



Revolutionary Government Of Zanzibar,
Presidents Office Finance, Economy and
Development Planning

**Technical Assistance for the Preparation of a
Diagrammatic Indicative Structure Plan for
Zanzibar Municipality and Its Immediate
Periphery and Urban Development Policy for
Zanzibar Town**

Final Report - Summary

April 2015



**Shapira & Hellerman Planners
ROM Transportation Engineering Ltd.**

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

1.1 Background

This Final Report is prepared on the conclusion of the contract for consultancy services for Technical Assistance for the Preparation of a Diagrammatic Indicative Structure Plan for Zanzibar Municipality and its Immediate Periphery and Urban Development Policy for Zanzibar Town.

The consultancy was commissioned by the RGOZ with the support and financing of the World Bank (IDA). The project was undertaken by SHP-ROM under the auspices of ZUSP (Zanzibar Urban Service Program) in coordination with and under the direction of the MoLHWE’s Department of Urban and Rural Planning.

The objectives of the project were defined as the preparation of:

- Diagrammatic Indicative Structure Plan for ZMC and its immediate periphery to 2035;
- Urban Development Policy for the City.

These were to be prepared specifically:

- To ensure the delivery of basic services by the local authorities and related institutions.
- To facilitate the provision of basic service infrastructure in Zanzibar Municipality and its periphery;
- To enable community participation in planning and implementation;
- To develop coherent policies and legislation supported by an appropriate institutional structure; and
- To identify investment requirements.

This report summarises the Consultant’s findings and recommendations regarding the City’s historic developmental; the recommended and approved Vision and Strategy for the City’s future development and policy recommendations in the relevant spheres. This report also presents the approved Structure Plan itself (ZanPlan); Action Plans and the CIP (Capital Investment Plan). All these are designed to provide the requisite strategic direction and statutory tools to guide Zanzibar City’s future development.



Figure 1: Project & Counterpart Teams



Figure 2: Field Survey Activities

The project was undertaken in a structured participatory process ensuring wide and extensive stakeholder and civic society's input and feedback along the various stages of approval. The final Structure Plan was presented and approved by His Excellency the President and the Cabinet on 04 March 2015.



Figure 3: Examples of Focus Group

The project various products (reports, working papers, orthophoto and maps) are available for download at:

<https://copy.com/8ONiEojU1jhWUEIp>.

2 Zanzibar Town

2.1 Historic Development

Zanzibar retains a rich history integrating indigenous African roots with assorted Indian, Persian, Arab and European colonial influences into a unique cultural mix. It served and in many ways still functions as the centre of Swahili culture.

Zanzibar Town is the Capital of Zanzibar, with a population of some 600,000 inhabitants with 223,000 in the ZMC's boundaries. It is the economic, political and cultural center of the islands, as well as the administrative base of the RGOZ.

Zanzibar is internationally famous, perceived as a "tropical exotic getaway" and "spice island". The Zanzibar "brand" derives, at least in part, from its historic role in the development of Swahili culture along the East Coast of Africa that went hand in hand with trade in the Western Indian Ocean. Indeed, the two elements were fundamentally inter-related; they rose and declined together.

At its peak Zanzibar Town reflected the wealth and power of its Sultans and merchants, in its architecture and in the public realm (services including trams and rail, piped water and sewage and more). Indeed many innovations were introduced to the Eastern seaboard of Africa through Zanzibar. The combination of colonialism, technological innovation and social change, including emancipation, all combined to detract from the power and wealth of Zanzibar, sending it into decline, in the end leaving only Swahili culture, now divorced from its historic trade functions.

Zanzibar's Swahili culture received a significant boost with the conservation and rehabilitation of Stone Town (see **Review Report Section 4.5**), which included significant cultural elements in addition to physical rehabilitation.

On this basis Zanzibar continues to serve as the centre of Swahili Culture and faces the dual challenge of preserving and enhancing this special culture whilst utilising it to leverage economic development to replace that which has been lost.

Zanzibar's historic development was based on the combination of its location *vis-à-vis* the East African coast, the monsoon trade winds and the natural harbour it provides. Over the centuries, it developed as a Commercial Centre and Trading Hub specialising

in the Slave Trade, historically the cornerstone of commerce in the town. Over time it developed specialised products, primarily cloves and mangrove poles, replacing slavery, which was abolished in 1873, as its primary export. As its indigenous agro-industry developed and thrived the town's rulers and merchants acquired additional wealth some of which was invested in local real estate with the construction of large residences in Stone Town and palaces in and beyond the town's boundaries.

The colonial period to WWI reinforced Zanzibar's significance for the British, further contributing to its economic development, mitigating somewhat structural changes in trade patterns. However, after the subjugation of Tanganyika to the Crown, this significance decreased and finally ceased, and with it much of the economic advantage Zanzibar had enjoyed.

Over the decades, the emphasis of trade shifted from serving as a regional hub, to local import-export and internal trade based on and driven by a then thriving agro-industry. At independence the town constituted less than 20% of Zanzibar's population and functioned as the commercial centre for the predominantly rural population. The decline and eventual collapse of the formal agricultural sector and agro-industry left the City's trade and commercial sectors devoid of any significant markets to serve.

The decline of its commercial function and the demise of its role as a regional trading hub impoverished the City and left it in search of an alternative economic base, eventually opening the door to tourism.

Zanzibar Town has over the centuries served as the Capital and/or administrative centre of the assorted Sultans; the administrative centre of the British Protectorate and finally the Capital of Zanzibar since independence in 1963.

Government is dominant in all aspects of the City, including employment, investment, as the primary client of the private sector, the largest and most significant land owner in the City, retaining the largest land reserves, occupying prime real estate, serving as the major landlord. Government historically served as the chief, effectively only organised, housing developer. Government remains the key developer of the City. It provides and/or finances, at least in part, many of the services in the City.

The RGOZ remains the primary decision-maker in the City, even following the establishment of the ZMC. The impacts of government in Zanzibar Town are myriad and evident throughout the Town and its hinterland.

In effect, Zanzibar Town as a city is almost totally dependent upon government. But the relationship is symbiotic with government equally dependant upon the City. The city houses government itself, its officeholders and its employees. It provides government with the utilities, services and goods required for day-to-day functioning. All the City's shortfalls and problems impact on the functioning of government directly and indirectly. The RGOZ cannot function or provide services without the appropriate infrastructure and services provided by the city. Hence, the development of Zanzibar Town is essential to the RGOZ itself.

Zanzibar Town serves as the primary gateway to Zanzibar by sea (with the only modern port) and by air (with the only international airport). It further serves as the hub for Unjuga bus services.

The image Zanzibar Town portrays, its infrastructure, services and amenities define the visitor's perception of Zanzibar as a whole - as a place to visit, as a place to do business, as a place to invest in. Hence, the City's structure, form and functioning significantly impact Zanzibar's competitive position and its ability to develop, attract investment and tourists on the international and regional scales and adapt and incorporate innovation. As such, inasmuch as it has developed its functional capacity and retained reasonable form Zanzibar Town contributes to Zanzibar's growth and development. Inasmuch as it has failed to do so, it restricts and detracts from growth and development in the country.

From the revolution in 1964 to the mid 1990's Zanzibar was reportedly a closed society and economy with both access and exit controlled and restricted. Whilst neighbouring countries were developing their tourism potential Zanzibar remained effectively closed to tourism. Reports indicate that economic need induced a series of economic reforms including entry into the tourism market.

Zanzibar retains significant relative advantage in the field of tourism, combining natural beauty, optimal climate, cultural elements and branding to attract the visitor. Zanzibar's tourism potential is only partially exploited, potential markets remain as yet untapped, tourism expenditure levels remain very low and the value to the local economy remains limited. Moreover, the level of local Zanzibari participation in and benefit from the tourist industry is still relatively limited.

Even so, tourism has already significantly impacted Zanzibar as a whole and the City in particular. The sector provides employment and contributes to demand for utilities and services, enabling the City to achieve basic thresholds. The desire to attract tourism has driven significant infrastructural investment nationally and in the City and contributed to the preservation of Stone Town. Tourism has probably been the primary driving force behind the rapid growth in motorisation rates, itself impacting spatial development trends (sprawl) in the City. Tourism contributes significantly to the national budget, enabling the provision of essential services and fueling the local economy, and more.

Tourism however carries a cultural "price tag", an internal conflict of interest between economic need and benefit demanding modernisation and socio-cultural change and traditional values, which has yet to be fully resolved, and until resolved threatens the development of the industry.

Zanzibar Town serves as Home and provides the Living Environment for its 600,000 inhabitants (Urban West Region). Indeed the city is home to almost half of Zanzibar's citizens and will probably house close on 60% of Zanzibar's population by 2035.

The City provides the framework, infrastructure and services wherein the population lives its daily life; works or seeks employment; studies; finds shelter and feeds itself; travels; interacts within the household and the community; prays, exercises and plays; develops goals and dreams which are either achieved in whole or in part or are shattered; nurses its young, its elderly and the ill (or fails to do so); and much more.

In this role the City fails miserably. It generally provides a very low Standard of Living, with a low Quality of Life, with very limited amenity and service to the bulk of its population. But it remains Home to all its inhabitants and is required to provide at least a reasonable Quality of Life to the bulk of the population and opportunity to all.

2.2 Spatial Structure and Growth

Natural Systems and Environment

Zanzibar is blessed with natural abundance including fertile soils which are also appropriate for construction and development; periodic precipitation and significant groundwater resources; forests, mangroves and natural foliage much of it edible and/or appropriate to serve as fuel and/or for construction; abundant marine life; natural beaches, reefs and cliffs; particularly clement weather; natural harbour; views and vistas and much more. All these combined to enable the development of the City.

Whilst its natural systems are bountiful there are a number of drawbacks and a larger number of sensitivities and threats to Zanzibar's natural base. Excessive rainfall results in minor flooding, now compounded by development accelerating runoff. Forests and agricultural lands are systematically intruded upon and rolled back. The eco-system, particularly water resources and the marine eco-system, are progressively threatened by human intervention and inappropriate exploitation.

The Consultant analysed, identified and mapped environmental sensitivities in and around the City. These are reported and detailed in **Review Report Section 5.7**. This analysis and mapping served to guide policy and the preparation of the Structure Plan.

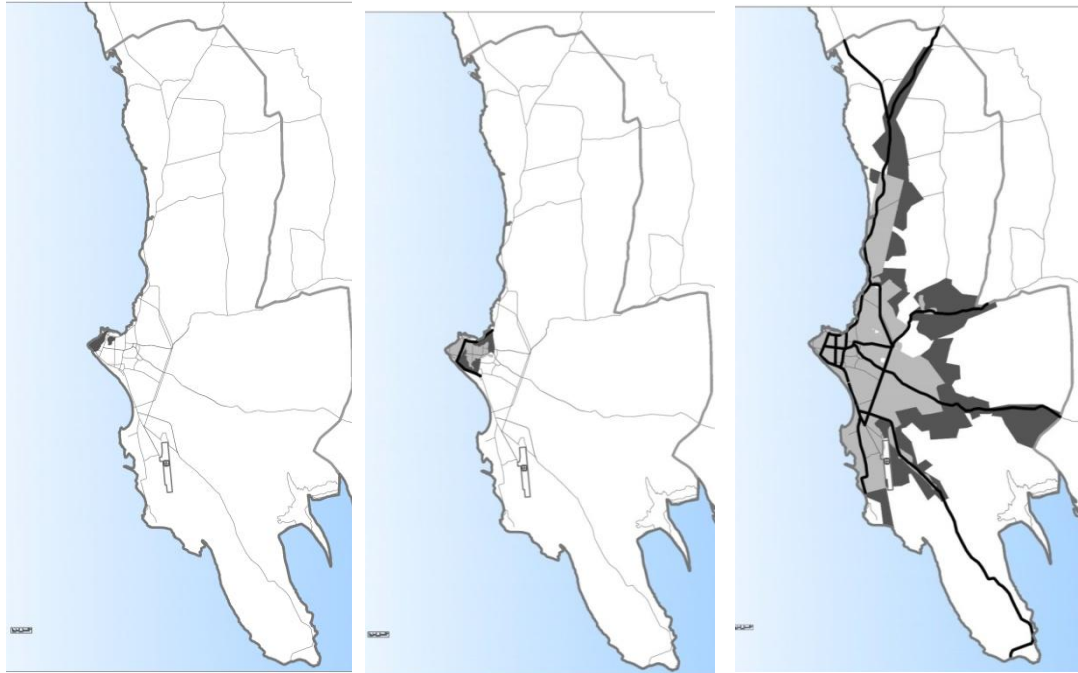
Historic Structure and Growth

Zanzibar Town's current spatial structure is based on its historic development over the centuries compounded by the high demand for housing during the last decades resulting in large informal developments along the primary access routes to town, accompanied by commercial development along main roads.

Historically, the centre of Zanzibar Town is Stone Town and the adjacent Ng'ambo areas. This area was connected by 4 main roads to the north (Bububu), north-east (Chwaka), south-east (Fuoni) and south (Fumba and the airport).

As seen in **Map 2** and **Map 3** for more than a century, Stone Town, and later Zanzibar Town, developed close to its historic core, within walking distance of it and creating semi-radial rings around it. Together with the massive growth of population, since the 1980's, the pattern changed and development occurred along main roads and public transport corridors as seen in **Map 1**. After the approval of the Chinese Plan in 1982 (see **Review Report Section 4.2.4**) major development occurred the east of town (Mombasa and other neighbourhood) and later on moved further to the east and to the northern sections of the city.

Zanzibar has been growing consistently and Zanzibar Town in particular has been growing rapidly over the past century, from some 35,000 in 1923 to over 600,000 in the town today:



Map 3: Stone Town, 1846 Map 2: Zanzibar Town 1960s Map 1: Zanzibar Town, 2013

Whilst growth until independence in 1963 was relatively moderate (growing approximately 2.3% p.a. between 1923-67), growth accelerated sharply in the post-independence half century growing from 95,000 to 600,000 or approximately 4.15% per annum between 1967-2012.

There has been a major shift in population in Zanzibar Town itself over the past decades. Until the 1980's the urban population was concentrated in the ZMC. From there on population growth spilt-over into the West District with the majority of the City's population (60%) currently residing in the West District.

Planning of Zanzibar Town

The town's growth has been directed, at least in part by a series of plans, specifically:

- Lanchester Plan of 1923;
- Kendall and Mill Plan of 1958;
- The GDR Plan of 1969; and
- The Chinese Plan of 1982;

Examination of these plans shows that implementation of the four plans has been partial. The total planned area developed comprises some 1,200 Ha., 33% of the total 1982 Plan proposed built area. Success has been achieved in two major areas: The first, the development of key infrastructure projects such as the port, land reclamation, roads development, areas for public uses, etc. The second, planned and surveyed neighbourhoods, housing blocks of different sizes - which are still considered desirable in Zanzibari eyes. These plans and their impacts are detailed in the **Review Report Section 4**.

Stone Town has an approved Conservation Plan (1994), has been declared by UNESCO to be a World Heritage Site (2000) and is controlled by STCDA since 1985 under the Conservation Act (1994) and the comparatively new Management Plan (2008).

