led development will focus on areas within the existing townlands most easily connected to existing bulk infrastructure and in accordance with this Structure Plan. Council will endeavour to contain and incorporate peripheral peri-urban settlement in co-operation with other relevant authorities and service providers.
Drainage	Most of Opuwo drains to the north-east and then westwards out of the valley. However, there is a major drainage channel combining five tributaries into a single river on the southern side of Opuwo. It forms a barrier when in full flow. It drains	Urban development has mostly halted on the northern edge of the floodplain. Informal settlements have jumped the flood plain and have prospects for growth to the south-east. Western extensions of these settlements touch on the flood plain and will be	Sewage is pumped back where possible. Nothing has been done to restrict informal settlement in these southern areas. Rather the attempt has been made to formalise what is taking place, but at increased costs to Opuwo.	To identify land-uses that might be accommodated in or near the flood plain and under what circumstances. To identify those areas that are suitable for township establishment, site and service	Contain all development that is endangered in the floodplain, or which poses an environmental hazard.	The Town Council will promote land-uses that are suitable for placement on or near the flood plain and to regulate on stormwater provision.	Sensitive areas in floodplains and mountains have been demarcated for protective regulatory provisions. All development that is endangered in the floodplain, or which poses an environmental hazard will be contained . Only development that does not	The Town Council will promote land-uses that are suitable for placement on or near the flood plain and will eliminate dangerous and environmentally damaging activities and drainage

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	through the relatively narrow gap in the ridgeline on its southern side before the mountainous land continues further to the south-east. The land on the valley floor and its eastern side has slopes less than 1 in 20. Formal and informal settlements occupy land subject to flooding, including land within a 1:50 year return period.	increasingly expensive to service and more so should they grow further westwards beyond of the gap. There is some development squeezed in the gap on the northern side of this ephemeral river system. Stormwater drainage is slow on the flatter areas and short-term flooding often accompanies heavy rainfall. Settlements in the flood plain are badly affected during the rainy season, with gravel roads, footpaths and houses and shacks being damaged or totally washed away. Potential surface and groundwater contamination from : a. Overflowing ponds b. Sewer seepage contaminating groundwater	Assistance is given to flood victims on an ad hoc basis. The flood area has been definitively mapped in the preparation of this Urban Structure Plan, and the outer boundaries set at the 1 in 50-year flood return period.	sites, and low-cost housing within existing service catchments and outside environmentally sensitive areas. To propose suitable drainage systems for new settlements. To use drainage systems as an interconnecting feature for public open spaces through residential settlements. To increase the functionality of an existing powerline reserve for draining and public open space.	Require spatial provision for stormwater drainage corridors . Use the powerline reserve that crosses the Opuwo Valley in a south-east to north-west direction as a stormwater collector Corridor and as a connection Corridor for public open spaces through adjacent residential areas.	Land allocations can be made for the transfer of flood affected households to safer situated land. Guidance will be given on the impact of existing drainage patterns from current activities.	exacerbate environmental conflicts and is compatible with the sensitive conditions will be permitted subject to appropriate environment conditions. Small scale agriculture is considered as feasible subject to conditions that will avoid land-degradation and pollution of water resources. The powerline reserve that crosses the Opuwo Valley in a south-east to north-west direction will be used as a stormwater collector Corridor and as a connection Corridor for public open spaces through adjacent residential areas.	issues including those from current activities. Developers are advised to ensure secure foundations in clay soils. The Town Council will make better situated land available in Growth Areas for households in the flood plain or likely to be affected by flooding to relocate. Provision for stormwater drainage corridors which will also serve as connecting pedestrian and service corridors is required of all new township establishment layouts.
