**ANNEXURE "B"**

# STRATEGIC REVIEW OF BUILT ENVIRONMENT

## Contents


**STRATEGIC REVIEW OF BUILT ENVIRONMENT ..... 1**

**1. CURRENT PERFORMANCE OF BUILT ENVIRONMENT ..... 3**

1.1 SITUATIONAL ANALYSIS OF NELSON MANDELA BAY ..... 3

**2. TRENDS AND DEMAND FOR ECONOMIC INFRASTRUCTURE ..... 26**

2.1 ECONOMIC BACKGROUND ..... 26

2.2 STRATEGIC INITIATIVES ..... 31

*2.2.1 North End Coastal Development ..... 31*

*2.2.2 Bayworld Revival: ..... 32*

*2.2.3 Apple Express Rail Link ..... 33*

*2.2.4 Statue of Liberation ..... 34*

*2.2.5 Solid Waste Diversion and Beneficiation Project – Waste Park ..... 34*

**3. TRENDS AND DEMAND FOR BASIC INFRASTRUCTURE ..... 36**

3.1 WATER MASTER PLAN (WMP) ..... 37

3.2 SANITATION MASTER PLAN (SMP) ..... 38

3.3 ASSET CONDITION ..... 40

3.4 ROADS/STORMWATER/TRANSPORT ..... 41

3.5 ELECTRICITY INFRASTRUCTURE ..... 43

**4. TRENDS AND DEMAND FOR RESIDENTIAL INFRASTRUCTURE ..... 48**

4.1 LAND AND HOUSING ANALYSIS AND PROJECT DEMAND FOR HOUSING BY INCOME GROUP, LOCATION AND COST ..... 48

**5. TRENDS AND DEMAND FOR COMMUNITY AND SOCIAL INFRASTRUCTURE 49**

5.1 QUANTIFYING BACKLOGS AND FUTURE DEMAND IN RELATION TO COMMITMENTS SECURED BY RELEVANT PROVINCIAL/NATIONAL DEPARTMENTS OR ENTITIES ..... 49

5.2 TRENDS AND DEMANDS FOR SPORT; RECREATION; ARTS AND CULTURE FACILITIES ..... 51

5.3 STATUS QUO OF PARKS IN THE METRO ..... 53

5.4 STATUS QUO OF CEMETERIES IN NELSON MANDELA BAY ..... 56

**6. TRENDS AND DEMAND FOR TRANSPORTATION .....58**

6.1 TRENDS IN DEMAND FOR TRANSPORT SERVICES BY MODE AND INCOME GROUP ..... 59

6.2 IMPLICATIONS OF ITP AND IPTS FOR LAND USE MANAGEMENT ..... 60

**7. TRENDS AND DEMAND FOR SUSTAINABLE DEVELOPMENT..... 62**

7.1 TRENDS AND DEMAND FOR SUSTAINABLE DEVELOPMENT ..... 62

**8. IMPACT OF SECTOR TRENDS AND DEMAND ON SPATIAL FORM ..... 73**

# 1. CURRENT PERFORMANCE OF BUILT ENVIRONMENT

## 1.1 Situational Analysis of Nelson Mandela Bay

STATS SA describes Nelson Mandela Bay as follows:

**"***Nelson Mandela Bay Municipality is located on the south- eastern coast of Africa in the Eastern Cape. It is one of eight category A municipalities in South Africa. In 2001, the Nelson Mandela Bay Metropolitan Municipality was formed as an administrative area covering Port Elizabeth, the neighbouring towns of Uitenhage and Despatch, and the surrounding agricultural areas. Nelson Mandela Bay is a major seaport and automotive manufacturing centre.*

*The Coega Industrial Development Zone (IDZ) is situated within the Nelson Mandela Metropolitan Municipality. The initiative is a multibillion-dollar industrial development complex customized for heavy, medium and light industries. It is adjacent to a deepwater port, the Port of Ngqura, and covers 110 km2 of land. The city's unique advantage of possessing two ports, namely Port Elizabeth Harbour and Ngqura, creates an opportunity for the city to establish a strong and vibrant maritime sector".*

A situational analysis of Nelson Mandela Bay, covering various socio-economic trends, is presented below.

**Demographic Background**

***(a) Current situation***

The following statistics are relevant:

- Population - 1,152,115 (Census 2011)
- Households (formal) - 276 850 (Census 2011)
- Households (total) - 324 292 (Stats SA)
- Area covered - 1 959 km²
- Unemployment rate - 36,6% (Census 2011)

The demographic composition is detailed in the tables and figured below:

*TABLE 1: Demographic Information on Age Distribution in NMBM*

| 0-14 Years Old | 15-65 Years Old | > 65 Years Old | Total |
|---|---|---|---|
| 294269 | 795392 | 62453 | 1152114 |
| 25.54% | 69.04% | 5.42% | 100.00% |

*Source:* Stats SA, 2011

*FIGURE 1: Age and Sex Distribution in NMBM*

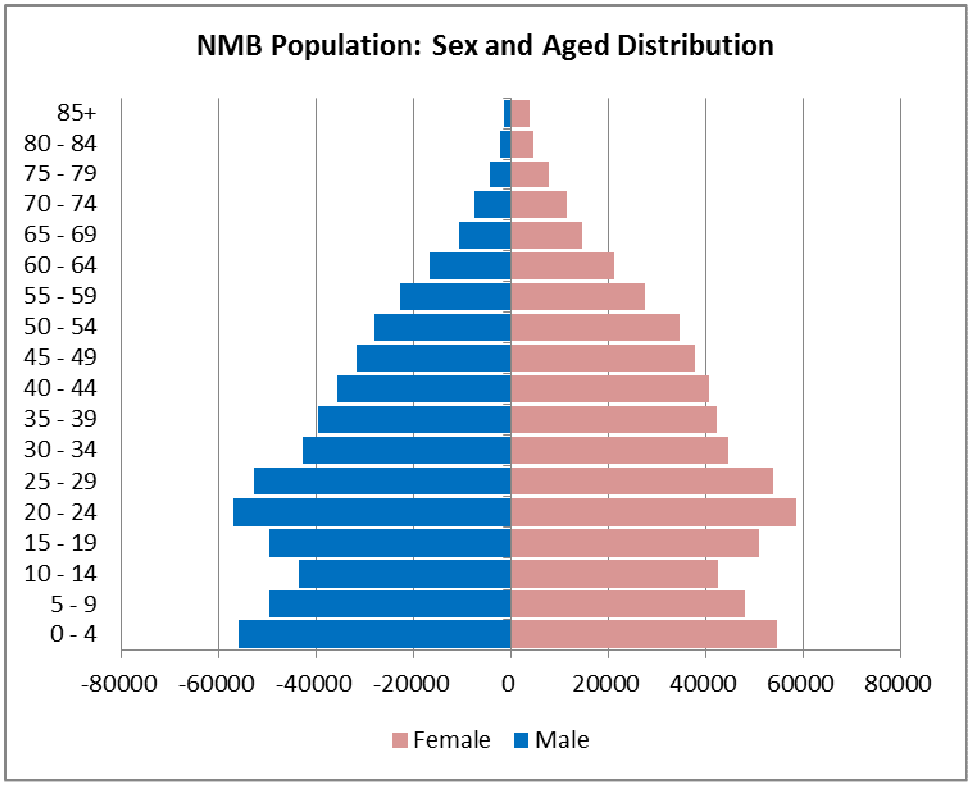


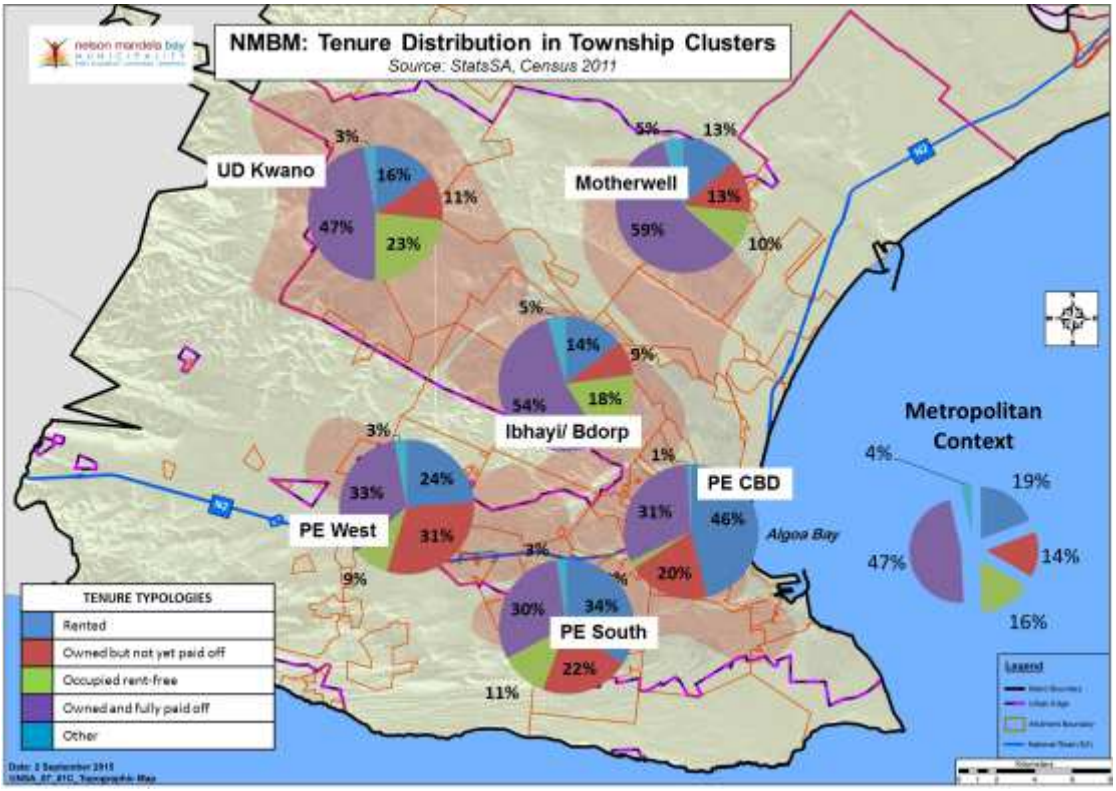
*TABLE 2: Demographic Information on Household Distribution in NMBM*

| Type of household | No of Households |
|---|---|
| **Total households** | **324292** |
| *Formal households* | *276850* |
| *Informal households* | *30202* |
| *Households/Flats/Rooms in back-yards* | *6890* |
| *Informal households in back-yards* | *8862* |
| *Other* | *1488* |

*Source:* Stats SA, 2011

The above information is reflected graphically in the figure below.

*FIGURE 2: Tenure Options in NMBM*




The following table shows the low employment in the NMBM.

*TABLE 3: Demographic Information on Employment Status in NMBM*

| *Employment Status (Official)* | *Working age population* | *% of working age population* |
|---|---|---|
| *Labour (Total)* | *795392* | *100.00%* |
| **Employed** | **290155** | **36.48%** |
| **Unemployed** | **209088** | **26.29%** |
| **Others (not economically active)** | **289969** | **36.46%** |
| **Not applicable** | **6180** | **0.78%** |

*Source:* Stats SA, 2011

The population trend in Nelson Mandela Bay is reflected in the table below:

*TABLE 4: Population Trends in NMBM (2001 to 2011)*

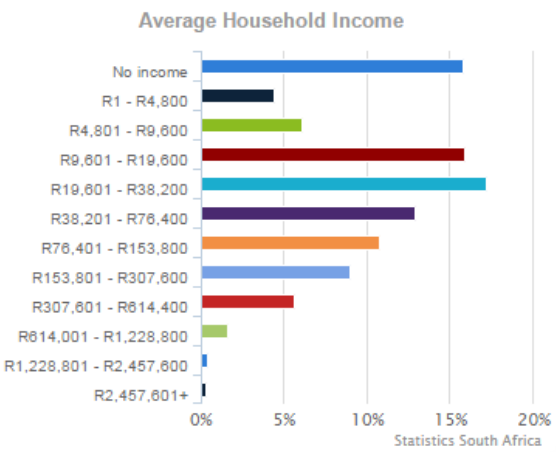
| *Year* | *Total* | *Asians / Indians (%)* | *Black Africans %)* | *Coloureds (%)* | *Whites (%)* |
|---|---|---|---|---|---|
| *2001* | *1 005 804* | *1.12* | *58.93* | *23.43* | *16.51* |
| *2007 (CS)* | *1 050 933* | *0.92* | *60.40* | *22.56* | *16.12* |
| *2011* | *1 152 112* | *1.11* | *60.13* | *23.56* | *14.36* |
| *2015* | *1 224 630* | *1.1* | *56.0* | *24.1* | *18.8* |
| *2020* | *1 243 930* | *1.0* | *55.9* | *24.4* | *18.7* |

*Sources*: StatsSA (Census, 2001), StatsSA (Community Survey**,** StatsSA Mid-year Estimates and StatsSA (Census, 2011)

The above trends show that there is very low population growth and this trend will continue into the future.

*FIGURE 3: Household Income Distribution (2011)*

**Household Income (monthly)**




| Income | Percentage |
|---|---|
| None income | 15,6% |
| R1 - R4,800 | 4,4% |
| R4,801 - R9,600 | 6,1% |
| R9,601 - R19,600 | 15,9% |
| R19,601 - R38,200 | 17,2% |
| R38,201 - R76,4000 | 12,9% |
| R76,401 - R153,800 | 10,7% |
| R153,801 - R307,600 | 9% |
| R307,601 - R614,400 | 5,6% |
| R614,001 - R1,228,800 | 1,6% |
| R1,228,801 - R2,457,600 | 0,4% |
| R2,457,601+ | 0,3% |

*Source: StatsSA; Census 2011*

The above figure shows that 26.3% of NMBM households earn less than R9 600 per month and are therefore potentially dependent on subsidized public sector housing.

Nelson Mandela Bay is the driver of the Eastern Cape economy, with 41,81% of the provincial GGP (Global Insight, 2013).

- 83 660 of the total number of 276 850 formal households are classified as indigent (in terms of the indigent register of the Municipality).
- 44% of households receive at least one social grant.
- The HIV/AIDS prevalence rate is 30,8%.
- Approximately 3% of residents have received no schooling; 13% have passed Grade 7 or less (primary school level); while 75% have passed Grade 12 or less (secondary school level) (these figures exclude the current population of children of pre-school and school-going age, i.e. 0-19 years) (Census, 2011).
- The overall population density is 80 – 100 persons per hectare (20 units per hectare).
- The predicted population for 2020 is 1 243 930.
- The growth is therefore predicted to be less than 100 000 people (25 000 units) for all population groups over the next 7 years. This is in

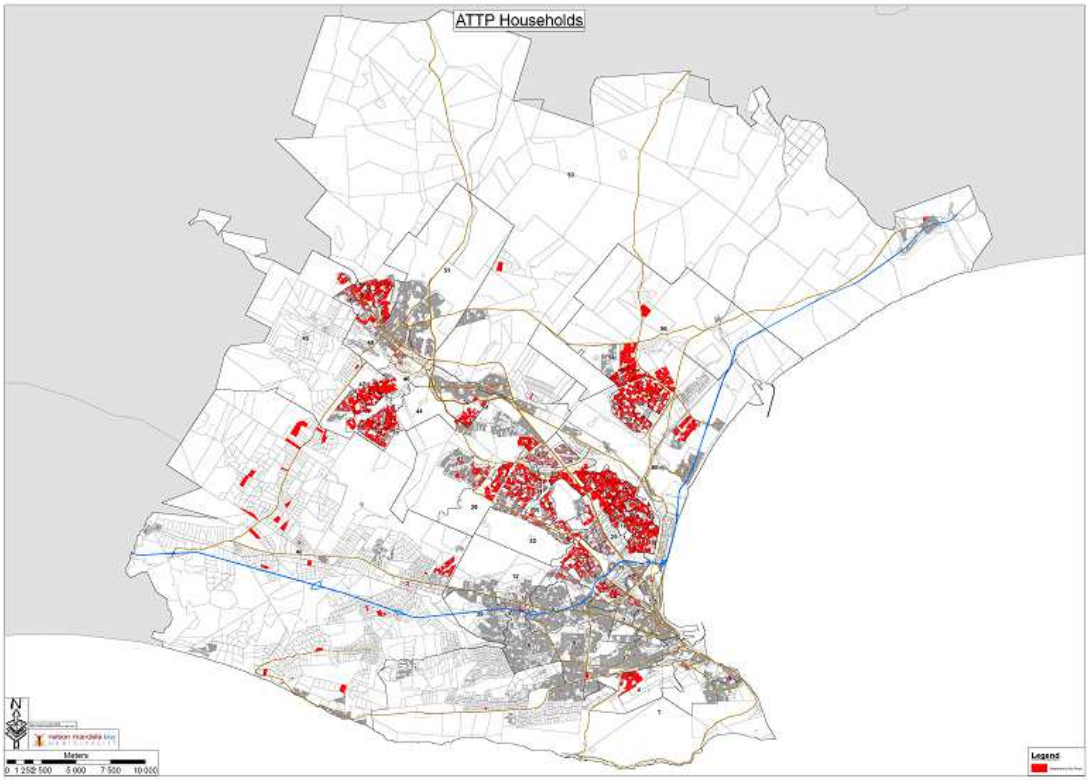
accordance with studies showing low in-migration figures, and the findings of the NMBM's demographic study.