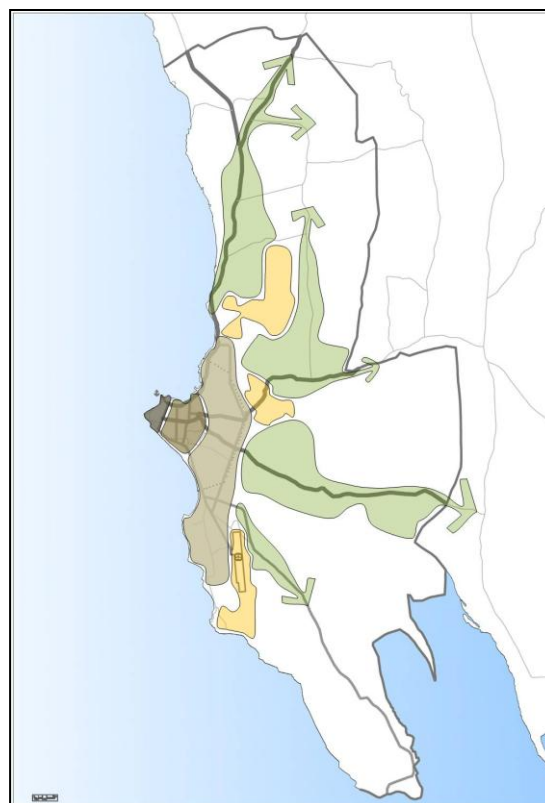
Primary Spatial Structure

The primary elements of Zanzibar Town’s spatial structure identified by the Consultant include:

- Stone Town;
- City Centre,
- Inner City:
- “Outer” Urban Ring;
- Radial Routes and connecting roads;
- Urban and peri-urban Corridors;
- Natural and Functional Barriers and Constraints.

The spatial structure of Zanzibar Town derives from its historic development over the centuries until the 1980s when the combination of high demand for housing and rising motorisation accompanying road development resulted in the growth of large informal developments and basic commercial strips along the primary access routes to town.

As the City grew outward from its core and along the radial routes it “filled in” the gaps with a series of radial ring roads.



Map 4: Zanzibar Town’s Spatial Growth

The Chinese plan of 1982, together with economic and social processes of that period, led to a substantial change in the nature of urban development in the City, especially in terms of densities and mobility patterns. From the early 1980s onwards, development stretched along main roads accompanied by public transport system.

These elements combined to produce a moderate to high density urban ring around the Inner City, along and adjacent to Mombasa Road. As a result of the combination of these attractors and assorted barriers and constraints, most development of new residential areas has been to the east, somewhat to the north and partially to the south.

Beyond this Urban Ring development “leapfrogged” constraints and peri-urban areas sprang up in close proximity to the primary radial routes. As the road network upgraded and PT routes extended so these peri-urban corridors rapidly extended and slowly began to densify with some acquiring elements of urban structure and form.

Density of Development and Sprawl

Extensive sprawl is evident on the Town’s edges and the process is accelerating enabled by growing motorisation. This has resulted in both degradation of the natural environment (loss of forests, loss of agricultural lands, pollution of water resources and more). It has also reduced the density of development with the rapid extension of the Town’s spatial footprint. Over the past decade the Town’s population has grown by some 50% whilst its spatial footprint has doubled.

The Consultant's analysis indicates even if restricted to single storey construction Zanzibar Town can increase densities and easily house at least 1.0 million population within its current spatial extent. In addition the Consultant identified extensive land reserves which can and should host most of the additional projected demand.

Zanzibar's spatial structure and its growth is detailed in **Review Report Section 5**.

Physical Infrastructure

The Town's physical infrastructure is characterised by growing gaps and shortfalls partially mitigated by distinct improvements in specific fields:

- Water - degradation of surface and ground water resources is ongoing due to encroachment into water catchments areas, deforestation of the catchment zones, sewage contamination and climate changes. The current water supply management and distribution system is inappropriate and inadequate to ensure requisite quality to meet demand.
- Sewage - the existing network is limited to Stone Town and a very small section of Ng'ambo. It is inappropriate and inadequate even for that limited area. The lack of a comprehensive reliable sewage system constitutes an immediate health risk to the City's population and a major impediment to its future development.
- Storm Water Drainage - as with sewage, except for Stone Town and new entry roads to the town, the City lacks a storm water drainage system and assorted areas suffer periodic flooding. Open culverts along the main roads constrain development to urban standards and hinder movement of pedestrians and cyclists.
- Waste Management - one of the fundamental problems faced by the residents of Zanzibar Town is the lack of a proper system for waste management and this is most apparent in the informal settlements. Whilst a new dump site has been developed and some new equipment provided under ZUSP, much of the Town remains unserved and standards in areas enjoying service remain below par.
- Electricity and Power - the Town currently enjoys an adequate supply of reasonably priced electricity from the mainland by underwater cable. However the distribution system is inadequate and supply unreliable, to the detriment of economic activity.
- Communications - Zanzibar's communications services are very limited, concentrated almost entirely on mobile telephony. Coverage in the city is wide but not particularly reliable. The physical backbone for "state-of-the-art" fibre connectivity is in place but the services are not available to the public as a result of institutional constraints. This lack of service constitutes a major impediment to economic and social development.
- Emergency Services - Ambulance services are lacking and fire services are extremely limited particularly given water supply and physical access constraints.

Analysis of the City's infrastructure is presented in the **Review Report Section 5.6**.

2.3 Social and Economic Structures and Systems

Zanzibar’s Population

Zanzibar Town’s population has been growing rapidly over the past century, from some 35,000 in 1923 to over 600,000 in 2013.

Assuming ongoing slow reduction in fertility rates and given the reduction in the relative weight of the rural hinterland as a source for in-migration, the Consultant developed and ran a model for Zanzibar’s projected growth over the planning horizon indicating a projected population of some 1.25 million persons by 2035.

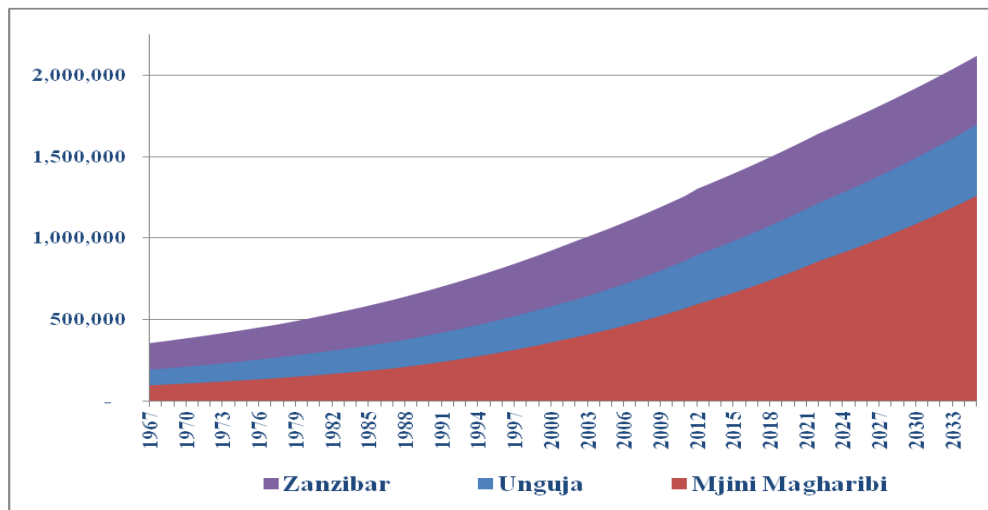


Figure 4: Zanzibar Population 1967-2035

Social Structures and Trends

Zanzibar is characterised by an extremely poor population, large sections of whom live on or below subsistence levels. Income inequality, and with it social inequality, in Zanzibar is extremely low and, as such, poverty is shared, relative disparities are limited and generally not displayed. Community serves to support and ameliorate the pain of poverty. However inequality is reported to be growing and can be expected to accelerate with economic growth and development.

The Middle Class in Zanzibar is particularly small and the number of wealthy miniscule. Car ownership rates are currently limited but growing, the proportion of adult degree holders very low, even small scale businesses employing 10 or more are rare whilst academic, professional and managerial positions are scarce.

Religion in Zanzibar Town, as in the entire country, is a way of life. It is expressed not just as a tradition but interwoven in the sounds of the city, the peoples' clothing, culture, the schedule of the day (prayer times) and the festivities with all participating. The atmosphere in the town is an expression of all these components.

Religion in many ways defines society, community, the family including size (family planning) and the role of the members in it and individual lifestyle (prayers, diet, clothing, values, etc.) the structure and to a significant extent use of public and private space on the neighbourhood and street scales.

The city’s Social Structures are presented in **Review Report Sections 6.3-6.5**.

Education

Education is fundamental both to breaking the cycle of poverty in society in general, and to allowing for social mobility on the individual level. Indeed a skilled workforce is a precondition for economic development. However in Zanzibar, whilst a number of improvements have taken place over the past few years, there is still a long way to go.

Improvements have been noted in the growing numbers of students enrolled, specifically in basic education, and the growing % of girls continuing their studies. Both primary and secondary education is provided free of charge by public schools. A small number of private schools have recently been introduced into the educational system.

Nonetheless education in Zanzibar is distinctly lacking in all fields and specifically the number, distribution, size and standard of facilities; as well as the number, training, knowledge, capacities and remuneration of teachers. Indeed the level and standard of education is a primary issue raised in all public and stakeholder participatory activities. The Consultant has identified education and literacy as standing at the root of many of the City's functional shortfalls.

The Consultant estimates that Zanzibar Town currently lacks approximately 150 Ha. of land allocation and 900,000 m² built floor space to host quality education to its current resident population. More than double is required to meet future demand.

The direct correlation between educational levels and economic welfare is well documented. The exceptionally low rate of secondary education graduates leaves the vast majority of the labour force unskilled and effectively unemployable in most formal sector positions. Moreover the potential resource pool for continued tertiary education is extremely limited and only a portion of them can and do continue studies. This leaves the local economy without a viable indigenous technical, professional and managerial cadre to drive economic development. The limitations of foreign language skills, including English, and computer literacy further compound the constraints imposed on the local economy.

Similarly the direct correlation between education, particularly of females, and health is also widely recognised and documented. The shortcomings of the education system are clearly reflected in health and sanitation.

Analysis of the Education System is presented in **Review Report Section 6.6**.

Health

The health of Zanzibar's population and the challenge facing its health services is encapsulated in MKUZAA2's goal of increasing life expectancy from 48 years (one of the very lowest) to 65 years (itself particularly low).

Since the 1970's the Health sector in Zanzibar has gradually expanded its infrastructure, aimed at upgrading services and providing a more equitable distribution of facilities.

In order to offer quality services in both public and private facilities, the capacity of secondary and tertiary levels of healthcare needs to be increased significantly. Reports further indicate a need to review and strengthen hospital referral health services, both horizontally and vertically.

Water quality and sanitation contribute directly to the chronic health problems facing the City's population including communicable disease epidemics resulting in the very low life expectancy of the population.

Water quality in the City is consistently being degraded whilst sanitation standards are far below international standards, generally not even approaching minimum standards.

Analysis of the Health System is presented in **Review Report Section 6.7**.

Zanzibar's Economy

Zanzibar is blessed with an abundance of primary factors including fertile land and soils; fresh water; natural ports, abundant fishing grounds, amiable climate, natural beauty and more. Its location, history and past glory have branded it as an idyllic, tropical getaway, an exotic "spice island". Indeed, the very name "Zanzibar" is a brand-name in and of itself which should serve to leverage marketing of goods and services.

However Zanzibar suffers severe underdevelopment and is counted amongst the poorest of nations. It remains a factor driven economy.

The absolute and relative weakness of the national economy is clearly reflected in Zanzibar Town, underlying the abject levels of poverty and the limitations, shortcomings and gaps in infrastructure and services in the City. These weaknesses and gaps are readily evident in all spheres of life and in all areas of the City.

Zanzibar's economy is growing rapidly, at an average rate of 6.3% p.a. Discounting for population growth of 2.8% p.a. average annual real per capita GDP growth is estimated at an impressively high 3.5%.

The imbalance of the economy is clearly evident with the dual dominance of traditional, subsistence agriculture & fishing and government together with the relative weakness of commerce and trade and the absolute weakness of industry and higher end sectors.

Zanzibar Town's role in Zanzibar's economy is central. The Consultant estimates that Zanzibar Town contributes close to 70% of Zanzibar's GDP, provides a similar proportion of formal employment and some 40% of informal employment

Zanzibar Town hosts:

- The entry ports to Zanzibar by air and sea;
- All major Government institutions and para-statal headquarters;
- The financial sector and business support functions;
- All tertiary academic institutions;
- The bulk of all skilled and professional manpower in the country; and more.

As such, Zanzibar Town is the key to Zanzibar's economic development.

Employment

The Consultant has analysed the Town's workforce and employment. The workforce is estimated at over 350,000 with less than 200,000 economic active and employed, with approximately half in the formal sector and half in the informal. An excessively large proportion (46%) of the workforce is either not economically active or unemployed.

Formal employment in Zanzibar Town is dominated by the public sector with 20% in public administration, 19% in education, over 5% in health and 2% in electricity. The largest formal private sectors are Communications (14%) and Accommodation and Food including tourism (13%) with all other formal sectors below 5%. Informal sectors dominate commerce, transport and agriculture and fishing.

Productivity in the Zanzibari economy is particularly low, equivalent to some \$5,350 per employee p.a. and this is clearly reflected in national accounts and in the poverty afflicting the population.

The Consultant has modeled the spatial distribution of employment and economic activity in the City. Findings indicate the predominance of the City Centre, including Stone Town, with 35- 40% of employment and economic activity concentrated in 1% of the City's gross area.

Tourism

The Consultant's analysis indicates it is reasonable to assume that tourism constitutes over 25% of the national economy or approximately 40% of the non-subsistence sectors in the economy. Moreover, the entire economy has benefitted significantly from significant infrastructure investment serving tourism.

Whilst tourism has driven economic growth, provided employment and improved income and living standards for many, the centrality of tourism to the national economy is of concern as it leaves the entire economy and indeed society exposed to externalities. Of greater concern is the limited "trickle-down" of tourism into the local economy.

It is noted that the tourism sector is forced to be effectively self-sufficient with all the upper-end and many of the mid market facilities retaining and utilising backup generators, reserve water tanks, sewage solutions and communications systems.

Zanzibar is not penetrating the existing market adequately. Zanzibar captures less than one-fifth of international tourism to Tanzania and only a small fraction of the Regional East African and Indian Ocean Market. Zanzibar has yet to significantly penetrate the medium to long haul island destination market.

Zanzibar hosts a number of attractions, many of them in and around Zanzibar Town, including Stone Town, described as the "Jewel in the Crown".

Zanzibar retains significant advantages in both the international and regional tourism markets given the unique quality and character of Stone Town and the numerous natural assets. However many gaps remain in infrastructure, facilities and support services.

Zanzibar's Tourism sector is reported in the **Review Report Section 7.6**.

