

SITUATIONAL ANALYSIS OF NELSON MANDELA BAY BUILT ENVIRONMENT – 2020

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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 - 1,271,776 (STATS SA 2017)
- Households (total) - 365 973 (STATS SA 2017)
- Households (formal) - 289 547 (SHISAKA, 2017)
- Households (informal) - 76 426 (SHISAKA, 2017)

- Informal households in backyard shacks - 16 774 (SHISAKA, 2017)
- Informal households in Informal settlements - 59 652 (SHISAKA, 2017)
- Number of informal settlements - 94
- Area covered - 1 959 km²
- Unemployment rate - 35% (ECSECC, 2020)

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

TABLE 1: Population Trends in NMBM (2001 to 2011)

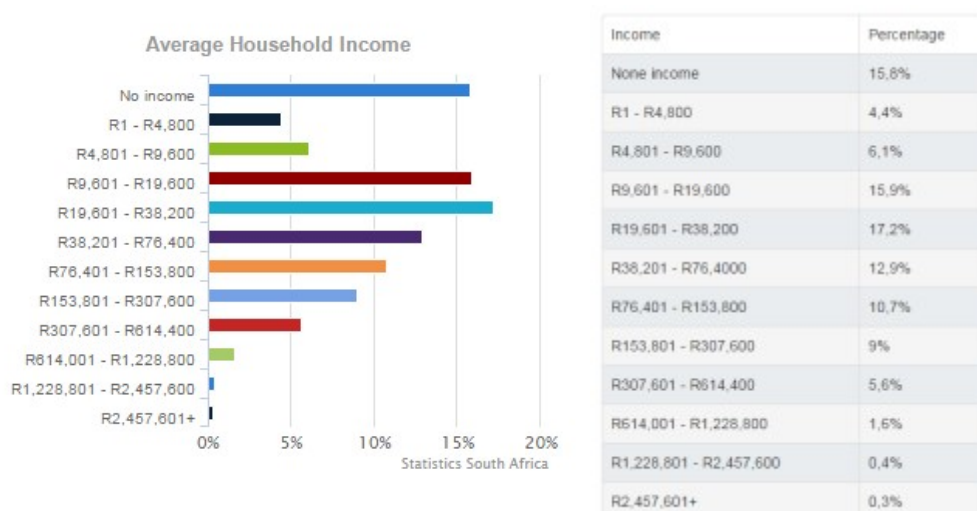
Year	Total	Asians / Indians (%)	Black Africans (%)	Coloureds (%)	Whites (%)
2001	1 005 804	1.12	58.93	23.43	16.51
2007 (CS)	1 050 933	0.92	60.40	22.56	16.12
2011	1 152 112	1.11	60.13	23.56	14.36
2015	1 224 630	1.1	56.0	24.1	18.8

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. This trend will continue into the near future.

FIGURE 1: Household Income Distribution (2011)

Household Income (monthly)



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 subsidised public sector housing.

Nelson Mandela Bay has the lowest proportion of informal households among South African Metropolitan Municipalities, having significantly reduced the numbers since 2001 (SACN, 2016). In addition, the average number of people per household declined from 4,25 in 1996 to 3,55 in 2011.

The life expectancy among Nelson Mandela Bay residents is 59,3 years and 53,7 years for females and males respectively. This is the same as Buffalo City. By comparison, Cape Town has a life expectancy of 70,1 and 64,2 years, while Mangaung has a life expectancy of 52,7 and 49,6 years for females and males respectively (SACN, 2016).

Regarding education, in 2011, 19,7% of Nelson Mandela Bay's population had attained matric, whilst 6,8% had a higher education (SACN, 2016).

In analysing non-school going residents, 3% had no schooling, 13% had Grade 7 or less (Primary School level), and 75% had a school education of Grade 12 or less (Secondary School level) (STATS SA, 2011).

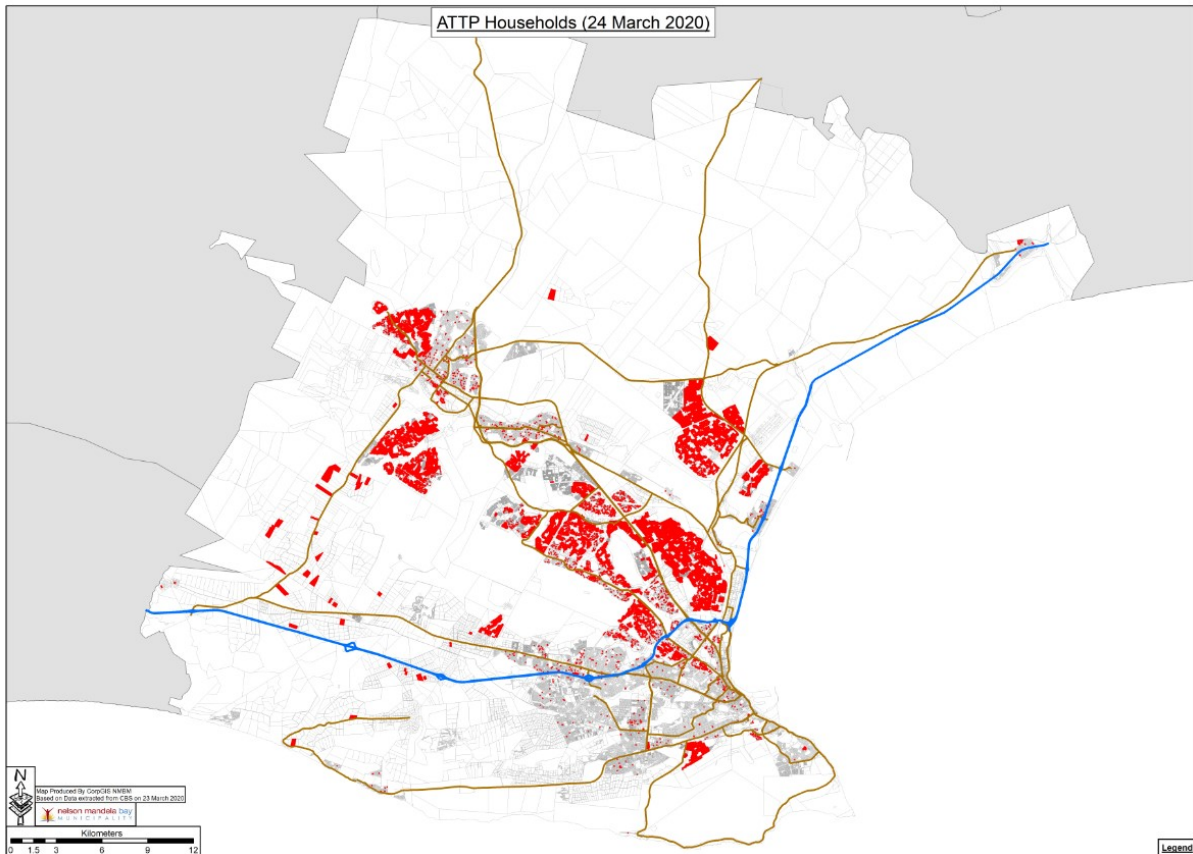
The following aspects support the information provided above and serve to illustrate the socio-economic trends in Nelson Mandela Bay.

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

Poverty alleviation in line with national government policy is a priority of Nelson Mandela Bay. For this reason, the annually gazetted Equitable Share Grant is used to provide assistance to poor households who cannot afford to pay for basic municipal services, rates and taxes. Nelson Mandela Bay Municipality has an indigent programme known as Assistance to the Poor (ATTP). This is a subsidy programme for qualifying indigent formal households to obtain a subsidy 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. It is also an indication of the economic situation in the municipality.

FIGURE 2: Spatial Distribution of ATTP Programme Beneficiaries



Source: NMBM CorpGIS, 2020

The figure above shows the location of the 64 236 households (October 2019) that benefit from the indigent subsidies under the ATTP programme. At 30 June 2019 this figure was 85 779 which is a reduction of 21 543. This is due to a current verification process. This figure will change as the municipality has 19 768 new qualifying applications to process. In broad terms, these figures correlate with the results of demographic studies and confirm 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 generally 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.

In the 2018/19 financial year indigent households benefited by free services as part of the assistance to the Poor (ATTP) programme as follows:

• Water Services	R147 063 568
• Sanitation Services	R180 318 438
• Electricity Supply	R 42 286 410
• Refuse Removal	R111 626 271
• Municipal Rates	R118 239 213
TOTAL	R599 533 900

Of the R939 million allocated Equitable Share of 2018/19 the NMBM has spent 64% directly on indigent households. Despite fluctuations in the number of indigent households, the indigent cost continues to increase due to annual tariff increases and the arrear debts that accumulate before a household qualifies as indigent. This impacts directly on the available funds for repairs and maintenance backlogs.

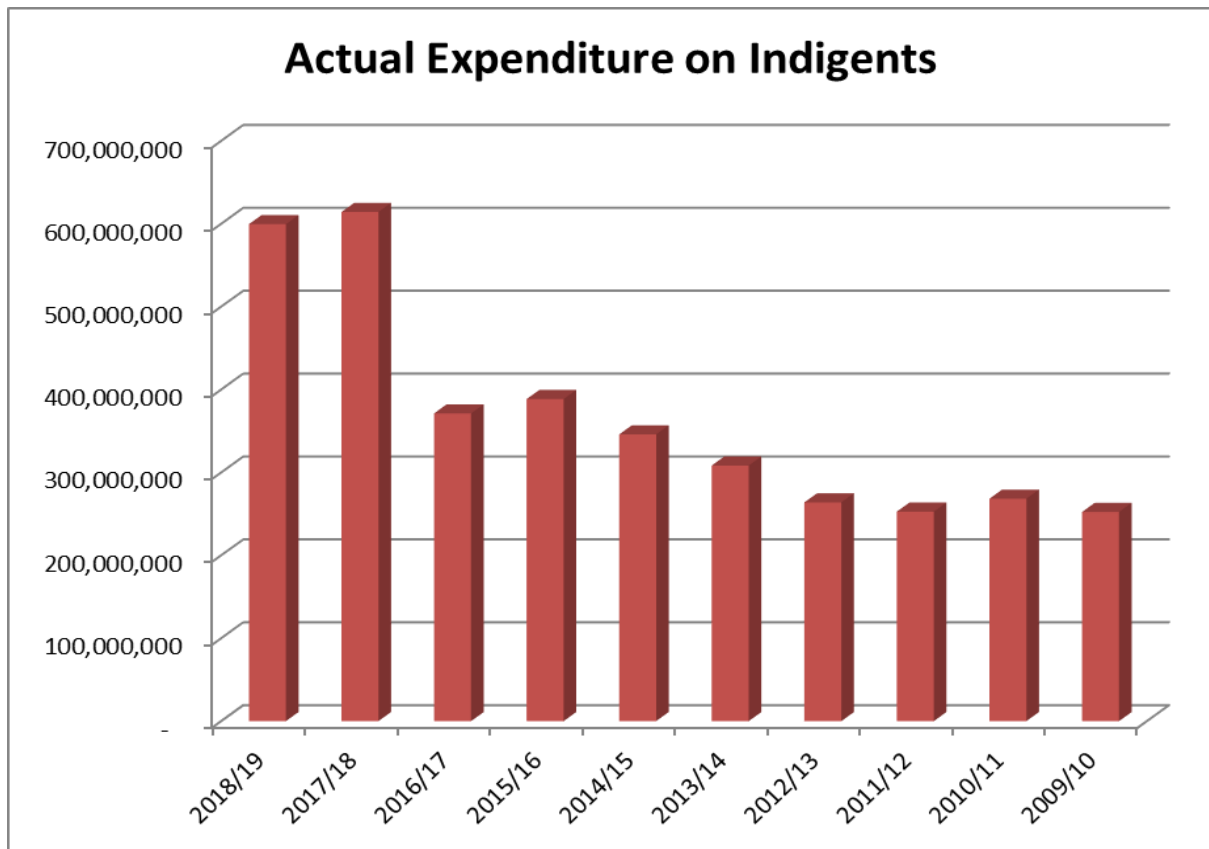
Currently approximately 27% of formal households in the city cannot afford basic services and are funded in terms of the indigent program. This is an unsustainable situation that requires urgent intervention.