The following aspects support the information provided above and serve to illustrate the socio-economic trends in Nelson Mandela Bay.

### *(b) Indigent Assistance / Assistance to the Poor (ATTP)*

The Indigent Assistance / ATTP Programme is a subsidy programme for indigent formal households that cannot afford municipal services due to their poor status in line with a Council approved policy. The number of indigent households, as reflected in the ATTP programme of the municipality, provides a valuable yardstick to measure the wealth or financial state of residents in the NMBM.

*FIGURE 4: Graphic Distribution of ATTP Programme Beneficiaries*




*Source: NMBM CorpGIS, 2016*

The figure above is a spatial representation of the location of households that benefit from the indigent subsidies under the ATTP programme. This

correlates with the results of demographic studies and confirms the poverty levels that still exist in most of the previously disadvantaged communities of the city.

The figure further indicates the areas of the city where interventions regarding spatial targeting are required. This BEPP reveals the programmes for targeting these areas.

Households that qualify for the indigent subsidy in terms of the municipal ATTP policy, receive financial assistance from the Municipality. This financial assistance comes from the Municipality's Equitable Share Allocation.

In recent years, the number of ATTP beneficiaries has grown. Each new successful ATTP applicant's outstanding debt is written off as part of the ATTP process. This results in a concomitant outflow from the Equitable Share allocation and thus less of this grant can be used for repairs and maintenance. This results in an increase in municipal repairs and maintenance backlogs.

The Indigent register has grown in the first half of this financial year with 27,158 which is a growth of 30.6% in comparison with the 2015/16 Indigent Register. This increase is directly linked to the change in the indigent policy that Council passed prior to the August 2016 local government elections. This change in policy has allowed households whose property value did not exceed R100,000 (irrespective of the household income) to automatically qualify for the ATTP policy as indigent households and in addition for municipal debt to be written off. The current Council has reviewed the ATTP policy to ensure the verification of additional beneficiaries who have qualified from the change in the indigent policy in order to ensure that the household income does not exceed the value of two state pensions. An additional amount of R371 million was spent as a result of the new ATTP policy in the first six months of this year. This amounts to 95.5% of the 2015/16 allocation.

Currently approximately 31% of formal households in the city cannot afford basic services in terms of the indigent program. This is an unsustainable situation that requires urgent intervention.

**The following table and figure illustrate the number and value of Equitable Share subsidies allocated to ATTP households.**

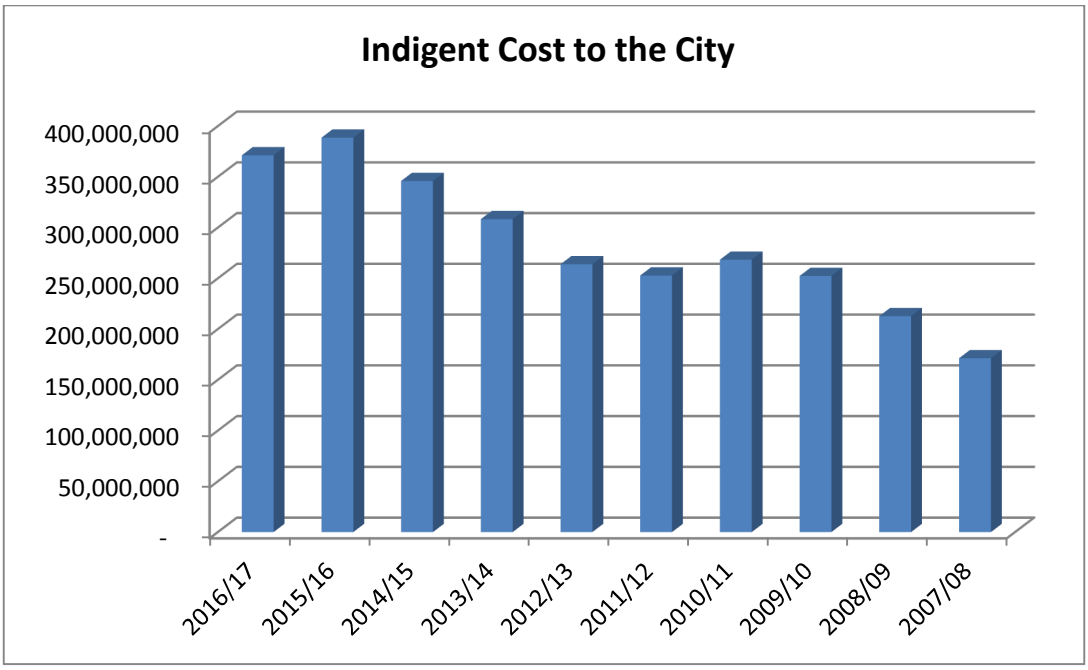
**TABLE 5: ATTP - Number and Value of Financial Assistance to ATTP Households**

| Description | 2016/17 | 2015/16 | 2014/15 | 2013/14 | 2012/13 |
|---|---|---|---|---|---|
| Number of Indigents (closing numbers) | 115,934 | 88,776 | 86,428 | 85,022 | 71,551 |
| Year-on-Year growth (decline) in indigents | 27,158 | 2,348 | 1,406 | 13,471 | -849 |
| Actual Indigent Allocation | 371,170,533 | 388,554,845 | 345,946,687 | 308,292,772 | 263,880,851 |
| Gazetted Equitable Share | 798,043,000 | 774,616,000 | 761,606,000 | 743,325,000 | 729,226,000 |
| % of Equitable Share | **47%** | **50%** | **45%** | **41%** | **36%** |

| Description | 2011/12 | 2010/11 | 2009/10 | 2008/09 | 2007/08 |
|---|---|---|---|---|---|
| Number of Indigents (closing numbers) | 72,400 | 95,498 | 108,665 | 109,534 | 1,880 |
| Year-on-Year growth (decline) in indigents | -23,098 | -13,167 | -869 | 107,654 | 109,534 |
| Actual Indigent Allocation | 252,770,170 | 268,321,432 | 252,311,837 | 212,753,832 | 171,284,538 |
| Gazetted Equitable Share | 656,653,000 | 602,883,000 | 466,834,716 | 382,444,191 | 291,588,000 |
| % of Equitable Share | **38%** | **45%** | **54%** | **56%** | **59%** |

*Source:* NMBM Budget & Treasury, 2017

**FIGURE 5: Financial Contributions made to Indigent Households in NMBM**

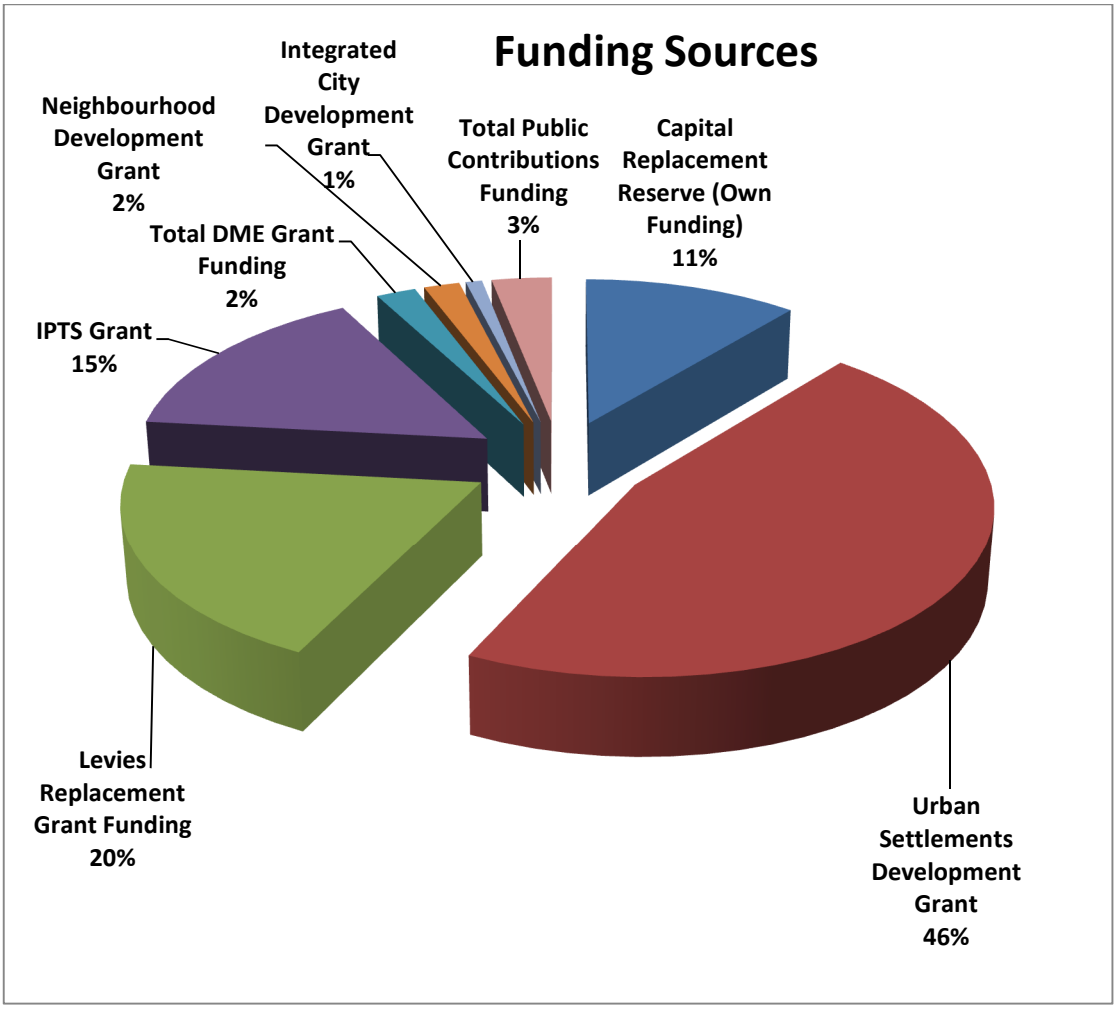



*Source:* NMBM Budget & Treasury, 2017

### *(c) Financial Overview of Nelson Mandela Bay Municipality*

The total NMBM Draft Capital Budget for the 2017/18 financial year is R1.7 billion.

**FIGURE 6: 2017/18 Draft Capital Budge - Sources of Funding**




***Source:*** NMBM Budget & Treasury, 2017

**TABLE 6: 2017/18 Draft Capital Budget - Sources of Funding (VAT Incl.)**

| Sources of Finance | Value | % |
|---|---|---|
| Capital Replacement Reserve (Own Funding) | 189,107,639 | 11% |
| Urban Settlements Development Grant | 789,114,035 | 46% |
| Total Levies Replacement Grant Funding | 332,854,000 | 19% |
| IPTS Grant | 264,183,772 | 15% |
| Total DME Grant Funding | 35,087,719 | 2% |
| Neighbourhood Development Grant | 31,695,614 | 2% |
| Integrated City Development Grant | 14,492,110 | 1% |
| Total Public Contributions Funding | 53,000,000 | 3% |
| **TOTALS** | **1,709,534,889** | **100%** |

**TABLE 7: Grant Dependency in NMBM**

| Grant Dependency | | |
|---|---|---|
| **National Grants** | **Value** | **Percentage** |
| Conditional Grants | 1,187,573,250 | 78% |
| Unconditional Grants | 332,854,000 | 22% |
| **NMBM Grant Dependency** | **1,570,427,250** | **89%** |

*Source: NMBM, 2017*

### *(d) Access to services*

#### (i) Water

- All households located in formalised human settlements have access to water via a connection per erf.
- 100% of households located in informal settlements within the urban edge have access to water within a 200 m radius.
- Informal areas receive water through standpipes (within a 200 m radius) and water tanks, except for communities occupying private land illegally.

#### (ii) Sanitation

- Approximately 92.4% of households located in formalised human settlements are connected to waterborne sanitation.
- 16 317 buckets are still in circulation to informal settlements as a means of sanitation.

Bucket eradication is a priority in order to fulfil the Outcome 8 Policy objectives. In December 2016 the Council reviewed its resolutions of October 2014 and included additional options to rollout bucket eradication. The latter is detailed later in this document.

#### (iii) Public health

*Solid waste management (refuse removal)*

- 100% of formal and informal households are provided with a basic level of refuse collection. This excludes informal areas on privately owned erven and erven not earmarked for human settlements development.

**(iv) Electricity**

- 100% of households in formally demarcated residential areas have access to electricity.

**(v) Integrated Human Settlements Challenges**

- Housing challenges:

A report titled “Sustainable Provision of Housing (As a component of a Human Settlement Framework) in Nelson Mandela Bay” was completed by Shisaka Development Management Services in January 2017. This report states the following in relation to the circumstances of households in NMBM

- There are high levels of households living in formal housing (85%)
- There are high levels of households living in owned formal housing (57%)
- 12% of households are living in informal housing conditions (in informal settlements and back yards)
- There is very low estimated new family formation to 2020 (7% between 2011 and 2020 (0.6% pa.)
- Given that the remaining period to 2020 is only four years the new family formation for the period 2021 to 2030 has been estimated and included in the current estimate of housing circumstances.

This is evident from the Table below.

**TABLE 7: Housing Circumstances in NMBM**

| Monthly Income | R0 to R3200 | R3200 to R6300 | R6300 to R12800 | R12800 to R25600 | R25600+ | Total |
|---|---|---|---|---|---|---|
| **A: Formal – owned** | 68,373 | 29,912 | 24,173 | 21,544 | 39,424 | **183,426** |
| | 21% | 9% | 7% | 7% | 12% | **57%** |
| **B: Formal – rented** | 37,215 | 16,130 | 13,136 | 11,339 | 13,345 | **91,165** |
| | 12% | 5% | 4% | 4% | 4% | **28%** |
| **C: Informal settlement** | 20,876 | 5,890 | 2,349 | 537 | 335 | **29,987** |
| | 6% | 2% | 1% | 0% | 0% | **9%** |
| **D: Backyard dwelling** | 5,473 | 1,949 | 957 | 318 | 161 | **8,858** |
| | 2% | 1% | 0% | 0% | 0% | **3%** |
| **E: Traditional dwelling** | 482 | 203 | 133 | 113 | 175 | **1,106** |
| | 0% | 0% | 0% | 0% | 0% | **0%** |
| **G: Other** | 4,433 | 1,758 | 1,201 | 755 | 656 | **8,803** |
| | 1% | 1% | 0% | 0% | 0% | **3%** |
| **Total (2011)** | **136,852** | **55,842** | **41,949** | **34,606** | **54,096** | **323,345** |
| | **42%** | **17%** | **13%** | **11%** | **17%** | **100%** |
| **Estimated new households (2011 – 2030)** | 18,673 | 7,585 | 5,754 | 4,814 | 7,477 | **44,303** |
| **Total (2030)** | **155,525** | **63,427** | **47,703** | **39,420** | **61,573** | **367,648** |

Source for table: Census 2011.

Estimated new households to 2020: BEPP 2015/16 - projects additional population between 2011 and 2020 to be 91,818 people. It also indicates four people per households. Accordingly this amounts to an additional 22,955 households.

Estimated new households 2020 to 2030: Between 2011 and 2020 population growth is 7% this is about 0.6% pa. Accordingly growth between 2021 and 2030 has been assumed at 0.6% pa and is projected as 44,303. This is

proportioned by income category in terms of the total income percentage per category.

The report further identifies that “these housing circumstances are a-typical of most Metros in South Africa generally, where there is lower home ownership, higher levels of informal housing conditions and higher new family formation.

On the basis of the above and assuming that housing need is defined as upgrading the conditions of households currently living in substandard conditions and accommodating new family formation, there is an indicated requirement to resolve the housing need for an estimated 70,378 lower income households (earning below R 12 800) by 2030. This comprises (see figure below):

- 38,366 households currently living in informal settlements and backyard dwellings
- 32,012 estimated new households earning below R12,800.

In addition there is a need to secure delivery for an estimated 12,291 new households earning above R12,800. Of these a portion of the 4,814 households earning between R12,800 and R25,600 are eligible for the FLISP subsidy and have been included in the modeling of the strategic scenarios.”

- Households living in stressed areas (servitudes, floodplains and overcrowded areas) remain a challenge and these are identified as priority areas to be relocated in terms of the Housing Plan.
    - Land and spatial planning challenges include the following:
        - A shortage of government-owned land in inner-city and serviced areas.
        - A lack of visible spatial restructuring.
        - The lack of fully integrated and sustainable human settlements for new township areas as well as existing poor areas.

The Human Settlements Strategic Framework adopted by Council in December 2012 recommends spatial restructuring through the following interventions:

- Urban Renewal Precincts including Inner City areas, Motherwell, Happy Valley, Lower Baakens Valley, Walmer Gqebera, Korsten, Helenvale and the Greater Ibhayi-Northern Areas Hub.

- Spatial Transformation Precincts such as Parsonsvlei, Coega IDZ/ Motherwell, Bay West and N2 Developments.

- Implementation of an Integrated Zoning Scheme and Land Use Management System.

- Assembly of well-located public and private land for development of Integrated Human Settlements.

During 2014 a Strategic Development Review (SDR) of the Nelson Mandela Bay Metropolitan Municipality (NMBM) recognised the need for a shift in the development trajectory of the metro summarised as “walking together for growth” thisis detail;ed elsewhere in the BEPP.

As part of giving effect to this shift, the National Treasury’s City Support Programme supported the NMBM to undertake a high level strategic review and to formulate recommendations for the housing component (of the human settlement framework) in NMBM. This work was performed by Shisaka.