2.4 Transportation

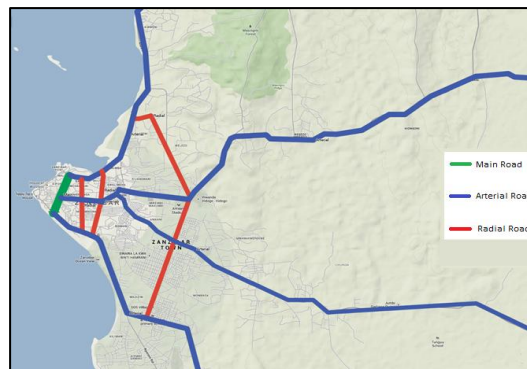
The Consultant's analysis of the City's transportation system is based on extensive field surveys detailed in the relevant Working Paper and a comprehensive travel demand model developed based upon these surveys, in addition to mapping and available statistical data.

Zanzibar's Road Network

Transportation has a major impact on urban development in Zanzibar Town. Indeed 87% of all buildings built between 2004 and 2012 are within a one kilometer distance of a Dala-dala route and 96% within 1.5 km.

Zanzibar's road network is mainly characterized by unpaved roads outside of the center and in neighborhoods, and single-lane per direction paved roads along the major corridors and in the City Center.

The existing road network is sufficient to support current traffic volumes, but, with population and motorization growth, in the near future it will not be enough. Moreover, although the current road network might accommodate motorized traffic, it does not adequately support non-motorized and public transportation.



Map 5: Existing Arterial and Ring Roads

There are four major Arterial Roads leading to the city center. They are all paved and cross Unguja Island. There are three radial roads running from north to south creating "half rings" to the east of the city centre and connecting between the arterial roads. In Zanzibar Town and its suburbs, there are very few other roads that can be classified as main roads. There are a few paved narrow roads that can be classified as secondary paved roads. There are also unpaved roads in and on the outskirts of the built areas.

Among the main roads in the study area, about 32 kilometers have two lanes going each direction. The remaining roads, with the exception of a few segments, are built with a single lane for bi-directional movement. The average capacity of the main roads is ~820 vehicles per hour; while arterial and local roads have an average capacity of ~380 and ~150 vehicles per hour, respectively.

Public Transportation

Zanzibar's public transportation system operates along regulated and predetermined bus routes which are usually not changed. Each route has defined working hours, however, there is no regulated, predetermined schedule, and generally buses leave the terminal only when full.

The PT route system is divided into urban and suburban lines which are distinguished by origin-destination and the type of operating vehicles. The suburban lines perform as urban lines when within city borders and serve passengers upon demand. Most vehicles are heavily loaded, sometimes in a dangerous manner, especially during peak hours.

The route system alignment is not efficient due to a lack of paved roads suitable for regulated public transport. Many bus routes overlap each other. This results in low standard PT coverage and leaves many of the City's inhabitants beyond convenient service range.

The largest volume of bus pre-load is located along the main roads at the entrances to Zanzibar Town. Malawi and Karume roads are the main PT corridors.

The public transport fleet is characterized by old and small vehicles with low capacity, safety and convenience levels, and high emissions.

PT fares in Zanzibar range from TZS300 to TZS2,000. Analysis of survey data shows a negative relationship between household economic capacity and transportation expenses (as a percent of total household income).

The PT share of the total trips made in Zanzibar is 25% out of all trips. Most of the PT passengers can be seen as “captive” who would transfer to private vehicles when given the opportunity. Therefore, unless measures to improve the attractiveness of PT are taken, it is expected that in the future there will be a decrease in the PT share.

Private Vehicles

The motorization rate in Zanzibar Town is currently estimated at approximately 70 per 1,000 population. Only 2% of trips are by private car drivers, while an additional 3% as private vehicle passengers. This is a very low figure compared to other countries in the world, even in Africa. The main reason for this is the extent of poverty in the City.

Car ownership rates have been growing exponentially over the past years, far in excess of the expectations underlying the Transportation Master Plan. Growth on this scale will require reassessment of the entire transport system for the City.

Organized public parking is very rare in Zanzibar Town. In addition it must be noted that the lack of parking zones makes it hard to integrate PT and private vehicles. Due to the high motorization rate and a lack of urban planning, the city center in the near future will not provide enough parking spaces to meet demand. These parking issues only exist in the city center and along the main roads.

Non-Motorized Transport (NMT)

Walking is by far the most dominant mode of transport in Zanzibar Town accounting for 42% of all daily trips.

Cycling is common in Zanzibar, the third most common mode after walking and public transport. Special attention should be given to bicycle use, since in the Consultant’s view this mode is the preferred mode of travel for Zanzibar residents.

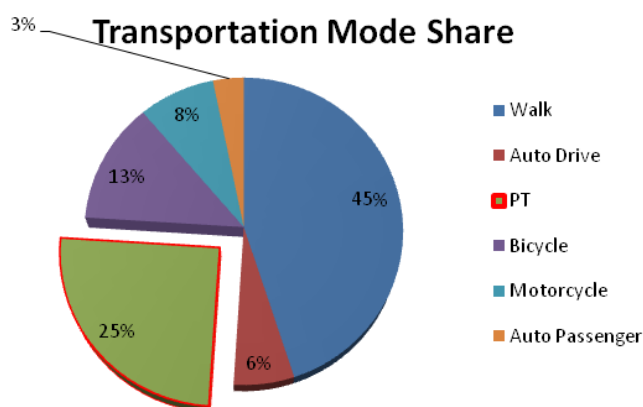


Figure 5: Transportation Modal Share, 2013

However, despite their scale and importance, both pedestrian and cycle infrastructure is inadequate and lags far behind other forms of transport infrastructure:

Mobility and Access

The above sections elaborated upon specific weaknesses and explained Zanzibar’s main transportation problem: very low mobility rate. This is measured by the average number of daily trips per capita, which in Zanzibar is 1.5. This figure is below the African average and one of the lowest in the world.

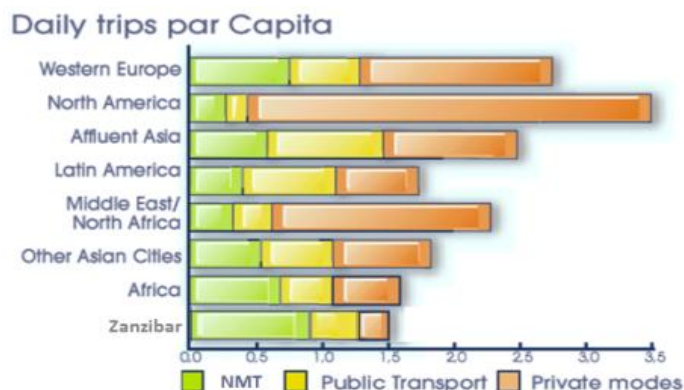


Figure 6: Comparative Daily Trips per Capita

Low transportation mobility rates result in low socioeconomic mobility and vice versa. Investment in public transport, and other low-cost transport modes such as bicycles, will increase the transportation mobility rates and help break this cycle.

Economic activities require the movement of people between residential areas and jobs, leisure and shopping. Therefore, an efficient and effective transport network is required to link people with activities. When motorized transport is not available, people can only rely on walking or cycling, and access to basic services becomes difficult.

The main cause of the low mobility rate is trip cost. Like other countries in Africa, women in Zanzibar make fewer trips than men. Trips taken by women are usually restricted to smaller geographical areas and usually use less expensive modes of transport than men. This can be explained by variables such as personal safety, lower participation in the labor market and cultural reasons. In Zanzibar women use PT more than men but walk an equal amount of trips as men despite the issue of personal safety.

No public accessibility for disabled measures whatsoever were identified by the Consultant in Zanzibar.

Entry Ports

Zanzibar International Airport is of great importance both to local business and tourism and to the economic development of the city and the country, and particularly the tourism industry. Whilst the airport can handle wide-bodied aircraft, such as the Airbus 330, much of the basic infrastructure is below international standards including terminals and security.

Zanzibar has a liberal market for air transport with numerous Tanzanian, international and charter airlines using the airport. The Tanzania Civil Aviation Authority (TCAA) is responsible for implementing union regulation of air transport, providing air navigation and aeronautical airport services such as the provision of traffic services for en-route and landing aircraft.

Construction of the second terminal started in January 2011 p. Construction delays have been reported but currently it is still under construction and scheduled to be operational in 2015. The new terminal will be 100,000 m², and is designed to serve 1.5 million passengers per year. This should suffice to meet for Zanzibar’s tourism, business and commercial needs at the present and in the foreseeable future.

Maritime transport plays a crucial role in Zanzibar providing links between the country's principal islands and to the mainland. The main passenger and cargo port is in Malindi. Other locations provide beach landing for dhow cargo. An oil terminal is located at Mtoni.

The existing port is considered inadequate for current and future needs. A new port was planned at Mtoni slightly north of the original location proposed in the 1982 Chinese Plan. The port has been approved in principle and the responsible authorities are reportedly actively investigating potential PPP options.

All these issues and other pertinent transportation issues are detailed in **Review Report Section 8**.

2.5 Legislation and Administration

The current legislative and institutional base for planning and development were analysed by the Consultant. These are reported in **Review Report Section 10**.

3 Development Approach (Vision and Policy)

3.1 Planning Vision

Based on in-depth analysis of alternative development scenarios the planning vision for the development of the City was defined. It posits Zanzibar as a **Quality City** developing into an internationally recognised, unique City with:

- Benefits of **Urbanity** including structure and order, providing amenity and choice;
- Development based first and foremost upon a **High Standard of Education**, providing the City and its inhabitants with relative competitive advantage;
- Characterised and shaped by its **unique Culture and Heritage**, itself nurtured, preserved and valued by the City, its inhabitants and visitors alike;
- Developing economically by identifying and nurturing **relative advantage in specialised niche markets**;
- Providing appropriate **Utilities, Services and Amenities** to all its inhabitants;
- Identified by its high quality **Natural and Built Environment**;
- Providing its population with **Opportunity**; a reasonable **Standard of Living**; and a high **Quality of Life**;
- Serving as the Gateway for innovation for East Africa, the “**City of Wonders**”.

3.2 Development Strategy

To attain this and indeed national vision and goals as defined in MKUZA II and to break the yoke of the cycle of poverty Zanzibar needs to adopt a dual development strategy driven by Education and Urbanisation.

In effect Zanzibar's primary constraints need be turned into its primary advantage, as indicated in **Figure 7** below.

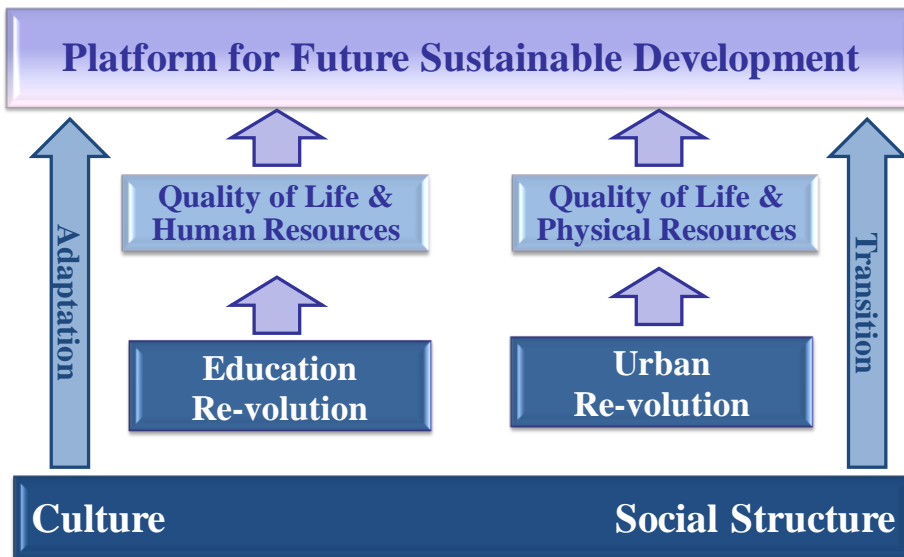


Figure 7: Integrated Development Strategy

3.3 Development Approach and Primary Goals

To attain this, the City, indeed the nation as a whole, needs to intervene to break the current cycles of poverty, urban sprawl and environmental degradation. This requires intervention in assorted spheres as indicated in **Figure 8** below.

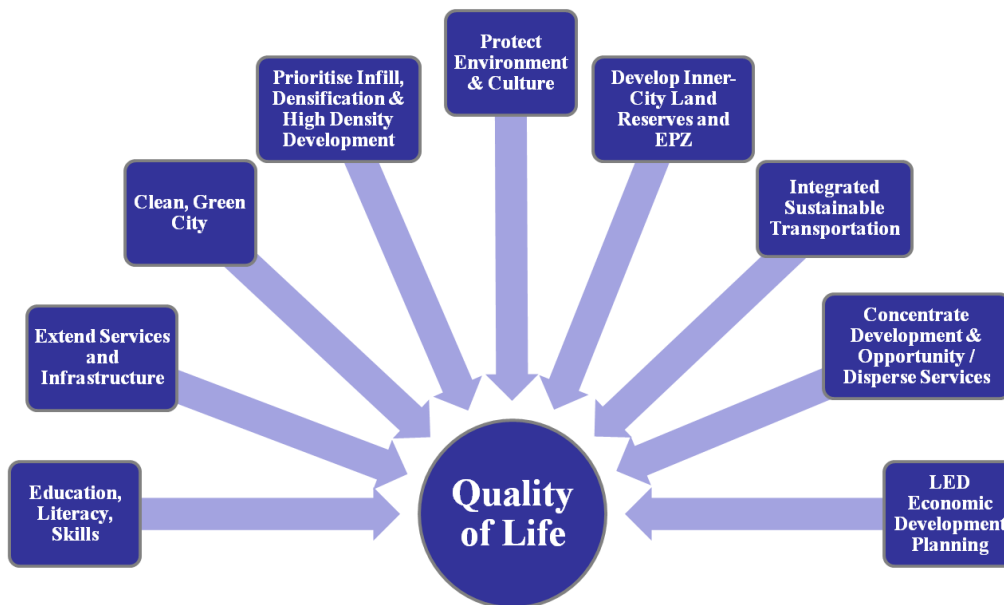


Figure 8: Primary Development Approach

These include:

- Quality Education for all.
- Extension of services and their balanced distribution.
- Upgrading and extension of infrastructure.
- Cleaning and Greening the City.
- Densifying the City.
- Protecting and preserving the Zanzibar’s unique Natural endowments.

- Upgrading the built environment.
- Protecting, preserving, enhancing and leveraging development on Zanzibar’s unique Cultural Heritage.
- Developing Inner City land reserves.
- Developing and operating an integrated, sustainable Transportation System.
- Dispersing and distributing basic services.
- Preparation and implementation of an integrated Local Economic Development Plan.

The primary quantitative goal is to enable the **doubling of the City’s population** whilst **limiting the extension of its spatial footprint to no more than 50%** by increasing average densities, requiring new development to be significantly denser than recent development.