Clay and sandy soils	There is a lack of vegetation cover on large areas. Clay deposits exist but are not mapped.	Exposed land and windy conditions lead to sand and dust storms. Clay deposits inhibit drainage and undermine inadequate foundations	None known	To provide guidance to developers; e.g. list of suitable groundcover and identification of clay deposits. To encourage vegetative coverage or minimise uncovered areas for instance reforestation or afforestation programmes with support from developmental partners.	Contain development that might exacerbate the problem.	Guidance is needed on foundations in clay soils. Town management will encourage planting of suitably adapted vegetation and especially trees.	Identified conservation areas (nodes) which cover natural, heritage and economic resources, and features that provide and enhance the sense of place, ecological corridors , and open space systems have been partially designated.	New developments are to avoid identified river systems, wetlands, aquifers, aquifer recharge and discharge areas. Infrastructure planning and design will follow “green” guidelines and be informed of hydrogeological risks. Town management will encourage planting of suitably adapted vegetation and especially trees. Proposals that create a network of continuous trails, corridors, and greenways will be supported.
Hydrology and Aquatic ecosystems, and groundwater	Opuwo lies at the western extremity of a moderately productive aquifer. (Mendelsohn J. et al, Atlas of Namibia; 2002) on which it is dependent. Rainfall falls mainly January to March and averages between 300 mm and 350 mm per year but can be quite irregular. Evaporation rates are between 2,100 and 2,240 mm per year. (Mendelsohn J. et al, Atlas of Namibia; 2002).	There are sensitive areas such as the ephemeral river systems throughout the Town. There is risk of groundwater pollution, over abstraction and fracture development	Groundwater is an essential resource in a dry country like Namibia and should be protected and managed accordingly. It is particularly sensitive to climate change. A surface water management plan should be developed.	To provide guidance to which land uses are appropriate in certain areas based on established criteria such as: (I) Land uses which require some degree of assessment to ensure that the basic conditions of the SEA are met; (II) Land uses that are generally undesirable in an area which would require in-depth motivation and assessment to ensure that they do not result in unacceptable impacts. To support the development of a Water Demand Management Plan to monitor sustainable water use. To pursue water saving strategies to reduce losses.	Identify and provide protection through designated conservation areas (nodes) which cover natural, heritage and economic resources, and features that provide and enhance the sense of place, ecological corridors , and open space systems. Land-use risk assessment should be highly informed by hydrogeological risks.	Reduce the impact of urban development on river systems, wetlands, aquifers, aquifer recharge and discharge areas. Develop and adopt a green infrastructure plan. Create a network of continuous trails, corridors, and greenways. Ensure that groundwater pollution prevention systems are put in place.	Preserve the banks and stream beds of externally visible ephemeral watercourses by imposing a no-building zone containing the watercourse extending say 5-metres from the outer edge of the riverbank. Mapping of the 1 in 50-year flood line and enclosed flood plain has been completed and is to be included on development plans and zoning plans with appropriate limitations on development.	All new township proposals will be scrutinised by the Town Council for conformity with the environmental proposals of this Structure Plan and Ministerial environmental clearance requirements. Environmental Management Personnel are to ensure environmental compliance.