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

TABLE 2: ATTP - Number and Value of Financial Assistance to ATTP Households

Description	2018/19	2017/18	2016/17	2015/16	2014/15
Number of Indigents (closing numbers)	85,779	101,258	115,934	88,776	86,428
Year-on-Year growth (decline) in indigents	-15,479	-14,676	27,158	2,348	1,406
Actual Indigent Allocation	599,533,900	614,218,196	371,170,533	388,554,845	345,946,687
Gazetted Equitable Share	939,530,000	844,287,000	798,043,000	774,616,000	761,606,000
% of Equitable Share	64%	73%	47%	50%	45%
Description	2013/14	2012/13	2011/12	2010/11	2009/10
Number of Indigents (closing numbers)	85,022	71,551	72,400	95,498	108,665
Year-on-Year growth (decline) in indigents	13,471	-849	-23,098	-13,167	-869
Actual Indigent Allocation	308,292,772	263,880,851	252,770,170	268,321,432	252,311,837
Gazetted Equitable Share	743,325,000	729,226,000	656,653,000	602,883,000	466,834,716
% of Equitable Share	41%	36%	38%	45%	54%

Source: NMBM Budget & Treasury, 2020

FIGURE 3: Financial Contributions made to Indigent Households in NMBM

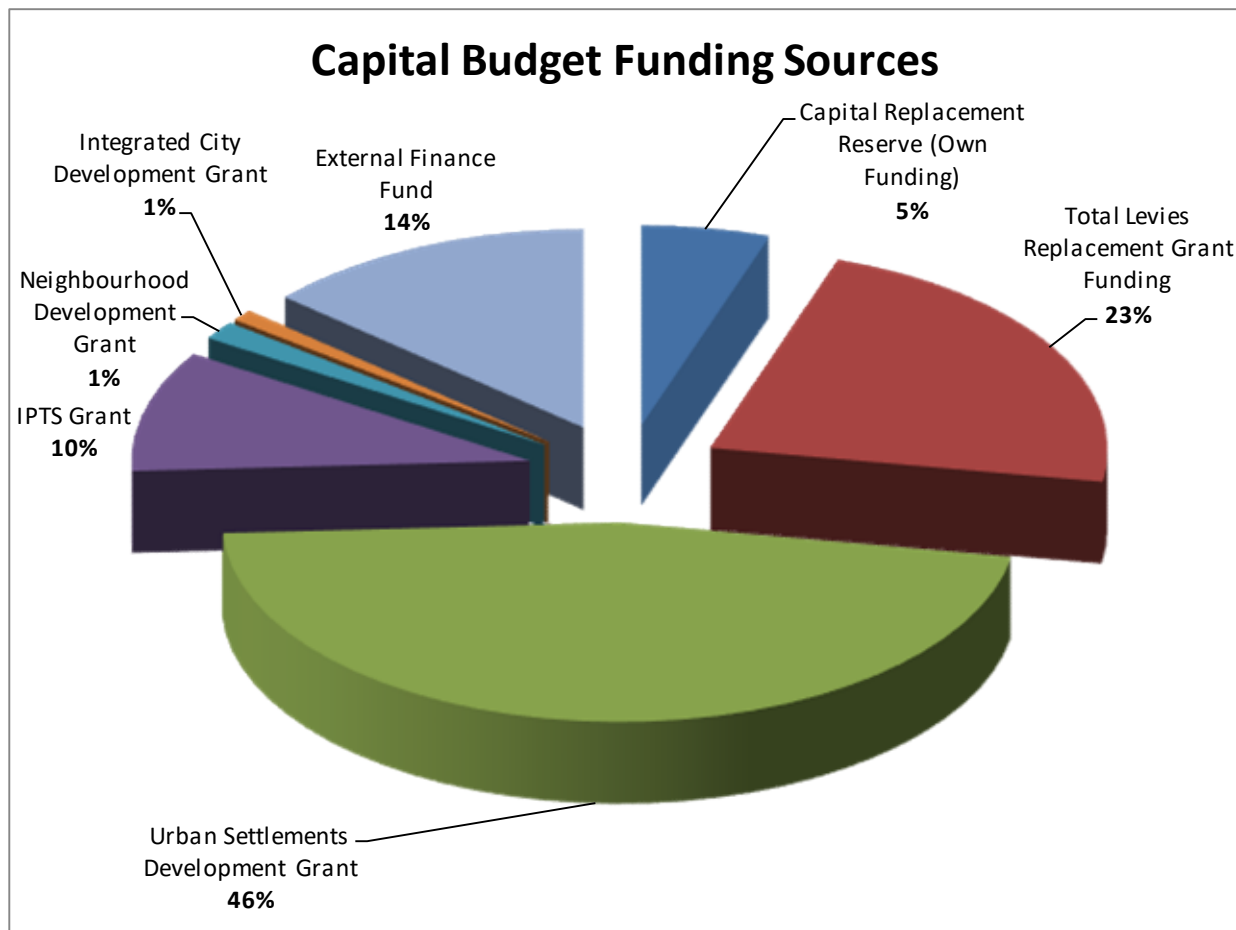
Source: NMBM Budget & Treasury, 2020

(c) Financial Overview of Nelson Mandela Bay Municipality

The total NMBM Draft Capital Budget for the 2020/21 financial year is R1.7 billion. However, this will increase as the municipality is in the process of sourcing loan funding to supplement the 2020/2021 Capital Budget. These funds will be used for revenue generating projects.

The following figure and table represent the funding sources for NMBM's Capital Budget – excluding the potential loan funding.

FIGURE 4: 2020/21 Draft Capital Budget - Sources of Funding



Source: NMBM Budget & Treasury, 2020

TABLE 3: Sources of funding

Sources of Finance	Value	%
Capital Replacement Reserve (Own Funding)	100,269,000	6.0%
Total Levies Replacement Grant Funding	389,400,000	23.2%
Urban Settlements Development Grant	727,268,178	43.3%
IPTS Grant	171,214,540	10.2%
Neighbourhood Development Grant	30,434,783	1.8%
Public Contributions	31,000,000	1.8%
Integrated City Development Grant	9,113,913	0.5%
External Finance Fund	214,414,700	12.8%
Energy Efficiency & Demand Side Management Grant	6,081,739	0.4%
Total Capital Budget Funding	1,679,196,853	100%

Amounts listed above are VAT exclusive and reflect the Capital Budget portion of the grants only

Source: NMBM Budget & Treasury, 2020

The table below indicates that the NMBM Capital Budget grant dependency has increased from 77% in 2019/20 to 79% in 2020/21. This is a growth of 2% in dependency and this situation requires a turnaround strategy including building up cash reserves and generating revenue for the City.

TABLE 4: Grant Dependency

Unconditional Grant Dependency		
Total Levies Replacement Grant Funding	389,400,000	23%
Conditional Grant Dependency		
Urban Settlements Development Grant	727,268,178	43%
IPTS Grant	171,214,540	10%
Neighbourhood Development Grant	30,434,783	2%
Integrated City Development Grant	9,113,913	1%
Energy Efficiency & Demand Side Management Grant	6,081,739	0%
Total Conditional Grant Dependency	944,113,153	56%
Combined Total Grant Dependency	1,333,513,153	79%
Total Capital Budget	1,679,196,853	
TOTAL DRAFT CAPITAL BUDGET GRANT DEPENDENCY – 79%		

Source: NMBM, 2020

(d) Access to services

ACCESS TO SERVICES

(a) Water

- 97.68% of households in formal human settlements have access to a basic level of water supply (including households within a 200 m radius of a standpipe).
- Except for communities occupying private land illegally, all other informal settlements receive water through standpipes (within a 200 m radius) and water tanks.

- The Municipality is assessing the extent of water provision backlog in recently established informal settlements and standpipes are installed in such areas on an on-going basis.

(b) Sanitation

- 97.29% of households in formal human settlements have access to a basic level of sanitation.
- The Municipality rolled out basic sanitation in some historic informal settlements and relocated other households to formal sites with waterborne sanitation.
- During the 2018/19 financial year, the Municipality connected 2 604 new sewer connections.
- As at 30 June 2019, 6 010 buckets were in circulation in informal settlements as a means of sanitation.
- The Municipality is assessing the extent of sanitation provision backlog in recently established informal settlements. Sanitation challenges in such areas will be addressed as part of the NMBM Bucket Eradication Programme.

(c) Waste management (refuse removal)

- 87.8% of households within the urban edge (excluding informal areas on privately owned erven and erven not earmarked for human settlements development) receive a weekly domestic waste collection service by the Municipality. The remaining 12.2% (including informal households on privately owned erven and erven not earmarked for human settlements development) take their refuse to the nearest drop-off sites. The Municipality continues to face the challenge of illegal dumping and refuse collection in informal settlements without proper access roads.

(d) Electricity

- 90.7% of households are provided with access to electricity.
- 800 (out of 20 000) illegal connections were addressed through replacement with a cheaper alternative (either an off-grid photo voltage system or a basic 20-amp electrical supply).
- The Municipality continues to explore sustainable approaches towards addressing illegal electricity connections in informal areas on non-proclaimed sites (i.e. sites not serviced or surveyed/pegged, under power lines and on flood plains, and invaded municipal land).

(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)

The following table extracted from the Shisaka report shows the housing situation in NMBM.

TABLE 5: 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 @ 1.36% annual growth rate (2011 – 2032)	44,888	18,316	13,759	11,351	17,744	106,058
Total (2032)	181,740	74,158	55,708	45,957	71,840	429,403

Source: Census 2011.

The NMBM has delivered 21,891 serviced sites and 11,112 houses (both fully subsidised) between 2011/12 and 2016/17. Due to the fact that the sites delivered are used to develop the housing units it can be assumed that the number of households assisted over this period is 21,891 households.

These figures also indicate a sustained capacity within the NMBM to directly deliver in the order of 2 000 houses and 4 000 serviced stands per annum.

The assessment of the housing circumstances at 2016/17 financial year end indicates a housing need (should the NMBM not have delivered any new housing since 2011) of 115,808 houses for lower income families. These are comprised of the following:

- 29,987 (26%) who were living in informal settlements (regardless of income) as at 2011;
- 8,858 (8%) who were living in backyard rental as at 2011;
- 76,963 (66%) who are estimated new household growth from 2012 to 2032 and are projected to be earning below R12,800 (excluding salary escalation). Of these at least 4,888 (42%) are estimated to have monthly incomes of R3 500 and less.

Between 2011/12 and 2016/17 a further 21,891 households were given access to state subsidised housing in NMBM. This reduces the estimated number of households in need from 2017/18 to 2032 to 93,917 (see figure below). There is also a need to facilitate the delivery of approximately 11,351 affordable houses. Of these a portion is eligible for the Finance Linked Individual Subsidy Programme (FLISP) subsidy.

TABLE 6: Housing Circumstance and Need to 2032

Households living in informal settlements (2011)	29,987 (26%)
Households living in backyard rental (2011)	8,858 (8%)
New estimated household formation from 2011 to 2032 (earning below R12,800)	76,963 (66%)
TOTAL HH's in Need 2011 to 2032 in NMBM (living informally or new families < R12,800 pm)	115,808 (100%)
LESS: Households assisted by NMBM (house or serviced site) 2011 - 2017	21,891
Estimated number of households in need from 2017 to 2032	93,917 (plus 11,351 in the affordable market)

Source: Shishaka, 2018

Since the development of the above table, the estimated number of households in need is adjusted by taking the 3836 sites serviced during the past two reporting periods into consideration. The number of households assisted between 2011 and 2019 is 25 727 and the estimated number of households in need of housing is now revised to 90 081.

Households 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.

The reduced allocation of Housing Subsidy Development Grant from Provincial Government over the last two years is hampering the ability of the municipality to satisfy the housing demand.

Land and spatial planning challenges:

These 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 Parsonslei, Coega SEZ/ 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. The scenario recommended is summarised as “walking together for growth” and is detailed in the BEPP and is attached as Annexure B to 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, It proposes strategic shifts around the provision of subsidised BNG housing and the provision of serviced sites for qualifying BNG households, as well as households qualifying to access the FLISP (Finance Linked Individual Subsidy Programmes) programmes and rental housing provision.

The strategy was presented at an NMBM Housing Indaba in 2018 and it was identified that further refinement is required. It is envisaged that a revised Human Settlement Sector Plan, which will take the recommendations of the report, as well as other considerations into account will be concluded in 2020/21 financial year.

(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 currently under construction 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 is operational and Phase 3 planned for completion by Amatola Water as the implementing agent funded by the Department of Water and Sanitation (DWS) is scheduled for completion by June 2021.
- As a result of the persistent and periodic (every 4 to 5 yr.) droughts that the region is experiencing the NMBM is pursuing a collaboration with the CDC as an implementing agent to develop a desalination plant at Schoenmakerskop with a start-up capacity of 30 Ml/d. The anticipated project cost of ±R700M is expected to be implemented via a Build, Operate, Own and Transfer (BOOT) implementation model.
- Fishwater Flats Wastewater Treatment Works (FWF WWTW) commenced with the completion of the Phase 1 (inlet works). Subsequent contracts have commenced with as part of Phase 2. This and other Wastewater Treatment Works are critical (socially & economically) for further growth and

development in the Metro, not to mention the support for the Bucket Eradication Programme. 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 SEZ. Further development of the SEZ 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. The CDC has secured funding from National Treasury for the pipeline system.
- Planning has commenced on a new wastewater treatment facility to support the housing developments north of Motherwell and the Coega SEZ. This plant is planned for an ultimate capacity of 120 MI/d costing in the region of R3 billion. A start up capacity of approximately 40-50MI/d will be required and is estimated at R750 million (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 7: Critical Growth and Investment Priorities in NMBM

No	Description	Cost Est.	Budget	Timing	Project Status
1	Nooitgedaght Phase 3	R350M	DWS	Jun-21	Construction stage
2	Borehole Water Exploration	R300M	'18/19 R8.94M; 19/20 R214.96M; 20/21 R60.01M	– - -	Dec-21 Production boreholes under construction. Tender for treatment facilities to be awarded in the 4 rd quarter of 2019/20.
3	Western Desalination	R1,500M		5 yrs.	60MI/d: Cost estimate excludes link pipe and pump station network to distribution network. Subject to EIA processes. Collaboration with CDC to be explored.
4	Sundays River Return Flows	R1,000M	R100M pa	5 yrs.	55MI/d: Cost estimate includes link pipe & pump station network to distribution network. Subject to EIA processes Subject to Feasibility by DWS based on the Algoa Reconciliation Study outcomes

No	Description	Cost Est.	Budget	Timing	Project Status
5	Fishwater Flats	R1,300M	R100M pa	5-10 yrs.	Phase 1: 100% complete
6	Coega Wastewater Treatment Works	R3000M		5 yrs.	Preliminary planning phase.
7	Coega Return Effluent	R650M		3 yrs.	Project ready for implementation
8	Non-Revenue Water	R1,631M	R650M for First 5 yrs.	10 yr. Plan	Project Commenced. 10 Yr Business Plan Approved by Council to reduce losses in the amount of R1631M. Of this a loan of R415M was approved for NRW for 4 years. The loan is expected to be available from July 2020.

Source: NMBM 2020

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 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 residents.
- Technical and non- technical losses.
- 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 from an operational and a quality of supply point of view. This places further negativity around investment security in the NMBM.