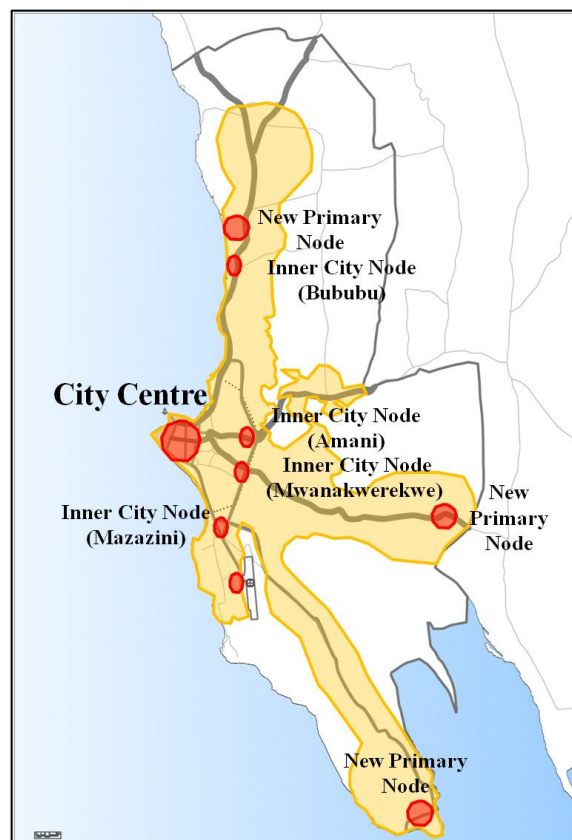
These are detailed in the **Development Approach Report Section 3**.

3.4 Spatial Structure and Elements

Integrated Spatial Structure

Based on the in-depth analysis of alternative spatial structures, as detailed in **Development Approach Report Sections 4.1 & 4.2**, the integrated spatial approach adopted incorporates nodal and corridor elements as indicated schematically in **Map 6**. This integrated approach was adopted so as to:

- Reduce sprawl and spatial coverage.
- Retain and strengthen the current City Centre as the centre of a future metropolitan system, supplemented and balanced by a set of urban centres (nodes) and radial corridors.
- Enable high level of access to the City’s residents based on a sustainable transport system prioritising NMT and Public Transport.



Map 6: Schematic Integrated Structure

Density of Development

To meet these targets the gross density of the built area (urban and peri-urban) needs to rise from the current 63 persons per Ha. to approximately 90 persons per Ha. This is to be attained with three gross density standards for housing:

- **Higher Density** areas with an average of 40 DU or 160 persons/Ha.
- **Moderate Density** areas with an average of 30 DU or 120 persons/Ha.
- **Low Density** areas with an average of 20 DU or 80 persons/Ha.

This in turn requires a major change in planning approach and planning tools for new developments, but primarily to ensure **infill and densification** of the existing urban fabric. This will require:

- Development of unbuilt **Inner City reserves**.
- **'Infill'** of available land in built-up areas.
- **Densification of existing and planned low density neighbourhoods**.
- **Urban renewal** in selected areas.
- Development of **large scale housing projects**.

Examples of potential intervention toward densification are provided in the **Development Approach Report Sections 5.2 and 5.3**

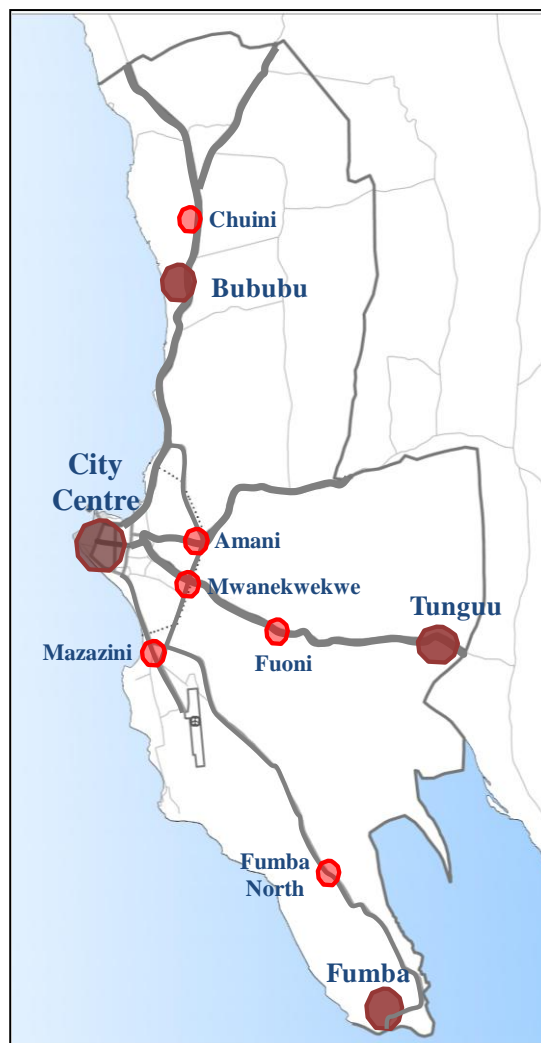
Structural Elements:

The approach adopted to achieve the required balance for Zanzibar City for the coming generation involves the systematic development of a balanced hierarchy of service and activity concentrations distributed throughout the city including:

City Centre - the spatial and functional hub of the City. The function and mix of the City Centre needs to continuously adapt and raise standards to attain higher thresholds and provide the highest order of services and host the most land intensive uses in the City.

New Town Centres - in Tunguu, Bububu and Fumba complementing the City Centre, serving and concentrating local demand and achieving growing thresholds for the provision of commercial and customer oriented services adjacent to or in proximity to higher order public services.

Sub-centres and Nodes - three Inner City sun-centres and nodes along Mombasa Road (Mwanekwekwe, Mazazini, Amani) and three along the development corridors (Fuoni, Chuini and North Fumba). Whilst each node will be characterised by its particular location and the existing and planned development in and around the node, they will all share many characteristics and elements including location along primary corridor, linkages to their immediate hinterlands, serving large target populations' incorporating significant high density residential development, and more.



Map 7: Urban Centres and Nodes

Corridors - whilst higher order, relatively intensive commerce and services require concentration in centres and sub-centres lower order, lesser intensive commerce and services can and should be widely distributed. The primary movement routes, specifically those carrying Public Transport, can and should host these services providing easy access to a wide customer base.

The following corridors are envisaged:

- **Inner City Mixed-use Corridors;**
- **Mombasa Road;**
- **Malawi Road** to northern boundary;
- **Fuoni-Tuguu** to eastern boundary;
- **Fumba** corridor to the south.

Grids

The urban grid has characterised human settlement and development from historic times. The utilisation of a grid to complement an arterial route and/or corridor ensures easy access of residents to and from the arterial route or corridor, thereby enabling relatively high densities along the artery.

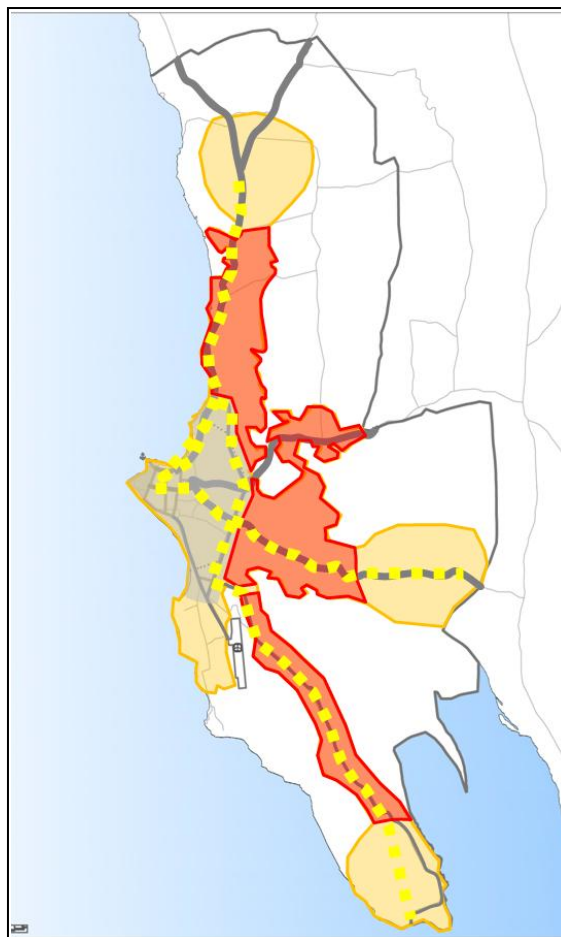
International “Best Practice” has shown that the optimal scale of pedestrian oriented grids in developing countries is in the 800-1,000m x 800-1,000m range creating blocks of 64-100 Ha.

A grid on the scale of 800x800m, of approximately 64 Ha. housing an average population of some 8,500 persons, is indicated for Zanzibar to complement the Integrated Mixed Use Development Corridors.

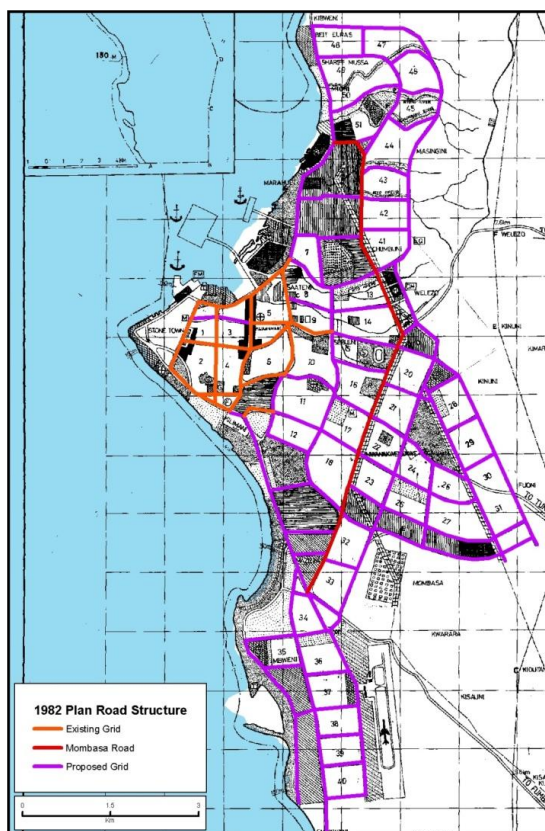
Environmental Sensitivity Areas

Environmental sensitivities were mapped. There is an urgent need to:

- Protect, conserve, restore and enhance natural areas;
- Protect sensitive areas;



Map 8: Integrated Corridors



Map 9: 1982 Plan Grid Elements

- Manage development to avoid or mitigate negative impacts; and
- Support the reduction, prevention and mitigation of pollution.

Towards this end the a series of strategies were adapted including the direction of new development to open and less environmentally sensitive areas and the definition and mapping of extensive developmental constraints. These and others are defined in detail in **Development Approach Report Section 5.4.3.**

Heritage

Zanzibar is the centre and the guardian of Swahili Culture. Its heritage includes archaeology, architecture, language, and literature, arts and crafts, jewellery and decoration as well as lifestyle, food and natural heritage.

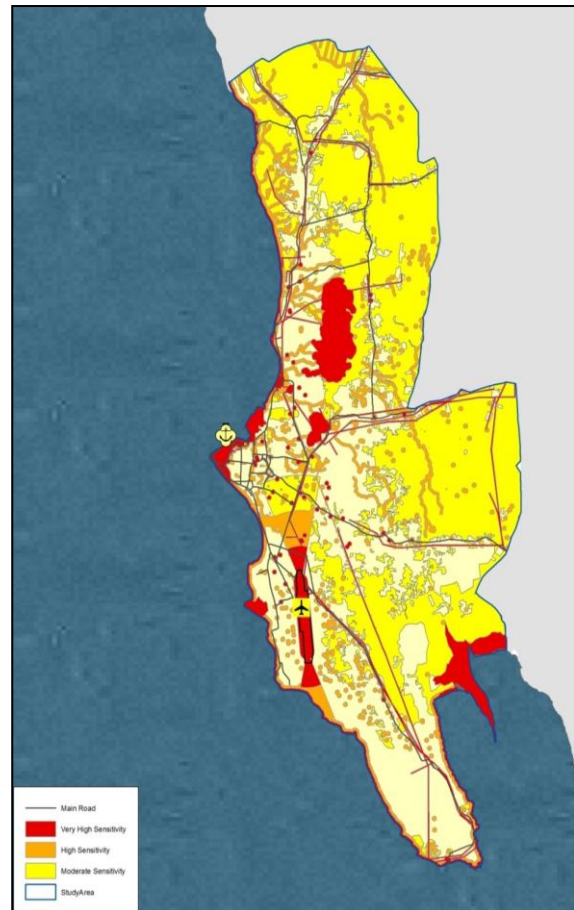
The conservation values of Zanzibar's buildings, archaeological sites, public spaces and more were defined and describes in the **Review Report**. Many of these values were identified and are protected by the UNESCO declaration of a World Heritage Site of Stone Town, followed by legislation, plans and other documents.

Conservation strategy in Zanzibar needs to take into consideration the following factors:

- Extreme tropical climate combined with the coastal environment results in heavy environmental pressure on old structures.
- In this environment all buildings, new as old, require continuous maintenance.
- Present major concern is the historic site of Stone Town, but additional cultural values in other areas require attention and control as well.
- Zanzibar retains only limited professional and traditional construction artisan capacities and limited appropriate building materials, etc. to maintain and rehabilitate its numerous historic structures.

Green Systems

Trees and foliage are essential elements in both the open and built environment. Forests and dense foliage are hallmarks of Zanzibar and essential elements of the City's Heritage. Whilst gardens and trees are integral of Zanzibari tradition, urban development has systematically uprooted natural vegetation without preserving the necessary open spaces, effectively creating an Urban Desert;

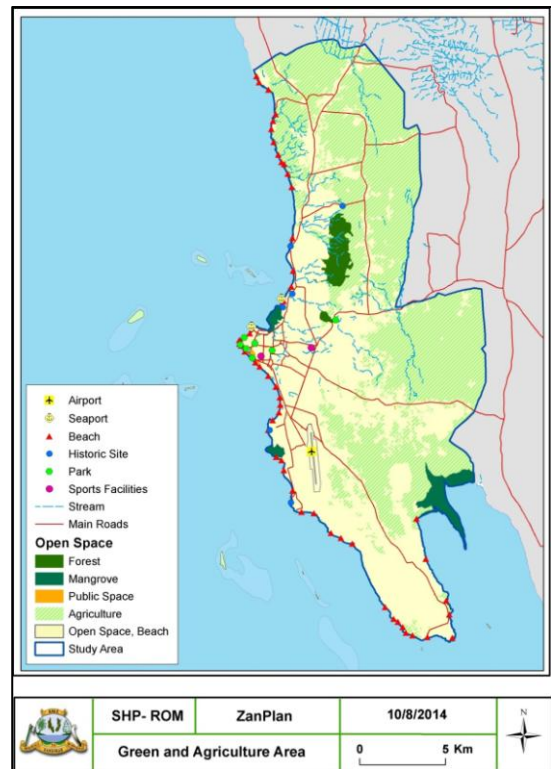


Map 10: Environmental Sensitivity Areas

There is a need to create a wide range of different types of green spaces, public and private as one of the easiest and cheapest methods of improving the Quality of the Environment and the Quality of Life for the City’s residents.