CATEGO RIES	CURRENT SITUATION SHAPERS	PRESSURES CREATED DRIVERS	CURRENT RESPONSE DRIVERS	STRATEGIC OBJECTIVES	SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICY LEVERS	APPLICATION OF SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICIES & GUIDELINES
				To develop an environmental sensitivity report detailing hydrogeology, hydrology, and pollution transmission risks both on surface and underground.				
Culture, Archaeology & Fauna and Flora	Opuwo is a culturally rich community with important archeologically significant phenomena. Specialised fauna and flora unique to the Region occur.	There are significant cultural areas in and around the townlands and existing historical graveyard sites that are not mapped. Cultural meeting areas have traditional significance. Formal and informal settlement is eroding areas available for proliferation of indigenous flora and fauna.	Observed culture and heritage phenomena observed have not been disturbed. Settlement imperatives drive land occupation.	To provide for a framework to preserve or conserve the culturally important phenomenon identified. To enhance value through eco- and cultural tourism. To provide protection for vulnerable areas with indigenous flora and fauna.	Identify and provide protection through designated conservation areas (nodes) which cover natural, heritage and economic resources, and features that provide and enhance the sense of place, ecological corridors , and open space systems.	Introduce a people centred culture and heritage conservation framework development and implementation. Designate and protect by regulation and zoning areas containing fauna and flora most typical of the region and endangered by urban intrusion, notably watercourses and mountainous areas.	Conservation areas as listed below should be identified and surveyed and that these designated areas be protected by regulation and zoning. a. Cultural bodies should identify the land portions that may be classified as having importance for cultural heritage and that these designated areas be protected by regulation and zoning. b. The immediate surroundings of ephemeral water courses should be protected from urban intrusion. c. Steep mountain slopes and the valleys and isolated land portions that they surround should be protected from urban intrusion.	Town Management will Establish heritage and natural conservation areas covering places and objects of aesthetic, archaeological, architectural, cultural, historical, scientific, or social significance, and regulate on how they might be used and investigate which items or monuments might be declared as such under the National Heritage Act, 2004 (Act No. 27 of 2004). Town management will encourage planting of suitably adapted vegetation and especially trees.
Climate	The climate in Opuwo is referred to as a local steppe climate. There is not much rainfall in Opuwo all year long. The Köppen-Geiger climate classification is BSh. The area is arid. There is threat from continuous desertification due to decline in vegetation and little to no rainfall.	Extended periods of aridity persist, and the adverse impacts such as dust storms are aggravated by continuous land degradation and increasing urbanisation. There is slow regeneration of the natural environment. In the urban areas, because of hardships more land is being cleared to help and improve subsistence through urban agriculture. This lack of planning is resulting in streambank cultivation, land clearing, erosion, and pollution.	There are existing public open spaces and approval of Environment Impact Assessments is required prior to township establishments or any other project is implemented. Urban agriculture is acknowledged but not regulated to minimise adverse impacts.	To regulate urban agriculture so as to mitigate the effects of urbanisation and reduce land degradation. To encourage settlement patterns and densities that will be more sustainable in accommodating climatic restrictions and have a lower impact on land degradation.	Identify and provide protection through designated conservation areas and closer regulation of non-sustainable land usage.	Environmental and Social Management Framework Implementation	Urban agriculture in the floodplain will be regulated by designating plots and allocating them to potential agriculturists in a controlled way subject to conditions that will minimise degradation. The immediate surroundings of ephemeral water courses will be protected from urban intrusion. Steep mountain slopes and the valleys and isolated land portions that they surround will be surveyed and protected from urban intrusion.	Settlement patterns with higher densities that will be more sustainable in accommodating climatic restrictions and have a lower impact on land degradation will be promoted.
Climate Change	There is ever changing climate variability and this is resulting in rural- urban migration.	There is uncertainty leading to poorly advised decision-making,	There is acknowledgement of the dangers of climate change.	To advise on some aspects of a climate change mitigation management strategy.	Identify and provide protection through designated conservation areas (nodes) which cover natural, heritage and economic resources, and features that provide and enhance the sense of place, ecological corridors , and open space systems	Management are aware of vulnerable areas and will put in place plans for dealing with emergencies such as unexpected flooding, drought and wind.	Conservation areas are created, and non-sustainable land settlement activities will be curtailed.	A Climate Change management strategy and mitigation plan is required with focus on regulations that: a. curb growth of an urban heat island b. Noxious fume emissions c. Developing parks and gardens in settled urban areas d. Reforestation as appropriate in conservation areas.