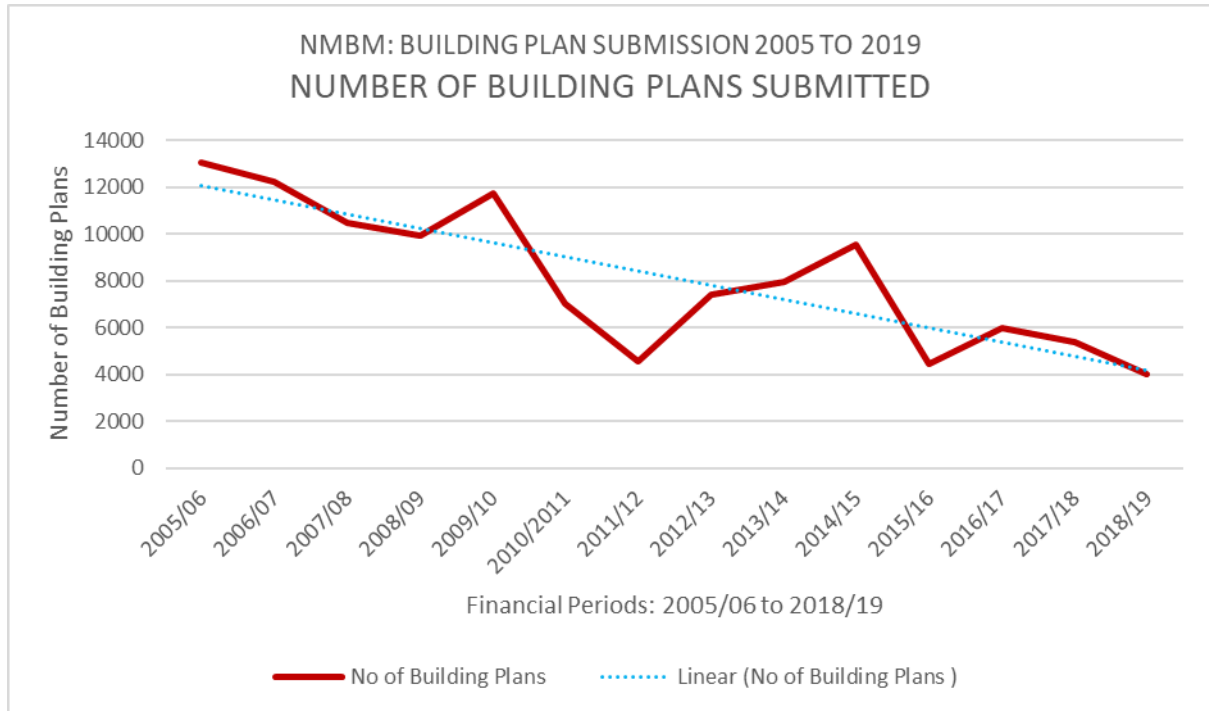
(vii) Building investment trends

Nelson Mandela Bay recorded steady and rapid growth from 2001 to 2004, followed by a decline to 2005. From 2005 to 2007 there was a recovery but a dramatic decline in growth in 2008. This was reflective of the global economic crisis of the time.

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 in again in 2011/12 and has continued to decline ever since. Building Plan submissions are currently at the lowest level since 2005/06.

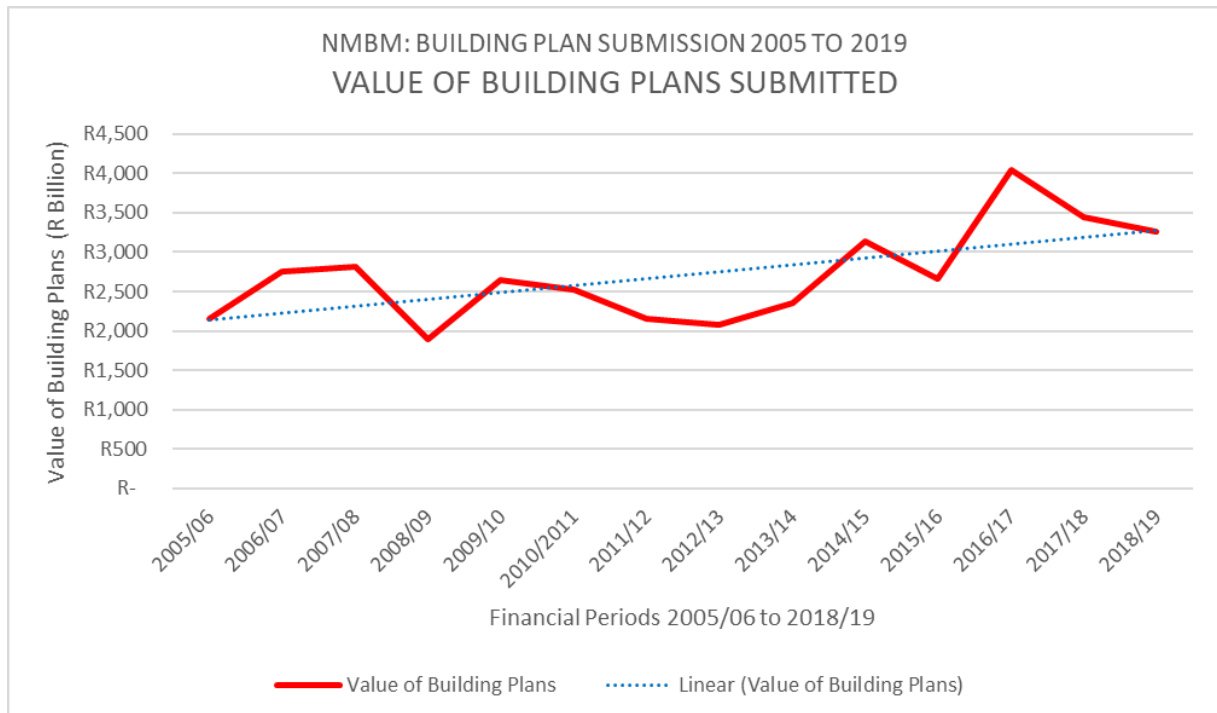
The graphs below show the number and value of building plans submitted over recent years. This information can be used as an economic indicator. There is a steady decline in the number of building plans submitted and a general increase in the value of building plans. The building plan value increase can be attributed to the increased construction cost rather than economic growth.

FIGURE 5: Number of Building Plans Submitted 2005 to 2019



Source: NMBM, 2020

FIGURE 6 : Value of Building Plans Submitted 2005 to 2019



Source: NMBM, 2020

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

The number of building plans increased by 2 867 in 2013/14. However, the number of RDP house plans increased by 3 122. In 2012/13, only 815 RDP house plans were approved.

Therefore, in 2013/14, commercial and private sector plans decreased by 255.

The percentage of RDP house plans in relation to other building plans changed from 51,46% to 59,96% (3937/7651 to 5603/9345) in 2014/15. The value of RDP building plans has however shown an increase, which is directly attributable to the increased subsidy value for RDP housing.

The number of RDP housing building plans decreased to 537 in 2015/16. There was an increase to 1861 and 1603 in 2016/17 and 2017/18 respectively, however this decreased substantially to 68, a mere 1.87% of all residential building plans submitted during 2018/19. .

A corresponding decrease in the number and value of private and commercial building plans occurred in 2014/15. This is an indication of the weak economy. The building statistics for 2015/16 show a marked decrease in numbers as reflected in the tables and graphs that follow. Some recovery was observed in 2016/17 with the number of commercial building plans submitted for consideration recorded at 266. Most of these plans were for additions and alterations to existing commercial buildings as opposed to new structures. It is noted that existing retail malls were revamped during the period.

TABLE 8: Number of building plans submitted 2013/14 – 2018/19

BUILDING TYPE	2013-2014		2014-2015		2015-2016		2016-2017		2017-2018		2018-2019	
	No of Plans	% of Total	No of Plans	% of Total	No of Plans	% of Total	No of Plans	% of Total	No of Plans	% of Total	No of Plans	% of Total
COMMERCIAL	254	3.19%	185	1.93%	152	3.43%	216	3.61%	224	6%	266	6.64%
GOVERNMENT	22	0.28%	11	0.12%	37	0.84%	16	0.27%	9	0.22%	12	0.30%
OTHER	26	0.33%	24	0.25%	36	0.81%	79	1.32%	111	1.22%	95	2.37%
RESIDENTIAL	7651	96.20%	9345	97.70%	4204	94.92%	5679	94.81%	5038	95.43%	3631	90.68%
TOTALS	7953	100.00%	9565	100.00%	4429	100.00%	5990	100.00%	5382	100.00%	4004	100.00%

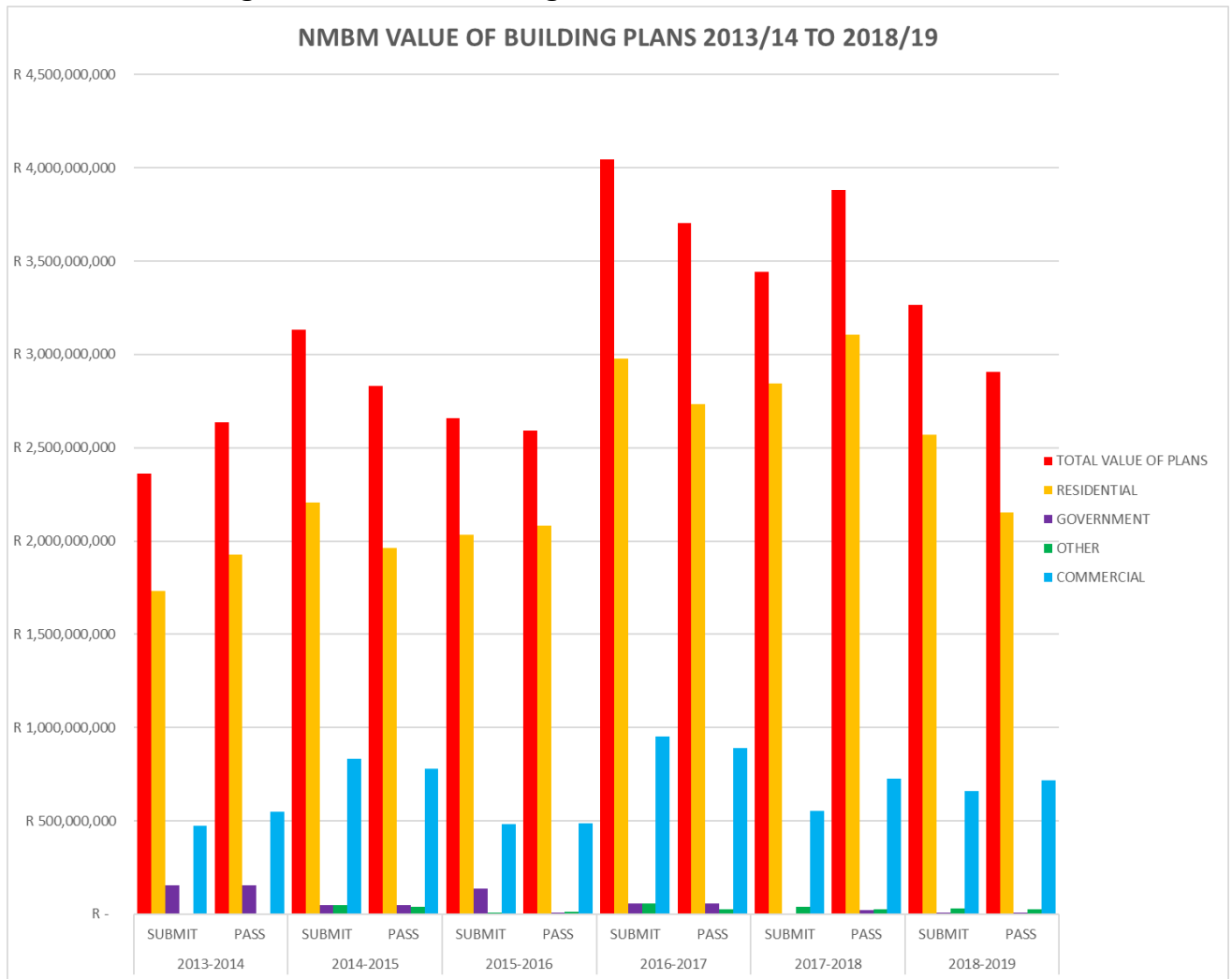
Source: NMBM, 2020

TABLE 9: Value of building plans submitted 2013/14 - 2018/19

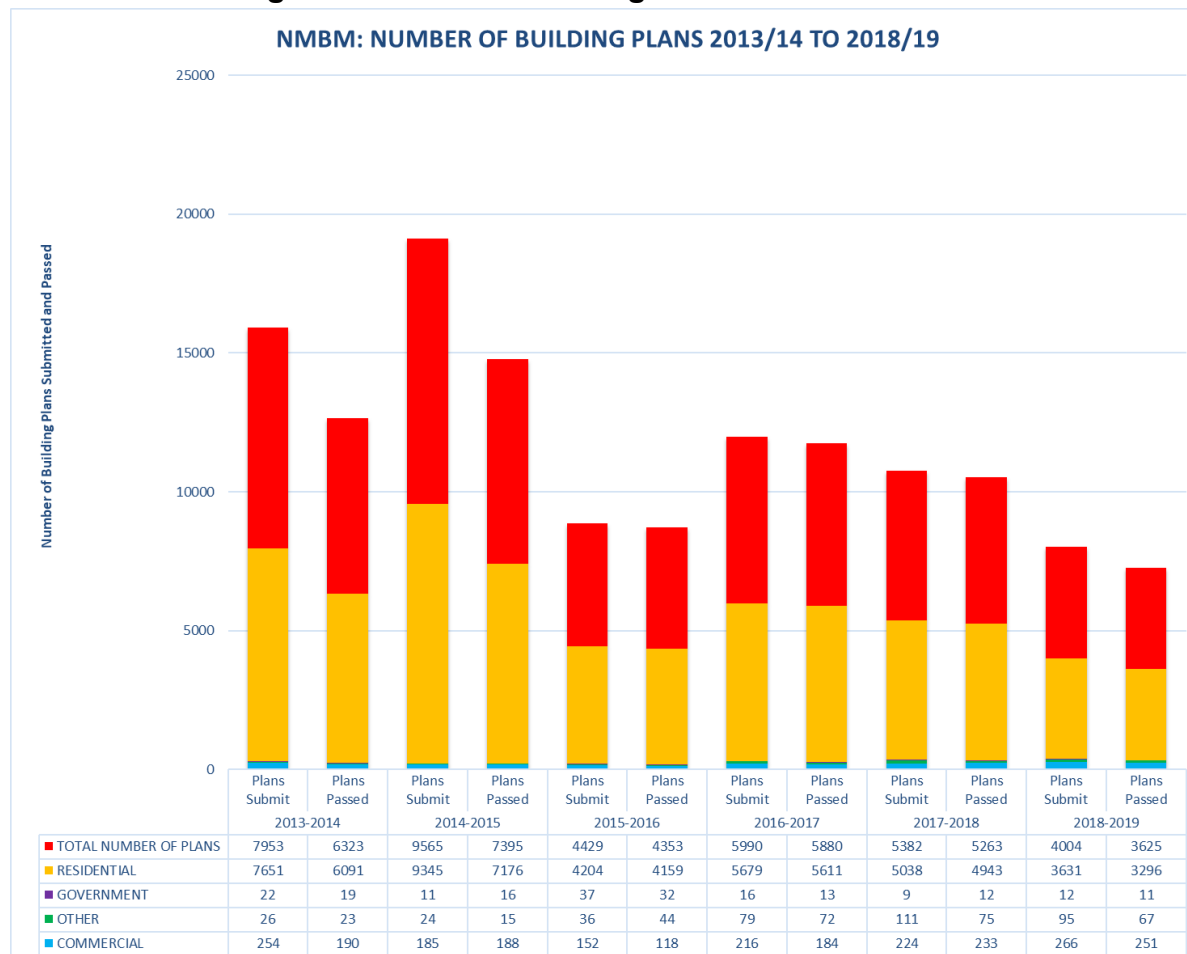
BUILDING PLAN TYPE	VALUE OF BUILDING PLANS PASSED (APPROVED)						
	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	% of Total (2018/19)
COMMERCIAL	R 471,913,967	R 832,054,328	R 481,268,183	R 951,571,742	R 551,695,782	R 658,121,155	20.17%%
GOVERNMENT	R 153,188,505	R 48,125,509	R 136,168,274	R 57,832,283	R 4,188,973	R 8,840,434	0.27%%
OTHER	R 5,698,183	R 48,187,518	R 7,896,375	R 58,562,593	R 38,958,605	R 29,078,298	0.89%%
RESIDENTIAL	R 1,729,901,993	R 2,205,290,919	R 2,034,481,554	R 2,976,881,449	R 2,845,768,681	R 2,567,468,721	78.67%%
TOTALS	R 2,360,702,648	R 3,133,658,273	R 2,659,814,386	R 4,044,848,066	R 3,440,612,041	R 3,263,508,609	100.00%