The report has been completed and details a recommendations for the housing component and outlines a proposed Strategic Shift for the investment in housing as well as a way forward for demonstration programmes.

The report has not yet been approved by Council and is in the process of being dealt with Administratively and Politically in order to take the proposals further.

**(vi) Infrastructure challenges**

The following challenges are experienced in relation to infrastructure:

- The backlog of tarring of gravel roads is approximately 600 km. The cost to eliminate this backlog is approximately R4 billion. This backlog has occurred largely due to the fact that the housing development programme funded by the government only includes sufficient funding for gravel roads and the recent increase in the number of developments constructed.
- Stormwater drainage inadequacies are experienced in disadvantaged areas, especially in newly developed areas because of limited funding for roads and stormwater construction. The scour of gravel from unsurfaced roads results in stormwater blockages.
- Ageing infrastructure, especially electricity, water and sanitation infrastructure results in leakages, pipe bursts, blockages and electricity disruptions which in turn cause service delivery disruptions.
- The completion of the Nooitgedacht Low Level Scheme remains the most significant project to ensure long-term water sustainability in the NMBM. This project supports both the provision of basic water, but also water for economic development. Phase 2 of this project has commenced by the implementation of three contracts scheduled for completion in July 2017. The NMBM has set aside funding to support these contracts. Phase 3 requires ±R350M (four contracts) for the completion of the entire expansion. The Department of Water and Sanitation (DWS) has via a directive appointed Amatola Water to implement Phase 3 which they will fund accordingly.
- Fishwater Flats Wastewater Treatment Works (FWF WWTW) upgrade has commenced with the inlet works which are approximately 95%

complete. The Wastewater Treatment Works is critical (socially & economically) for further growth and development in the Metro. The total funding needed exceeds R1 billion.

- Economic infrastructure for development such as the Coega Wastewater Treatment Works and the Coega Return Effluent Scheme is needed to support the Coega IDZ. Further development of the IDZ will be hampered without funding for these projects. An investment of approximately R600M is required to complete the project, but the viability of the project is also dependent on the FWF WWTW upgrades.
- Planning has commenced on a new wastewater treatment facility to support the housing developments north of Motherwell and the Coega IDZ. This plant is planned for an ultimate capacity of 120 Ml/d costing in the region of R1 500M. A start up capacity of approximately 40-50Ml/d will be required and is estimated at R750M (including a sea outfall).
- The Municipality is working on a long-term capital investment plan to support economic growth and socio-economic development.

The following table summarises the critical infrastructure needs of the NMBM:

*TABLE 8: Critical Growth and Investment Priorities in NMBM*

| No | Description | Cost Est. | Budget | Timeframes | Project Status |
|---|---|---|---|---|---|
| 1 | Nooitgedagt Phase 3 | R350M | DWS | Dec-19 | Contractor award stage |
| 2 | Borehole Water Exploration | R200M | 16/17 - R3M<br>'17/18 - R8M<br>'18/19 - R8M | Dec-19 | Tender to be advertised by March 2017. |
| 3 | Sea Water Desalination | R1 ,500M | 16/17 - R1M<br>'17/18 - R4M<br>'18/19 - R4M | 5 yrs. | 60Ml/d:<br>Cost estimate excludes link pipe & pump station network to distribution network.<br>Subject to EIA processes |

| No | Description | Cost Est. | Budget | Timeframes | Project Status |
|---|---|---|---|---|---|
| 4 | Sundays River | R1 ,000M | 16/17 - R1M '17/18 - R4M '18/19 - R4M | 3 yrs. | 55Ml/d: Cost estimate includes link pipe & pump station network to distribution network. Subject to EIA processes |
| 5 | Fishwater Flats | R1 ,300M | R100M pa | 5-10 yrs. | Phase 1: 95% complete |
| 6 | Coega Wastewater Treatment Works | R1 ,500M | 16/17 - R6M '17/18 - R7M '18/19 - R7M | 5 yrs. | Preliminary planning phase. |
| 7 | Coega Return Effluent | R600M | 16/17 - R0.25M '17/18 - R1M '18/19 - R2M | 3 yrs. | Project ready for implementation |
| 8 | Non-Revenue Water | R1400M | R650M for First 5 yrs. | 10 yr. Plan | Project Commenced. R1010M required for infrastructure upgrades. These are cost estimates, 10 Year Plan being drafted. |

Source: NMBM 2017

**Infrastructure Challenges - Electricity and Energy.**

The following challenges are experienced in relation to electricity infrastructure:

- Large increases in the purchase price of electricity have led to a continuous decline in electricity revenue. This makes it difficult to fund capital loans, repairs and maintenance from the operational value of the business, i.e. it is no longer easy to increase the electricity tariff to recapitalize infrastructure and/or to generate a surplus to fund other initiatives.

- Tampering, theft and vandalism are a challenge as prices soar and pressure is put on the disposable income of the NMBM residents.

- Government's grant funding is decreasing year to year.

- National challenges from Eskom and the uncertainty of load shedding causes residents to move to alternative energy sources placing a concomitant burden on overall municipal revenue.

- Ageing infrastructure is problematic both from an operational as well as a quality of supply point of view. This places further negativity around investment security in the NMBM.

**(vii) Building investment trends**

Nelson Mandela Bay recorded steady and rapid growth from 2001 to 2004, followed by a decline in the 2004/2005. 2005 to 2007 reflected a recovery but, 2008 saw a dramatic decline in growth, indicating the impact of the global economic crisis.

There was a recovery in the 2009/10, almost to the 2007 pre-economic meltdown figures, both in terms of the number and value of plans passed. This dipped slightly in the 2011/12 financial year which continued to dip in the 2012/13 financial year.

The increase in the number and value of plans for the 2013/14 period was directly attributable to an increase of RDP house plans approved in that period which was 2 910. The figures therefore do not reflect private sector investment and growth.

The number of building plans increased by 2 867 in the 2013/14 financial year. However, the number of RDP house plans increased by 3 122 over the

prior year. In the 2012/13 financial year, only 815 RDP house plans were approved.

Therefore for the 2013/14 period commercial and private sector plans decreased by 255 plans.

The percentage of RDP house plans in relation to other building plans changed from 53,15% to 58,85% (3937/7407 to 5601/9517) in the 2014/15 financial period. The value of RDP building plans has however shown an increase which is largely attributable to the increased subsidy quantum value for RDP housing.

A corresponding decrease in the number and value of private and commercial building plans is noted in the last financial year, 2014/15, as an indication of an economy that remains weak.

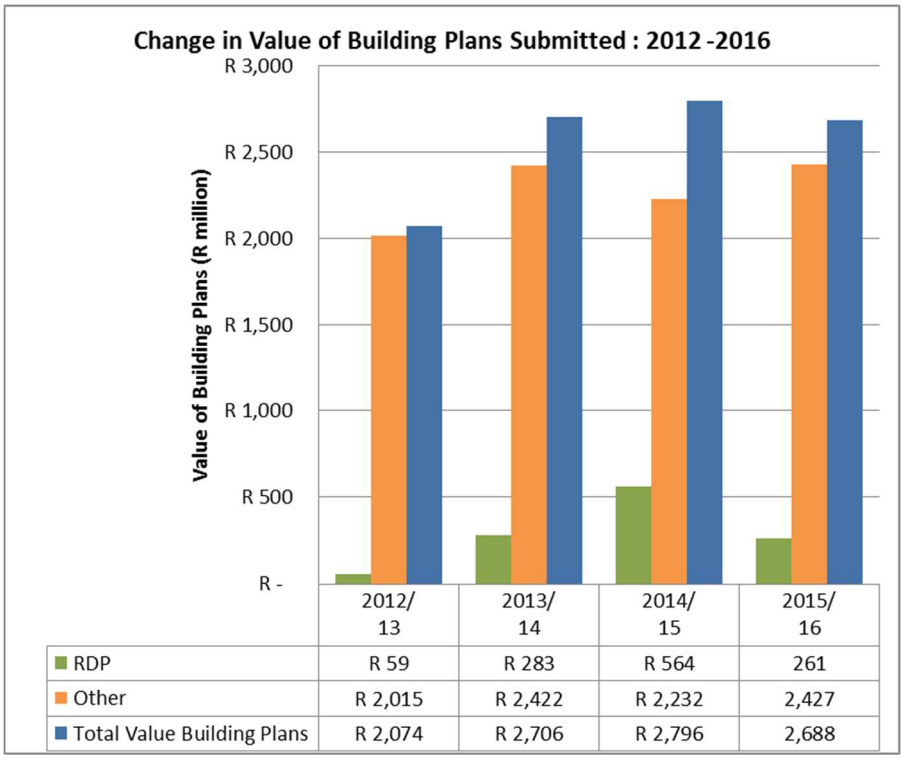
The building statistics for the 2015/16 period show a marked increase in numbers as reflected in the tables and graphs that follow. A year-on-year change of 54% in respect of the total number of plans submitted is reflected in the Table below. It is noted that the number of RDP building plans has dropped significantly by 90%, whereas the number of building plans for all other building types has decreased by less than 1%.

**TABLE 9: Number of building plans submitted**

| Description | 2013/14 | *% of Total* | 2014/15 | *% of Total* | 2015/16 | *% of Total* | Year/ Year Change | *% Y/Y Change* |
|---|---|---|---|---|---|---|---|---|
| **Total Number Building Plans** | 7407 | *100.00 %* | 9517 | *100.00 %* | 4437 | *100.00 %* | -5080 | ***-53.38%*** |
| **RDP** | 3937 | *53.15%* | 5601 | *58.85 %* | 550 | *12.40 %* | -5051 | ***-90.18%*** |
| **Other** | 3470 | *46.85%* | 3916 | *41.15 %* | 3887 | *87.60 %* | -29 | ***-0.74%*** |

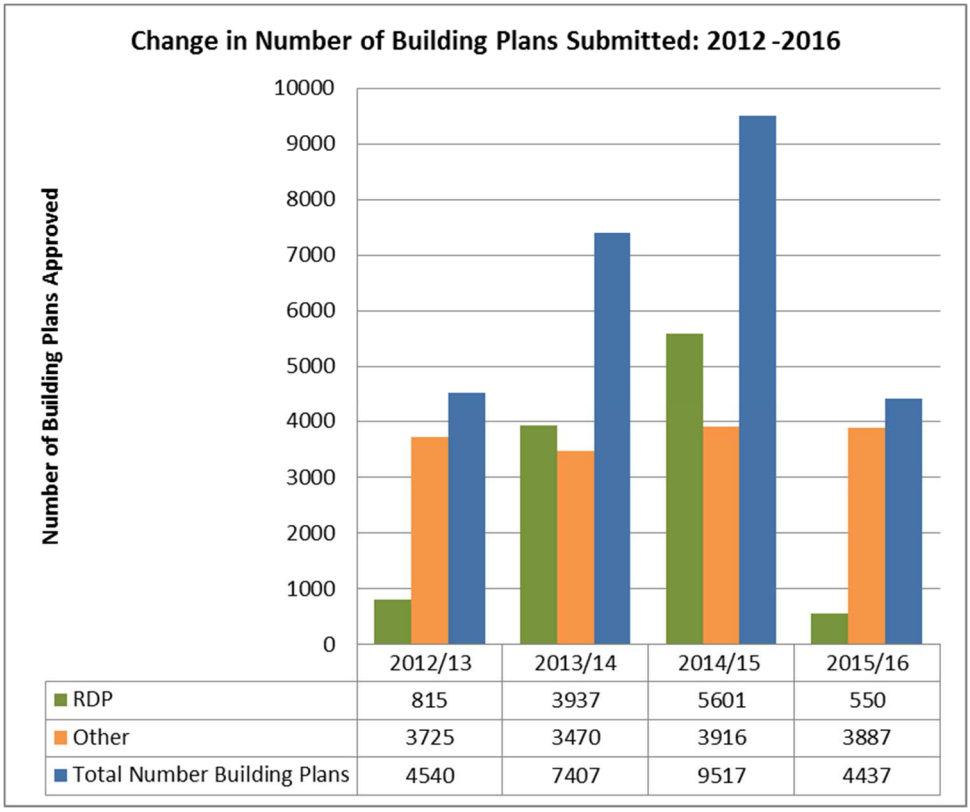
*Source: NMBM, Building Stats, 2017*

**FIGURE 7: Change in Value of Building Plans Submitted : 2012-2016**




*Source: NMBM Building Stats, 2017*

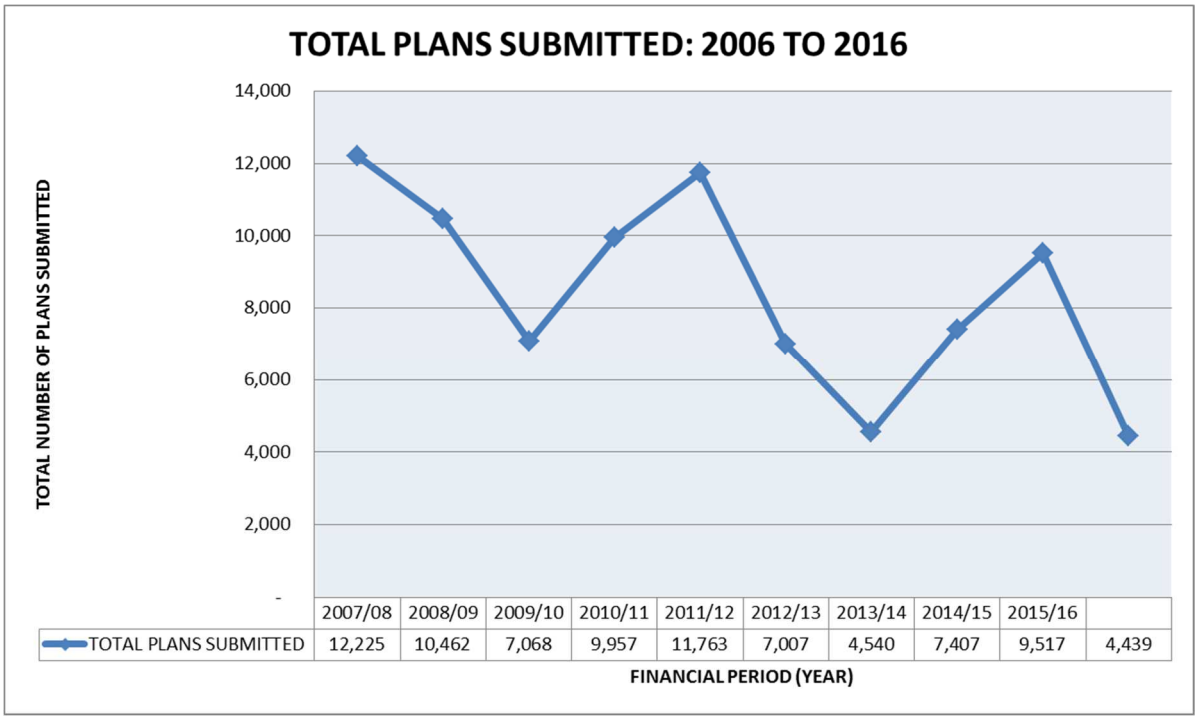
**FIGURE 8: Change in Number of Building Plans Submitted: 2012 - 2016**




Source: NMBM, 2016 (Building Statistics)

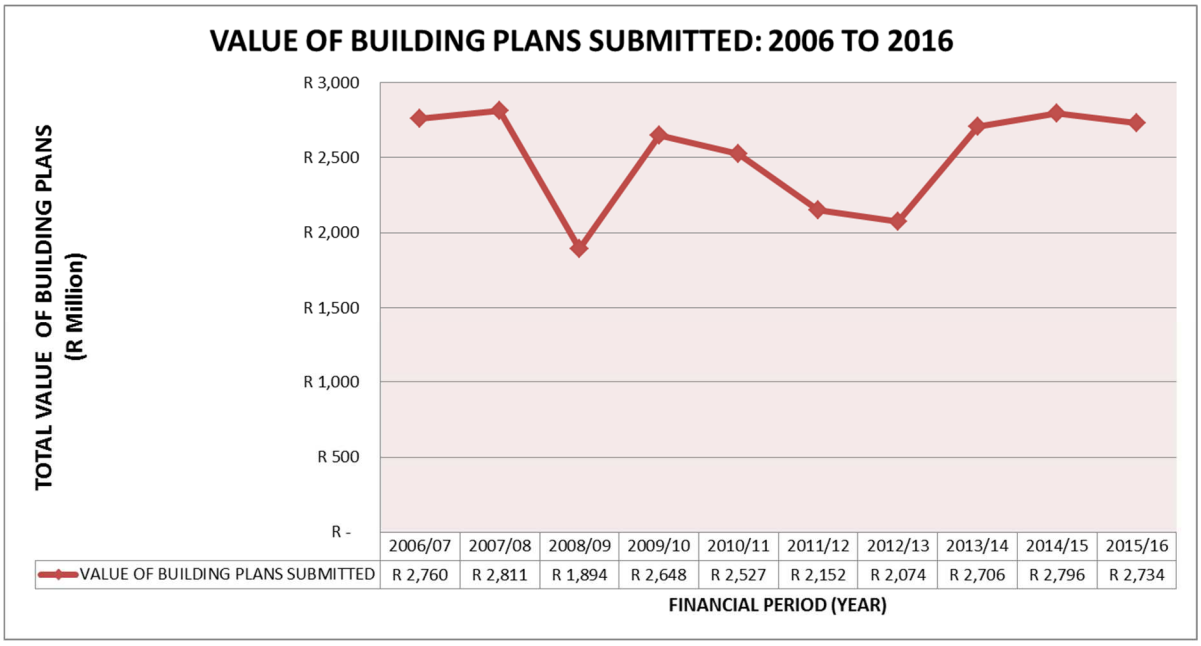
The two graphs below show the number and value of building plans submitted over recent years, as economic indicators.