ANNEXURE D: ANALYSIS OF INFRASTRUCTURE

CATEGO RIES	CURRENT SITUATION SHAPERS	PRESSURES CREATED DRIVERS	CURRENT RESPONSE DRIVERS	STRATEGIC OBJECTIVES	SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri- urban settlement.	POLICY LEVERS	APPLICATION OF SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICIES & GUIDELINES
4. INFRASTRUCTURE								
Infrastructur e services.	Stormwater Although heavy rain is infrequent, it can overwhelm existing stormwater provisions. Flooding occurs in areas that either lie within the flood zones of ephemeral water courses or which are located on the relatively flat valley floor.	Properties can be damaged by flooding. On steeper land, earth and detritus can be swept downhill eroding land and accumulating in lower areas blocking streets and requiring removal.	Blockages are cleared and damage repaired as necessary.	To identify flood zones in which settlement should be barred or removed. To put in place policies that will improve provision of adequate stormwater drainage.	All development that is endangered in the floodplain, or which poses an environmental hazard will be contained.	Put in place requirements for new developments to design and construct adequate stormwater drainage.	All development that is endangered in the floodplain will be contained .	The Town Council will put in place requirements for new developments to design and construct adequate stormwater drainage.
	Water Bulk infrastructure provision is provided by NAMWATER and is generally adequate Water is sourced from subsurface aquifers. Water infrastructure and pressure zones cover the existing footprint well but are close to capacity. The fringe of informal settlements in the south-west of the Town depends on communal supply points which can lead to unsanitary circumstances with adverse health and environmental impacts. In parts of the Town, water infrastructure is old and close to the end of its design life.	Three threats threaten a safe water supply. (1) Defecation in areas without sanitary facilities. (2) Covering of groundwater recharge areas with impermeable surfaces. (3) Inadequately controlled industrial and household activities that release oils and other contaminants into the ground. Public water supply will be at risk if pollutants are not contained and are prevented from entering the aquifers. Surface runoff continues to pollute important water reservoirs. Residents in extreme fringe areas must carry water some distance from communal water points.	General water insecurity Water points are being extended. Usage of prepaid water metering is being introduced.	To assess water infrastructure to determine where best to implement densification and intensification activities. To re-consider development standards in order to lower the cost of the provision of services. To promote settlement in areas which will minimise network extension costs and to serve informal settlements that are currently without water supply.	Identify the areas which can make use of the current system, and which are suitable for upgrading through densification, re-development or intensification of land usage. Identify areas for Inclusionary Housing Policy such as site and service settlement that will most economically connect to water supplies.	Ensure that all development within the current basin can be connected to potable water. Reduce erf sizes in order to reduce private gardens and therefore the need for water. Incentivise water saving initiatives by private developers. Put in place a Zoning Scheme and policies that will allow a flexible use of land while remaining environmentally secure. Access to water is a basic need. Adopt a policy to ensure access to water to all planned erven.	Areas which make use of the current infrastructural system, and which are suitable for upgrading through densification, re-development or intensification of land usage have been designated for such changes. Areas have been designated for Inclusionary Housing Policy such as site and service settlement, which will most economically connect to water supplies.	The Town Council will support reduced erf sizes in order to reduce private gardens and therefore the need for water. Incentives can be negotiated with Council for water saving initiatives by private developers. A Zoning Scheme and policies are put in place that will allow a flexible use of land while remaining environmentally secure. All planned urban extensions must prioritise access to water.
	Electricity. Bulk infrastructure provision is provided by NORED and is generally adequate but there have been problems with servicing areas outside the footprint of the Town. In the informal settlements, electricity is generally not available.	Some private developments outside of the existing formal area could not be served before certain items of infrastructure are not provided – (such as substations.) Collection of wood for cooking fires is degrading natural vegetation. Dangerous illegal connections are rife.	Households in unserved areas make use of small solar panel power generation, as well as batteries and candles. The pre-paid metering system is being extended.	To assess electrical infrastructure capacity to determine where best to implement densification and intensification activities. To extend the existing networks to also serve the informal settlements that are currently without electricity but subject to affordability and willingness to pay.	Identify in advance Growth Areas for settlement that will most economically connect to electricity supplies.	Access to electricity is a basic need. Adopt a policy to ensure access to electricity to all planned erven.	Growth Areas have been identified for settlement that will most economically connect to electricity supplies.	Access to electricity (power supply) is to be facilitated in conjunction with the service provider.
	Sanitation & Wastewater Treatment The wastewater treatment plant is located on the eastern flank of the ridge	The catchments that can be served with the existing wastewater treatment plants have already been	Proposals are in place for a new works lower in the north-western drainage system.	To close the existing sewage works.	Expansion of the urban area will be guided into Growth Areas that take	Move the present works away from its location in	Expansion of the urban area is being guided into Growth Areas that take advantage of a superior	The 2022 location of the wastewater treatment works will move away from