Source: NMBM, 2020

FIGURE 7: Change in Value of Building Plans Submitted: 2013/14-2018/19



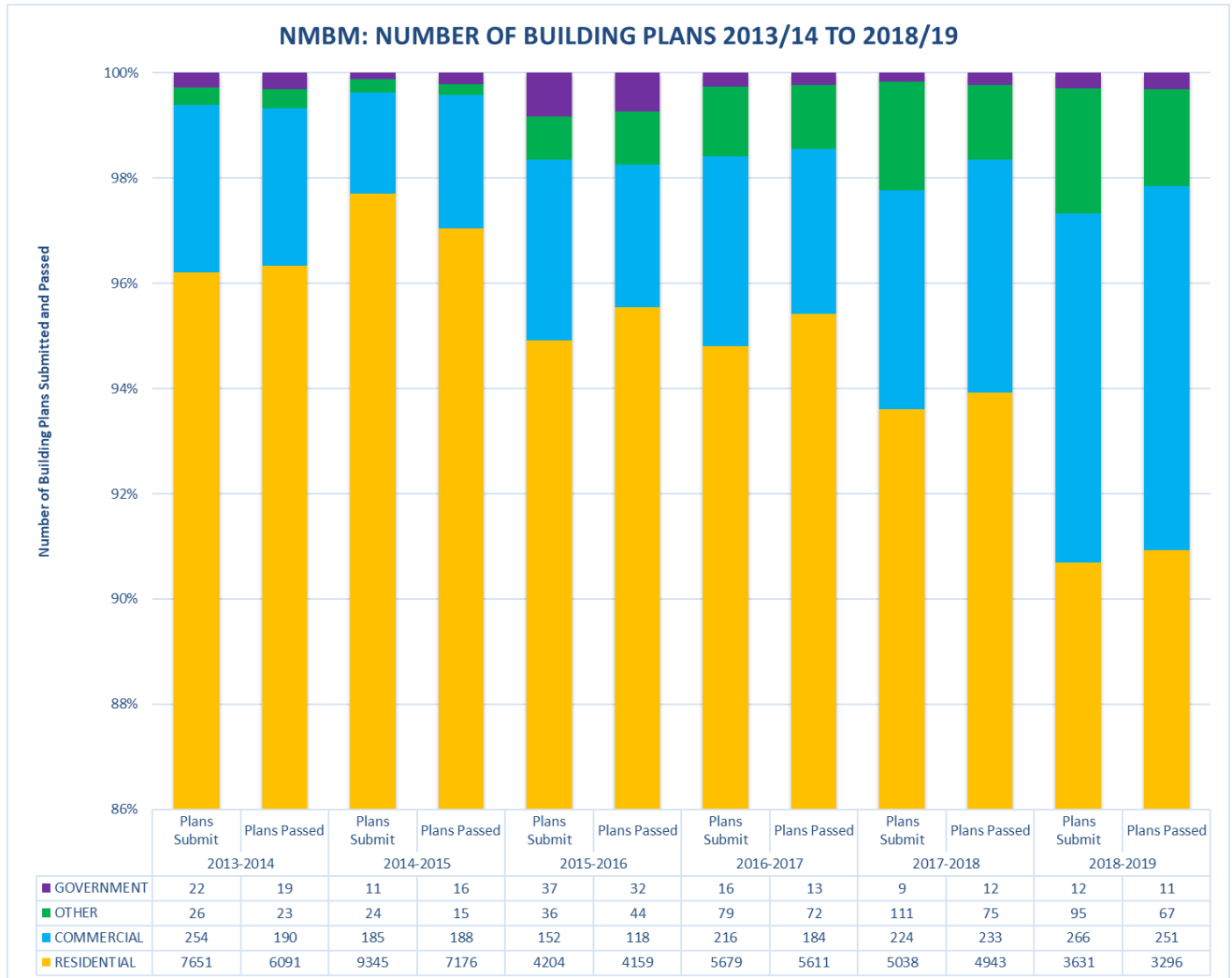
Source: NMBM 2020

FIGURE 8: Change in Number of Building Plans Submitted: 2013/14 – 2017/18

Source: NMBM, 2020

The figure below shows the percentage distribution between the different categories of building plans, i.e. commercial, residential, government, and other. Of interest is the steady proportional decline in the submission of residential building plans with a corresponding increase in the submission of commercial building plans. The residential component of building plans however remains the highest in terms of number and value of building plans submitted.

Figure 9: Percentage Distribution of Categories of Building Plans



Source: NMBM, 2020

TABLE 10: Building Plans (per type) Passed from 2013/14 to 2018/19

BUILDING TYPE / CATEGORY	2013-2014		2014-2015		2015-2016		2016-2017		2017-2018		2018-2019	
	Plans Passed	Value of Plans Passed	Plans Passed	Value of Plans Passed	Plans Passed	Value of Plans Passed	Plans Passed	Value of Plans Passed	Plans Passed	Value of Plans Passed	Plans Passed	Value of Plans Passed
COMMERCIAL	190	R 471,913,967	188	R 780,011,152	118	R 485,342,486	182	R 890,505,458	233	R 727,945,377	251	R 715,833,962
GOVERNMENT	19	R 153,188,505	16	R 48,125,464	32	R 10,273,322	12	R 55,207,019	12	R 21,121,659	11	R 8,008,805
OTHER	21	R 5,686,183	15	R 41,550,781	41	R 11,665,715	54	R 24,212,300	75	R 24,217,177	67	R 28,332,511
RESIDENTIAL	6091	R 1,729,901,993	7176	R 1,961,517,555	4159	R 2,082,526,986	4977	R 2,734,116,419	4943	R 3,106,483,202	3296	R 2,155,084,313
ADDS TO DWELLING	2174	R 723,256,468	2249	R 827,770,689	2264	R 776,769,211	2029	R 966,001,594	2007	R 968,078,399	1922	R 810,494,287
ADDS: INTERNAL ALTERATIONS	211	R 171,105,793	236	R 87,077,314	333	R 82,156,329	248	R 37,157,452	302	R 104,743,379	265	R 27,033,324
ADDS TO DWELLING - WITH NO SQ	249	R 34,239,221	213	R 38,994,163	219	R 26,088,370	140	R 28,682,326	175	R 35,742,942	121	R 17,920,666
NEW DWELLING	468	R 448,335,537	542	R 443,909,713	630	R 626,139,370	707	R 733,406,614	685	R 1,094,038,276	702	R 806,319,868
NEW FLAT	10	R 36,365,374	10	R 28,641,427	4	R 34,859,878	4	R 29,485,048	2	R 8,562,230	13	R 31,157,461
NEW OTHER - RESIDENTIAL	8	R 7,993,109	4	R 30,429,927	2	R 1,812,200	25	R 5,766,071	5	R 6,482,472	4	R 2,982,109
NEW TOWNHOUSE	146	R 99,867,871	93	R 76,919,768	158	R 273,740,726	184	R 169,344,728	230	R 293,972,891	223	R 387,456,790
NEW DWELLING (HOUSING PROJECT)	2825	R 208,738,620	3829	R 427,774,554	549	R 260,960,902	1640	R 764,272,586	1537	R 594,862,611	46	R 71,719,808
TOTALS	6321	R 2,360,690,647	7395	R 2,831,204,951	4350	R 2,589,808,509	5225	R 3,704,041,196	5263	R 3,879,767,414	3625	R 2,907,259,592

Source: NMBM 2020

The above table shows building plans approved from 2013/14 to 2018/19 in terms of building plan type. This table is meaningful to understand 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 (passed) building plans, whereas the earlier tables reflect building plans submitted for assessment.

The earlier tables noted a general decline in the number of building plans submitted for assessment. i.e. from 9517 in 2014/15 to 5382 in 2017/18 and 4004 in 2018/19. This tendency is similarly reflected in the number of building plans approved, i.e. 7395 in 2014/15 to 5263 in 2017/18 and 3625 in 2018/19. Of interest is that the difference between number of building plans submitted and number approved has reduced from 97.79% in 2017/18 to 90.53% in 2018/19.

The table highlights a slight 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 attributed to social housing and affordable residential developments in Parsonslei and Fairview, whilst the increase in the educational sector can be assigned to new and additional facilities and amenities at Nelson Mandela University.

FIGURE 10: Value of Building Plans Submitted 2013/14 to 2018/19



Source: NMBM 2019

It is concluded that the statistics in relation to building plans remain indicative of a weak and declining economy.

2. TRENDS AND DEMAND FOR ECONOMIC INFRASTRUCTURE

2.1 Economy

The following section on the economy of NMBM is an extract from “STATISTICAL OVERVIEW Nelson Mandela Bay Metropolitan Municipality”, prepared by IHS Markit Regional eXplorer, page 15-30. The information was published during 2019 and is based on 2018 statistics.

“The economic state of Nelson Mandela Bay Metropolitan Municipality is put in perspective by comparing it on a spatial level with its neighbouring metropolitan municipalities, Eastern Cape Province and South Africa. The section will also allude to the economic composition and contribution of the regions within Nelson Mandela Bay Metropolitan Municipality.

The Nelson Mandela Bay Metropolitan Municipality does not function in isolation of the Eastern Cape, South Africa and the world. Now, more than ever, it is crucial to have reliable information on the economy. For effective planning. Information is needed that will empower the municipality to plan and implement policies that encourage socio economic development .

2.2 Gross Domestic Product by Region (GDP-R)

The Gross Domestic Product (GDP), an important indicator of economic performance, is used to compare economies and economic states.

Definition: Gross Domestic Product by Region (GDP-R) represents the value of all goods and services produced within a region, over a period of one year, plus taxes and minus subsidies.

GDP-R can be measured using either current or constant prices, where the current prices measures the economy in actual Rand, and constant prices measures the economy by removing the effect of inflation, and therefore captures the real growth in volumes, as if prices were fixed in a given base year.

TABLE 11: Gross Domestic Product (GDP) – Nelson Mandela Bay, Eastern Cape and National total, 2008-2018 (R billions, current prices)

	Nelson Mandela Bay	Eastern Cape	National Total	Nelson Mandela Bay as % of province	Nelson Mandela Bay as % of national
2008	60.9	174.1	2,369.1	35.0%	2.6%
2009	65.7	191.2	2,507.7	34.4%	2.6%
2010	72.9	211.6	2,748.0	34.5%	2.7%
2011	77.5	226.1	3,023.7	34.3%	2.6%
2012	85.8	252.2	3,253.9	34.0%	2.6%
2013	92.8	273.3	3,540.0	34.0%	2.6%
2014	99.4	293.6	3,805.3	33.9%	2.6%
2015	107.3	316.3	4,049.9	33.9%	2.7%
2016	113.3	334.5	4,359.1	33.9%	2.6%
2017	122.0	358.6	4,653.6	34.0%	2.6%
2018	128.4	376.8	4,873.9	34.1%	2.6%

Source: IHS Markit Regional eXplorer version 1854

With a GDP of R 128 billion in 2018 (up from R 60.9 billion in 2008), Nelson Mandela Bay contributed 34.07% to the Eastern Cape Province GDP of R 377 billion in 2018 increasing in the share of the Eastern Cape from 34.97% in 2008. Nelson Mandela Bay contributes 2.63% to the GDP of South Africa which had a total GDP of R 4.87 trillion in 2018 (as measured in nominal or current prices). Its contribution to the national economy stayed similar in importance from 2008 when it contributed 2.57% to South Africa, but it is lower than the peak of 2.65% in 2010.