**FIGURE 9: Number of Building Plans Submitted: 2006 - 2016**




Source: NMBM, 2017 (Building Statistics)

**FIGURE 10: Value of Building Plans Submitted: 2006 - 2016**




Source: NMBM, 2017 (Building Statistics)

**TABLE 10: Building Plans (per type) Approved over the period 2013 to 2016**

| BUILDING TYPE | 2013-2014 | | 2014-2015 | | 2015-2016 | |
|---|---|---|---|---|---|---|
| | TOTAL | VALUE | TOTAL | VALUE | TOTAL | VALUE |
| ADDS TO COM - SHOP/BANK/OFFICE | 44 | R 20,078,279 | 50 | R 37,158,271 | 9 | R 15,329,659 |
| ADDS TO DWELLING | 2174 | R 723,256,468 | 2249 | R 827,770,689 | 2264 | R 776,769,211 |
| ADDS: INTERNAL ALTERATIONS | 211 | R 171,105,793 | 236 | R 87,077,314 | 333 | R 82,156,329 |
| ADDS TO DWELLING - WITH NO SQ | 249 | R 34,239,221 | 213 | R 38,994,163 | 219 | R 26,088,370 |
| ADDS TO INDUSTRIAL - FACTORY | 34 | R 91,161,928 | 41 | R 80,973,072 | 26 | R 129,195,323 |
| ADDS TO CLUBS/CHURCHES/SCHOOLS | 17 | R 36,814,669 | 24 | R 11,148,174 | 11 | R 18,857,008 |
| ADDS TO FLATS/T-HOUSES/HOTEL/M | 27 | R 5,784,444 | 16 | R 2,760,286 | 16 | R 2,567,630 |
| NEW OLD AGE HOME/HOTEL/MOTEL | 3 | R 2,485,600 | 1 | R 391,092 | 0 | R 0 |
| NEW OFFICE/BANK | 5 | R 23,934,952 | 4 | R 34,006,154 | 4 | R 77,615,087 |
| NEW SCHOOL/CRECHE/HOSPITAL | 6 | R 36,261,276 | 4 | R 3,632,236 | 3 | R 9,036,330 |
| NEW DWELLING | 468 | R 448,335,537 | 542 | R 443,909,713 | 630 | R 626,139,370 |
| NEW COM - SHOP/BANK/OFFICE | 13 | R 43,498,566 | 14 | R 472,147,345 | 4 | R 3,530,484 |
| NEW FLAT | 10 | R 36,365,374 | 10 | R 28,641,427 | 4 | R 34,859,878 |
| NEW HALL/CHURCHE/CLUB | 5 | R 16,927,490 | 3 | R 2,977,443 | 7 | R 26,369,679 |
| NEW INDUSTRIAL/WAREHOUSE/STORE | 36 | R 194,966,763 | 31 | R 134,817,080 | 38 | R 202,841,286 |
| NEW OTHER - RESIDENTIAL | 8 | R 7,993,109 | 4 | R 30,429,927 | 2 | R 1,812,200 |
| NEW OTHER - NON RESIDENTIAL | 17 | R 2,264,583 | 14 | R 40,966,978 | 34 | R 10,393,502 |
| NEW STABLE | 3 | R 3,042,000 | 1 | R 583,803 | 2 | R 1,241,778 |
| NEW TOWNHOUSE | 146 | R 99,867,871 | 93 | R 76,919,768 | 158 | R 273,740,726 |
| ABBATOIR ON FARM | 0 | R 0 | 0 | R 0 | 1 | R 0 |
| SIGNAGE APPLICATION | 1 | R 379,600 | 0 | R 0 | 5 | R 247,500 |
| UNKNOWN | 2 | R 12,000 | 0 | R 0 | 2 | R 30,435 |
| ADDITIONS (GOV) | 3 | R 89,848,170 | 1 | R 226,720 | 0 | R 0 |
| INTERNAL ALTERATION (GOV) | 2 | R 34,000 | 0 | R 0 | 0 | R 0 |
| POOL/CARPORT/B-WALL (GOV) | 0 | R 0 | 0 | R 0 | 1 | R 66,192 |
| HALL/CLUB/CHURCH (GOV) | 0 | R 0 | 1 | R 15,000,000 | 0 | R 0 |
| HOSPITAL/CLINIC (GOV) | 7 | R 52,779,088 | 1 | R 17,983,527 | 0 | R 0 |
| OTHER - NON RESIDENTIAL (GOV) | 5 | R 4,379,977 | 4 | R 32,626 | 2 | R 1,271,140 |
| SCHOOL/UNIVERSITY/LIBRARY(GOV) | 2 | R 6,147,270 | 9 | R 14,882,591 | 29 | R 8,935,990 |
| NEW DWELLING (HOUSING PROJECT) | 2825 | R 208,738,620 | 3829 | R 427,774,554 | 549 | R 260,960,902 |
| TOTALS | 6323 | R 2,360,702,647 | 7395 | R 2,831,204,951 | 4353 | R 2,590,056,009 |

*Source: NMBM, Building Stats, 2017*

The above table provides an analysis of building plans approved over the past three reporting periods, i.e. 2013/14 to 2015/16 in terms of building plan types. This analysis is meaningful in understanding the economic impact of the building plans approved over this period.

> *It is to be noted that the data reflected in the above table relates to approved building plans, whereas the earlier tables reflect on building plans submitted for assessment.*

The earlier tables noted a decline in the number of building plans submitted for assessment over the past two periods, i.e. from 9517 (2014/15) to 4438 (2015/16). This tendency is similarly reflected in the number of building plans approved, i.e. 7395 (2013/14) to 4353 (2015/16). Of interest is the

observation that the difference between number of building plans submitted and approved has reduced significantly.

A further assessment of the above table highlights a considerable increase in the number of building plans for new townhouses, new dwellings as well as the category that includes schools, libraries and university. The increase in the number of residential building plans can largely be ascribed to social housing and affordable residential developments in Parsonsvlei and Fairview, whilst the increase in the educational sector can be assigned to new and additional facilities and amenities at the NMMU.

It is therefore concluded that the statistics in relation to the approval of building plans is still indicative of a weak economy.

## 2. TRENDS AND DEMAND FOR ECONOMIC INFRASTRUCTURE

### 2.1 Economic Background

STATS SA states that: “according to ECSECC (Eastern Cape Socio Economic Consultative Council), the GDP growth rate for the Nelson Mandela Bay Municipality was 2.1% in 2010 and the GDP per capita R52 147. The largest economic sectors in the Nelson Mandela Metro are manufacturing, finance, community services and transport. Community services, trade and manufacturing sectors are the sectors that create the most employment in the Metro”.

Good quality infrastructure is key to sustainable social, economic and industrial development. Poor infrastructure hampers development, growth and ability to trade in the domestic and global economy.

Economic infrastructure, which includes transport, energy, telecommunications, water and sanitation, provides services which are of

fundamental importance for development. In NMBM it is deficient and this is exacerbated by inadequate maintenance and thus prematurely deteriorating installations and services. Infrastructural services are often overlooked as a means to alleviate poverty and improve environmental conditions.

In order for Nelson Mandela Bay to grow and develop a sustainable economy, it is important to build new economic drivers to replace or augment the ones that have served the region in the past.

Two single sectors, “Manufacturing and Community”, and “Social and Personal Services”, make up more than half (58.1%) of the Metro’s GVA (Gross Value Added), with “Financial and Related Services”, (Transport and Trade) contributing a further 37%. The automotive sector accounts for more than 50% of the Metro’s manufacturing sector.
Whilst the NMBM is an important node of activity within the economy of the Eastern Cape, it is characterised by several challenges in terms of economic development. These include:

- A high unemployment rate (36,6%), low education levels of the labour force, including large numbers of illiterate adults with limited employment prospects.
- Ageing and inadequate investment in the maintenance and upgrading of infrastructure.
- The dependence on the automotive sector and insufficient diversification within the manufacturing and others sectors.
- A lack of up-to-date local economic statistics and monitoring and evaluation systems.

Growth in the automotive sector of the economy has historically provided employment and boosted exports, while masking long-term weaknesses and continuing social inequality. For NMBM, the automotive industry’s infrastructure strengths include the Coega IDZ and NMB Logistical Park which are both growing in potential. There is substantial government and institutional

support - the Automotive Production & Development Programme (APDP) supports incentives to replace Motor Industry Development Programme (MIDP). The Nelson Mandela Bay economy is heavily reliant on this industry and this industry, in turn, is heavily reliant on SA incentive support – MIDP/APDP. The fragile and ever fluctuating global economy poses a serious risk to the automotive sector.

Logistically, the distance from product and supply markets is disadvantageous. This is coupled with high logistics costs and inefficient transport. The automotive industry faces numerous threats to its competitiveness. These include that poor fuel quality restricts entry into the fuel efficient space and markets. Poor management of South Africa's energy supplies contributes negatively to industrial progression. In terms of the crisis of auto-mobility, there is a limit to the alternatives in South Africa. The rise of Asia (China, India, South Korea) as forces in both production and consumption proposes much competition for market share.

NMBM, once the leader in the automotive industry in South Africa, now lags behind eThekwini and Tshwane which now take up the major share of the South African automotive industry.

Countering these weaknesses and inequalities will require the following:

- Serious diversification of the local economy. in order to reduce its dependency on the traditional sectors.
- Down-stream and cross-stream diversification within the manufacturing sector.
- Development of new growth industries.
- Diversification of markets for manufactured products and services.
- Investment in the intellectual capital, creativity and technical capabilities of the labour force through skills development.
- Innovation support through research and development.
- Public and private sector investment to accelerate the production of all economic sectors.

- An aggressive market development programme for regional production within the region itself, as well as within the country, in order to ensure the localised sustainability of productive activities (NMBM EDRS, 2009).
- A clear and shared economic development strategy for the NMBM.

There is a portfolio of sectors discussed in the Nelson Mandela Bay Industrial Development Strategy (2012) that focuses on industrial (or secondary) sectors as opposed to primary and tertiary sectors.

**Local/Light Manufacturing:**

The majority of job seekers are excluded from obtaining work purely due to the high cost and time of commuting to work areas. Places of work ideally need to be within walking distance of where people live. Significant impact can be achieved by revisiting the traditional concepts of urban order that tend to over-emphasize heavy industry and to re-link local production to local consumer markets through light industry that is more responsive to local needs and demand.

**Tourism and Hospitality:**

This is a consumption industry, rather than a productive industry. Tourism numbers are stagnant or falling, and the tourism-related manufacturing industry is undeveloped. However, there are production opportunities in the manufacture of handcrafts, mementoes, local fabrics, etc. There are also agricultural spin-offs in the supply of ingredients to restaurants and hotels.

**Agro-Processing:**

Sarah Baartman District Municipality, adjacent to NMBM, has a relatively strong agricultural sector. The biggest employers in the Coega IDZ are agro-processing plants. This sector is a priority for government. Agro-processing has linkages through into the Sarah Baartman District Municipality economy. Strengths of this sector in NMB include existing industries, natural resources and the IDZ to support industry. This sector is constrained by trade policies,

lack of skills, loss of productive land and zoning limitations as well as a lack of coordination between stakeholders.

**Pharmaceutical industry:**

There is a huge demand for low-cost drugs. Nelson Mandela Bay is home to a number of world-class pharmaceutical companies and the Rhodes and Nelson Mandela Metropolitan Universities have a pharmacy departments. Threats to this sector of industry are the lack of access to technology, intellectual property and the lack of investment by large companies.

**Sport and Leisure:**

Sport and Leisure dovetail with Tourism and Hospitality and provides the opportunity to utilize the natural assets of the area. This industry promotes light industry (sport equipment, goods and clothing). Local sports events have demonstrated the capacity to attract large numbers.

**Capital goods:**

South Africa is on track to become a manufacturer of locomotives for the rest of Africa. This provides the Metro with its best opportunity for growing its presence in the capital goods sector in the short to medium term, and is therefore the focus of the strategy. A large percentage of the wagons should be made in Nelson Mandela Bay. Transnet Rail Engineering has a manufacturing facility in Uitenhage, which has been identified by Transnet as its main export manufacturing facility.

**Renewable/Green Industries:**

Green industries in this context fall within the broader category of energy, which includes electricity and the various types of fuel used in combustion processes. A Government development incentive is proposed “in order to increase local demand of alternative energy and DEDEAT on the other hand, must strive to influence policy towards developing certain underdeveloped areas in South Africa including the Eastern Cape to be used as manufacturing

centres for renewable energy." (Provincial Industrial Development Strategy, 2010).

## 2.2 Strategic Initiatives

The Municipality has identified a number of initiatives to enhance economic development of the city. Many of these are captured in the main BEPP document. However, others worth mentioning are as follows. These are in the process of being evaluated.

### 2.2.1 North End Coastal Development

The North End Coastal Development project is intended to reinstate the existing degraded coastal environment north of the Port Elizabeth Harbour over a 30-year period, creating an attractive urban gateway entrance to Nelson Mandela Bay. The project is intended to stimulate tourism and the economic development of the region.

The project seeks to restore beach sand to the severely eroded northern coast area through the redirection of dredged sand from the harbor mouth.

The first phase of the project aims to create a 500m long beachfront, with a direct link to the adjacent Nelson Mandela Bay Stadium, New Brighton and neighbouring communities. The project can be implemented only in partnership with Transnet and the National Ports Authority and is still at concept stage.

### 2.2.2 Bayworld Revival:

The Provincial Legislature has now approved that the leisure/ oceanarium part of Bayworld be devolved to the NMBM for project management and redevelopment purposes.

The NMBM has signed a Service Level Agreement (**SLA**) with the Province. The project was devolved to the MBDA for project management purposes.

A feasibility study, design and Business Plan were completed in 2004. The feasibility study, design and Business Plan will have to be updated.

The feasibility study, conducted by a number of technical professionals, concluded that there is a significant edutainment (a combination of education and entertainment) and scientific research gap in the Nelson Mandela Bay area for the redevelopment and upgrading of Bayworld.

The market assessment of 2004 indicated a specific gap for a museum, aquarium, science centre, auditorium, retail, a gift and souvenir shop, restaurants and scientific research facilities. This scenario needs to be tested given current market pressures and legislation within the Zoo and Aquarium sector internationally.

As an icon in the city, it has the potential to be a symbol of community pride, not only in terms of the opportunities it offers to its citizens and the focus it brings to the unique attributes of Nelson Mandela Bay, but also to position itself as a national asset for the benefit of the wider community of citizens in South Africa.

A short action plan for Bayworld looks as follows:

- By December 2016 a decision must be made whether the facility will be a marine science institute, an oceanarium or a combination of both with a focus on education and entertainment;

- In 2017 a detailed design will be done and a Business Plan prepared by a MBDA appointed team of professionals;
- In 2018 the capital budget will be finalized and the funding raised;
- Project manage the tender and redevelopment construction proves through the Municipal Finance Management Act (MFMA) (56 of 2003)
- Construction will commence in 2019;
- Appoint an operator (as is the idea with the stadium) through the MFMA; and
- Present discussion on-going with anti-captivity groups.

The MBDA has finalised a MOU between the MBDA and the Nelson Mandela Metropolitan University (NMMU), *inter alia* with the objective of the NMMU becoming a partner in the future development of Bayworld.

### 2.2.3 Apple Express Rail Link

The closure of the Apple Express narrow gauge railway has negatively impacted the local tourism industry.

In a process of reviving the Apple Express, it became important that a study be done to ascertain the development potential of the Apple Express line between Port Elizabeth and Avontuur in the Western Cape, or a portion of the development of this line for the purposes of real estate, freight, passenger and tourism. The study concluded that this line was not sustainable for pure tourism purposes.

Through the intervention of the MEC for Department of Economic Affairs, Environment and Tourism (DEAET), an amount of R3,8 million was made available for a feasibility study around the Apple Express.

The study's objective is to make a compelling argument to Transnet to make the line available on a lease basis to a development agent.

### 2.2.4 Statue of Liberation

This project is seen to help grow the tourism products in Nelson Mandela Bay and serve as an iconic attraction that will compel visitors to come to Nelson Mandela Bay. This will also provide an identity for the Nelson Mandela Bay region. Critical to the way forward and the implementation of the project is the identification of a suitable site.

### 2.2.5 Solid Waste Diversion and Beneficiation Project – Waste Park

This project is committed to an aim of diversion and beneficiation of municipal solid waste (MSW) as a potential resource within NMBMM.

The primary objectives of the project include:

- The maximising of waste-resource recovery
- Optimise waste recycling
- Creation of jobs
- Waste beneficiation and value add
- Minimization of waste to landfill – along the lines of a zero-waste to landfill approach.

The Project was started through catalytic funding from Eskom in 2012(after a MoA was signed between parties), as the principal electricity generation entity in SA primarily concerned with the generation of energy from renewable resources due to electricity generation crisis at the time. Where energy recovery is possible, a crucial objective was the development of renewable energy by employing waste-to-energy technologies, meeting targets on diversification of the energy mix and reducing carbon emissions.

Soon after the MoA was signed in 2012, a multi-disciplinary Project Steering Committee (PSC) was established to guide the Project Development Phase.