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	in the natural drainage area and fairly central to an eastward expanding Opuwo. Catchment areas outside of the current urban footprint are difficult to serve without substantial costs. The provision of sanitation infrastructure is therefore problematic.	developed and new facilities will be required lower down in the two catchments to the north-west and to the south-east. Environmentally, there are problems with the maintenance of the existing system and raw sewage often finds its way into water course. Informal housing is occupying land near the Plant. The current sewerage ponds are in close proximity to the residential homes and the groundwater pollution potential is high because the facility is not lined. Areas with no access to a sewage system creates pressure on the environment and human health.	A large proportion of households make use of vacant land for defecation.	To identify the best location for a new wastewater treatment works. To assess sewer infrastructure capacity to determine where best to implement densification and intensification activities. To extend the existing networks to also serve the informal settlements that are currently without a sewer system or explore and implement alternative sanitation systems in ultra-low-income areas. To review the opportunities for dry sanitation-based technologies	advantage of a superior location for a new wastewater treatment works. The new wastewater plant will also be informed by environmental risk assessment (hydrogeology, hydrology, drainage, etc)	the middle of the settlement. Introduce dry sanitation as a sustainable option. Allow settlement to take place with public or communal ablution facilities.	location for a new wastewater treatment works that is informed by environmental risk assessment (hydrogeology, hydrology, drainage, etc)	its location in the middle of the settlement. Dry sanitation techniques will be introduced for far-flung settlements outside of the contiguous urban area. Public or communal ablution service blocks with wash basins, shower, and toilet facilities will be introduced on the edge of high density low income settlement areas and licensing such opportunities out to private sector commercial initiatives will be a consideration.
	Solid Waste Management Waste collection is a problem currently as no fixed system is put in place to make house to house collections. Waste is not always picked up and neglected material can become a health hazard.	Pressures on human health and the environment are created through inadequate solid waste management in the informal areas of the Town. The current dumpsite is resulting in land pollution and poses threats to surface water. Dust storms originate from the dump site. There is no recycle collection efforts.	Landfill and dumping in open land in or near the flood plain. Informal settlement is approaching the site creating an increased health hazard..	To identify a best situation for solid waste management. To bring Opuwo into compliance with the Namibia Integrated Solid Waste Management Strategy of 2017 and develop a Solid Waste Management Strategy for the town. This will inform ALL solid waste management issues covering household and industrial waste. The strategy will also develop relocation option for the dumpsite.	Alternative provision for solid waste sites (nodes) will be considered.	Scale-up recycling of waste and provide incentives to households to recycle. Solid waste removal services to be extended to the entire population of the town including the ultra-low-income informal settlement areas. Develop and implement an Integrated Solid Waste Management Strategy for Opuwo as per government directive in 2018.	Alternative provision for a solid waste site (nodes) has been proposed.	Proposals to recycle waste with incentives for households that recycle will be supported. Solid waste removal services are to be extended to the entire population of the town including the ultra-low-income informal settlement areas as opportunity and finances permit. Operate an Integrated Solid Waste Management Strategy for Opuwo as per government directive in 2018.
	Roads The national roads through the town are surfaced. Other roads are gravel. These other roads in the areas with approved township street layouts have street reserve widths that vary from 20 metres down to 13 metres. In a few places buildings encroach into the street reserves. In the informal settlements, most streets or access ways vary between 10 and 5 metres in width.	Formal street widths are adequate. Informal access routes, while adequate for current pedestrian movements, may need widening if densification increases.		To create a workable hierarchy of access routes in ultra-low-income settlement areas.	Upgrading of informal settlements will identify access routes that need widening.		Site and service settlements have been designated for Inclusionary Housing Policy which will entail establishing a workable street hierarchy.	
	Transport The size of Opuwo is such that walking to one's place of employment, shops or educational facilities is practical for those without private transport. Vehicle usage is still high for those in the government sector and any who must travel	Many people are obliged to walk to obtain access to jobs, products, and services. As Opuwo grows distances will extend for those forced to the edges and will become major time consuming activities. The high	No action has been taken, There is no internal public transport. There is no central terminus for long distance passenger transport.	To anticipate future needs and propose ways to ameliorate adverse expectations.	Existing and proposed roads are wide enough to accommodate pedestrians and bicycles.		Wide main streets and corridors can: a. provide improved amenities for pedestrians along their length, b. minimise travelling distances, c. create space and routes for bicycles and taxi's.	The continuity of pedestrian walkways and bicycle lands across open areas and along commercial corridors will be ensured.

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	inconvenient distances for work. As a result, the vehicle parking areas at the main central shopping area are always busy.	average daytime temperatures makes this an unpleasant prospect. For the furthest extent of one informal settlement in the southwest the route to the Town Centre is devious and unnecessarily long.			Space can be provided for long-distance passenger transport. A pedestrian corridor can be used to link settlements lacking a direct roadway.		Land near the market will be considered for a long-distance transport terminus. A direct pedestrian and cycle route will be designated between the settlements on the south-western edge of the town boundary across the flood plain to the Town Centre in lieu of the absence of a connecting road.	
	National roads The town is the focus of a transportation network made up of four distinct national roads. The road comes from the East is the C41 from Omakange. Currently it joins with the C43 entering from the North. It then continues westwards to Etanga. The C43 comes from Sesfontein in the South forming the main street through Opuwo before exiting in the North with branches leading to the Epupa Falls and Okanguati settlement and Ruacana.	The present C43 and especially its intersection with the C41 is inadequate to accommodate heavy vehicle movements and especially the turning movement from the C43 on to the C41.	Planning is underway to redesign the national road, the C43 coming from the north to handle heavier traffic. A new route is being sought for the C43 through Opuwo.	To realign the C43 so that it will become less hazardous for Opuwo residents but will still support the economic growth of the town. The new route should avoid the main settlement areas for Opuwo's future growth so as to minimise pedestrian and traffic conflicts.	A new alignment must be proposed that will parallel the existing C43 whilst still running within the Opuwo valley.	New commercial growth should be promoted at the intersections of the C41 and C43 and at the point where the C43 enters the Opuwo Valley.	A new route for the C43 is being planned by the Roads Authority that will follow the line of the old airstrip and serve proposed new urban settlements between the airstrip and the town boundary. It will run west of and parallel to the existing C43. Commercial Nodes and industrial Growth Areas are orientated to benefit from the realignment.	