A city planned to the scale of Zanzibar City (target of 1.25 million with 1.5 million capacity) requires:

- A minimum of some 15 km² accessible, developed and maintained “Green” Public Open Space (in addition to water bodies and nature reserves), with half developed as city scale and half as local, neighbourhood scale open space.
- A minimum of 3 million trees (2 trees per resident to counter-balance carbon emissions and endow the City with an identity and quality unique on the African continent).



Map 11: Existing "Green" Elements



Figure 9: Examples of Existing Parks and Gardens



Figure 10: Examples of 40 m ROW Rothschild Boulevard, Tel Aviv and Karume Rd.

The Consultant’s detailed recommendations for the spatial and physical development of the City can be found in the **Development Approach Report Section 5**.

3.5 Social and Economic Development

A City’s spatial structure provides the framework for both social and economic development. However spatial and physical development is not adequate or achievable on their own. Sustainable balanced spatial development is dependant upon its host society and their resources. As such intervention is essential to enable the requisite social and economic development which must accompany and enable balanced, sustainable spatial development.

Education

Education in Zanzibar has made great strides over the past decade but the future challenge is even more daunting. Given its limited size, constrained physical access as an archipelago of islands and despite its natural beauty, the absence of significant natural resources, Zanzibar can only develop relative competitive advantage in the region by proving a particularly well educated work-force. Hence, the social and economic development of the population, and indeed of the city and the country, will be determined, first and foremost, by the standard of education provided and absorbed.

Education is fundamental both to breaking the cycle of poverty in society in general, and to enabling socio-economic mobility for the individual. Moreover, a skilled workforce is a precondition for economic development.

There is an urgent need to ensure the provision of appropriate, properly equipped educational facilities providing the requisite physical environment required for a quality education system.

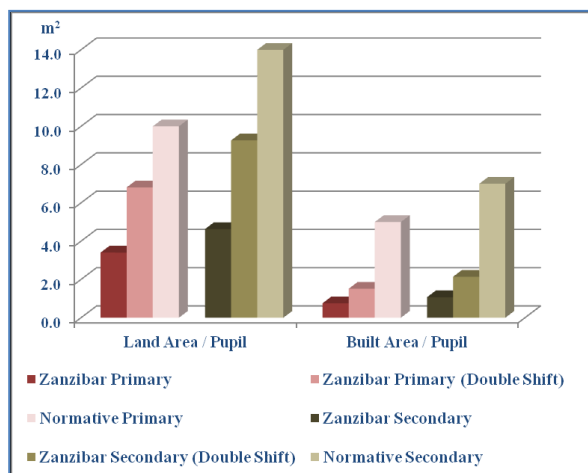


Figure 12: Spatial Standards for Education

If it is to drive economic development, education reform in Zanzibar cannot be cumulative but rather requires a quantum leap to close the gap with the developed world and lead Africa in education.

To meet this challenge a comprehensive updated Education Master Plan for Zanzibar needs to be prepared and implemented. It should define a comprehensive system that ensures the education framework and services for all ages; ensuring full functional literacy in Swahili and in English and Computer Literacy for all.

The Consultant’s detailed recommendations for education can be found in the **Development Approach Report Section 6.1**.

Health

The current situation of health in Zanzibar today reflects the City’s shortfalls and the extreme poverty its residents suffer. Life expectancy and health are basic human needs and rights and health services start with prevention through sanitation, water and sewage.

Whilst there are major gaps to be filled in the delivery of health services and access thereto, as defined in the National Health Master Plan, primary intervention to improve the population's health must be first and foremost preventive. Not only are sanitary conditions prerequisites for health, they are, in and of themselves, cost effective:

- The impact of clean water technologies on public health in the U.S. is estimated to have had a rate of return of 23 to 1 for investments in water filtration and chlorination during the first half of the 20th century.
- Water and sanitation interventions are cost effective across all world regions. These interventions were demonstrated to produce economic benefits ranging from US\$ 5 to US\$ 46 per US\$ 1 invested.
- Improved water sources reduce diarrhea morbidity by 21%; improved sanitation reduces diarrhea morbidity by 37.5%; and the simple act of washing hands at critical times can reduce the number of diarrhea cases by as much as 35%. Improvement of drinking-water quality, such as point-of-use disinfection, would lead internationally to a 45% reduction of diarrhea episodes.

The Consultant's recommendations for health are detailed in the **Development Approach Report Section 6.2**.

Heritage

The current situation of heritage conservation and enhancement in Zanzibar today is detailed in the Review Report. It is noted that:

- Zanzibar is the centre and guardian of the Swahili Culture;
- Many aspects of the heritage are evident in Zanzibar but only some, primarily in Stone Town, are preserved,
- There is concern that the country is going to lose some of its most important and significant characteristics.
- Heritage encompasses a wide spectrum and Zanzibar's unique heritage provides the basis for social identity and national pride.
- Zanzibar's unique heritage constitutes a "brand" in and of itself that is utilised for the marketing of Zanzibar as a destination and should be leveraged to market its products and its services.

Given this the Consultant recommends the RGOZ:

- Systematically identify, document and assess all aspects of heritage;
- Develop and implement an integrative policy for preservation, facilitating the physical and intellectual expression of heritage in all fields;
- Ensure museums, products, education, industry, tourism, should all reflect heritage utilising modern tools;
- Ensure the system be directed and integrated by an appropriate authority with comprehensive authority, be it the extension of existing entities or a new authority;
- Incorporate traditional architectural elements in all new public buildings.

Economic Development Targets and Goals

The following primary economic development goals were identified:

- Enable rapid acceleration of growth to double digit growth;
- Enable diversification and greater balance between and within sectors;
- Enable development of productive sectors as envisaged in Vision 2020;
- Enable increased productivity in all sectors;
- Ensure wide access to opportunity, particularly employment.

The recommended target for economic growth in the City is for a ten-fold growth to the 2035 planning horizon. If this is achieved it should result in a five-fold growth in per capita income to some \$ 5,250 per capita (as opposed to 2.5 times or approximately \$ 2,550 per capita under ongoing trends). However it must be stressed that even if such growth is indeed achieved it will not be distributed evenly across society or even between sectors.

Given demographic trends the work force is projected to grow at a faster pace than the population. Only accelerated growth based on extensive intervention, particularly education and training together with infrastructure, can reduce the scale of unemployment and economic exclusion. Employment targets were defined by the Consultant and are detailed in the **Development Approach Report Section 7.2**.

Economic Development Strategy

A two-track strategy for economic development in the City, as indicated in **Figure 13** below, was defined

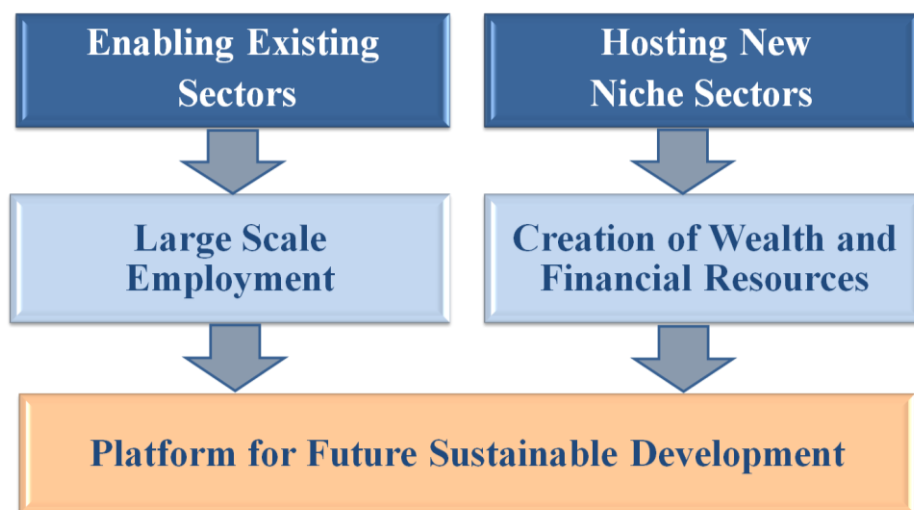


Figure 13: Economic Development Strategy

This strategy, based on the Consultant’s assessment of Zanzibar’s current economic position and trends, as detailed in the **Review Report Section 7**, and analysis of economic development approaches practices in assorted Island States, is detailed in **Development Approach Report Section 7.1.2**.

The proposed hierarchy of employment zones is indicated in **Figure 14** below. Each of these are detailed in the **Development Approach Report Section 7.5**.



Figure 14: Hierarchy of Employment Zones

Tourism

There is a clear need to further extend Zanzibar’s penetration in its current markets whilst effectively developing new markets, including regional tourism; regional MICE tourism; sports and water sports tourism; sailing destination; and cultural tourism.

To enable the further rapid and balanced development of tourism in Zanzibar and to increase its contribution to the City and its economy, direct and indirect intervention, as detailed in **Development Approach Report Section 7.6**, is required.

3.6 Infrastructural & Services Development

The City’s infrastructural networks and systems and related services require significant extension, upgrading and improvement in all fields including:

- Water and Sewage;
- Drainage;
- Solid Waste Management;
- Sanitation and Hygiene;
- Energy;
- Communications;
- Emergency Services,
- Gardening and Greening the City;
- Recreation, Sports and Beach Services;
- Markets;
- Cemeteries and Burial Services.

The Consultant’s policy recommendations regarding these systems and services, be they in the physical, spatial, equipment, institutional and organisation fields as relevant, are laid out in the **Development Approach Report Section 8**.

3.7 Transportation Development Policy

Transportation Development Strategy

The primary goals for the development of the City’s transportation system include:

- Support economic growth;
- Promote social development;
- Reduce environmental impact;
- Maximize roads safety.

Objectives include:

- At least 35% of trips in Zanzibar City will be done by Walking
- At least 15% of trips in Zanzibar City will be done by Cycling
- At least 30% of trips in Zanzibar City will be done by Public Transport.
- Double the current average number of daily trips per capita which is 1.5

In order to meet the above goals, the consultant identified 9 strategic principles to be implemented over the next 7 years. Each of these principles is made up of 4-7 action measures that should be implemented in order to achieve each strategic element as indicated below and detailed in the **Development Approach Report Section 9**.

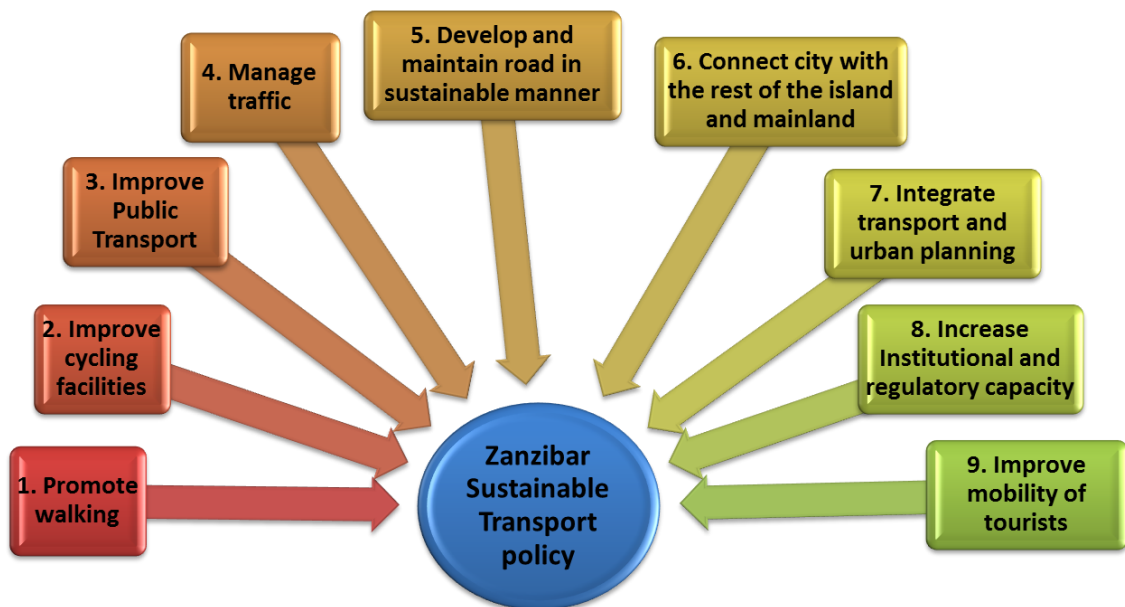


Figure 15: Sustainable Urban Strategy Strategic Principles

Promoting Walking

The promotion of Walking requires, *inter alia* the development of High-Standard Pedestrian Corridors wide enough to accommodate all demand, direct, separated from motorized traffic, with adequate street-lighting and shaded from sun. These pedestrian corridors that will connect the residential areas to the center and allow walking the remain the major commuting mode.

The Consultant has identified a 26 km long pedestrian corridor network:

- Connecting residential areas to the CBD.
- Strengthening the CBD with the City Center becoming an NMT oriented.

- Ensuring connectivity and continuity.
- Providing a comprehensive holistic solution for the pedestrian.
- Reducing pedestrian exposure to vehicular traffic.

An extensive network of sidewalks is required to separate pedestrians from motorized vehicles as well as bicycles. Studies show that sidewalks both improve pedestrian safety and increase walking.

Marked crossings are required to indicate the optimal or preferred location for pedestrians to cross a motorized route.

Illumination measures have a significant effect over pedestrian activity both for personal security and safety reasons.

Promoting Cycling

Despite the popularity of bicycles in Zanzibar, cycling infrastructure does not exist. The estimation is that without proper strategy the use of cycling will reduce significantly. Therefore the following measures are recommended:

- Separated Cycling Paths - a 43 kilometers network of separated cycling paths
- Separated cycling lanes in urban areas, and designated paths along rural roads.
- Pre-planned lane widths, based on the projected demand for cycling in each area.
- Signs and signal along cycling paths and lanes adjacent to roads to increase driver awareness.
- Cycling Parking Space in Strategic Locations
- Cycling Training Program
- Increase bicycle supply and reduce their price to make them affordable
- Integrate bicycles in the high school system to allow pupils access to schools.



Map 12: Pedestrian Corridor Network



Map 13: Cycle Path Network

Public Transport

Despite the high fares, low capacity, uncomfortable vehicles and unreliable service, the current PT System in Zanzibar carries most the motorized trips. Like the NMT described above, the usage of this mode will decrease in the future unless improved by the following measures:

Therefore there is an urgent need to develop PT corridors by reallocating the right of way to provide designated paths for public transportation including construction of support facilities such as segregated bus lanes, physical stop shelters and stopping bays.

Concomitantly there is an urgent need to reorganize the Public Transport Network including:

- Adaptation to the PT priority corridors;
- Separation of intra-urban from inter-urban and rural services;
- Definition and implementation of a bus routes hierarchy;
- Increase coverage;
- Introduction of Medium- and High-Capacity Vehicles wherein operation of these buses brings many benefits including higher capacity and lower O&M costs.
- Introduction of Scheduled Services
- Making PT Affordable for Marginalized Populations
- Improving Passenger Facilities
- Developing Bus Termini

Traffic Management

Managing existing traffic should play a significant role in any the transport planning of any City. Measures included in traffic management are:

- Minimize Traffic in Stone Town.
- Manage Parking in the City Centre and along Mombasa Rd.
- Introduce a Low Emission Zone (LEZ) in the City Centre.
- Install Traffic Calming Measures in pedestrian oriented areas such as the city center, near schools and in residential neighbourhoods.
- Increase Capacity and Safety in Intersections

Roads Development

Roads development will require, *inter alia*:

- Definition and development of a clear roads hierarchy.
- Prioritisation of urban road development.
- Adoption and utilisation of urban road design standards.
- Allocation of responsibility for construction and maintenance of entire the ROW (road paving, cover drainage, sidewalks, pedestrian and cycle routes, lighting, gardening and street furniture) on a single entity (Roads Department).
- Preparation and implantation of a multi-year road development and rehabilitation plan.
- Preparation and implantation of a pavement plan for local roads

Air Transport

There is a need to increase airport capacity and improve safety standards to attract international carriers, improving international and regional connectivity.