The Eskom funded feasibility study report was completed in October 2014. The Project Steering Committee resolved that Eskom's involvement in the Project was primarily skewed towards generation of energy from renewable resources (waste to energy) and **not** solemnly committed to the Waste Hierarchy. It is out of this backdrop that the PSC decided to commence with a Public-Private Partnership (PPP) Solid Waste Diversion and Beneficiation Project. The Project was divided into 2 (two) sub-projects:

1. The Landfill Gas Extraction Project
2. Waste Park Project

NMBM requested a project preparation funding facility of approximately R33 million from the Infrastructure Investment Program of South Africa (IIPSA) under the custodianship of the Development Bank of Southern Africa (DBSA) which is less than 2% of the total estimated project costs for the finalisation of the Bankable Feasibility Study and development and facilitation of the Procurement Plan for the Solid Waste Diversion and Beneficiation PPP Project. The IIPSA Facility Agreement between the NMBM and DBSA was signed in November 2016. The Municipality is in the process of procuring a Transactional Advisor for the Project in fulfilment of the condition of the Agreement.

The NMBM has identified four potential sites for the development of waste management infrastructure (also called 'Enabling Infrastructure') – comprising Materials Recovery Facilities (MRF) and Refuse Transfer Station (RTS) infrastructure. These sites are PPC West, Greenbushes, Markman and Koedoeskloof.

In addition, a site within the Coega IDZ (Industrial Development Zone) was considered as a potential waste beneficiation site – in particular for a waste-to-energy plant (WtE). These sites, where possible, have been strategically selected in locations believed to be the centre of waste origination of the city's 'waste catchments'.

The entire project costs are approximately R3, 7 billion. It is expected that the project will be fully operational by 2021. However, Material Recovery Facilities (MRF) and Transfer Stations can commence within reasonable time (after permits and approvals have been obtained).

It is the nature of all Public-Private Partnership Projects for custodians to bear the planning costs hence small Municipalities with budget constraints would not necessary commit to such projects. Public Health Directorate initially required R15m to complete the project. After a Council Resolution in December 2016, the project received an amount of R7, 5m with an expectation that the remainder will be available in the next financial year.

It inevitable that the private party will bear all the costs associated with the project implementation phase. However, Council will incur the operational costs of Contract Management for the entire duration of the Project. Those costs will be much clearer during the formulation phase of the PPP Contract Management Plan.

## 3. TRENDS AND DEMAND FOR BASIC INFRASTRUCTURE

The provision of infrastructure to deal with basic services is not dealt with separately, but forms part of the integrated planning for water and sanitation services that serve the Metro as a whole. As the development of infrastructure for human settlements has been the biggest driver for infrastructure expansion, the financial impact is related to the projects captured in the annual budgets.

The capacity of water and sanitation infrastructure to serve the NMBM is guided by the Metropolitan Spatial Development Framework (MSDF). The planning for the current and future capacity is dealt with in the approved Water and Sanitation Master Plans that takes cognisance of the MSDF.

The abovementioned Water Master Plan was approved by Council in 2006 (NMBM Infrastructure & Engineering Directorate, 2006) and is currently being reviewed. However, the recommended expansions to the infrastructure remain relevant, as set

out below. The Sanitation Master Plan (NMBM: Infrastructure & Engineering Directorate, 2012) was approved by Council in 2012.

### 3.1 Water Master Plan (WMP)

Sufficient internal bulk infrastructure exists to convey water to all developments within the metropolitan boundaries. Link water mains are installed as part of developments, when required. A constraint that does exist, is the completion of the Nooitgedacht Low Level Scheme, which provides water for all new developments, as well as the Coega Industrial Development Zone. Phase 1 of the three phase expansion has been completed. Phase 2 of this project has commenced with implementation of three contracts which is scheduled for completion in February 2017. The NMBM has set aside funding to support these contracts. Phase 3 requires ±R350M (four contracts) for the completion of the entire expansion. The Department of Water and Sanitation (DWS) has via a directive appointed Amatola Water to implement Phase 3 which they will fund accordingly. Failing which, a phased approach after the completion of Phase 2 will have to be followed.

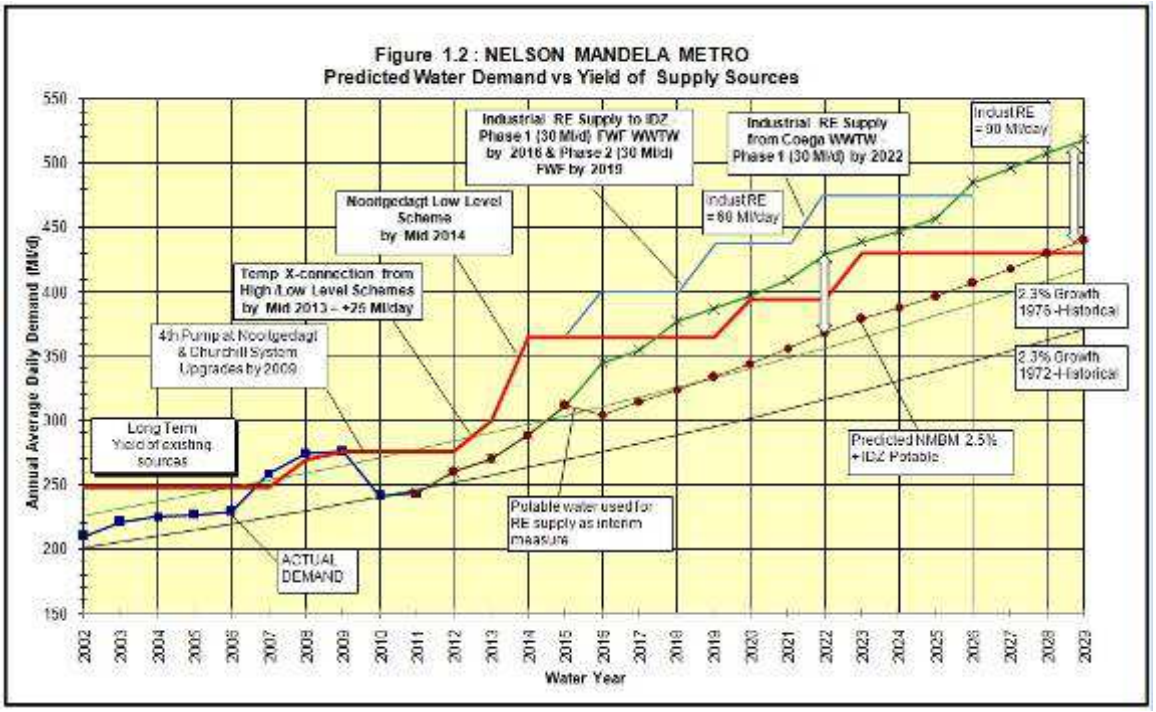
The figure below is an extract of the anticipated water requirements up to 2030 and approved in the Algoa Water Reconciliation Study (Department of Water Affairs, 2012).

The anticipated historic growth for Nelson Mandela Bay has been 2.3%; however, developments such as the Housing Programme and the Coega Industrial Development Zone would increase the medium-term growth pattern. As these developments are linked to the availability of funding and investor interest, it is difficult to predict this growth. The Nooitgedacht Low Level Scheme is therefore critical for investor confidence in the ability of the Municipality to support large investments.

From a spatial perspective, the land set aside for housing development in terms of the Housing Programme, and for large developments, such as the Coega Industrial Development Zone, shows that the biggest need for water is in the north/northwest

of the metropolitan area, which confirms the need for the augmentation of the water supply from Nooitgedacht.

**FIGURE 11: Predicted Water Demand of NMBM**




*Sources:* Department of Water Affairs, 2012*;* NMBM Infrastructure& Engineering Directorate (Water & Sanitation) 2011

## 3.2 Sanitation Master Plan (SMP)

Sufficient internal bulk infrastructure exists to connect all developments within the Municipality to sewers. Link sewers are installed, as and when required. Sufficient hydraulic capacity exists to meet the requirements of the current developments. All wastewater treatment works are being upgraded to meet future development and capacity demands, including effluent compliance. In this area the upgrade of the Fishwater Flats WWTW is the most significant one that will be carried out at an estimated cost of R1 billion.

In this area the upgrade of the Fishwater Flats WWTW is the most significant one that will be carried out at an estimated cost in excess of R1 billion. Coupled to this, is

the upgrade and expansion of the Kelvin Jones Wastewater Treatment Works to meet the development needs in KwaNobuhle and Uitenhage.

Economic infrastructure for development such as the Coega Wastewater Treatment Works and the Coega Return Effluent Scheme, is needed to support the Coega IDZ. Further development of the IDZ will be hampered without funding for these projects. An investment of approximately R600M is required to complete the project. Planning has commenced on a new wastewater treatment facility to support the housing developments north of Motherwell and the Coega IDZ. This plant is planned for an ultimate capacity of 120 Ml/d costing in the region of R1 500M. A start up capacity of ±40-50Ml/d will be required.

Coupled to this is the need to eradicate the remaining 16 317 buckets that are still being used in the NMBM. The permanent solution is covered by the Master Plan, however, the interim measures are covered in the implementation strategy as set out below was approved by the Council on 1 December 2016:

**Informal Settlements:**

- Communal Container Ablutions (Toilets fitted within 1 male & 1 female container setup, waterborne connectivity) – Contracts in place.
- Communal Toilets (Individual toilets clustered together, waterborne connectivity) – additional contract required.
- Plumbed free-standing toilets (Individual scattered toilets, waterborne connectivity) – additional contract required.
- Waterless, maintenance-free individual toilets (Possible technology suppliers: Enviro Loo, Eco San, Cemforce, Four Stage Sanitation System, etc.) Space constrains, ground condition, permanent servicing clashes, & EIA challenges, more conducive for rural areas – additional contract required
- Waterless, municipality-maintained individual toilets, portable flushing toilet (Possible technology suppliers: Sanitech, Porta Potty) & chemical toilet. Potential additional municipal division required – additional contract required

**Formal Settlements:**

- Metro House construction.
- Slab & toilets (New tender required) option where serviced sites (±4000) are in excess of the available housing subsidies.
- Individual toilet (New tender required) option where serviced sites (±4000) are in excess of the available housing subsidies.

## 3.3 Asset condition

This data is an extract from a study (Infrastructure Maintenance Backlog Assessment) that was conducted in 2011.

**TABLE 9: Water Backlog Maintenance**

| ***Water Backlog*** | **Total Sum of Repair Cost** | **Total Sum of Estimated Replacement Value** | **Repairs as % of Replacement Value** |
|---|---|---|---|
| **Dams** | R2,408,320 | *R768,141,482* | *0.31%* |
| **Reservoirs** | R21,519,671 | *R1,206,530,799* | *1.78%* |
| **Water Treatment Works** | R57,295,705 | *R656,586,425* | *8.73%* |
| **Bulk Water Supply Lines** | R12,949,500 | *R5,066,790,845* | *0.26%* |
| **Pump Stations** | R23,372,730 | *R127,379,002* | *18.35%* |
| **Internal Reticulation** | R530,370,326 | *R1,391,328,057* | *38.12%* |
| **Grand Total** | ***R647,916,252*** | ***R9,216,756,610*** | |

*Source:* NMBM Infrastructure & Engineering Directorate, 2011

**TABLE 10: Medium-term Replacement / Refurbishment Plan**

| Water Backlog | < 2 yrs | < 5 yrs | ASAP | Monitor only | Record only | Routine | Total Sum of Repair Cost |
|---|---|---|---|---|---|---|---|
| **Dams** | R853,500 | R264,800 | R1,229,520 | Nil | Nil | R60,500 | R2,408,320 |
| **Reservoirs** | R16,793,467 | R295,000 | R4,431,204 | Nil | Nil | Nil | R21,519,671 |
| **Water Treatment Works** | R22,119,655 | R7,301,250 | R18,516,800 | R359,500 | R567,500 | R8,431,000 | R57,295,705 |
| **Bulk Water Supply Lines** | R1,035,000 | R1,982,500 | R9,722,000 | R210,000 | Nil | Nil | R12,949,500 |
| **Pump Stations** | R2,646,900 | R477,000 | R19,784,330 | R120,000 | Nil | R344,500 | R23,372,730 |
| **Internal Reticulation** | R4,524,276 | R4,040,984 | R521,805,065 | Nil | Nil | Nil | R530,370,326 |
| **Grand Total** | **R47,972,798** | **R14,361,534** | **R575,488,919** | **R689,500** | **R567,500** | **R8,836,000** | **R647,916,252** |

*Source:* NMBM Infrastructure & Engineering Directorate, 2011

From the above table, it can be seen that the total maintenance backlog for water infrastructure for the next five years amounts to R647,916,252.

**TABLE 11: Sewer Replacement Cost and Maintenance/ Rehabilitation Plan**

| Sewer Backlog | < 2 yrs | < 5 yrs | ASAP | Monitor only | Record only | Routine | Total Sum of Repair Cost | Total Sum of Estimated Replacement Value |
|---|---|---|---|---|---|---|---|---|
| **Pump Stations** | R15,527,520 | R1,111,000 | R12,179,100 | R81,000 | R0 | R826,700 | R29,725,320 | R120,724,600 |
| **Sewer Reticulation** | R160,180,756 | R167,349,637 | R60,938,492 | R211,084 | R0 | R422,168 | R389,102,138 | R2,110,840,274 |
| **Waste Water Treatment** | R34,021,564 | R5,046,233 | R102,497,695 | R687,320 | R12,000 | R487,290 | R142,752,104 | R1,979,608,789 |
| **Grand Total** | **R209,729,84** | **R173,506,87** | **R175,615,287** | **R979,404** | **R12,000** | **R1,736,158** | **R561,579,562** | **R4,211,173,663** |

*Source:* NMBM: Infrastructure & Engineering Directorate, 2011

The above information forms the basis of, the Engineering Design and Management Systems software data management system. This same management system is used to provide the GRAP 17 compliance data on asset management.

The figures indicate the serious financial implications of the lack of maintenance of water and sanitation infrastructure. The situation is deteriorating progressively each year, due to the inability of the Municipality to adequately fund repairs and maintenance especially preventative maintenance. To relieve the situation, the largest capital requirement is required in less than two years, for which there is insufficient budget.

### 3.4 Roads/Stormwater/Transport

The NMBM's Comprehensive Integrated Transportation Plan (CITP) is currently in its review stage as required by the National Land Transport Act (5 of 2009). The review includes an overhaul of the CITP which will include new projects which have to be implemented within the next 5years of the CITP's validity.

The Comprehensive Integrated Transport Plan (CITP) as approved by the NMBM Council and Province sets out the roads network requirements based on the inter

alia MSDF. The CITP includes all transportation requirements i.e. Non-Motorized Transport, Public Transportation etc.

Road infrastructure, (including Stormwater), is critical to support economic activities in Nelson Mandela Bay and has the capacity to support the current major public transport network routes. However, the Housing Subsidy (HSDG) does not allow for the tarring of internal and access roads. This results in increasing backlogs. The latter is of particular importance, as this also impacts on public transport.

Projects that have been identified for implementation are summarised in the table below. The table excludes backlog costs that were not budgeted for, due to affordability levels, and therefore does not indicate the actual funding requirements to eliminate infrastructure and maintenance backlogs over the five-year period.

**TABLE 12: CITP Projects**

| NO. | PROJECT DESCRIPTION | TOTAL PROJECT COST – five years (Rand) |
|---|---|---|
| 1 | Metropolitan Transport Planning | 75,000,000 |
| 2 | Roads required for additional capacity (short-term projects) | 618,750,000 |
| 3 | Roads required for access and connectivity (short-term projects) | 681,250,000 |
| 4 | Roads requiring rehabilitation (short-term projects) | 1156,250,000 |
| 5 | Road maintenance projects | 2,875,000,000 |
| 6 | Bridge maintenance projects | 606,250,000 |
| 7 | Public transport projects | 4,950,000,000 |
| 8 | Non-motorised transport projects | 400,000,000 |
| 9 | Freight transport projects | 125,000,000 |
| 10 | Traffic and signage improvements (short-term projects) | 131,250,000 |
| 11 | Stormwater maintenance projects | 943,750,000 |
| | **GRAND TOTAL** | **6,287,700,000** |

Source: NMBM 2017

The following table is an illustration of the roads, transport and stormwater backlogs and the maintenance budget required to address these backlogs:

**TABLE 13: Maintenance Backlog**

| | | Total Operational Maintenance Backlogs | Annual Requirement to Eliminate Backlog | Operating Budget 2014/15 | Operating Budget 2015/16 | Operating Budget 2016/17 | Operating Budget 2017/18 | Operating Budget 2018/19 |
|---|---|---|---|---|---|---|---|---|
| | **Roads &Stormwater** | | | 91,212,870 | 96,670,100 | 103,437,007 | 110,677,597 | 118,425,029 |
| 1 | Subsidised Roads | 595,000,000 | 110,000,000 | 6,458,360 | 6,830,240 | 7,308,357 | 7,819,942 | 8,367,338 |
| 2 | Non-subsidised Roads | 1,705,000,000 | 350,000,000 | 47,222,460 | 50,055,840 | 53,559,749 | 57,308,931 | 61,320,556 |
| 3 | Rehabilitation of Stormwater Facilities | 755,000,000 | 165,000,000 | 37,532,050 | 39,784,020 | 42,568,880 | 45,548,702 | 48,737,111 |
| 4 | Road Signs & Markings | 105,000,000 | 24,000,000 | | | | | |
| 5 | Bridges | 485,000,000 | 105,000,000 | | | | | |
| 6 | Resurfacing of Roads | 1,800,000,000 | 195,000,000 | | | | | |

Source: NMBM 2017

The implementation of the projects depends on the availability of funds and is supported by the asset information from the Road Management System, the Stormwater Asset System and the Bridge Management System.