ANNEXURE E: ANALYSIS OF ECONOMIC ACTIVITY

CATEGO RIES	CURRENT SITUATION SHAPERS	PRESSURES CREATED DRIV	CURRENT RESPONSE DRIVERS	STRATEGIC OBJECTIVES	SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICY LEVERS	APPLICATION OF SPATIAL LEVERS Nodes, Corridors, Infill and densification, Containment, Protection, Growth areas, Upgrading Areas, Inclusionary Housing Policy, & Peri-urban settlement.	POLICIES & GUIDELINES
5 ECONOMIC ACTIVITY								
Economic Sector	<p>The Town's economy is dominated by the tertiary sector, namely government, education, and health. This is intrinsic to the Town's role as regional capital. The majority of this population's main income is heavily reliant on salaries and wages, farming, trading, and pensions (Regional Profile Census Indicators, 2011).</p> <p>Lack of services in the informal areas poses a challenge for businesses as many are unable to operate longer hours or expand. Regardless however of some of these challenges, several economic opportunities do exist including in some of Opuwo's informal settlements.</p> <p>Agriculture occupies land in the flood plain without any controls and on a seasonal basis..</p>	<p>Secondary sectors such as manufacturing are rudimentary. The Town's procedures for reviewing changes to developmental rights to accommodate new investment initiatives are time consuming and inhibit the development of new business.</p> <p>Economic pressure and competition arises for most businesses and individuals from offering the same or similar products or services. For instance, one can get the products or services of beauty salons, craft sales and meat sellers in almost all parts of the town.</p> <p>Uncontrolled agriculture is causing land degradation.</p>	<p>The Town has approved street layout plans that expand its central business district eastwards along and north of the C41 thus creating a new enlarged central business area. Potential developers are opportunistic and do not always fully consider spatial requirements and linkages.</p>	<p>To design policies whereby commercial development will be attracted to identified nodes and corridors.</p> <p>To reconsider land use allocations in order to increase integration of commercial, residential, institutional, office and other land uses to enable people to live work and play in the same area.</p> <p>To contribute to the implementation of the Local Economic Development Strategy</p> <p>To revise land use policies to enable people to engage in more small types of business, such as urban agriculture, which create employment contributing to the economy of the Town.</p> <p>To support the implementation of the Town's investment and promotion strategy.</p>	<p>Identify land for future new or expanded commercial and industrial nodes and corridors that takes advantage of the major roads, but which reduces conflict situations.</p> <p>Nodes will include allocation of plots of land for Agricultural activities.</p> <p>To identify the key local development areas and provide guidance on their successful upgrading.</p>	<p>Identify key sectors where the Town has comparative and competitive analysis and provide Town support to facilitate the development of these sectors.</p> <p>Application procedure to enable business to operate may be simplified.</p>	<p>Land for future new and expanded commercial and industrial nodes and corridors has been identified that takes advantage of intersections with major roads, but which reduces conflict situations.</p> <p>The planned eastwards extension of the main business district is acknowledged as an expanded central node.</p> <p>Key sectors of tourism and mining support facilities and land, where the Town has comparative and competitive local development opportunities have been identified with proposals for their usage and upgrading.</p> <p>An industrial and business node is proposed reserving land for industrial and particularly mining related support facilities, trucking, and warehousing.</p>	<p>The Town Council is committed to supporting local business initiatives and especially those in which the Town has a comparative advantage.</p> <p>Application procedures to enable business to operate will be simplified.</p> <p>Access to land in the flood plan will be regularised to avoid unsustainable environmental degradation.</p> <p>Some of the land in the flood plain will be surveyed into plots and leased out in a regulated manner.</p> <p>A location will be demarcated for livestock trading in the floodplain subject to usage of temporary structure only,</p> <p>The government owned land on the western side of the C43 will remain as institutional activities intensify, as an "office" fringe on the central business district.</p>
Business Districts	<p>Opuwo's Central Business District (CBD) is very busy relative to the size and population of the town. The vibrancy is stimulated by the active presence of informal traders along the paved 35 metre wide C41 and 30 metre wide C43 road reserves, and which have street lighting for security and surveillance along the commercial corridor.</p> <p>It also serves as the retail, wholesale and general distributional centre for farming and settlements in the region to its west and north.</p>	<p>The CBD has several activities competing for frontage and access to customers. The presence of these commercial facilities and institutions are a main driving force giving a vibrancy to the CBD. Pressure is to extend these areas along the major trafficked (national) roads which does create dangerous conflict situations between vehicle and pedestrian traffic.</p> <p>Livestock drives through town create conflicts that have so far been tolerated.</p>	<p>The mountainous ridge pushes commercial expansion eastwards or northwards along the national roads</p>	<p>To promote safe and more intensive usage of existing properties in the main business district.</p> <p>To structure new commercial expansion options that are adapted to Opuwo's north-south orientation, and which will serve residential expansion better than isolated commercial nodes.</p> <p>To facilitate movement of livestock from the North to market sites in the South.</p>	<p>Identify any existing underutilised space for commercial upgrading and possible informal marketing including that of animals.</p> <p>Create a new commercial Corridor, with a north-south orientation that will support the eastern expansion of residential Growth Areas, and which will have extra width to accommodate livestock drives.</p>	<p>Increase flexibility in the regulation of changes to and increased intensity of commercial activities.</p>	<p>Existing underutilised space for commercial upgrading and possible informal marketing including that of animals is identified.</p> <p>A new north-south corridor is designated for commercial development bringing it closer to the future more far-flung eastern residential areas and which must be designed with a street reserve width of 40 metres or more to accommodate livestock drives to a southern market location</p>	<p>Flexibility will be shown in the regulation of changes to and increased intensity of commercial activities.</p>