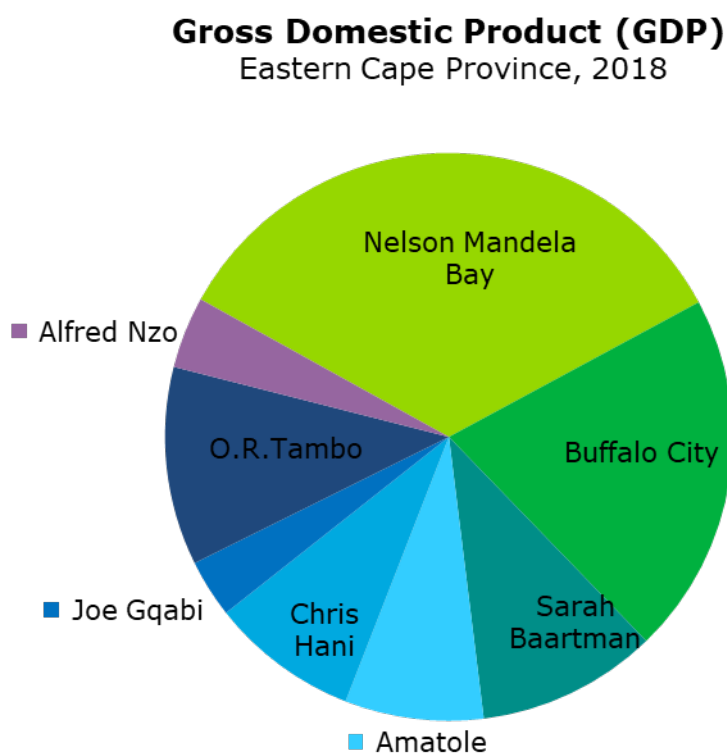
TABLE 12: Gross Domestic Product (GDP) – Nelson Mandela Bay, Eastern Cape and National total, 2008-2018 (Annual Percentage Change, Constant 2010 Prices)

	Nelson Mandela Bay	Eastern Cape	National Total
2008	1.5%	3.2%	3.2%
2009	-2.2%	-1.0%	-1.5%
2010	4.3%	2.4%	3.0%
2011	4.3%	3.7%	3.3%
2012	2.6%	2.0%	2.2%
2013	1.5%	1.4%	2.5%
2014	0.9%	1.3%	1.8%
2015	1.1%	0.8%	1.2%
2016	0.9%	0.7%	0.4%
2017	0.7%	0.6%	1.4%
2018	1.0%	0.8%	0.8%
Average Annual growth 2008-2018	1.49%	1.26%	1.50%

Source: IHS Markit Regional eXplorer version 1854

In 2018, Nelson Mandela Bay achieved an annual growth rate of 1.03% which is a slightly higher GDP growth than the Eastern Cape Province's 0.78%, and is higher than that of South Africa, where the 2018 GDP growth rate was 0.79%. Contrary to the short-term growth rate of 2018, the longer-term average growth rate for Nelson Mandela Bay (1.49%) is very similar than that of South Africa (1.50%). The economic growth in Nelson Mandela Bay peaked in 2010 at 4.32%.

FIGURE 11: Gross Domestic Product (GDP) – Nelson Mandela Bay Metropolitan Municipality and the rest of the Eastern Cape, 2018 (Percentage)



Source: HIS Markit Regional eXplorer version 1854

Nelson Mandela Bay had a total GDP of R 128 billion and in terms of total contribution towards Eastern Cape Province Nelson Mandela Bay ranked highest relative to all the regional economies to total Eastern Cape Province GDP. This ranking in terms of size compared to other regions of Nelson Mandela Bay remained the same since 2008. In terms of its share, it was in 2018 (34.1%) slightly smaller compared to what it was in 2008 (35.0%). For the period 2008 to 2018, the average annual growth rate of 1.5% of Nelson Mandela Bay was the fourth relative to its peers in terms of growth in constant 2010 prices.

TABLE 13: Gross Domestic Product (GDP) – Sub-Metro Regions of Nelson Mandela Bay Metropolitan Municipality, 2008 to 2018, Share and Growth

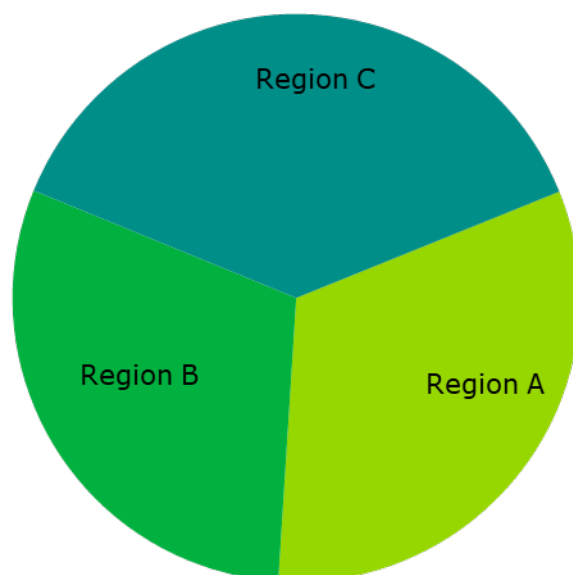
	2018 (Current prices)	Share metropolitan municipality	of 2008 (Constant prices)	2018 (Constant prices)	Average Annual growth
Region A	41.24	32.12%	22.95	26.60	1.49%
Region B	38.72	30.16%	21.55	24.97	1.49%
Region C	48.42	37.72%	26.95	31.23	1.49%
Nelson Mandela Bay	128.38		71.44	82.80	

Source: IHS Markit Regional eXplorer version 1854

Region A had the highest average annual economic growth, averaging 1.49% between 2008 and 2018, when compared to the rest of the regions within the Nelson Mandela Bay Metropolitan Municipality. The Region B Sub-metro Region had the second highest average annual growth rate of 1.49%. Region C Sub-metro Region had the lowest average annual growth rate of 1.49% between 2008 and 2018.

FIGURE 12: Contribution – Sub Metro Regions of Nelson Mandela Bay Metropolitan Municipality, 2018 (Current Prices, Percentage)

Gross Domestic Product (GDP)
Nelson Mandela Bay Metropolitan Municipality, 2018



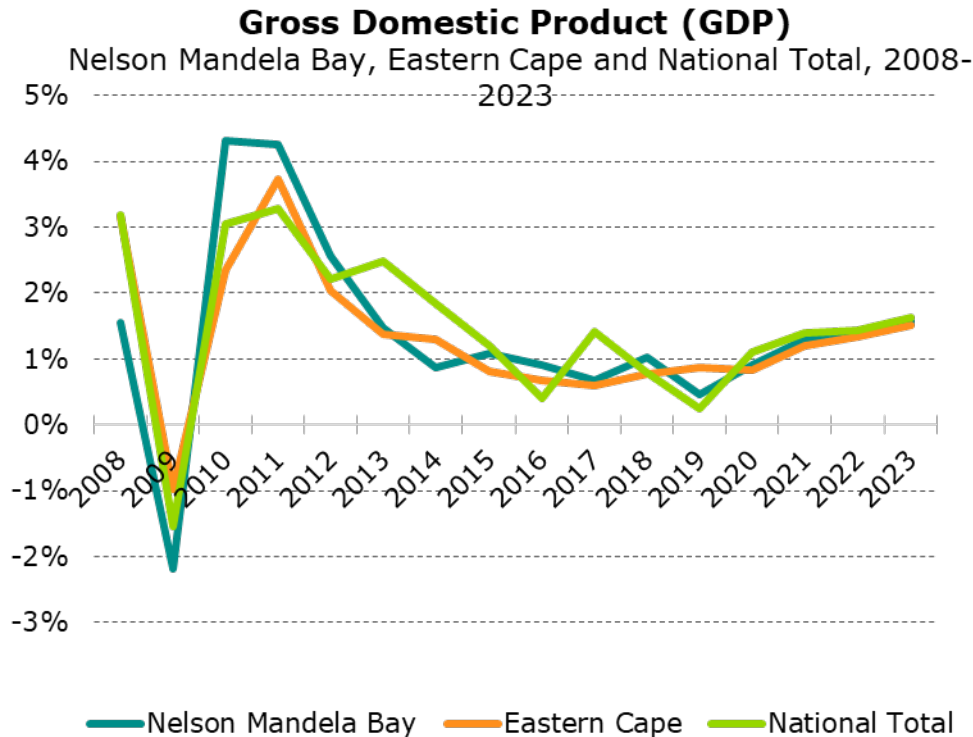
Source: IHS Markit Regional eXplorer version 1854

The greatest contributor to the Nelson Mandela Bay economy is the Region C Sub-metro Region with a share of 37.72% or R 48.4 billion, increasing from R 23 billion in 2008. The economy with the lowest contribution is the Region B Sub-metro Region with R 38.7 billion growing from R 18.4 billion in 2008.

2.2.1 Economic Growth Forecast

It is expected that Nelson Mandela Bay will grow at an average annual rate of 1.12% from 2018 to 2023. The average annual growth rate of Eastern Cape Province and South Africa is expected to grow at 1.15% and 1.16% respectively.

FIGURE 13: Gross Domestic Product (GDP) – Nelson Mandela Bay, Eastern Cape and National Total, 2008-2023 (Average Annual Growth Rate, Constant 2010 Prices)



Source: IHS Markit Regional eXplorer version 1854

In 2023, Nelson Mandela Bay's forecasted GDP will be an estimated R 87.5 billion (constant 2010 prices) or 34.9% of the total GDP of Eastern Cape Province. The ranking in terms of size of Nelson Mandela Bay will remain the same between 2018 and 2023, with a contribution to the Eastern Cape Province GDP of 34.9% in 2023 compared to the 35.0% in 2018. At a 1.12% average annual GDP growth rate between 2018 and 2023, Nelson Mandela Bay ranked the third compared to the other regional economies.

TABLE 14: Gross Domestic Product (GDP) – Sub-Metro Regions of Nelson Mandela Bay Metropolitan Municipality, 2018 to 2023, Share and Growth

	2023 (Current prices)	Share of 2018 metropolitan municipality (Constant prices)	2023 (Constant prices)	Average Annual growth
Region A	55.21	32.12%	26.60	28.12
Region B	51.83	30.16%	24.97	26.40
Region C	64.82	37.72%	31.23	33.01
Nelson Mandela Bay	171.86		82.80	87.52

Source: IHS Markit Regional eXplorer version 1854

2.3 Gross Value Added by Region (GVA-R)

Nelson Mandela Bay is made up of various industries. The GVA-R variable provides a sector breakdown, where each sector is measured in terms of its *value added* produced in the local economy.

Definition: Gross Value Added (GVA) is a measure of output (total production) of a region in terms of the value that was created within that region. GVA can be broken down into various production sectors.

The summary table below puts the Gross Value Added (GVA) of all the regions in perspective to that of Nelson Mandela Bay.

TABLE 15: Gross Value Added (GVA) by Broad Economic Sector – Nelson Mandela Bay Metropolitan Municipality, 2018 (R billions, Current Prices)

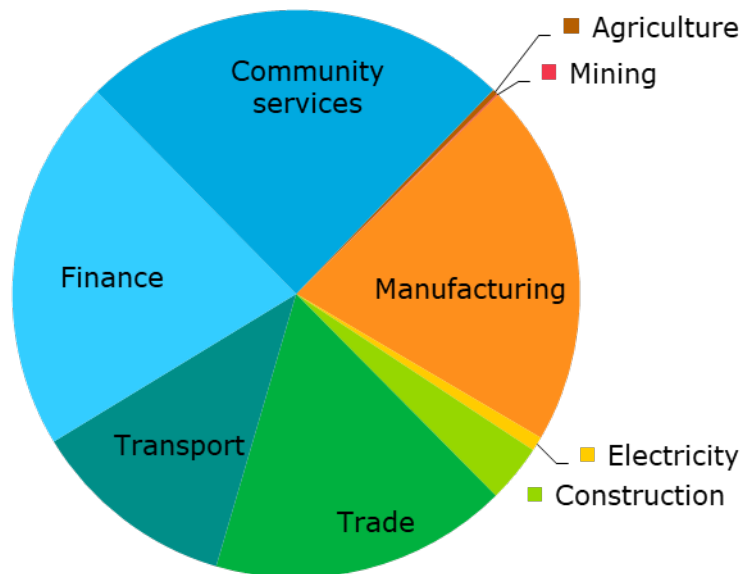
	Nelson Mandela Bay	Eastern Cape	National Total	Nelson Mandela as % of province	Nelson Mandela as % of national
Agriculture	0.4	6.7	106.1	5.4%	0.34%
Mining	0.1	0.4	350.9	15.7%	0.02%
Manufacturing	23.2	43.6	572.9	53.2%	4.05%
Electricity	0.9	9.0	166.0	10.1%	0.55%
Construction	3.7	13.3	170.3	27.7%	2.16%
Trade	18.9	67.9	652.7	27.8%	2.89%
Transport	13.1	30.3	426.7	43.1%	3.06%
Finance	23.7	61.4	854.4	38.6%	2.78%
Community services	27.4	102.7	1,041.3	26.7%	2.63%
Total Industries	111.3	335.3	4,341.3	33.2%	2.56%

Source: IHS Markit Regional eXplorer version 1854

In 2018, the community services sector was the largest within Nelson Mandela Bay accounting for R 27.4 billion or 24.6% of the total GVA in the metropolitan municipality's economy. The sector that contributes the second most to the GVA of Nelson Mandela Bay is the finance sector at 21.3%, followed by the manufacturing sector with 20.8%. The sector that contributes the least to the economy of Nelson Mandela Bay is the mining sector with a contribution of R 69.9 million or 0.06% of the total GVA.