## 3.5 Electricity infrastructure

The NMBM has been reliant on electricity revenue to off-set the rates account and fund a portion of the institution's administration. Declining sales, increasing purchases, losses and theft are creating a much reduced gross profit margin.

The following table shows the decline in profit made from the sale of electricity since 2006:

**TABLE 14: Declining Electricity Sales Profit**

| Financial Year | Sales | Bulk Purchases | Gross Profit | % Gross Profit | Electricity Losses % |
|---|---|---|---|---|---|
| **2006/2007** | (R1,119,758,699) | R611,923,001 | (R507,835,697) | 45% | - |
| **2007/2008** | (R1,196,274,998) | R663,170,083 | (R533,104,914) | 45% | - |
| **2008/2009** | (R1,502,322,088) | R901,060,864 | (R601,261,224) | 40% | 6,0 |
| **2009/2010** | (R1,807,750,905) | R1,184,203,683 | (R623,547,222) | 34% | 7,5 |
| **2010/2011** | (R2,185,993,075) | R1,511,442,011 | (R674,551,064) | 31% | 7,5 |
| **2011/2012** | (R2,711,116,309) | R1,915,652,397 | (R795,463,912) | 29% | 9.0 |
| **2012/2013** | (R2,819,881,230) | R2,109,854,326 | (R710,026,904) | 25% | 10,7 |
| **2013/2014** | (R2,963,172,710) | R216,850,320 | (R794,669,190) | 27% | 11,3 |
| **2014/2015** | (R3,182,151,220) | R2,294,034,910 | (R888,116,310) | 28% | 12,3 |
| **2015/2016** | (3,463,791,052) | R2,720,304,070 | R743,486,982) | 21% | 12,7 |

Source: NMBM 2017

A replacement of electricity in cross subsidisation could be the Council's fibre optics and wireless networks. This is still in the stage of development, however, a pilot project for a commercial model for wireless broadband communication is under way in the Walmer Gqebera area. Initial results indicate that in excess of R75 million revenue per annum may be achievable.

The NMBM is a frontrunner in creating an enabling environment and attracting investment in the green economy sector. Currently two wind farms with the capacity to produce approx. 89 megawatts exist in the Metro. The Municipality played a large role in the success of these ventures and continues to support other public and private initiatives. The Municipality is committed to exploring alternative energy solutions to offset the impact of load shedding and the electricity crisis in South Africa.

There has been a decrease in Capital Budget provision for electricity services recently as a result of the financial difficulties the NMBM has been experiencing.

The current condition of the electrical infrastructure requires a major injection of funds and man power in order to bring it to acceptable conditions in line with national standards and the expectation of electricity users.

NERSA has indicated that electricity tariffs cannot be used as the sole source of income to fund capital and maintenance projects. It is thus vitally important that the NMBM finds additional sources of funding for its capital and maintenance projects.

The current electricity outages and challenges being experienced on the electricity distribution network is evidence supporting the above. A previous ring fenced allowance on the local tariff never realized the expected results of an income.

Funding is required to bring the electrical infrastructure back to an acceptable condition, so that it complies with the required national standards. A five year period is detailed below however funding should not stop after five years but should continue into further years to prevent the network from deteriorating again.

In relation to distribution, the existing Nelson Mandela Bay Municipalities Electricity network is a mixture aged and relatively new infrastructure. The larger majority being older with some equipment being 40 years plus old, it is therefore urgent that major upgrade, refurbishment and replacement takes place. The following is a reflection of the first 5 years of this work in order to start making inroads into this problem.

The total cost for the various categories is as follows:

| | |
|---|---|
| Major Substations | R 65 730 000 |
| Major Transformers | R128 000 000 |
| Minor Substations | R122 750 000 |
| Overhead Lines | R 52 500 000 |
| ***Total over 5 years*** | ***R368 980 000*** |

With regard to Projects and Planning, the main responsibility is to ensure that the network is capable of catering for present and future loads. It also undertakes project management of new projects from low voltage up to medium voltage. Below is a breakdown of the funding required for the short to medium term projects.

**TABLE 17: Electricity Projects**

| Immediate Projects | 2015/16 | 2016/17 | 2017/18 |
|---|---|---|---|
| **Walmer Conversion** | | | Nil |
| **Charlo Conversion** | R3,000,000 | R3,000,000 | Nil |
| **Uitenhage Reinforcement** | R2,500,000 | R5,000,000 | R5,000,000 |
| **Walmer Town Hall Area** | R1,200,000 | R1,200,000 | R1,200,000 |
| **Humewood Conversion** | R3,000,000 | R3,000,000 | R3,000,000 |
| **Brickmakers Kloof** | R3,000,000 | R3,000,000 | Nil |
| **Struandale Conversion** | R5,000,000 | R5,000,000 | Nil |
| **Swartkops Village** | Nil | R2,000,000 | R2,000,000 |
| **Algoa Park Conversion** | R1,000,000 | R2,000,000 | R2,000,000 |
| **Deal Party** | R5,000,000 | R5,000,000 | R5,000,000 |
| **Rural Areas** | R3,000,000 | R3,000,000 | R3,000,000 |
| **Miscellaneous Mains** | R4,000,000 | R4,000,000 | R4,000,000 |
| **Township Development** | R3,000,000 | R3,000,000 | R3,000,000 |
| **Redhouse** | Nil | R1,000,000 | R1,000,000 |
| **Korsten** | R2,000,000 | R2,000,000 | R2,000,000 |
| **Total Cost** | **R35,700,000** | **R42,200,000** | **R31,200,0000** |

Source: NMBM 2017

The Transmission section is responsible for designing and project managing the high voltage infrastructure in the NMBM. Below is a breakdown of costs for the implementation of all the high voltage projects approved by the Municipality.

**TABLE 18: High Voltage Projects**

| Immediate Projects | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 |
|---|---|---|---|---|---|
| **Swartkops 132** | | | | R15,000,000 | |
| **Swartkops/Deal Party Line** | | R450,000 | R3,000,000 | R10,000,000 | |
| **Deal Party 132kV Substation** | | R2,000,000 | R4,000,000 | R10,000,000 | R5,000,000 |
| **Nivens Drift Substation** | | R1,000,000 | | | |
| **San Souci-Nivens Drift Line** | | R30,000,000 | R15,000,000 | | |
| **17th Avenue Substation** | | R4,000,000 | R4,000,000 | R1,000,000 | R40,000,000 |
| **Lorraine-17th Avenue Line** | | R500,000 | R1,000,000 | R20,000,000 | |
| **Chelsea** | | | | | |
| **Bloemendal** | | | | | |
| **Summerstrand** | | | | | |
| **Chatty Buszone** | | | | | |
| **Chatty-Chelsea 3rd 132kV Feeder** | | | | | |
| **Chelsea 132/22 2nd transformer** | | | R14,000,000 | | |
| **Aloes 3rd Transformer** | | | | | R14,000,000 |
| **Fitches Corner** | | R5,000,000 | | | |
| **Kragga Kamma Refurbishment** | | | R10,000,000 | R10,000,000 | R20,000,000 |
| **132kV CT Replacement** | | R3,000,000 | R3,000,000 | R3,000,000 | R3,000,000 |

*Source:*

NMBM network is characterized by old mechanical relays. The existing mechanical relays are obsolete. The aim is to replace old mechanical relays with new Intelligent Electronic Devices.

The average cost for relay replacement is R25 Million to replace the old mechanical relays in the NMBM network. This financial year only R1 Million was allocated to this program. The R1 Million will only replace about 25 relays in the system and will leave a deficit of 940 relays. In the three year program R8,33 Million annually will be needed to facilitate this relay replacement program

# 4. TRENDS AND DEMAND FOR RESIDENTIAL INFRASTRUCTURE

The NMBM has, over the past decade, successfully provided a steady stream of RDP housing to the order of approximately 77 000 units from 1997 to 2013. The current provision of RDP housing is unsustainable and there is a need to diversify housing development initiatives.

The NMBM Council on 6 December 2012 adopted the Human Settlements Framework 2030 that sets out the strategic vision for the implementation of the new approach towards achieving Integrated Human Settlements aimed at the following objectives:

- Upgrade Informal Settlements and formalise backyard dwellings.
- Ensure all households have access to basic services.
- Plan for transformation, inclusion and resilience (to overcome spatial inequality).
- Increase residential densities and develop rental housing at scale.
- Renew priority urban zones (i.e. townships and inner-city).
- Improve organisational alignment and fitness.
- Support residential property functionality and transformation.

## 4.1 Land and housing analysis and project demand for housing by income group, location and cost

In order to create a better understanding of residential demand and supply, a joint exercise between the NMBM, the Housing Development Agency (HDA) and the MBDA was undertaken in 2012, conducted by Shisaka Development Management Services in collaboration with Bagale Consulting (Pty) Ltd.

This work was updated by Shisaka in 2017 and is reflected in section 1.1 above.

Of note is that 70% of the existing and projected population will depend on some form of subsidised housing in the future.

The map attached as Annexure "C" shows private sector, municipal and public private partnership proposals for the development of different types of housing in Nelson Mandela Bay. This includes the affordable housing sector.

In terms of the Capacity Support Implementation Plan, a land and housing market trend analysis has been done by Shisaka which includes proposals to revise the NMBM housing policy in a manner that is more sustainable and meets spatial restructuring objectives. The report needs to be confirmed administratively and politically.

# 5. TRENDS AND DEMAND FOR COMMUNITY AND SOCIAL INFRASTRUCTURE

## 5.1 Quantifying backlogs and future demand in relation to commitments secured by relevant provincial/national departments or entities

The table below relates to the delivery of social amenities. It shows actual delivery costs, it includes the reality of housing costs (at minimum), internal reticulation, bulk servicing, social amenities and retail opportunities. It is concluded that the delivery cost per erf is approximately double the subsidy amount allowed, if community infrastructure is considered.

**TABLE 19: Cost of Community Infrastructure**

| | Cost per Erf | Total Cost (Erf cost X 72411) |
|---|---|---|
| **BACKLOGS (Informal and backyard shacks): 72411** | | |
| **Housing Expenditure** | **R 110,654** | **R 8,012,566,794** |
| **Indicative First Order Summary - Social Facilities** | | |
| *Schools* | R 20,000 | R 1,448,220,000 |
| *Clinics* | R 11,200 | R 811,003,200 |
| *Police Stations* | R 4,800 | R 347,572,800 |
| *Sports Facilities* | R 1,600 | R 115,857,600 |
| *Community Centres* | R 6,400 | R 463,430,400 |

| | Cost per Erf | Total Cost (Erf cost X 72411) |
|---|---|---|
| *Libraries* | R 1,600 | R 115,857,600 |
| *Parks and Recreation/Greening* | R 1,600 | R 115,857,600 |
| *Private Investment - Retail* | R 20,000 | R 1,448,220,000 |
| **Total - Social Facilities** | **R 67,200** | **R 4,866,019,200** |
| **NMBM Internal Reticulation** (Basic Scraped Roads, Water & Sanitation) | **R 23,211** | **R 1,680,731,721** |
| **NMBM Electricity Reticulation** | **R 9,912** | **R 717,758,158** |
| **Total Housing, Social Facilities & Internal Reticulation** | **R 210,977** | **R 15,277,075,873** |
| NMBM Bulk Reticulation (Bulk water, sewer and roads and stormwater upgrade) | | **R 10,557,000,000** |
| **Total Housing, Social Facilities and Bulk Infrastructure** | **R 356,770** | **R 25,834,075,873** |

*Note: About R25 000 per erf must be added to tar the roads and provide stormwater control.*

Buildings, the natural environment, vegetation and open spaces are important for creating liveable environments. In addition, education and safety and security, well-functioning services and adequate facilities are required by communities for proper living. To deliver the full spectrum of services and amenities with housing opportunities, good intergovernmental relations are required, as all spheres of government are involved in delivering these products.

An impediment to the delivery of fully integrated and sustainable human settlements is the large developmental backlogs, which put pressure on the Capital Budget. An NMBM estimate of the total housing backlog (which is to be revised) is calculated based on a backlog of 72 411.

Approximately R13,4 billion would therefore be required over and above the HSDG to eliminate the housing backlog of 72 411 units to fully integrated human settlements standards. The amount to eliminate the total housing backlog and provide all amenities is R25,834,075,873.

The Electricity and Energy Directorate currently provides a capital budget excluding grant funding of R16 mil per annum to provide for new and refurbishment of existing public lighting for social amenities.

## 5.2 TRENDS AND DEMANDS FOR SPORT; RECREATION; ARTS AND CULTURE FACILITIES

The demand for sport, recreation, arts and culture infrastructure must be considered in the context of the following key aspects:

- Its role in the development of sustainable human settlements; ensuring social cohesion; nation building; lowering incidents of crime and substance abuse in communities; and the general health and wellbeing of communities.
- The promotion of Sport and Cultural Tourism
- The economic impact of hosting major sport, recreation and cultural events
- Its contribution towards profiling the destination

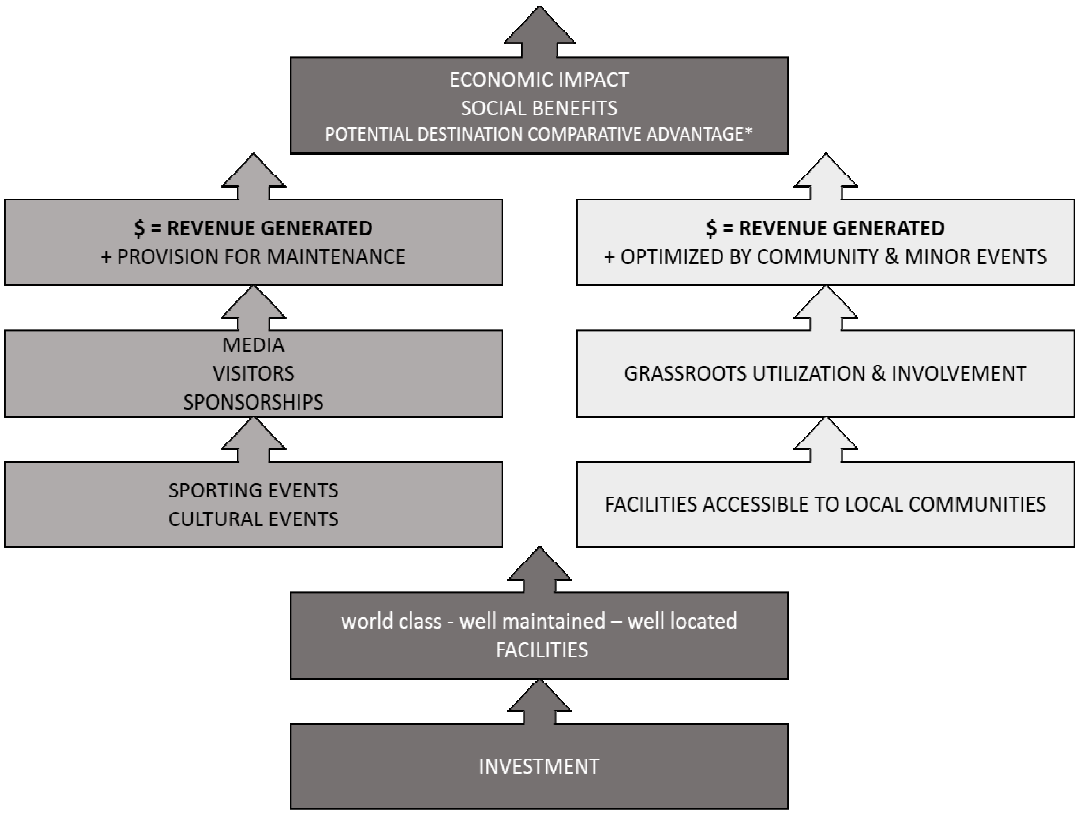
Many sports, recreation as well as arts and culture infrastructure is in a state of disrepair and neglect or vandalized, which severely compromises their ability to attract regional, national and international sport and cultural events, but also to serve the communities in the way they are intended for.

If we want to be able to deliver economic impact into the local economy and social benefits to communities, one needs to invest in infrastructure that will enable the city to stage sport and cultural events that generate revenue.

Worldwide the sport industry is estimated at $480-620 billion. In South Africa, sports industry figures are difficult to establish, but the industry equates to around 2,1 % of GDP.

If our facilities are not up to world class standards, and are in a state of serious disrepair as they are, this highly effective mechanism for the redistribution of revenue will not work.

The following diagram illustrates how capital investment in sport, recreation; arts and culture infrastructure can contribute towards economic impact and social benefits in the Nelson Mandela Bay Municipality.




**Note: Comparative Destination Advantage is dependent on additional factors as well such as category of investment, labour, cost, interest rates, inflation rate, facility occupancy levels; etc.*

The following professional teams based in the NMBM plays a major role in contributing to the sport tourism economy of the city:

- Football: Chippa United Football Club
- Rugby: Southern Kings
- Cricket: The Warriors

The football and rugby teams are anchor tenants in the NMB Stadium and cricket is based at St. Georges Cricket Stadium. Currently, the Cricket Stadium cannot host International Day/ Night games due to the lux requirements of the flood lights for television broadcasting purposes. Although there is an existing lease in place, the facility remains a municipal asset and needs a capital investment of R200 million to upgrade the facility for it to comply with the national and international standards. This will necessitate revisiting the existing lease agreement in favour of a new maintenance and management model for the St George's Cricket Stadium. The Directorate is currently in consultation with the lessees to agree on a new management and maintenance model for the stadium.