Maritime Transport

There is a need to:

- Establish New Sea Port for freight and extend passenger capacities;
- Introduce regular RORO service direct to mainland (possibly to Bagamoyo).

Transport for Tourism

The tourism industry is essential to the economy of Zanzibar and yet very few measures are taken to allow tourists clear convenient and safe movement in the island: There is a need to:

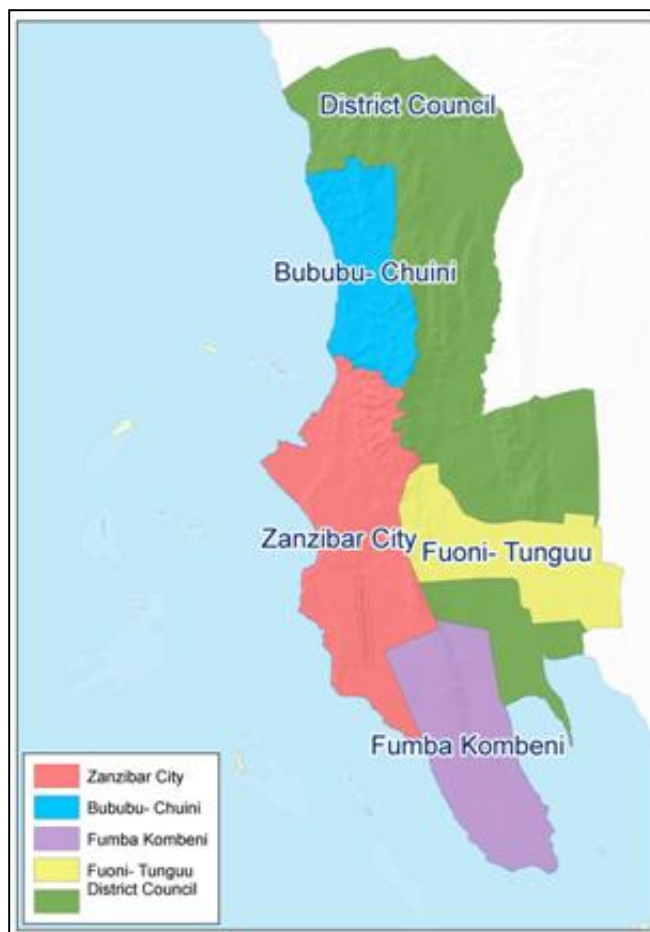
- Operate high quality frequent shuttle bus connecting major tourist destination
- Provide bike rental facilities near tourist attractions
- Ensure marking and signage in Stone Town for tourists.

The Consultant’s policy recommendations regarding the City’s transportation systems and services are detailed in the **Development Approach Report Section 9**.

3.8 Local Government and Services

Provision of appropriate municipal services is essential to the development and functioning of the City. As there is a need to assure services in the framework of an appropriate municipal structure. Alternatives were identified and assessed. A possible delimitation, consistent with spatial structure is shown in the map here.

The Consultant’s policy recommendations regarding Local Government and Services are detailed in the **Development Approach Report Section 10**.



Map 14: Possible Municipal Delimitations

4 Structure Plan

4.1 Introduction

The Structure Plan gives spatial application to the policies, development approach and planning principles summarised above and detailed in the **Development Approach Report Sections 4 and 5**.

The plan is composed of the following layers:

- Primary Structure;
- Development Constraints;
- Planning Zones;
- Densities for Residential Development;
- Integrated “Green” System ;
- Primary Economic Activity Zones;
- Transportation System and and Road Hierarchy;
- Infrastructural Facilities.

These are combined to produce the Integrated Land Use Plan.

The plan covers a planning area¹ of 295 km² incorporating an Urban Development Area of 152 Km². The plan is designed to house 1.5 million population (2035 target of 1.25 million and 0.25 million reserve) and enable the employment of 0.6 million by 2035.

On referral of the National Planning Board and Permanent Secretaries Forum the Structure Plan was presented before and approved by the full Cabinet, chaired by His Excellency the President Dr. Ali Mohamed Shein on 04.03.2015.

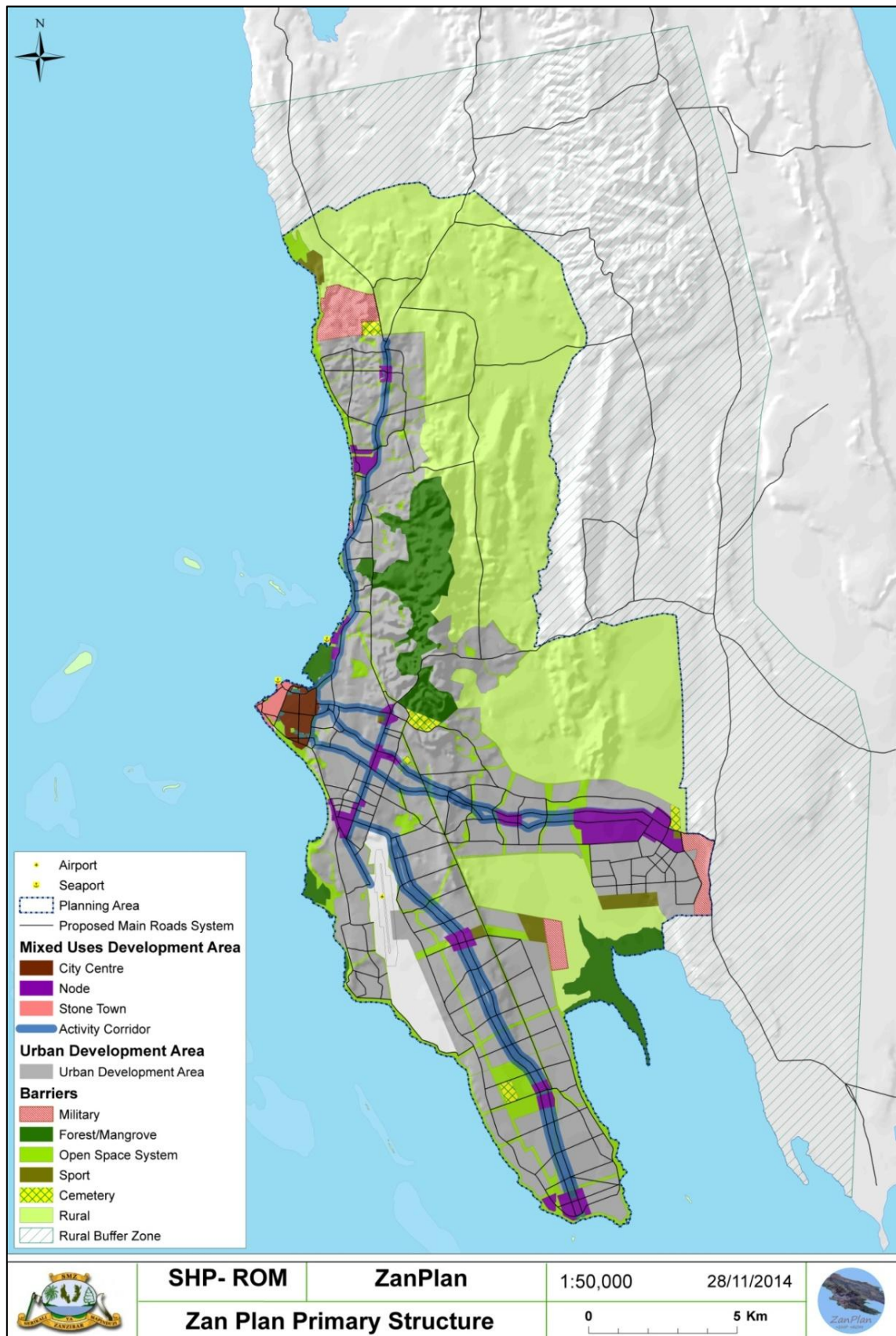
The approved Structure Plan is summarised below and presented in detail in the **Final Report Section 5**. Maps in this report are informative and representative, not to scale. Scale maps are available for download at <https://copy.com/yBLVNu9P746JGcYC>. The hardcopy Integrated Land Use map presented to and approved by Cabinet, retained by the DoURP, is the statutory instrument.

4.2 Structure Plan Elements

Primary Structure

The primary structure, combining integrated development corridors and activity nodes with barriers to further sprawl, is presented in the map below:

¹ Excluding the Rural Buffer Zone.



Map 15: Primary Structure

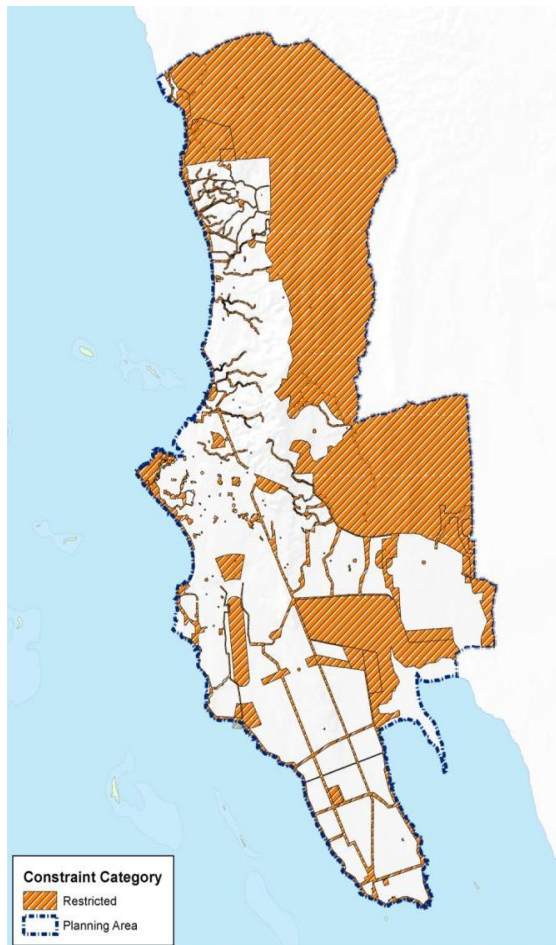
The plan incorporates and provides for the following primary land uses:

Table 1: Primary Land Uses

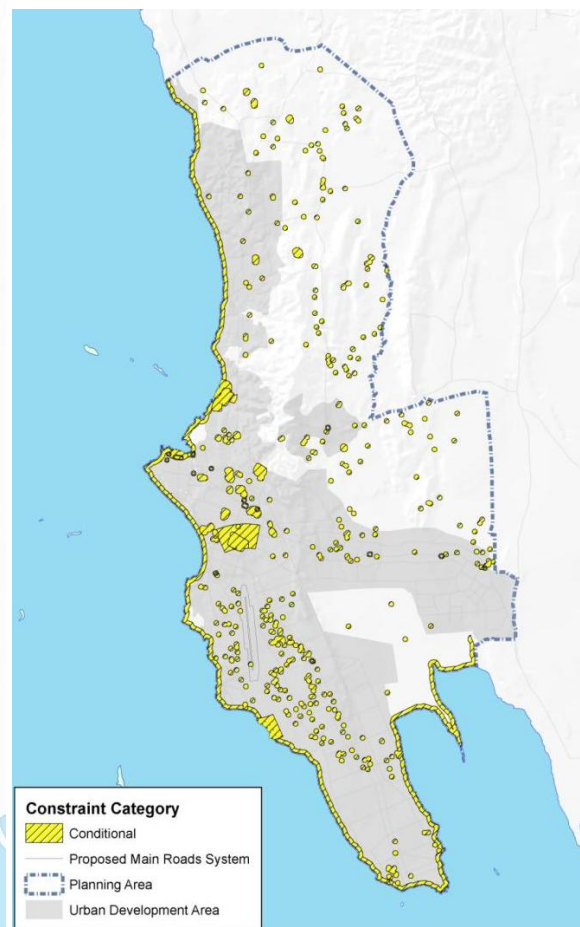
Landuse	Area 2013 (Ha.)	Area 2035 (Ha.)
Airport / Sea Port	464	726
Industrial Area	217	805
Forest and Mangrove	1,151	1,781
Green Frame & Sport	143	2,263
Cemetery	18	152
Military	709	551
Mixed	341	1,788
Residential High Density & Services	6,738	3,046
Residential Moderate Density & Services		3,337
Residential Low Density & Services		3,059
Open Space	3,464	-
Rural & Agricultural	16,289	12,025
Total (Km²)	295	295

Development Constraints

Development constraints are defined by category in the table below. For each constraint category the plan defines the extent and nature of constraint and relevant guidelines for protection, conservation and/or restricted development, detailed in **Final Report Section 5.3:**



Map 17: Restricted Urban Development



Map 16: Conditional Urban and Rural Development

Table 2: Development Constraints

Category	Sensitivity	Indicator
Agriculture	Moderate	Land Use
Airport Approach Zone	Very High	1km on 17° cone
	High	2km on 17° cone
	Moderate	3km on 17° cone
Airport Runway	Very High	300m perimeter
Coastline	Very High	50m offset
	High	200m offset
Coral Reefs	Very High	300m perimeter
Electric Transmission Facility	Very High	Land Use
Flood Prone Area	High	Layer
Forest	Very High	Land Use
Historic Site	Very High	Land Use
Industrial Zone	Moderate	80m perimeter
Infrastructure Corridor / Power Line (161 Kw)	High	Land Use
Island	Very High	300m perimeter
Mangrove	Very High	Land Use
Oil and Petrol Depot	Very High	100m perimeter
	High	300m perimeter
Petrol Station	Very High	40m perimeter
	High	80m perimeter
Public Space	High	Land Use
Stream	High	30m perimeter
Swamps	Moderate	Land Use
Telecommunications Mast	Very High	30m perimeter
Well, Borehole	High	100m perimeter
Heritage	Very High	Land Use

Planning Zones

A total of 22 planning zones and a rural buffer zone are defined. Guidelines for the detailed planning and for the development of each zone is elaborated in **Final Report Section 5.4**. The scale of the zones is detailed below:

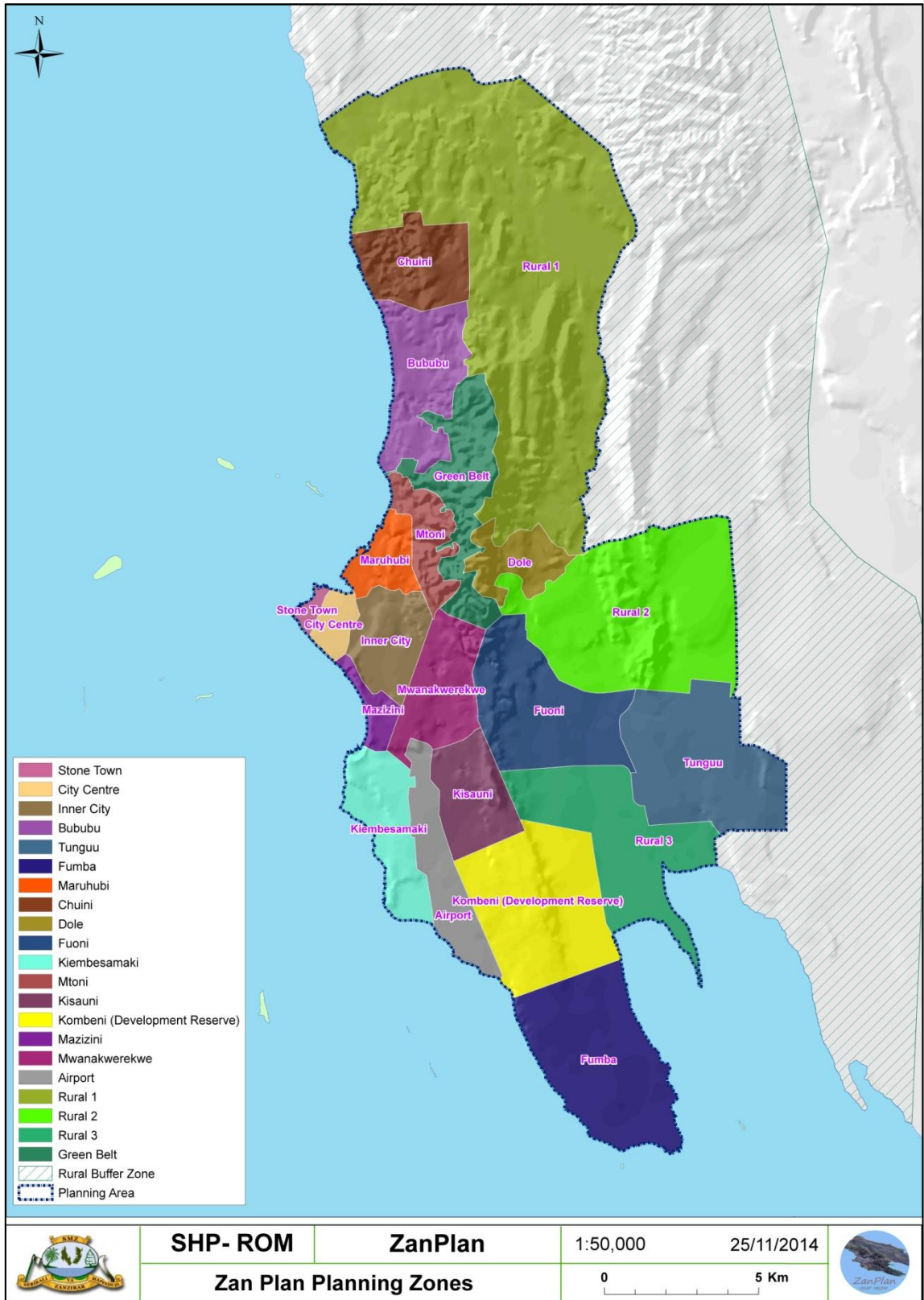
Table 3: Planning Zones - Area, Population and Employment²

Planning Zone	Area (Ha)	Population 2012	Population Capacity 2035 ³	Employment 2012	Employment 2035 Target
Stone Town	88	12,000	10,000	25,300	38,000
City Centre	238	32,000	30,000	32,600	85,900
Inner City	722	142,000	130,000	28,500	34,800
Maruhubi	429	37,000	28,000	11,200	40,400
Mtoni	502	50,000	56,000	8,100	20,100
Mwanakwerekwe	904	98,000	100,000	16,700	33,900
Mazizini	229	4,000	23,000	3,900	27,800
Kiembesamaki	896	20,000	53,000	6,600	14,900
Airport	812	2,000	-	1,600	7,400
Kisauni	796	10,000	93,000	1,700	22,100
Bububu	1,149	53,000	125,000	8,700	38,500
Chuini	917	10,000	91,000	3,700	20,600
Fuoni	1,643	60,000	178,000	7,600	25,500
Tunguu	1,797	5,000	152,000	3,100	50,900
Kombeni (Reserve)	1,975	9,000	167,000	3,300	49,600
Fumba	1,991	3,000	182,000	2,500	57,400
Mwera	537	22,000	40,000	4,000	8,700
Green Belt	1,139	2,000	-	300	800
Total Urban	16,763	571,000	1,458,000	169,400	577,300
Rural 1	7,793	46,000	34,500	17,600	8,400
Rural 2	3,158	7,000	5,250	3,900	1,900
Rural 3	1,818	3,000	2,250	1,000	3,100
Total Rural	12,769	56,000	42,000	22,500	13,400
Total ZanPlan	29,533	627,000	1,500,000	191,900	590,700

The rural buffer zone extends over an additional 286 km².

² Rounded values

³ Including reserve



Map 18: Planning Zones

Densities of Development

The recommended densities by category are detailed in the table below:

Table 4: Recommended Densities by Category

Subject	High Density	Moderate Density	Low Density
Minimum Average Gross Density (persons/Ha.)	460	220	100
Minimum Average Gross Density (DU/Ha.)	115	55	25
Maximum Average Gross Density (persons/Ha.)	680	340	140
Maximum Average Gross Density (DU/Ha.)	170	85	35
Minimum Net Plot Density (persons/Ha.)	480	240	80
Minimum Net Plot Density (DU/Ha.)	120	80	20
Maximum Net Plot Density (persons/Ha.)	960	480	200
Maximum Net Plot Density (DU/Ha.)	240	120	50
Minimum Plot Size (m2)	800	400	200
Maximum Plot Size (m2)	1,200	800	650

These density categories are detailed in **Final Report Section 5.5**.

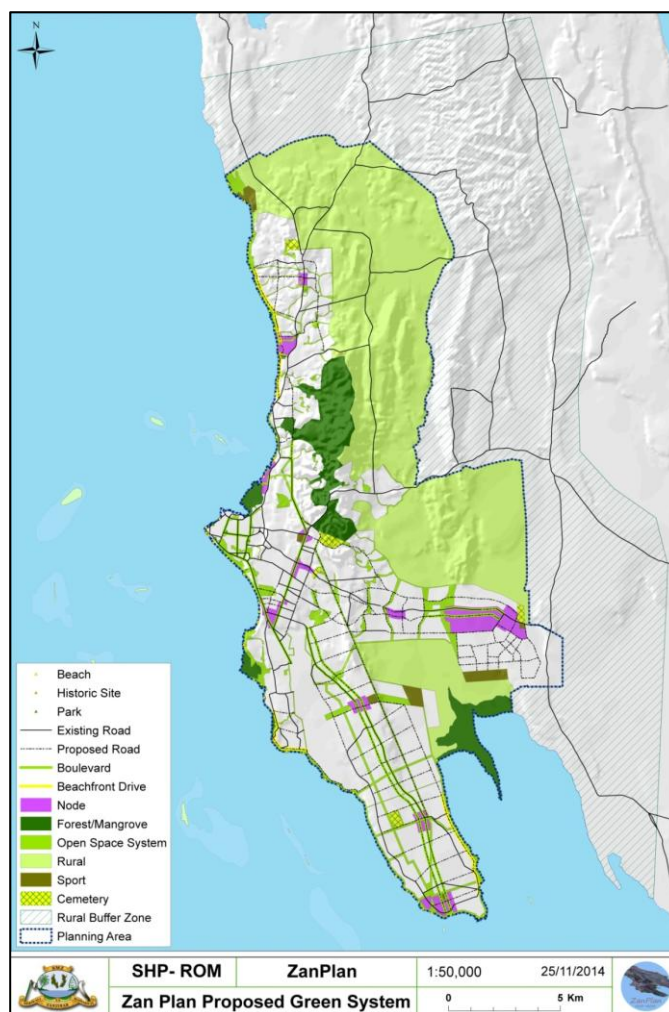
Integrated Green System

The integrated “green” system, combining natural “green” systems with “green” elements for development, is presented in the map here.

The Integrated Green System incorporates, *inter alia*:

- Forests and mangroves;
- Rural and agricultural zones;
- Urban open space system;
- Parks and Gardens;
- Sports stadia and campuses;
- Tree-lined boulevards;
- Beachfront drives; and
- Leisure and Recreational Beaches.

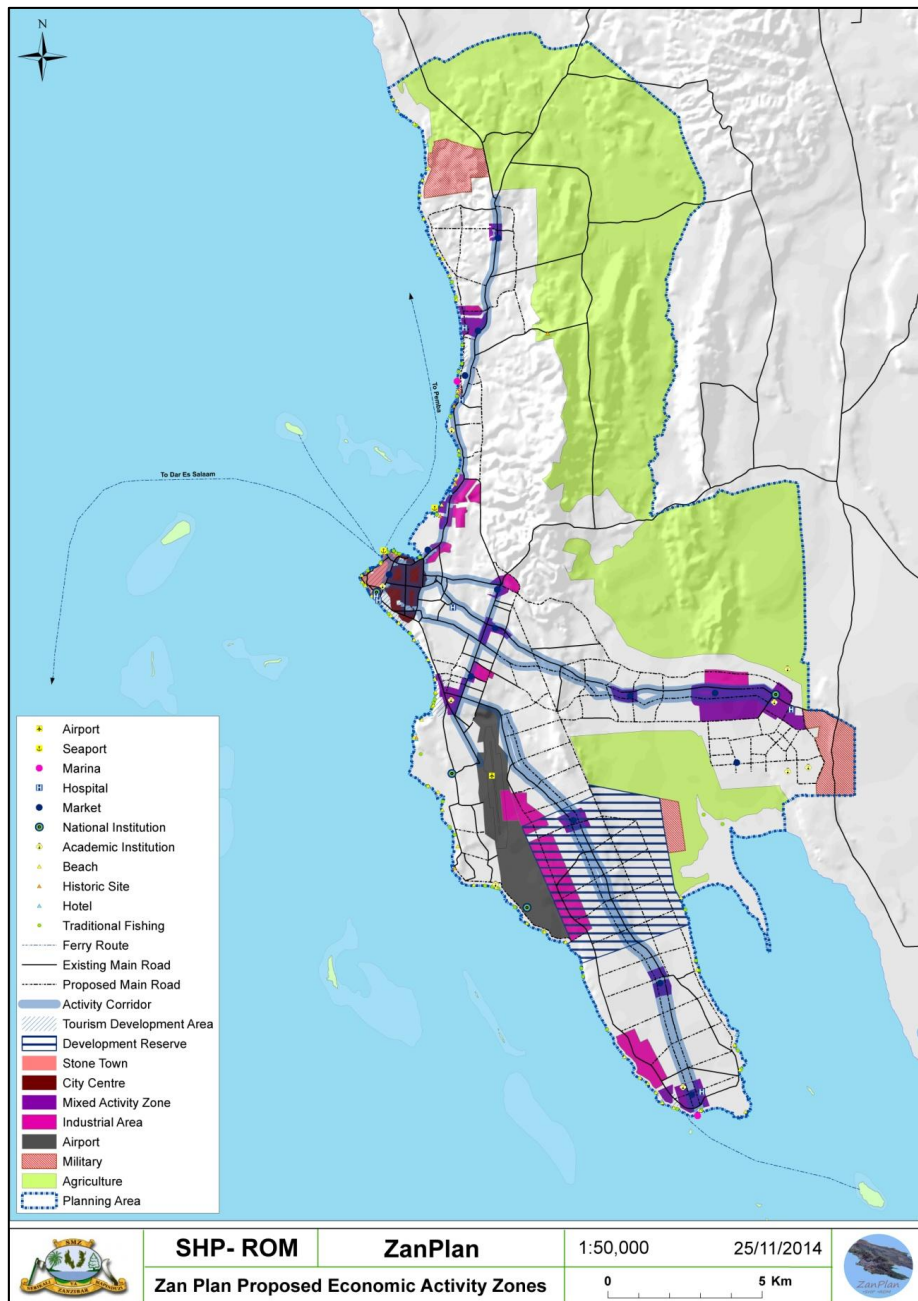
Guidelines for the Green System are detailed in the **Final Report Section 5.6**.



Map 19: Integrated “Green” System

Primary Economic Activity Zones

Primary economic activity zones are shown in the map here:



Map 20: Primary Economic Activity Zones

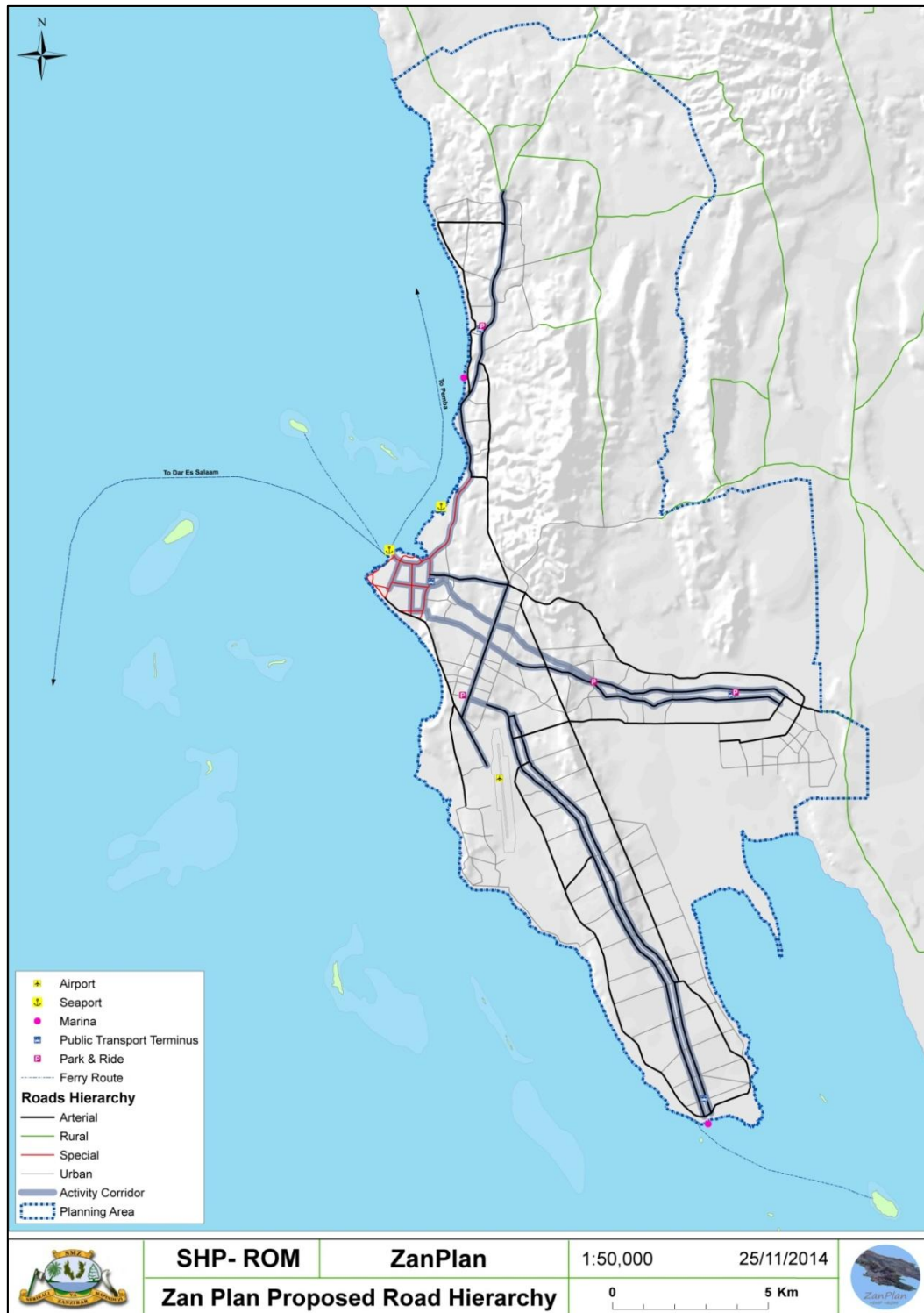
Economic activity zones include, *inter alia*:

- Stone Town;
- City Centre;
- Urban Centres, Nodes and Mixed Activity Zones;
- Industrial Zones;
- Mixed Activity Corridors;
- Markets; and
- Tourism Development Areas.