FIGURE 14: Gross Value Added (GVA) by Broad Economic Sector – Nelson Mandela Bay Metropolitan Municipality, 2018 (Percentage Composition)

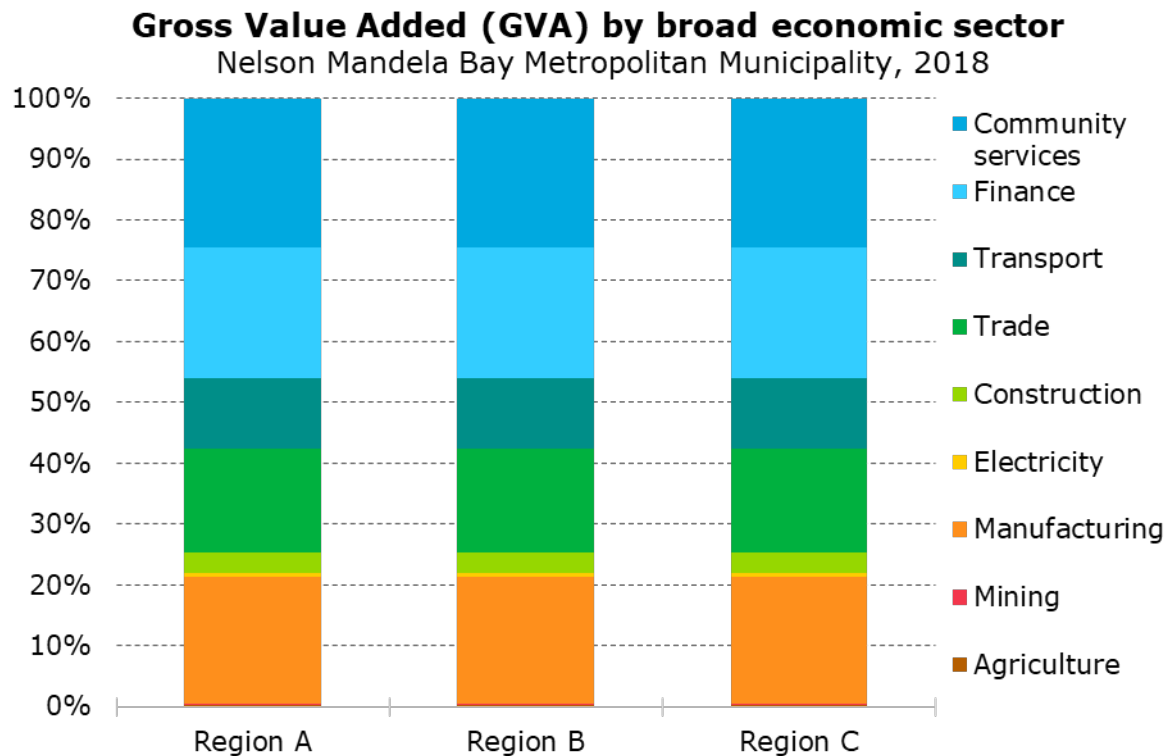
Gross Value Added (GVA) by broad economic sector
Nelson Mandela Bay Metropolitan Municipality, 2018



Source: IHS Markit Regional eXplorer version 1854

The community sector, which includes government services, is generally a large contributor towards GVA in smaller and more rural local municipalities. When looking at the regions within the metropolitan municipality, the Region C Sub-metro Region made the largest contribution to the community services sector at 37.72% of the metropolitan municipality. As a whole, the Region C Sub-metro Region contributed R 42 billion or 37.72% to the GVA of Nelson Mandela Bay, making it the largest contributor to the overall GVA of the Municipality.

FIGURE 15: Gross Value Added (GVA) by Broad Economic Sector – Sub-Metro Regions of Nelson Mandela Bay Metropolitan Municipality, 2018 (Percentage Composition)



Source: IHS Markit Regional eXplorer version 1854

2.3.1 Historical Economic Growth

For the period 2018 and 2008, the GVA in the community services sector had the highest average annual growth rate in Nelson Mandela Bay at 2.50%. The industry with the second highest average annual growth rate is the transport sector averaging at 1.94% per year. The mining sector had an average annual growth rate of 0.54%, while the electricity sector had the lowest average annual growth of -6.39%. Overall a positive growth existed for all the industries in 2018 with an annual growth rate of 0.91% since 2017.

TABLE 16: Gross Value Added (GVA) by Broad Economic Sector – Nelson Mandela Bay Metropolitan Municipality, 2008, 2013 AND 2018 (R billion, 2010 Constant Prices)

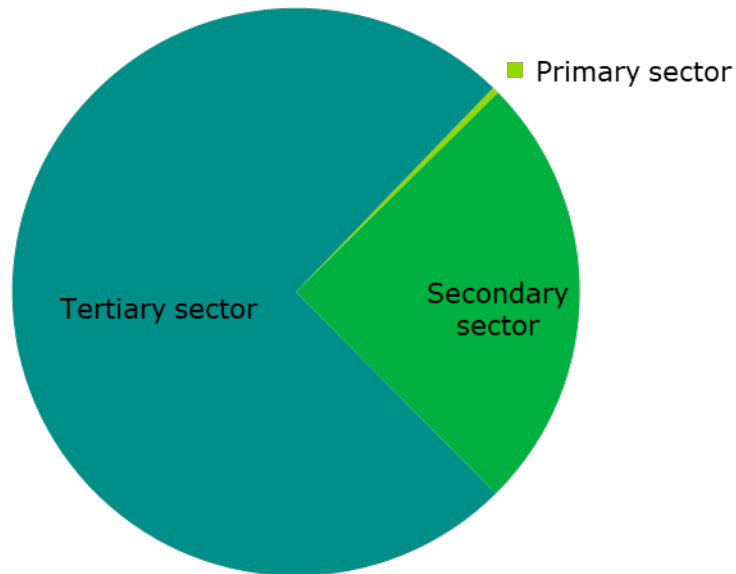
	2008	2013	2018	Average Annual growth
Agriculture	0.13	0.17	0.16	1.81%
Mining	0.09	0.10	0.09	0.54%
Manufacturing	15.12	15.89	16.03	0.59%
Electricity	0.47	0.34	0.24	-6.39%
Construction	1.87	2.22	2.26	1.92%
Trade	10.03	11.31	11.46	1.34%
Transport	6.98	7.74	8.45	1.94%
Finance	15.11	15.94	17.03	1.20%
Community services	13.74	16.16	17.59	2.50%
Total Industries	63.53	69.86	73.32	1.44%

Source: IHS Markit Regional eXplorer version 1854

The tertiary sector contributes the most to the Gross Value Added within Nelson Mandela Bay at 74.6%. This is slightly higher than the national economy (68.5%). The secondary sector contributed a total of 25.0% (ranking second), while the primary sector contributed the least at 0.4%.

FIGURE 16: Gross Value Added (GVA) by Aggressive Economic Sector – Nelson Mandela Bay Metropolitan Municipality, 2018 (Percentage)

Gross Value Added (GVA) by aggregate sector
Nelson Mandela Bay Metropolitan Municipality, 2018



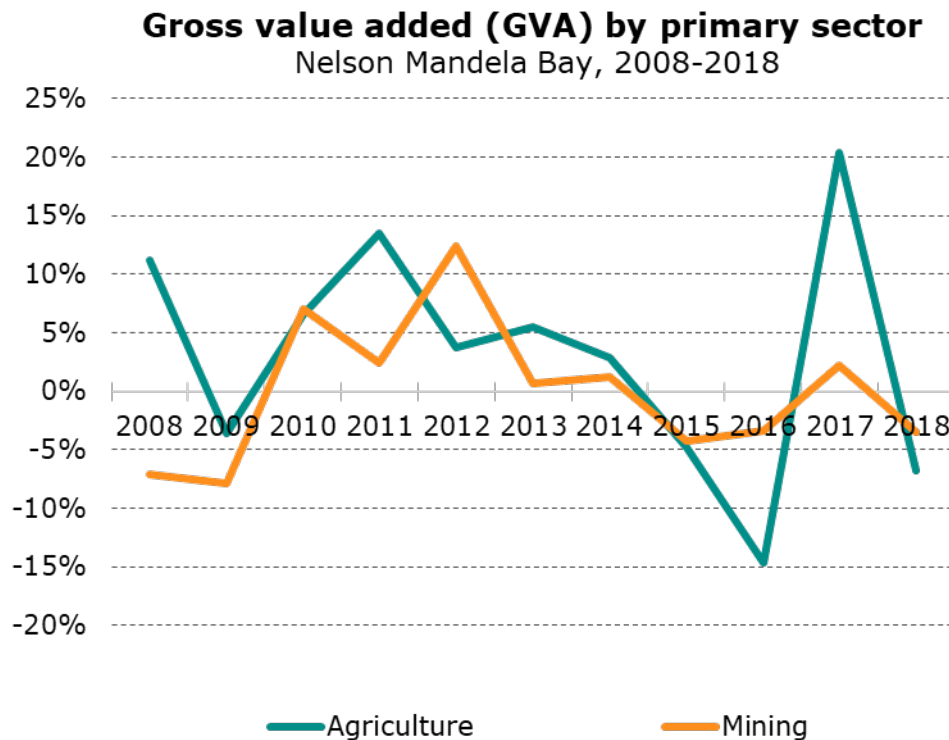
Source: IHS Markit Regional eXplorer version 1854

The following is a breakdown of the Gross Value Added (GVA) by aggregated sector:

2.3.1.1 Primary Sector

The primary sector consists of two broad economic sectors namely the mining and the agricultural sector. The following chart represents the average growth rate in the GVA for both of these sectors in Nelson Mandela Bay from 2008 to 2018.

FIGURE 17: Gross Value Added (GVA) by Primary Sector – Nelson Mandela Bay, 2008-2018 (Annual Percentage Change)



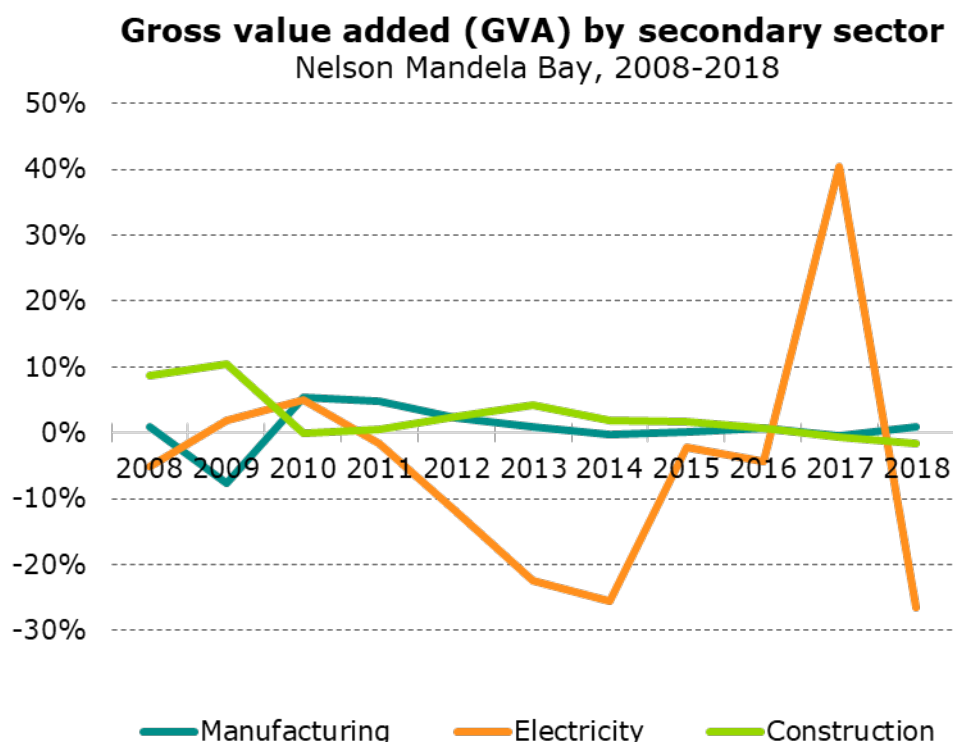
Source: IHS Markit Regional eXplorer version 1854

Between 2008 and 2018, the agriculture sector experienced the highest positive growth in 2017 with an average growth rate of 20.3%. The mining sector reached its highest point of growth of 12.4% in 2012. The agricultural sector experienced the lowest growth for the period during 2016 at -14.6%, while the mining sector reaching its lowest point of growth in 2009 at -7.9%. Both the agriculture and mining sectors are generally characterised by volatility in growth over the period.

2.3.1.2 Secondary Sector

The secondary sector consists of three broad economic sectors namely the manufacturing, electricity and the construction sector. The following chart represents the average growth rates in the GVA for these sectors in Nelson Mandela Bay from 2008 to 2018.

FIGURE 18: Gross Value Added (GVA) by Secondary Sector – Nelson Mandela Bay, 2008-2018 (Annual Percentage Change)



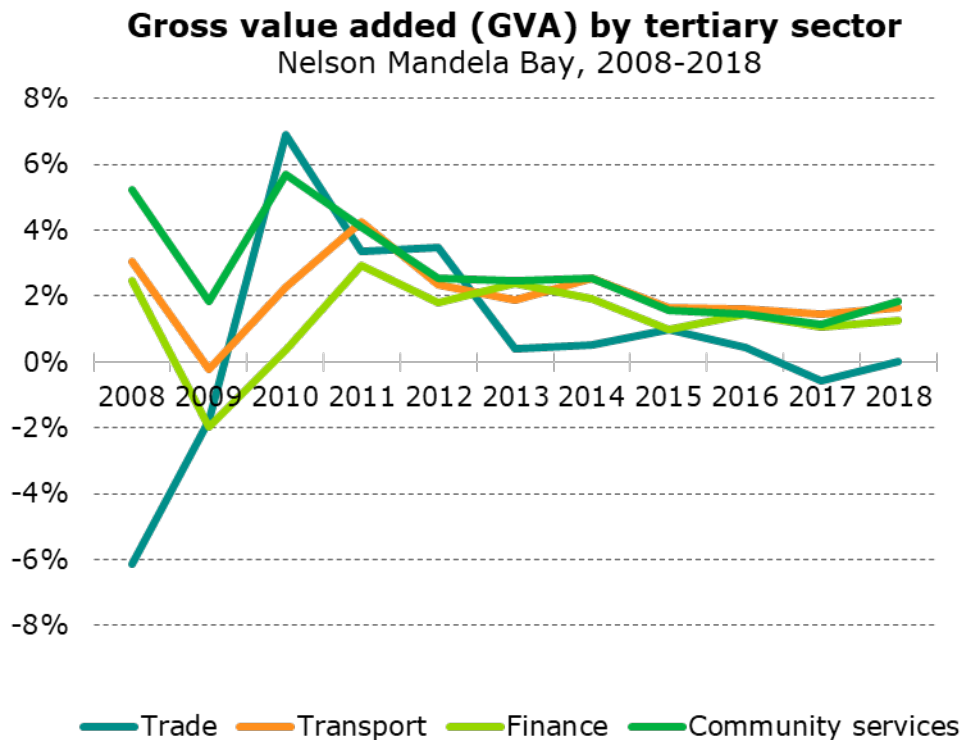
Source: IHS Markit Regional eXplorer version 1854

Between 2008 and 2018, the manufacturing sector experienced the highest positive growth in 2010 with a growth rate of 5.3%. The construction sector reached its highest growth in 2009 at 10.4%. The manufacturing sector experienced its lowest growth in 2018 of -7.7%, while construction sector reached its lowest point of growth in 2018 with -1.5% growth rate. The electricity sector experienced the highest growth in 2017 at 40.4%, while it recorded the lowest growth of -26.5% in 2018.