The Sport, Recreation, Arts and Culture Directorate Infrastructure Development Strategy towards the next 5 years will focus on the following:

- Development, Maintenance and Management of our infrastructure that will provide a needed service to the community; and would generate social and economic benefit to the city.
- Planning and development of Sport Precincts
- Development of master plans for each precinct
- The upgrade and rehabilitation of existing sport, recreation & cultural facilities
- The development of new infrastructure in newly developed human settlements and the peri-urban areas.
- To militate against climate change; explore more environmentally sustainable options for irrigation and lighting of sport, recreation and cultural infrastructure.
- The development of synthetic/ artificial pitches for hockey and football.

### 5.3 Status Quo of Parks in the Metro

Parks is committed to create, maintain, landscaped areas and cemeteries in a sustainable, aesthetic eco-friendly safe environment to enhance the marketability of NMBM and improve the quality of life for all. The draft Horticultural Development and Maintenance Policy aims to define the official position of the Nelson Mandela Bay

Municipality towards the conservation, maintenance and development of its urban open spaces. It will ensure that long term goals and vision of the NMBM Integrated Development Plan (IDP) are realised through the appropriate allocation of resources. The Policy will assist with classification of Parks and determination of the minimum standards of development.

Provisioning and developing Public Open Spaces in Human Settlements for active and passive recreation is vital in the fulfilment of every citizen's constitutional right to a safe and clean environment and promoting sustainability of new and established settlements. It has been proven worldwide that the provision of recreational facilities in communities has health benefits such as reduction of stress, boosting immunity, enhancing productivity and healing, psychological wellbeing and promoting social cohesion. The degree of these benefits corresponds with the quality of Parks provision and management and therefore a reasonable investment must be made to create quality parks. This necessitates the protection of land set aside for parks and informs Council to secure resources towards development of these facilities.

Currently a huge backlog exists in the Metro due to lack of funding for development of Public Open Spaces in new Settlements as well as historic inadequate provision for already developed parks. The amount of budget made available for each park determines the standard of development and sadly this has always been below acceptable levels. Densification of residential dwellings is necessary to meet the demand for more housing however this creates a need for more recreational facilities to cater for the large population and offset the uncomfortable living environment that has been created by densification.

Frequent maintenance and revamping of facilities is crucial as wear and tear occurs at a higher rate than low density areas. The value of open space in improving the quality of life is extensively recognized. The role that parks fulfill in especially high

density living environments is extremely important as they provide the only opportunity for active recreation and relaxation for many residents.

Reduced budget allocation for development and maintenance of Parks poses a threat as it allows antisocial activities such as illegal dumping, crime spots in undeveloped and overgrown open space, land invasion by informal settlements, etc to be established within communities.

In Settlements with no provision or inadequate provision of parks, small children are constantly playing on dangerous streets or in illegal dumping in undeveloped land. Due to the small sizes of erven as well as socio economic status of these communities, it is impossible for recreational needs of children and the youth to be provided within their homes.

The value of Parks within Human Settlements needs to be viewed as follows:

- Visual Impact of the environment by softening harsh elements and reducing the negative effects such as pollution, harsh climates, etc.
- Integration of biodiversity and humans to create eco-systems
- Special created landscapes provide places of attraction
- Heritage, commemorative and entertainment
- Health and well-being through play, passive and active recreation
- Economic values through provision of employment opportunities, sponsorships, increased value of property, tourism, etc.
- Engineering values such as storm water outlets to minimize disastrous effects of the weather
- Social and community values; parks are a meeting place for communities, venues for Concerts, weddings, etc.
- Education and research; school outings, resource groups and research projects within reach

The residents of the Metro are already reaping the some of these benefits where undeveloped filthy land has been turned into productive recreational facilities for the enjoyment of the community. Some of the existing parks cater for the needs of the whole family due to the variety of installed infrastructure to meet the needs of adults, the youth and small kids and this setup has resulted in improved security of park users.

## 5.4 STATUS QUO OF CEMETERIES IN NELSON MANDELA BAY

Currently there are 36 Cemeteries in the Nelson Mandela Bay Municipality of which 24 are closed and 12 are still operational. It is anticipated that the Metro, like many cities will run short of burial space. A study was conducted in 2011 to gather information regarding vacant land in operating cemeteries but most of it cannot be used to allocate graves for various reasons. Geotechnical investigations need to be conducted in order to come up with a realistic lifespan of the operative cemeteries. There is an urgent need for a master plan which will provide information regarding available burial land, new Cemetery acquisition and development to prevent a disastrous situation that might arise should the present operational Cemeteries become full.

It should also be taken to account that acquiring of land for burial has its own challenges as the land has to meet certain criteria to qualify as being suitable for the purpose for example Environmental Impact Assessments, distance from residential area.. Another challenge could be costs of buying privately owned land if there is no suitable municipal land.

Sufficient funding and planning is required in existing cemeteries to ensure that the remaining land is cleared, levelled and provided with concrete berms so that grave numbers can be allocated to undertakers who constantly apply for graves.. If this is not done, bodies would have to be stored in mortuaries while the Municipality is still sourcing funding to do the necessary preparations.

Vandalism, theft and stray animals are a challenge due to lack of fencing and monumental works get stolen and destroyed. In addition residents encroach on Cemetery land because it is not demarcated properly. Fencing of some of these Cemeteries has resulted in a remarkable improvement and restored dignity in Cemeteries and with consistent budget provision annually, all existing Cemeteries will be secured. 18 Cemeteries still need fencing at an estimate of R53m.

The Metro's standard of development and maintenance is not uniform and as a result of this, the tariffs to bury loved ones had to be adjusted to correspond with this. The majority of cemeteries in the former PEM areas are in a better condition compared to the ones from historically disadvantaged areas although more development is still required. The majority of these cemeteries had some level of infrastructure such as offices, roads, sewerage system, electricity and public ablutions already installed and unfortunately those have also deteriorated to a degree.

The Municipality is required to render burial services and keep an accurate record of the deceased in our Cemeteries. An electronic system has been put in place to keep paperless, electronic records in a legally compliant manner and in line with best practices established by the South African Cemetery Association. The electronic system makes it possible to management cemetery capacities and life spans, grave re-use opportunities, search facility for burial records based on any combination of data fields available online. The database currently comprises over 400 000 burial records plus an additional 400 000 survey records across 33 municipal cemeteries and going back as far as about 1900s. All records can be found within 30 seconds. This has also assisted in the detection of fraud and corruption in NMBM where over 10 million Rand of lost revenue has been detected through the use of the Cemetery Manager software and this has remained constant ever since.

Currently the demand for burials in selected cemeteries far exceeds capacity and might result in rapid reduction of its lifespan. Residents are encouraged to bury their loved ones in Cemeteries that are closer to where they live but due to the fact those

who can afford to pay for better developed cemeteries are allowed to choose a cemetery which is far from their homes.

## 6. TRENDS AND DEMAND FOR TRANSPORTATION

Fundamental to the concept of the Integration zones is the accessibility via public transport and Transport Oriented Development. This is in accordance with the CITP objectives of:

- Integration
- Safety
- Environmental Impact
- Economy
- Accessibility

Poor integration due to historic spatial planning and land-uses perpetuates inadequacy in accessibility to work opportunities and other amenities by public transport which impacts negatively to the economy, environment and other social factors through long average travel times, high fuel usage and wasted time.

One of the focal points of the MSDF is to develop corridors along major transport routes. The corridors in the proposed integration zones are to be flanked by mixed-use development and will be supported by improved public transport routes that were identified specifically to facilitate mobility and accessibility within the integration zones. The starter service as it is current being planned is mainly subscribing to the five objectives of the CITP that which seek to foster integration and provide safe and secure service while increasing accessibility by either contributing or facilitating socio and economic activities within the NMBM and beyond, while doing so within the ambit of the environment.

## 6.1 Trends in demand for transport services by mode and income group

The Transport Travel Survey undertaken in 2009 indicates an estimated total of 1.33 million person trips per day in the municipal area.

**TABLE 20: Person Trips per Day (2009)**

| Mode | Person Trips | % (All Modes) | % Private / Public | % Public Modes |
|---|---|---|---|---|
| Private vehicle | 739,746 | 56 | 57 | - |
| Taxi (all types) | 372,866 | 28 | 43 | 67 |
| Bus | 188,465 | 14 | | 33 |
| Walk | 23,974 | 2 | - | - |
| Total | 1,325,051 | 100 | 100 | 100 |

*Source*: SSI Engineers & Environmental Consultants, March 2011

It should be noted that this information excludes the number of passenger trips by commuter trains; only two scheduled train services a day are in operation between Uitenhage and the Port Elizabeth CBD. The train service is accessible to a relatively small number of residents within walking distance of the stations, because the railway line was originally constructed as a freight line, located away from the residential areas.

A future public transport route between Uitenhage and Port Elizabeth would alleviate this problem. PRASA is well advanced in the planning of the Motherwell to Port Elizabeth Commuter Rail Corridor.

Walking is the predominant mode of travel in low income areas, while private transport is the predominant mode used in the Port Elizabeth Central/Western suburbs and Uitenhage/Despatch areas. In the Northern Areas (Gelvandale/ Bethelsdorp), there is an almost equal modal split between walking and private and public transport.

Contracted bus services and minibus taxis are currently the predominant public transport service providers in the municipal area.

## 6.2 Implications of ITP and IPTS for land use management

According to the Technical Transport Planning Guidelines for CITPs prepared by the Department of Transport, the MSDF should be influenced by the CITP. Specifically, the alignment of an Integrated Public Transport System (IPTS) should inform land development, thereby providing proposed developments access to existing and operational public transport facilities. Additionally, the CITP can indicate the necessary intensification requirements of commercial, residential and activity land-uses that would make an IPTS viable. Low density, dispersed developments beyond the reach of public transport corridors have numerous negative impacts on the transport system, including long trip-times to public transport nodes, poor non-motorised transport (NMT) opportunities and the promotion of private vehicle use. These developments should consequently not be prioritised for development until they are linked to the public transport system or employment opportunities are provided within or close to the development and urban densities are increased to sustainable levels.

The MSDF, and the individual project proposals specified by the MSDF, should be evaluated according to the transport implications of the project alternatives. Selection of project alternatives should be made with reference to the performance of the proposal and transport system in terms of the following objectives:

- Integration
- Safety
- Environmental Impact
- Economy
- Accessibility

The MSDF should be informed by the CITP in such a way as to meet the five above mentioned objectives. Poor integration of land-uses and inadequate accessibility to work opportunities by public transport negatively impact the economy and environment through long average travel times, high fuel usage and wasted time.

One of the focal points of the MSDF is to develop corridors along major transport routes. These corridors are to be flanked by mixed-use development and will be supported by improved public transport routes, such as the Khulani Corridor that extends from the NMBM 2010 Stadium to Njoli Square and Motherwell. These

corridors thereby promote accessibility to a number of amenities, facilities and jobs, as well as improve mobility within the City.

The strategic development projects included in the MSDF implement the core development focus areas. A number of projects, such as the Njoli Square Development, the Motherwell Urban Renewal Programme, and the Zanemvula Project to name a few, include strategies to promote mixed-use development, increase urban density and infill housing on currently vacant land, especially along transport corridors.

A core component of the Urban Network Strategy and identified Integration zones is to promote transport oriented developments.

Improved integration is assured by promoting public transport development, which is made viable by increasing housing densities as more people can make use of fewer public transport stops. The safety of users is enhanced by upgrading the road reserves as well as through densification: by placing more residences and businesses adjacent to the access routes, human presence on the street is increased thereby enhancing pedestrian security. Environmental impact is mitigated by reducing travel distances and time spent travelling by promoting mixed-use developments and public transport. Dense, mixed-use neighbourhoods allow economic opportunities and community facilities to be located closer to a greater number of residents, thereby making the provision of facilities more cost effective. Accessibility to public transport and facilities is also improved by dense, mixed-use development strategies on defined transport corridors.

An area which was lacking in a number of projects is specific reference to the safety and security of pedestrians, cyclists and wheelchair users and community segregation by barriers such as high order roads and rail lines. This needs to be addressed in the MSDF under review for the 2015/16 financial year.

Overall, however, the SDF performs favourably in terms of its implications on the transport system, as evaluated in terms of the five objectives for good integration of a spatial development framework and the transport system that ultimately supports it.

# 7. TRENDS AND DEMAND FOR SUSTAINABLE DEVELOPMENT

## 7.1 TRENDS AND DEMAND FOR SUSTAINABLE DEVELOPMENT

The Nelson Mandela Bay Municipality (NMBM) must delivery it's services in a sustainable manner (Local Government: Municipal Systems Act, No 32 of 2000). In terms of the United Nations Development Programme (UNDP) paper on *Sustainable Development: From Brundland to Rio 2012*, sustainable development is defined as development which meets the need of the present without compromising the ability of future generations to meet their own needs.

Ecological system services (Ecosystem services) are the services or benefits provided by the natural environment (e.g. flood attenuation services provided by wetlands, and food supply from wild or domesticated plants). If these "free" services are not well-managed for future generations, rate payer's money would fund an artificial replacement of that service (e.g. stormwater management infrastructure to replace a degraded wetland).

Ecological infrastructure is only one contributor to the services that a municipality offers. In a local context, sustainable development then relates to all resources, ecological and others, which form part of service delivery. Sustainability in development should therefore be an all-encompassing concept that is directly linked to how municipalities plan and deliver services.

The South African National Framework for Sustainable Development (NFSD) (2008) is the precursor to the National Strategy for Sustainable Development and Action Plan 2011-2014 (NSSD 1). In the NSSD 1, sustainable development is accepted as a long-term vision for the country's prosperity. Through 5 key priorities, it sets out to guide the implementation of all three tenets of sustainability (environmental protection, social equity and economic efficiency).

Priority 3 relates to the green economy and provides interventions to unlock the potential of this "mindshift" in developmental thinking. Infrastructure, and indeed the built environment, must become sustainable to serve both the needs of present and future communities. Another intervention is to implement a "Green Building

Regulator Enforcement Programme", and municipalities can develop Green Building by-laws.

The NMBM's IDP provides a strong focus on Local Economic Development and job-creation projects for waste minimization, beautification and education and awareness-raising for residents on climate change. Overall, all the five priorities of the NSSD 1 can guide local government in making decisions on how to create sustainability in both human settlements and the built environment.

*How the ecological (natural/green) infrastructure supports and constrains urban growth and development; procedures; standards; and performance*

The governing legislation for the natural environment is the National Environmental Management Act (Act No. 107 of 1998), abbreviated to NEMA. NEMA and other specific environmental management acts (SEMAs) which emanate from it, specifically the Environmental Impact Assessment Regulations inclusive of all Listing Notices (2014), guide development and any activity which has potential negative environmental impacts. The ethos of application of environmental legislation is on a "polluter pays" principle, and establishes responsibility and accountability for mitigation actions for development which compromises natural or socio-economic processes.

It is unsustainable development (e.g. urban sprawl; illegal developments), exploitative growth and investment in non-renewable energies which places constraints on urban growth. These business-as-usual approaches also place constraints on ecological services and prevent access to green economy opportunities.

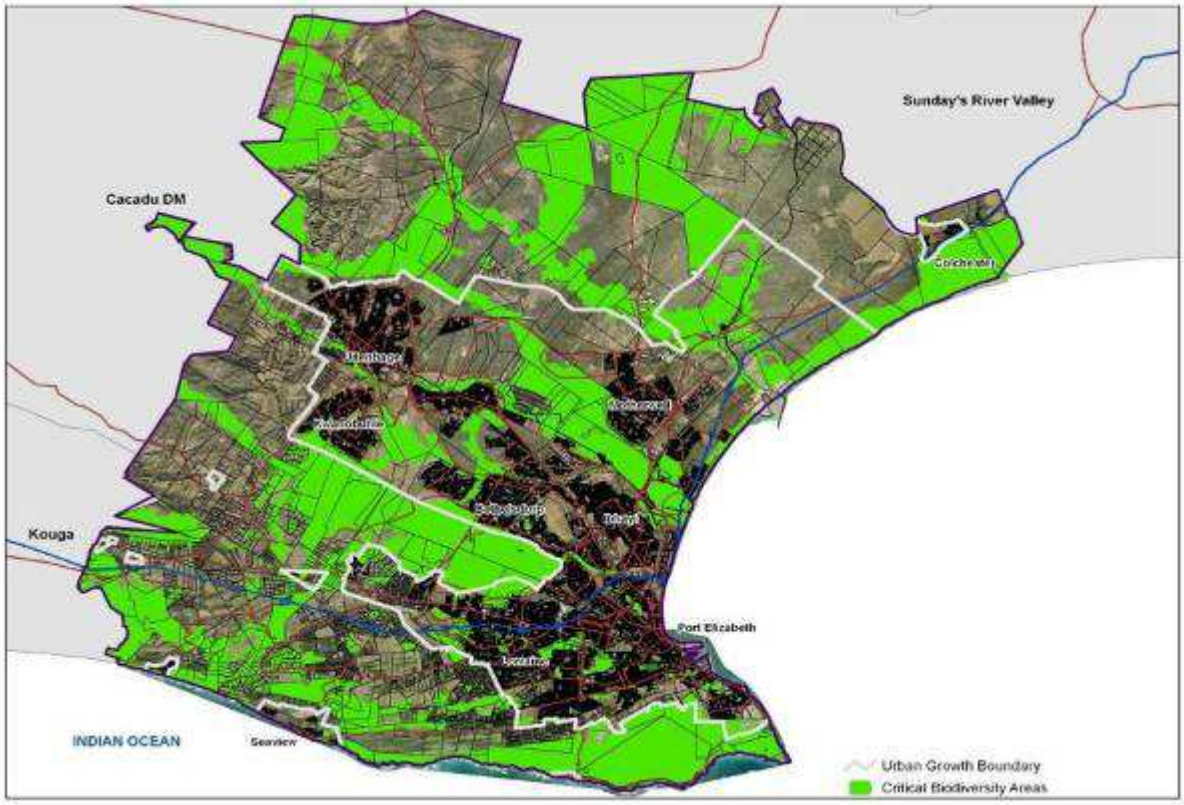
The National Environmental Management Biodiversity Act, Act 10 of 2004 and other environmental legislation require municipalities to develop strategic environmental planning tools (i.e. Strategic Environmental Assessment, Environmental Management Framework and Bioregional Plan, Greening & Beautification Plan) and management programmes aimed at informing and guiding land use planning and

decision-making processes, thereby promoting sustainable biodiversity management.