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Hawking, peddling and informal trading	Opuwo's economic vibrancy is engendered by ever present hawking and peddling activities. Hawking and peddling gravitate to main movement routes of potential customers, often main roads since they offer the convenience of a quick buy to passers-by. Several facilities that provide required services have created activity nodes such as informal trading hot spots, government institutional zone, district hospital, police station, and shopping. Certain small areas of land have historically served for the display and sale of livestock and as meat markets.	Health regulations on food are difficult to enforce. Tourists can perceive themselves as being pestered. Informal economic activities are largely unplanned and based on resident's own initiative of where to establish informal trading activity. Poverty levels suggest that SMME development will become a larger proportion of economic activity.	The Town Council is struggling to accommodate informal traders in a formal market off-centre to the main commercial activities along the C41 national road. There will always be a struggle to confine hawking and peddling since (a) the business depends on tempting customers without having to make a special trip to a market; (b) many of the traders offer identical goods so putting them together destroys the sales advantage of locality; and (c) many cannot afford any costs of hiring space.	To better accommodate small scale vendors and traders.	Identify any special areas (nodes) or corridors where hawking and vending might be encouraged.	Adopt a supportive attitude to street vending with suitable health and practice regulations. Adopt a supportive attitude to persons operating businesses from their own homes subject to appropriate health and practice regulations and which activities do not adversely affect neighbours.	Designate spaces in streets along business corridors where small scale vendors and other small scale traders may erect temporary vending facilities, which can be removed every night.	The Town Council will draft regulations to register vendors allocated specified sites in streets with a fee charged based on the trading opportunities of the specified site. Mobile peddlers carrying their goods will be issued with a renewable time-bound identity card to specify that they conform to health and associated regulations. The Town Council will register persons operating businesses from their own homes subject to appropriate health and practice regulations and which activities do not adversely affect neighbours.
Tourism	Opuwo is largely a distribution centre for tourists who comes in, stay for a short while and then move on to other more desirable destinations in Namibia. Accommodation establishments are a major support to Opuwo's economic viability providing services for tourists, as well as for government and commercial visitors. Cultural tourism is a valuable resource.	Opuwo has a limited number of attractions for tourists, but which are not marketed to their fullest potential. This contributes to the "distribution" nature of the Town for international tourists. Tourists wander with little guidance and are drawn into unstructured and superficial exchanges by local residents seeking quick cash rewards.	There is no suitably designated location for activities that will draw in tourists.	To contribute to the location and marketing of tourist attractions in the Town. To create a viable accessible central site for a cultural centre	Identify space for upgrading that will enhance the tourism market such as Nodes for a museum, an ethnic village, and a handicrafts market.	Identify, conserve, and manage tourist attractions and associated accommodation facilities.	Conservation areas along watercourses and mountainous in nature will be available for the provision of recreational and tourist facilities. Space for upgrading that will enhance the tourism market focusses on a node for a museum, an ethnic village, and a handicrafts market to be located on a essentially pedestrian corridor through the flood plain interconnecting the central business centre with the settlements on the south-western edge of the floodplain..	The Town Council will support, conserve, and as appropriate, manage, tourist attractions and associated accommodation facilities.