2.3.1.3 Tertiary Sector

The tertiary sector consists of four broad economic sectors namely the trade, transport, finance and the community services sector. The following chart represents the average growth rates in the GVA for these sectors in Nelson Mandela Bay from 2008 to 2018.

FIGURE 19: Gross Value Added (GVA) by Tertiary Sector – Nelson Mandela Bay, 2008-2018 (Annual Percentage Change)



Source: IHS Markit Regional eXplorer version 1854

The trade sector experienced the highest positive growth in 2010 with a growth rate of 6.9%. The transport sector reached its highest point of growth in 2011 at 4.2%. The finance sector experienced the highest growth rate in 2011 when it grew by 2.9% and recorded the lowest growth rate in 2009 at -2.0%. The Trade sector had the lowest growth rate in 2008 at -6.1%. The community services sector, which largely consists of government, experienced its highest positive growth in 2010 with 5.7% and the lowest growth rate in 2017 with 1.1%.

2.3.2 Sector Growth forecast

The GVA forecasts are based on forecasted growth rates derived from two sources: historical growth rate estimates and national level industry forecasts. The projections are therefore partly based on the notion that regions that have performed well in the recent past are likely to continue performing well (and vice versa) and partly on the notion that those regions that have prominent sectors that are forecast to grow rapidly in the national economy (e.g. finance and telecommunications) are likely to perform well (and vice versa). As the target year moves further from the base year (2010) so the emphasis moves from historical growth rates to national-level industry growth rates.

TABLE 17: Gross Value Added (GVA) by Broad Economic Sector – Nelson Mandela Bay Metropolitan Municipality, 2018-2023 (R billion, Constant 2010 Prices)

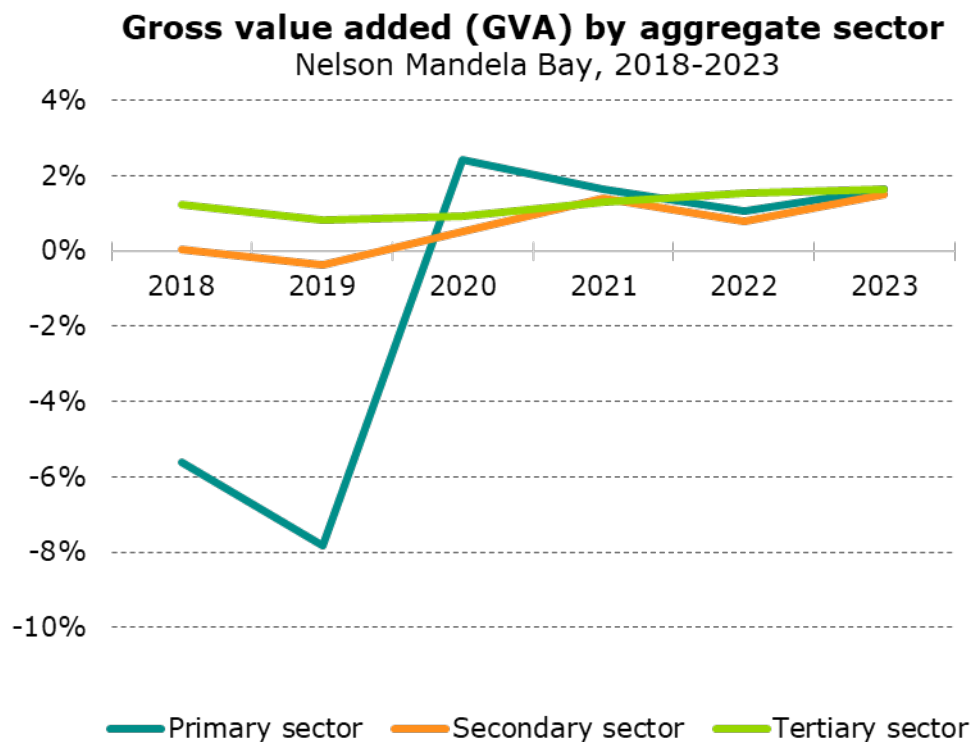
	2018	2019	2020	2021	2022	2023	Average Annual growth
Agriculture	0.16	0.15	0.16	0.17	0.17	0.17	1.47%
Mining	0.09	0.08	0.08	0.08	0.08	0.08	-3.71%
Manufacturing	16.03	16.03	16.12	16.35	16.45	16.67	0.79%
Electricity	0.24	0.22	0.23	0.23	0.24	0.24	0.03%
Construction	2.26	2.21	2.21	2.24	2.28	2.34	0.69%
Trade	11.46	11.42	11.61	11.87	12.10	12.35	1.50%
Transport	8.45	8.48	8.64	8.82	9.02	9.22	1.76%
Finance	17.03	17.30	17.60	17.98	18.41	18.84	2.04%
Community services	17.59	17.79	17.65	17.56	17.56	17.60	0.01%
Total Industries	73.32	73.68	74.30	75.28	76.30	77.52	1.12%

Source: IHS Markit Regional eXplorer version 1854

The finance sector is expected to grow fastest at an average of 2.04% annually from R 17 billion in Nelson Mandela Bay to R 18.8 billion in 2023. The finance sector is estimated to be the largest sector within Nelson Mandela Bay in 2023, with a total share of 24.3% of the total GVA (as measured in current prices), growing at an

average annual rate of 2.0%. The sector that is estimated to grow the slowest is the mining sector with an average annual growth rate of -3.71%.

FIGURE 20: Gross Value Added (GVA) by Aggregate Economic Sector – Nelson Mandela Bay Metropolitan Municipality, 2018-2023 (Annual Growth Rate, Constance 2010 Prices)



Source: IHS Markit Regional eXplorer version 1854

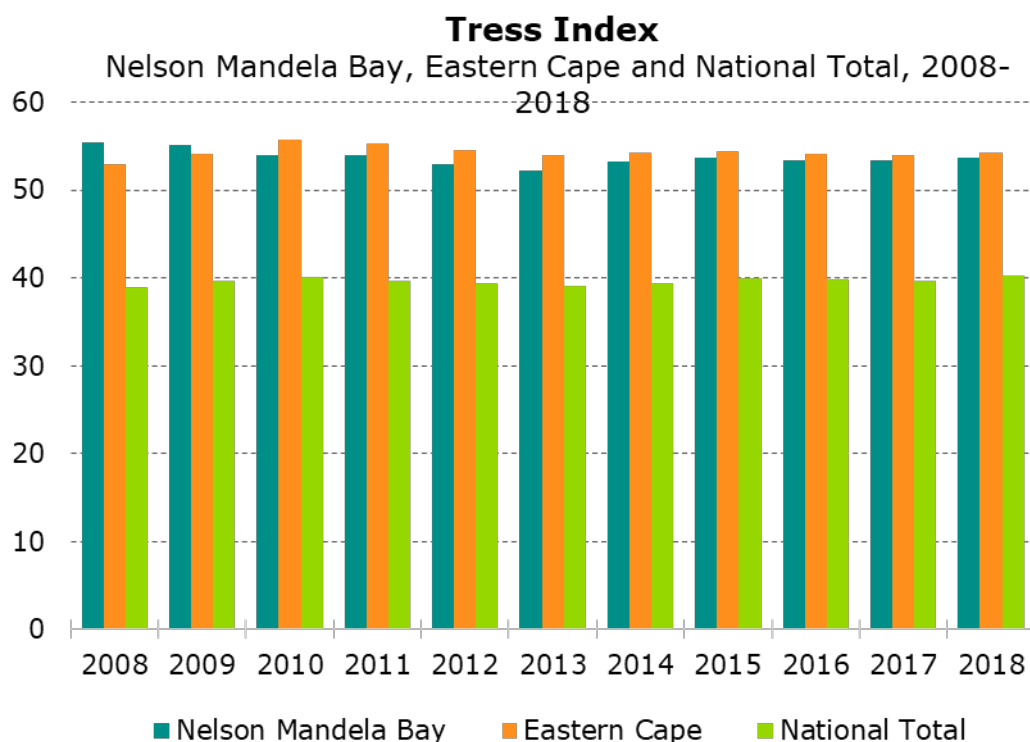
The Primary sector is expected to grow at an average annual rate of -0.29% between 2018 and 2023, with the Secondary sector growing at 0.77% on average annually. The Tertiary sector is expected to grow at an average annual rate of 1.24% for the same period.

Based on the typical profile of a developing country, we can expect faster growth in the secondary and tertiary sectors when compared to the primary sector. Also remember that the agricultural sector is prone to very high volatility as a result of uncertain weather conditions, pests and other natural causes - and the forecasts presented here is merely a long-term trend rather than trying to forecast the unpredictable weather conditions.

2.4 Tress Index

Definition: The Tress index measures the degree of concentration of an area's economy on a sector basis. A Tress index value of 0 means that all economic sectors in the region contribute equally to GVA, whereas a Tress index of 100 means that only one economic sector makes up the whole GVA of the region.

FIGURE 21: Tress Index – Nelson Mandela Bay, Eastern Cape and National Total, 2008-2018 (Number)



Source: IHS Markit Regional eXplorer version 1854

In 2018, Nelson Mandela Bay's Tress Index was estimated at 53.7 which is lower than the 54.2 of the province and higher than the 40.2 of South Africa as a whole. This implies that - on average - Nelson Mandela Bay is less diversified in terms of its economic activity spread than the national's economy.

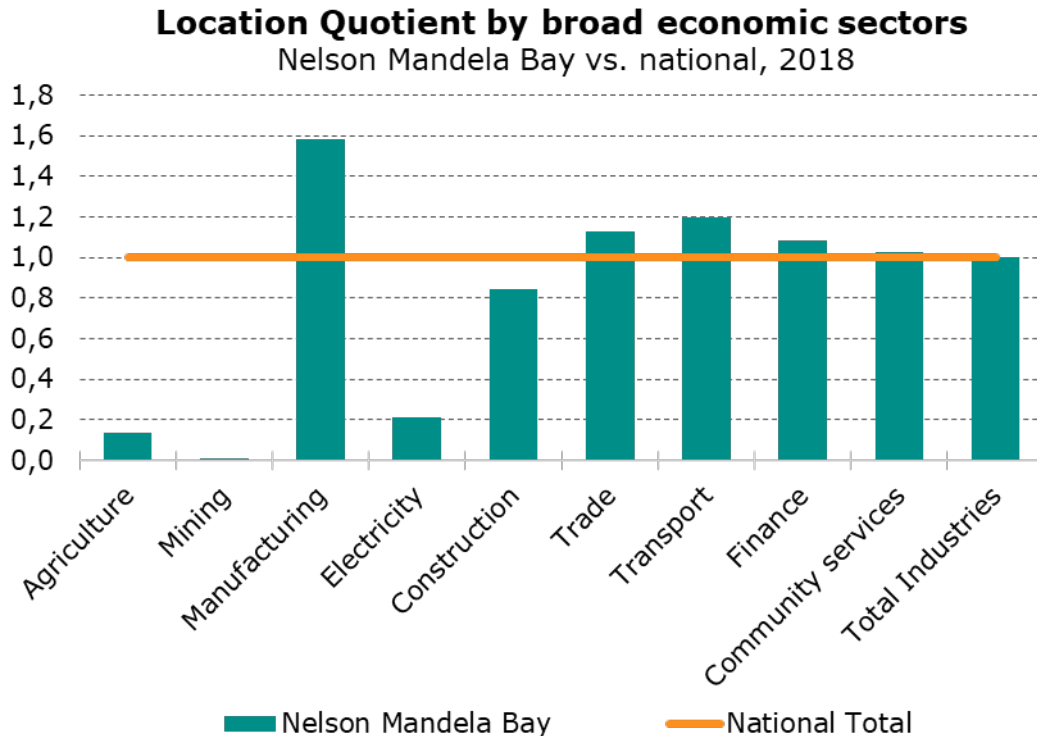
The more diverse an economy is, the more likely it is to create employment opportunities across all skills levels (and not only - for instance - employment opportunities that cater for highly skilled labourers), and maintain a healthy balance between labour-intensive and capital-intensive industries. If both economic growth and the alleviation of unemployment are of concern, clearly there need to be industries that are growing fast and also creating jobs in particular the lower skilled categories. Unfortunately, in practice many industries that are growing fast are not those that create many employment opportunities for unskilled labourers (and alleviate unemployment).

2.5 Location Quotient

Definition: A specific regional economy has a comparative advantage over other regional economies if it can more efficiently produce the same good. The location quotient is one way of measuring this comparative advantage.

If the location quotient is larger than one for a specified sector within a region, then that region has a comparative advantage in that sector. This is because the share of that sector of the specified regional economy is greater than the same sector in the national economy. The location quotient is usually computed by taking the percentage share of the sector in the regional economy divided by the percentage share of that same sector in the national economy.

FIGURE 22: Location Quotient by Broad Economic Sectors – Nelson Mandela Bay Metropolitan Municipality and South Africa, 2018 (Number)



Source: IHS Markit Regional eXplorer version 1854

For 2018 Nelson Mandela Bay has a very large comparative advantage in the manufacturing sector. The transport sector has a comparative advantage. The trade also has a comparative advantage when comparing it to the South Africa economy as a whole, although less prominent. Nelson Mandela Bay has a comparative disadvantage when it comes to the mining and agriculture sector which has a very large comparative disadvantage. In general mining is a very concentrated economic sector. Unfortunately, Nelson Mandela Bay currently does not have a lot of mining activity, with an LQ of only 0.00778.”

2.6 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. The City has adopted a “Nelson Mandela Bay Long-Term City Growth and Development Plan 2017-2032” during the first quarter of 2018 and projects highlighted in this document include those mentioned below which are of significance:

ESTABLISHMENT OF TANK FARM AND MANGANESE EXPORTS FACILITY IN THE COEGA SPECIAL ECONOMIC ZONE (SEZ)

The Port of Port Elizabeth liquid bulk facility (tank farm) was constructed in 1938 and lengthened in 1954. It has reached the end of its design life and with no space in port boundaries to expand the facility as well as close proximity to the city there has been mounting pressure to relocate the facility.

The new facility at Ncqura under construction having begun in April 2019. This included construction of the Entrance Plaza and Firefighting system. The storage-tank platform has been completed and work will now proceed with the fabrication of the storage tanks and the pipelines.

Transnet’s undertaking is to have the manganese export facilities removed by 2024.