The Municipal Systems Act, Act 32 of 2000 also requires that the environmental impacts of the Municipal Spatial Development Framework (MSDF) be evaluated. In 2007, the NMBM completed a systematic biodiversity planning assessment process that spatially represented a network of its biodiversity resources and processes. This process of developing the municipality's systematic biodiversity assessment led to the Bioregional Plan (gazetted in March 2015). The Biodiversity layer of the Bioregional Plan informed the MSDF.

The biodiversity network represented within the MSDF was later used to inform the Environmental Management Framework (EMF) at a Metro-wide scale in 2009. It is used to guide development to appropriate areas and limits development in environmentally sensitive areas. Geographical areas were identified and mapped to facilitate a reduction in the legal requirements and streamline the Environmental Authorisation process at a strategic level. This process ensures that biodiversity priorities are taken into the sector planning of the NMBM. The review and refinement of the metro's EMF was completed in the 2015/2016 financial year.

**FIGURE 12: NMBM Metropolitan Open Space System**




*Source:* NMBM Metropolitan Spatial Development Framework, 2009

The NMBM Bioregional Plan is aimed at conserving biodiversity at a regional level and is primarily concerned with guiding land use planning and decision making through improving the legal standing and consideration of Biodiversity/Conservation areas by all organs of state. This plan is the first that a municipality has developed and gazetted in South Africa, and is legally binding for developments within the NMBM. The National Environmental Management Act 107 of 1998, and the updated Environmental Impact Assessment (EIA) regulations and Listing Notices of 2014 also make specific mention of threatened ecosystems, Critical Biodiversity Areas (CBA), Bioregional Plans and systematic biodiversity plans to act as EIA triggers, mining permits, Air Emissions Licenses (AEL), forestry permits, and Water Use License (WUL) triggers. Development is therefore controlled legislatively, through the requirements for these licenses. The Bioregional Plan has been updated and is available on the municipal website. The Bioregional Plan has been listed as a

Strategic Plan of the Municipality, and is a legally-enforceable tool with which development applications must be managed.

To ensure the alignment of service delivery objectives, governance structures are critical to achieving a common-ground approach to the mandate of local government. The incorporation of municipal and provincial spatial planning instruments is encouraged as a means of integrating and aligning of strategic sustainability priorities. The overlaying of municipal spatial development frameworks, the conservation status layers, and collaboration with Environmental Management, Human Settlements, Infrastructure and Engineering, and other relevant Directorates are all efforts which speak to this integration and alignment.

A Corporate Environmental Impact Assessment Task Team (CETT) and Bilateral meetings between the Nelson Mandela Bay Municipality and the Provincial Department of Economic Development and Environmental Affairs (DEDEAT), the Department of Agriculture, Forestry and Fisheries (DAFF) and the Department of Water and Sanitation (DWS) are further instruments employed towards ensuring integration at social, economic and environmental levels.

Sustainable coastal management in a city with coastal assets such as Nelson Mandela Bay is imperative for risk reduction from the impacts of climate change (storm surges) and coastal erosion. The NDP 2030 states that one of the indicators to achieving environmental sustainability is a target for the percentage of land and oceans which are under protection. The oceans and coastline are not only resources, but are also subject to developments under the Operation Phakisa initiative.

The National Environmental Management: Integrated Coastal Management Act, Act 24 of 2008, allows for the development of a Municipal Coastal Management Programme. This programme calls for an integrated, coordinated and uniform approach to coastal management within the Metro by all stakeholders in ensuring the sustainable use of coastal resources. The programme in the form of the NMBM Coastal Management Plan was updated in 2015 and was subjected to a public review process. The Coastal Development Line (hazard lines) study has been

completed in association with the Eastern Cape Provincial Department of Economic Development, Environmental Affairs and Tourism (DEDEAT). The delineated coastal development lines will be used to inform appropriate development along the coastline of the Metro by means of specific regulations as well as the updated Coastal Management Programme and other sector plans of the NMBM. Nelson Mandela Bay also manages (under the Department of Environmental Affairs: Oceans & Coast) the protection of a declared Marine Protected Area (MPA) at the Sardinia Bay beach. The natural resources planning, inventory and operational management of the NMBM's nature reserve network and green infrastructure network is concerned with conserving ecosystem values, functions and the restoration of natural systems that underpin watershed health and hydrological integrity supporting natural resources necessary for agriculture and aquaculture.

Municipal policies, such as the Integrated Environmental Policy and the Integrated Energy Plan, are specifically geared to address the response and resilience of all communities to climate change impacts. The NMBM now has an action-based response to climate change, in the form of the Climate Change and Green Economy Action Plan (2015). This municipal response uses a scientifically-sound climate projection, a collaborative vulnerability assessment and specific sector interventions to respond the challenges of climate change, but also create sustainable economic opportunities (green economy) from these responses. This climate response action plan directly links to the green economy opportunities which can be gained from climate change impacts, in accordance with the outcomes of the Strategic Infrastructure Projects (SIPs).

Open public spaces are a legislative right for citizens. They are however increasingly being lost to development priorities or due to lack of investment by the local authority. These “green lungs” do not only add aesthetic value but also help mitigate the urban heat island effect, filterer air and reduce runoff .The open public spaces are opportunities to create integrated communities, promote non-motorized transport modes, and create liveable, breathable cities.

The Integrated Environmental Policy of 2012 (currently under review) specifically, provides guidelines for the Land Use and Planning sector of the Municipality, which (amongst others) are to:

- Undertake spatial planning that reduces urban sprawl, promotes densification, mixed use development, and corridor developments, and
- Encourage green buildings and sustainable design and development practices.

The municipal guidelines in the NMBM Integrated Environmental Policy predate the legislation in the Spatial Planning and Land Use Management Act (Act No 16 of 2013). Thus, together with the NMBM Sustainable Communities Planning Guidelines of 2009, sustainable spatial planning has been part of the municipality's spatial vision, historically-speaking.

On the 28th September 2015, the first green building for the NMBM was opened to the public in the Grootkloof area of the Van der Kemps Kloof natural reserve area. Named the Grootkloof Education Center, it houses a rainwater harvesting tank, solar powered heating & lighting systems, gas powered cooking systems, recycling and has multi-functional spaces.
The NMBM has set out to achieve the following sustainable goals:

- Providing an affordable and secure energy supply that increases the development and use of renewable, less toxic and less carbon intensive sources.
- Providing affordable and secure energy for all, while minimising demand and consumption.
- Increasing the percentage of energy derived from renewable sources.
- Policies promoting the use of clean and efficient energy.
- Achieving greenhouse gas emissions and air pollution reduction in both municipal operations and the community at large, with attention given to the reduction and prevention of inequalities.

- Improving the response and resiliency of all communities to climate change impacts on the built, natural and social environments, with the emphasis on public health and historically underserved populations.
- Ensuring that outdoor air quality is healthy for all segments of the human population and the natural environment.

The NMBM has actively engaged on climate change issues since 2009. Various campaigns, workshops, initiatives and intergovernmental relations activities have taken place and Nelson Mandela Bay is the leading metropolitan city in terms of climate change actions for the Eastern Cape Province.

The NMBM's Climate Change and Green Economy Action Plan is the official climate change response guide for all Directorates.

The current areas of focus for climate change in the city include:

- Greenhouse gas emissions tracking and reduction.
- Promoting Go Green initiatives, whilst exploring municipal and public awareness actions.
- Addressing the roles and responsibilities of every directorate in climate change related issues.
- Responding to vulnerability and aligning it with urban adaptation.
- Education and awareness.
- Ensuring alignment with provincial and national strategies and actions, and managing in-house policies and strategies.

In 2013, a municipal Community Awareness Campaign, called the Go Green Advocacy Programme, was launched. This Programme was aimed at providing residents with the resources they need to think critically about and address environmental problems and solutions, and include the environment as an important consideration in their work and daily living. This awareness programme built on the Go Green Campaign, which was initiated in 2008 to showcase municipal-led projects

and initiatives which demonstrated sustainability. Approximately 108 000 households were targeted in face-to-face information sessions.

Despite these actions, climate change responses remain largely isolated and a constraint in this area is municipal leadership for climate change. There is still no dedicated department or official for climate change response work. Different municipal departments have played their part in sustainable climate change actions. However, this decentralized approach requires coordination. This becomes challenging when monitoring and reporting has to occur, because the owners of the data and/or information are not centralized or integrated.

The Integrated Energy Plan aims to provide a high level perspective of the energy trends and needs of Nelson Mandela Bay over the next 10 years. This plan is being superseded by the State of Energy Report, which was finalized in the 2015/2016 financial year.

Another tool which was approved by the NMBM Council in 2009, is the Green Procurement Implementation Strategy, which is aimed at moving the NMBM toward the inclusion of environmental criteria in its Supply Chain Management Policy in order to encourage the development and diffusion of goods and services which have the least impact on the environment. Green or sustainable procurement addresses sustainable, domestic-focused and inclusive economic development. However, in implementing this procurement approach, the following learnings have occurred:

- There is still reluctance by supply chain management officials to defend environmentally sustainable specifications (despite a long history of consultation and awareness-raising)
- National procurement legislation for municipalities does not cater for sustainable procurement. This is translated by the NMBM Supply Chain Management Policy, and the review of this policy has not included environmental specifications as provided in the public participation exercises.
- Litigation cases against the NMBM for requesting only local suppliers has been cited as one of the reasons for the reluctance to request only municipal-based suppliers (Localization is used to create unfair competition).

An Environmental Management System (EMS) is in operation at the Nelson Mandela Bay Multi-Purpose Stadium. An EMS is a management tool aimed at reducing and managing the environmental impacts of activities, and is a condition of the Stadium's environmental authorisation. This Stadium was built on Green Goal principles, sourced from the 2006 FIFA World Cup held in Germany.

The NMBM has adopted the national standard for energy efficiency or SANS 204 in municipal buildings, which greatly raised awareness of the consumption of energy resources and the type of energy resource that is being used.

The Disaster Management Sub-Directorate (Safety & Security Directorate) has identified in its' Risk Assessment (2010) that the highest rated risks to the NMBM are Hydro-metereological (Floods & Storms) and Hydro-metereological (Droughts), and then Environmental Degradation (in order of importance). This has implications for city planning. Preventative and disaster-proof city planning and design must become the norm in future where the effects of climate change are not linear or always predictable. Additionally, the potential positive impacts of climate change likelihoods (such as increased rainfall) must not go ignored. Resilient infrastructure and resilient services can be created if rainwater harvesting and even stormwater harvesting is investigated as part of the approach to urban development.

The Integrated Waste Management Plan (IWMP) of the Municipality also galvanizes the legislative understanding of the waste hierarchy (Reduce, Reuse, Recycle). The IWMP objectives revolve around the inclusion of the waste hierarchy during the collection, cleansing, transportation and disposal of waste products. The second generation of the IWMP (in 2015) has led to the inception of the Waste Diversion and Beneficiation Project for the Municipality, which intends to divert waste-to-landfill and create secondary waste economies.

This Metro-wide project is aimed at the betterment of the waste management infrastructure, processes and existing systems to offer better efficiency and offer operational cost savings to the NMBM.

Key to this project is the implementation of waste management infrastructure which is to be constructed on strategically located sites including the possible construction of a waste-to-energy (WtE) plant. A detailed feasibility study has been carried out recently, which identified the project to be economically, environmentally, technically and socially feasible. The project may introduce approximately 300 new sustainable jobs.

The Waste Management infrastructure for this project comprises the construction of what is described as “Waste Parks” including waste transfer stations, waste sorting and recovery facilities (also called Materials Recovery Facilities – MRF’s), and waste treatment which may include composting, anaerobic digestion (AD), aggregate crushing and sieving and waste-to-energy (WtE).

Five (5) sites where identified for Waste Management Infrastructure and the establishment of “Waste Parks” within the NMBM. These are:

- Greenbushes - Approximately size 200 x 220m
- Markman (Motherwell) - Approximately size 400 x 1000m
- Koedoeskloof - Approximately size 330 x 150 m
- PPC West - Approximately size 46ha
- Coega - CDC Zone 5

The sites earmarked for the “Waste Parks” are PPC West and Koedoeskloof, whereas Coega is earmarked for a waste-to-energy plant site only and Waste management infrastructure is earmarked to be installed and constructed at Greenbushes; Markman/Motherwell; PPC West; and Koedoeskloof. The Koedoeskloof site has been earmarked for the development of the landfill gas extraction component of the Waste Diversion and Beneficiation Project.

# 8. IMPACT OF SECTOR TRENDS AND DEMAND ON SPATIAL FORM

The spatial challenges identified, are not experienced in Nelson Mandela Bay only, but are common problems throughout South Africa and include:

- Fragmented socio-economic spatial development (an apartheid legacy).
- Urban sprawl.
- Low densities.
- Lack of integrated transport planning, e.g. car-dominated planning.
- Misalignment of transport and land-use planning.
- Poor civic infrastructure, especially in disadvantaged areas.
- Lack of housing typologies for lower income groups.
- Lack of mixed use and tenure options in lower income areas.

In order to address the above fragmented spatial form, a number of initiatives have been introduced and implemented to a varying degree in Nelson Mandela Bay. These include the following:

- Comprehensive Integrated Transport Plan, to ensure accessibility.
- Defining an urban edge and densification policies.
- Focus on the civic infrastructure in the public realm.
- Metropolitan Spatial Development Framework, including Local Spatial Development Frameworks and Sustainable Community Planning.
- NMBM Housing Programme.
- Social housing implementation.
- Land Use Management System revision.
- Retention of erven in new low income areas for private sector, residential and mixed use.
- Integrated Development Matrix.
- Urban simulation modelling, with a view to refine certain shortcomings identified during the first round and to incorporate financial modelling for the long-term financial sustainability strategy.

- Formulation of a long-term desired shared vision and mission.
- Development of the Urban Network Strategy and Integration Zones

Some of these interventions have been successful; however, the following aspects have been identified as barriers to the effectiveness of the interventions:

- The lack of funding to tar gravel roads and provide access to new areas and internal roads is a major inhibiting factor, as banks will not finance commercial developments unless they are located on a tarred road. Although land is made available for mixed-use development, this deters private sector development in newly developed residential areas.
- Private sector developers constantly pressurise the NMBM to relax the urban edge. Arguments such as the need for job creation and economic diversity are used to motivate developments. These developments cause leap-frog developments and unsustainable bulk infrastructure.
- The acquisition of well-located private land at market related prices is a prolonged process, for which there is insufficient funding.
- Growth in the local population and economy is very slow. The implementation of development and the steering of development initiatives to priority areas can therefore take place over the long term only.
- For fully integrated and sustainable settlements, quality civic infrastructure in low income areas is needed. This includes the quality of roads, pavements, cycling infrastructure and civic amenities. There is no funding for this provision from the current grant framework, and the NMBM is unable to fund this infrastructure itself. The result is that new lower-income township areas are developed, with noticeably deficient civic infrastructure and amenities.
- The Spatial Planning and Land Use Management Act (SPLUMA) was promulgated in 2013 and enacted in July 2015. A Municipal Planning Tribunal (MPT) as required in terms of the Act, has been in place since August 2016 and is streamlining applications processes.
- Intergovernmental coordination is a major challenge with regard to integrated and sustainable human settlements. This is because facilities and services that are to be provided by the provincial sphere of government are not being

properly coordinated in the development and redevelopment of human settlements areas.

- In certain projects in the Municipality, such as Zanemvula and Motherwell Extensions 29, 30 and 31, extra-ordinary arrangements have been made to secure the necessary intergovernmental coordination. This, however, does not happen as a matter of course in all projects. The Integrated Development Matrix was specifically developed to identify, at an early stage, the roles and funding requirements of all actors in the development of human settlements and to secure commitment.
- The Provincial Department of Transport does not contribute adequately to the maintenance of provincial roads in the Metro.
- The perpetuation of RDP housing with low densities remains a challenge. There is a need to change the mindset of communities and other roleplayers to adopt alternative sustainable solutions.
- Densification along corridors is slow due to the very slow growth being experienced in the Metro coupled to the majority of development being in the subsidized housing sector.