ANNEXURE F: NOMENCLATURE AND APPROACH TAKEN IN THE ANALYSES	
<h2>MODE OF ANALYSIS</h2> <p>The mode of analysis has been adopted from the GUIDE TO THE URBAN AND REGIONAL PLANNING ACT, 2018 (ACT No. 5 OF 2018; July 2021; FIRST CONSULTATION DRAFT; Section 7 PREPARATION OF AN URBAN STRUCTURE PLAN prepared by Urban Dynamics Town and Regional Planners on behalf of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Ministry of Urban and Rural Development (MURD) and suitably adapted to the circumstances of Opuwo.</p> <h2>SHAPERS</h2> <p><i>Shapers</i> provide the framework and focus for clearly unpacking the key spatial development challenges and opportunities. They are identified for Opuwo in the analysis hereafter.</p> <h2>DRIVERS</h2> <p>The identified drivers are not necessary shaping space in the right direction, and it is necessary to evaluate these against the plan vision and development logic. This would likely lead to a process where the <i>drivers</i> are evaluated in terms of the desired strategic direction and where necessary shifts are identified to redirect <i>drivers</i> towards achieving the plan objectives.</p> <p>Key Drivers identified for Opuwo are:</p> <ul style="list-style-type: none"> Population Growth and Direction of Settlement Land Availability & Boundaries of the Town Topography (slopes and drainage) Infrastructure Economic Activity <p>These Key Drivers are used as categories into which the analyses are divided.</p> <h2>LEVERS</h2> <p>Following a decision on how to direct or re-direct the spatial development <i>drivers</i>, development “levers” are identified. These development <i>levers</i> basically consist of strategies and tactics that must be used to achieve the desired outcomes. Desired spatial outcomes will result from “pulling” or “applying” the identified <i>levers</i> and allocating them to various plan levels such as the urban network, service networks, specific action areas, connectivity and movement patterns, the natural resource base or specific space economies.</p> <p>Spatial Tools and concepts are the <i>levers</i> that can be used to achieve the spatial objectives and could include:</p> <ul style="list-style-type: none"> Nodes. Identifying, supporting, and promoting areas where higher intensity of land uses and activities are desirable. 	

<p>Corridors. Links between the nodes along which an increased intensity of development will naturally be attracted and should be encouraged.</p> <p>Infill and densification. Identify areas where infill development and densification will be pursued as a tool to achieve spatial integration, increase population thresholds and achieve social inclusion.</p> <p>Containment. The need to limit inefficient low-density development, typically through the use of an urban edge.</p> <p>Protection. Aimed at protecting valuable natural and economic or heritage resources.</p> <p>Growth areas. The identification of appropriate future growth opportunities based on agreed principles the often negative impacts of unguided market forces can be curtailed.</p> <p>Upgrading Areas. This could include the upgrading of facilities in existing formal areas as well as the upgrading of informal areas.</p> <p>Inclusionary Housing Policy. A policy aimed at requiring new residential development to include a range of options to cater for a variety of income groups.</p> <p>Peri-urban settlement. Decide how to deal with low density scattered villages/townships in terms of services provision, development requirements and rates and taxes policies.</p>	
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All of these tools are used to achieve the restructuring of the settlement in the desired direction. By using these **levers**, the plan has been drafted starting with the Spatial Concept which will result from applying the spatial tools or *levers*.

The **spatial concept** is in the form of a “blob diagram” indicating how the vision for the development of the urban area will be realised spatially. It is essentially a **diagrammatic illustration** of the ideas that inform the USP. It should identify generalised local land use patterns, key nodes and links and what activities these might focus on, no go areas for urban development, and key areas of opportunity and challenges.

Issues and challenges are complex. Development pressures are considerable and some *levers* such as socio-economic integration or densification are controversial. Alternative scenarios may be considered.

The USP in essence indicates the following:

- What needs to happen and where should it happen to protect valuable resources;
- What needs to happen to change poor performing areas for example where integration, densification or infill can take place,
- Where to direct growth in a sustainable manner