Guidelines for these elements are detailed in the **Final Report Section 5.7.**

Transportation System & Road Hierarchy

The transportation system and road hierarchy is presented in the map below:



Map 21: Transportation System and Road Hierarchy

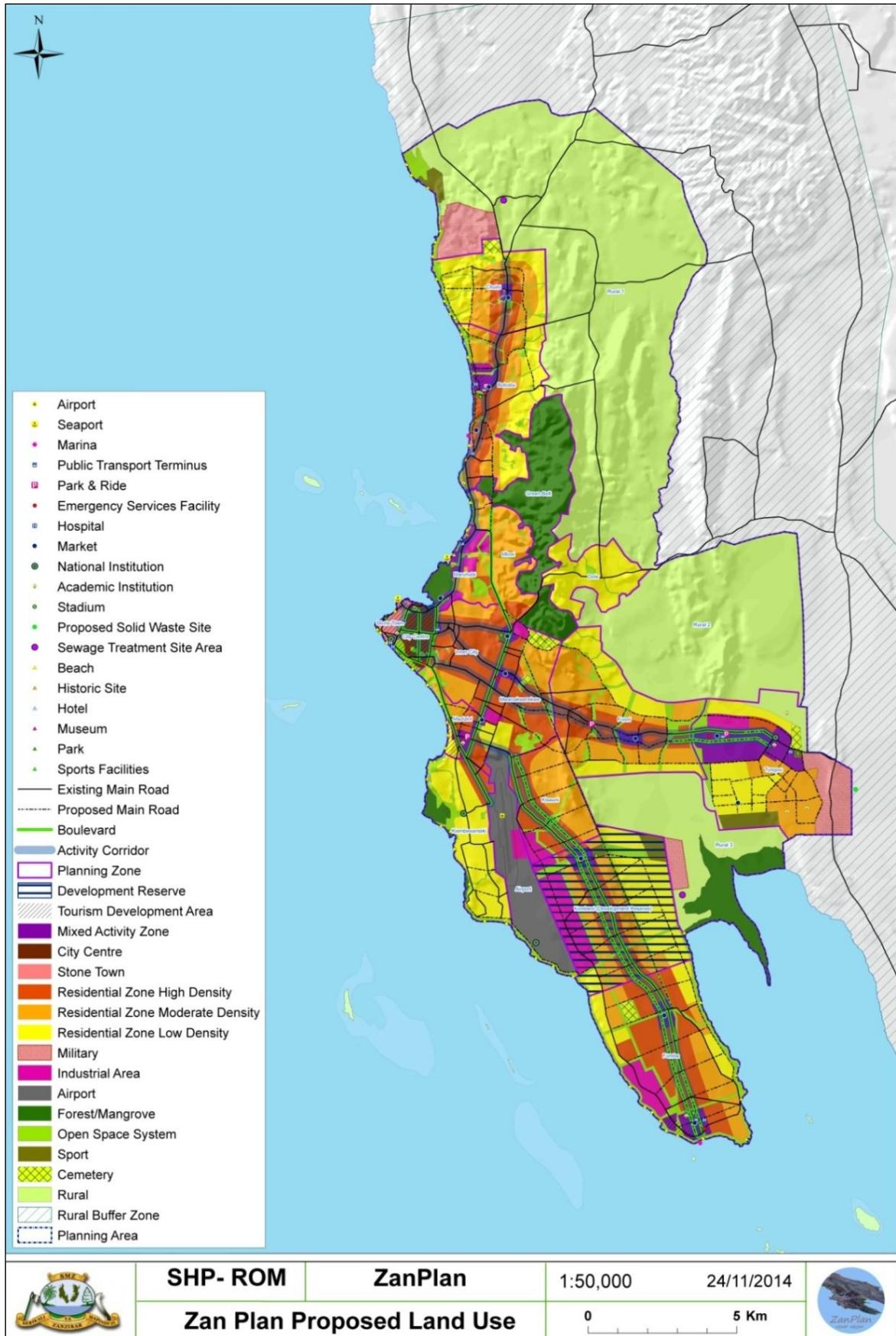
The Consultant’s recommendations regards transportation are detailed in the **Final Report Section 6**.

Primary Infrastructural Facilities

The City’s primary infrastructural facilities are detailed in **Final Report Section 5.9**. Their attendant development constraints are detailed in **Final Report Section 5.3**.

Integrated Land Use





























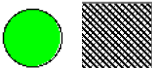




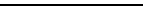




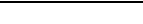
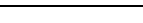
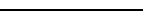
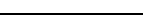
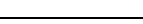

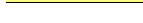

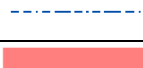
The integrated land use plan is presented in the map below:























Map 22: Integrated Land Use Plan

The various land-uses are indicated in the table below: Guidelines, permitted land use and directives for each land use category are detailed in **Final Report Section 5.10**.

Table 5: Land Uses

Symbol	Category	Symbol	Category
	Planning Area		Museum
	Planning Zone		Park
	Urban Development Area		Sports Facilities
	Zanzibar City		Traditional Fishing
	Airport		Transmission Mast
	Seaport		Electric Transmission Facility
	Marina (small craft boat basin and/or jetty)		Fuel Storage Facility
	Public Transport Termini		Municipal Works Facility
	Emergency Services Facility		Solid Waste Transfer Station
	Hospital		ZAWA Boreholes
	Market		Spring Well
	National Institution		Existing Main Road
	Academic Institution		Existing Secondary Road
	Stadium and Sports Campus		Existing Track
	Solid Waste Treatment and Disposal Site		Existing Footpath
	Sewage Treatment Site		Proposed Main Road
	Beach		Boulevard
	Historic Site		Beachfront Drive
	Hotel		Activity Corridor
			Arterial Road
			Special Road -
			Urban Road
			Rural Scenic Drive -
			ZAWA Pipes
			Fibre Optic Network
			Electricity Line
			Ferry Route
			Stone Town

Symbol	Category	Symbol	Category
	City Centre		Rural and Agricultural Zones
	Urban Centre / sub-Centre / Node		Rural Buffer Zone
	Mixed Activity Zone		Sport Campuses
	Residential Zone High Density		Cemetery
	Residential Zone Moderate Density		Development Reserve
	Residential Zone Low Density		Constraint Category- Prohibited
	Military		Constraint Category- Restricted
	Industrial Zones		Constraint Category- Conditional
	Tourism Development Area		Infrastructure Corridor
	Forest / Mangrove		
	Urban Open Space System		

4.3 Transport Planning Recommendations

Roads

A detailed roads hierarchy and classifications are presented in **Final Report Section 6.1**. This section also details the Consultant’s recommendation for speeds, carrying capacity, street design, pedestrian facilities, cycle facilities, PT facilities and more. The section further presents:

- Indicative road profiles;
- Traffic profiles;
- Speeds by road category;
- Road formats and scales;
- Indicative cross-sections for:
 - * Low intensity local streets,
 - * Higher intensity local streets,
 - * Medium intensity urban streets,
 - * Low intensity scenic roads,
 - * Arterial roads, and
 - * Highways.

Public Transport

The Consultant’s recommendations include:

- Identification of travel demand requirements;
- Definition of performance requirements;
- Definition of PT hierarchies;
- Modal integration.

These recommendations are detailed in **Final Report Section 6.2**.

NMT (Non-Motorized Transport)

The Consultant’s recommendations cover, *inter alia*:

- Paved Shoulders;
- Bicycle Lanes;
- Bicycle Paths;
- Facility Selection and recommended cycle network;
- Pedestrian volumes and facilities;
- Recommended pedestrian priority network

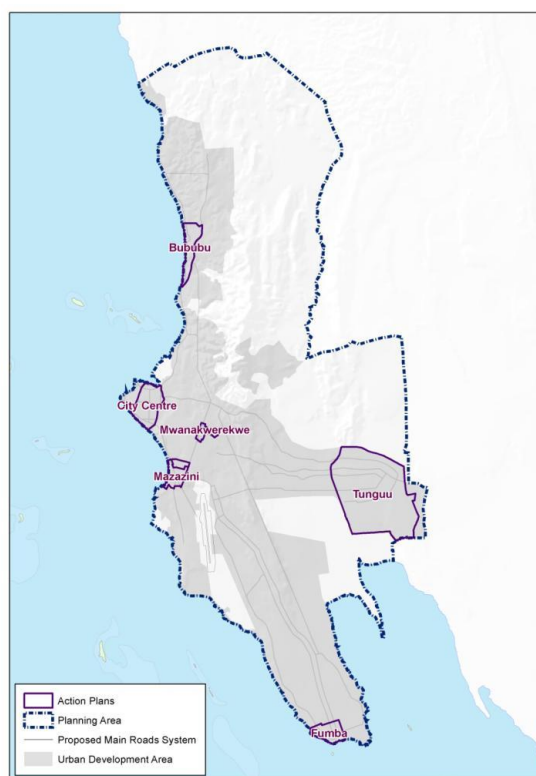
These recommendations are detailed in **Final Report Section 6.3**.

4.4 Action Plans

The Consultant prepared and provided 10 Action Plans pertinent to the implementation of the Structure Plan and central to the City’s future development.

Table 6 : Action Plans

Action Plan	Scale
Tunguu New Town	1.45 Km ²
Mazazini Business Park	124 Ha.
City Centre Upgrade & Enhancement	238 Ha.
Darajani Market Precinct Upgrade & Enhancement	10 Ha.
Stone Town Traffic Moderation & Calming	N.A
Public Transport System Development	N.A
Bububu New Town Centre	158 Ha.
Fumba New Town Centre	131 Ha.
Mwanekerwekwe Node Upgrade.	43 Ha.
Malawi Rd. Pilot NMT Corridor	4 Km



Map 23: Action Plan Location

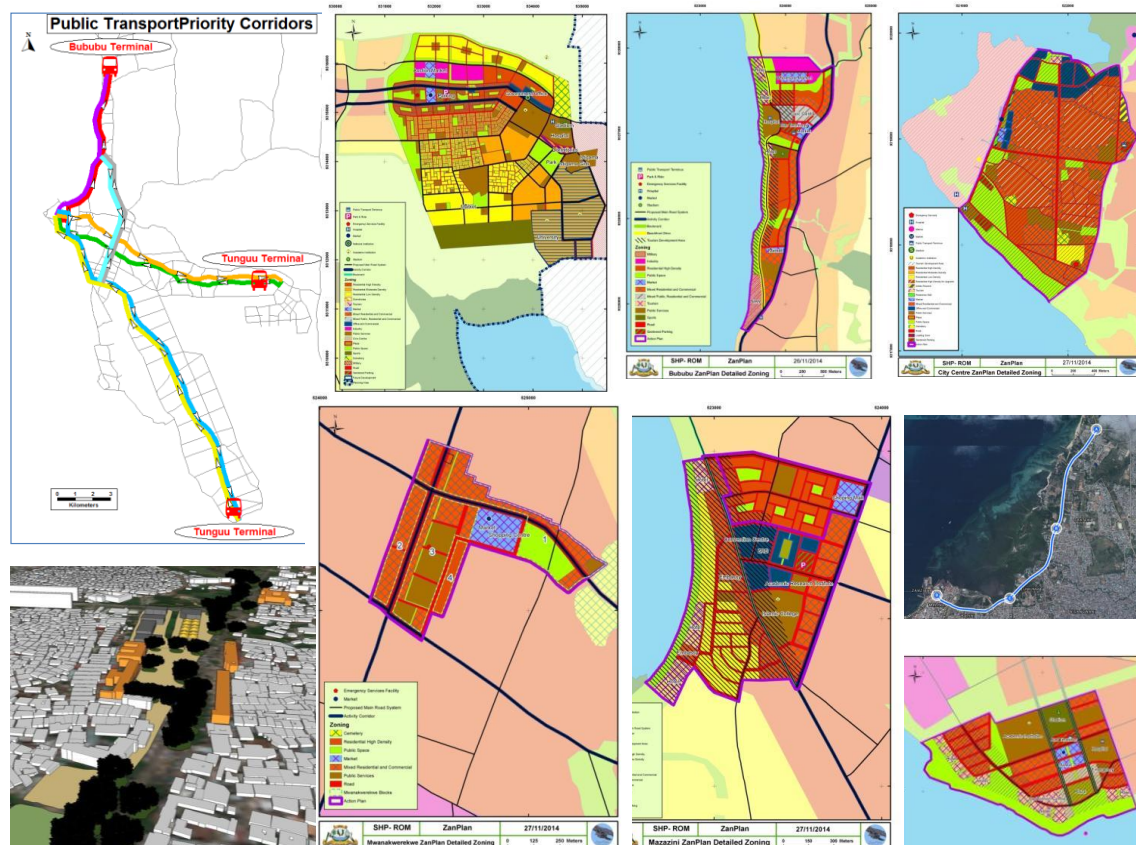


Figure 16: Examples of Action Plans

The Action Plans are presented and detailed in the **Final Report Section 7**.

4.5 Implementation Tools

Draft Planning Law

Based on analysis and assessment of the current legislation and institutional framework, as detailed in the **Review Report Section 10** and policy and approach detailed in **Development Approach Report Sections 10 and 11** the Consultant prepared and provided draft planning legislation. This is presented in the **Final Report Appendix C**.

GIS System

The Consultant developed and provided the Client an integrated GIS system for the City including all Structure Plan elements and the Action Plans. The system is detailed in the relevant working paper with the contents of the system presented in the **Final Report Appendix B**.

Capital Investment Plan (CIP)

The Consultant developed and provided the Client a comprehensive CIP for the development of the City. The CIP encompasses 125 projects and/or investments required over the coming decades. The CIP indicates the need for investment in public infrastructure, facilities and equipment to the scale of some \$2.2 billion by 2035 including approximately \$2.2 billion by 2022. The CIP is presented in the **Final Report Section 9** and detailed in the **CIP Report**.