The NMBM has called upon Transnet to fast-track the relocation process. The city recognises the economic importance of both these bulk storage facilities, but the land use can be optimized through the establishment of metropolitan aligned maritime commercial activities, including a waterfront development with real estate, commercial and tourism opportunities.

The challenges that are being addressed in the interim are to manage the dust and air pollution.

BAAKENS VALLEY

The Baakens Valley Programme is a suite of projects, identified in the Council approved Baakens Precinct Plan. The precinct is divided into four focus areas, each with a unique identity and spatial character that could support new and integrated uses. The Focus Areas are:

- Focus Area 1 -The Heart of the Bay
- Focus Area 2 - Baakens River Valley
- Focus Area 3 - St Georges Park
- Focus Area 4 - The Port (This planning is being undertaken by Transnet)

Approximately 50 projects are identified within the precinct plan. Priority projects have been identified in each Focus Area for implementation which will mainly be done by the MBDA in order to transform the area into a safe, clean and affordable precinct that is characterised by multi income, multi-generational and multi-sectoral uses. The strategy includes area management, multi- sectoral programmes, and partnerships with research institutions and the private sector. New technological solutions and innovative approaches will be sought. Ultimately this will contribute to economic growth and reduce inequality and poverty.

Three projects have been completed. These include the Campanile, (a popular Tourism attraction which has been transformed both in appearance and in relevance as the start of the Iconic Route 67), the Tramways building refurbishment and the provision of parking in Union Street.

The upgrade of Fleming Street and North Union Street is nearing completion. This first phase of the Vuyisile Mini upgrade will rationalize parking in the precinct and create part of the pedestrian walkway to the river. It will also enable an events space within which markets and performances can be programmed. The planning and the preparation of approval submissions for the construction of a pedestrian bridge has

commenced in order to ensure that construction can proceed in the 2018/19 financial year. The bridge will link the heart of the city with the Baakens River.

The upgrade of St Peters Land commenced in the latter half of 2018 and will continue in 2019/2020. The process of rezoning all the available land on the south bank to enable a mixed use precinct, predominantly for affordable housing has commenced. Environmental Authorisation is also being sought in respect of the land parcels on the south bank of the valley.

The upgrading of the main library is nearing completion.

Stakeholder engagements have been held regarding cultural stories and environmental opportunities in the Valley. The private sector has invested in the precinct with event such as Food Truck Friday, markets, cycle events and walks being programmed on a regular basis.

Traffic calming measures and the rationalisation of parking has commenced. A number of interest groups have been working on initiatives towards “activating” the Valley and collectively achieving results.

EXTENSION TO THE PORT ELIZABETH INTERNATIONAL AIRPORT

The NMBM is of the view that if the airport can accommodate larger aircraft, through the extension of runways, it will permit increased tourism opportunities through domestic and international connectivity.

ACSA remains committed to ensuring that Port Elizabeth International Airport grows in line with the demand of the region. Discussions are being held to enable the extension of the runways and to deal with the associated land issues. Air service connectivity is an integral part of the working economy, thus the establishment of new intercontinental routes linking the region through the Port Elizabeth International Airport as a gateway plays a key catalytic role.

It is therefore key that integration of the Airport Master Plan, City plans and plans of the state-owned entities occurs. The city and the catchment area play a critical economic role in the country's various industries. The project aims to improve the city and the province's global economic competitiveness by stimulating air travel and opening air links to under-served markets across the region and the globe. It is hoped this will lead to improved global brand equity for the city and province as well as socio-economic transformation and a seamless flow of trade and tourism.

It requires strategic planning and research of the current operations, facilities, revenue streams both aeronautical and non-aeronautical; and land acquisition for the expansion from a domestic-regional hub to an international gateway for passengers and cargo.

BAY WORLD / HAPPY VALLEY / TELKOM PARK PRECINCT

A Local Spatial Development Framework (LSDF) is approved for the redevelopment of this precinct. Future development will be retail, residential, offices tourism and entertainment.

It is recognised that the Happy Valley Precinct, when linked to the Baakens Valley Development and Proposed Waterfront, is uniquely positioned to become a heart for Nelson Mandela Bay. The development of the precinct is approached with that objective. The precinct should be socially, spatially and economically transformed into an inclusive, post-apartheid precinct that enables multi-generational, multi-cultural and mixed income usages. It is envisaged that a unique tourism opportunity will be created through the green lung, possible ICC developed within the precinct with a repurposed Bayworld. The precinct will also include an inclusive housing development.

Funding of approximately R180 million is required for bulk infrastructure to the area. The Telkom Park site is un-serviced. The MBDA has undertaken to do a feasibility study to demonstrate that the plans reflect a strong Internal Rate of Return (IRR) to attract private investors.

This precinct development is included as a Catalytic Land Development Programme of the BEPP.

The NMBM has confirmed that Bayworld is an important project for the Municipality. Members of the MBDA Representative Forum, in August 2017, indicated that the approach of conceptualizing the facility as a premier conservation, research/science and edutainment facility, rather than a fully commercial venture is recommended. A facility without dolphins in captivity is envisaged. The facility can have close links with the Science Centre in Uitenhage to maximise the offerings of both collectively.

Bayworld complex, although in an advanced state of disrepair, has a registered school, a rehabilitation programme for injured animals such as penguins and seals, a recently renovated conference centre and a museum with skilled and dedicated staff that attracts schools and learners. The site is well located in the heart of the tourism beachfront strip.

Nelson Mandela Bay has a number environmental and ecological attributes:

- It has critical biodiversity (sea/marine, land river estuaries/valleys).
- The area is designated as a global biodiversity hotspot and one of the richest and most threatened reservoirs of plant and animal wildlife.
- It is identified as the dolphin capital of the world and one of the few places where endangered species such as the African penguin can be seen in their natural habitat.
- The area has 5 of the 7 biomes and is home to the “big 7”, all in a malaria free environment.
- A two port, coastal city with more than 80 km of coastline, with vast opportunity to harness the potential within the blue economy, for sustainable growth and job creation linked to the marine environment, its conservation and sustainable management of its resources.

Within this context Bayworld could become the home of wildlife conservation, showcasing regional biodiversity and enabling research, education and economic development focused on the ocean's economy and social cohesion through nature.

The MBDA is currently undertaking a series of public participation engagements to obtain inputs from various stakeholders as to the future of the facility. A final concept plan is then to be submitted to Council for approval and implementation.

APPLE EXPRESS

NMBM in partnership with Transnet embarked on a process to re-establish and operate the Nelson Mandela Bay Steam Train formerly known as the Apple Express. The implementation of the project has focussed on phase one which was from the harbour to Kings Beach during December 2017 and January 2018.

Following the success of Phase one, Transnet and NMBM are to agree on the way forward.

A pilot run of the 2017 tourism route was done in March 2020 after certain rehabilitation took place. It is anticipated this will run regularly in the near future. There are continuous engagements between Transnet and NMBM on how to take the project forward.

UITENHAGE NMB LOGISTICS PARK

The purpose-built Nelson Mandela Bay Logistics Park (NMBLP) in Uitenhage, managed by the Coega Development Corporation (CDC), is geared to locating more first and second tier suppliers in automotive manufacturing. The vision of the NMBLP is to obtain economies of scale for the automotive manufacturing industry through centralisation of different functions and suppliers to reduce costs by shortening and improving the supply chain to the automotive industry.

Precinct A of the Park is 57 hectares and features purpose-built infrastructure and shared services including security, ICT and logistics to minimise costs for new investors and existing tenants. More than 1000 people are employed within Precinct A of the Park. Developments in Precinct A have grown to the extent that expansion will have to be undertaken into Precinct B. Investments need to be made in enabling infrastructure for essential services and utilities such as electricity, water, a fire-ring main for emergencies and internal roads for Precinct B. Specialists in logistics park planning and operations need to be appointed to assist with the planning, preparation of detailed cost estimates and a business case for Precinct B.

Funding was requested from the City's budget for the 2019/20 financial year but could not be made available. Funding has been requested from the City's budget for the 2020/21 financial year that commences on 1 July 2020 for the appointment of specialists whilst negotiations are taking place with CDC to further their interest in the project.

ZANEMVULA PRECINCT

The Zanemvula precinct development intends to ensure that socio-economic facilities and amenities and alternative residential types are provided within the RDP housing areas.

Amenities in this area will also serve the Bloemendal and KwaNobuhle areas.

Mixed use areas have been planned alongside the Chatty Link Road transport spine in this area in the heart of Zanemvula project (45 000 residential opportunities).

Opportunities do not exist for connectivity of this area to the rest of the city and the role of this area as a transport hub needs to be recognised.

The Precinct Plan, referred to as the Chatty Jachtlakte Precinct Plan has been completed and was adopted by Council in December 2019.

The key proposals in the Precinct Plan identified the need for socio-economic and community facilities, as well as residential opportunities. It includes an implementation and costing plan for:

- Additional Housing opportunities (Residential Typologies ranging from Medium density to High density-2 storey to 3 storey walk-ups proposed);
- Additional business sites have been proposed for big retailers;
- Small business sites have been incorporated for smaller retailers (such as office space);
- A Community Healthcare facility has been proposed;
- Additional crèche sites have been identified;
- A Police Station site has been identified;
- Parks and Recreation spaces have been identified, future designs to be made at implementation;
- Future train station and taxi rank have been proposed along Chatty Link Road;
- A Library has been included in the Multi-Purpose Centre site;
- Proposed bus stops at Stanford Road and Chatty Link intersection.

The implementation of this Precinct Plan requires attention in the 2020/21 period.

MOTHERWELL PRECINCT

Development in the Motherwell area comprises municipal and private sector developments. Critical for the development of area is the implementation of a commuter rail link between the CBD and Motherwell with four stations between the Swartkops line and Motherwell NU29 as a first phase. The Motherwell Rail Corridor will open numerous opportunities especially around the stations.

The Motherwell Precinct- including the rail corridor and stations- is one of the BEPP Catalytic Land Development Programmes. PRASSA has during 2019 returned with efforts to conclude the MOU with NMBM

The precinct plan for Motherwell is in the procurement process: specifications have been prepared. Advertisement is imminent.

RED LOCATION PRECINCT

Located in the historic Red Location area of Ibhayi, the precinct consists of the Apartheid Museum, Art Gallery, Electronic Library and Back-packers Lodge. The Apartheid Museum was completed in 2004. The Art Gallery and Electronic Library buildings were completed in 2011. The performing arts complex and school of music form the last two phases of the precinct. The Business Plan for the performing arts complex is complete.

The continued closure of Red Location Museum due to community demands is hampering the full potential of the precinct. The precinct will play a significant role as a cultural/tourism node and can be directly linked with the Port Elizabeth CBD by means of the New Brighton Railway Station, which is within walking distance. It will furthermore complement and strengthen not only the Njoli Hub, but also the Khulani Corridor.

Negotiations with the community have not yet yielded a resolution to the matter and the precinct is still not functional. The buildings have deteriorated and extensive maintenance is required before the buildings can open for the public.

NJOLI SQUARE

The multi-million-rand redevelopment initiative around the historic Njoli Square will contribute to creating a dignified space within a previously marginalised community. It is aimed specifically at economic upliftment.

The project is comprised of the following:

- Reconfiguration of the junction of Njoli and Daku Roads to accommodate traffic flow through a compact four-legged intersection;

- Accommodation of development components on the four quadrants surrounding the intersection, such as commercial development, medical suites, space for a future library and civil building, and stalls for informal traders and a Modal Transport interchange;
- Promoting pedestrian accommodation through safe and controlled crossing points;
- Accommodating future IPTS stations on the approaches to the intersection and
- Accommodating all minibus-taxi operations in one facility at or close to the existing off-street facility.

A Precinct Plan for the Njoli Hub and surrounds (including major road corridors leading to Njoli Square) was approved by Council on 5 December 2019.

The projects are prioritised and divided into public funding required and private sector involvement. Below is the list:

TABLE 18: PROJECTS TO BE IMPLEMENTED IN NJOLI SQUARE

Public Sector funding required		
Priority 1	Roofed Market	R 10,800,000,00
Priority 1	Informal Street Trading Facilities	R 576,000,00
Priority 1	Upgrade 31 Vehicle Holding Area	R 3,000,000,00
Priority 2	Waiting Rooms, Ticket Offices, Ablution Facilities & Shelters: Long Distance Terminal	R 4,200,000,00
Priority 2	Commuter Taxi Terminal Shelters	R 4,500,000,00
Priority 2	Paving of Commuter Taxi Terminal	R 1,000,000,00
Priority 2	Ablution Facilities for Commuter Terminal	R 3,000,000,00
Priority 3	Livestock Market Pan	R 166,000,00
Priority 3	Events Space Paving to Livestock Market	R 75,000,00
Priority 4	Public Parking for Retail Anchors	R 1,740,000,00
	Sub-Total: Public	R 29,057,000,00

Private Sector investment required		
Priority 5	Motor City/Commercial/SMME Premises	R 8,480,000,00
Priority 5	Motor City/Commercial/SMME Premises	R 1,680,000,00
Priority 5	Public Parking: Precinct D	R 360,000,00
Priority 5	New Retail Anchor	R 57,060,000,00
Priority 5	Private/Public Offices	R 42,920,000,00
Priority 6	Medical Centre	R 9,990,000,00
Priority 6	Public Parking: Medical centre	R 120,000,00
	Sub-Total: Public	R 120,610,000,00
TOTAL funding required for the project		R 149,667,000,00

Source NMBM 2019

National Treasury (NDPG Office) has made R26,086,960 available in the 2019/20 financial year. This money is towards the upgrading of Daku Road to a dual carriageway and the balance towards feasibility studies and business plans for the abovementioned priority projects.

CLEARY PARK MODAL PRECINCT

A modal interchange has been planned at Cleary Park in close proximity to the existing shopping centre. The intention is to develop:

- Catalytic activities around the modal interchange
- Opportunities for public transport activities and densification along the Cleary Park route

The Cleary Park route is very constrained and needs planning intervention as a section runs alongside the commuter railway. Detailed planning for the implementation of the modal interchange is currently under way and will inter alia influence the finalisation of the Cleary Park Precinct Plan.

A preliminary Precinct Plan has been prepared and needs to be finalised.

FAIRVIEW PRECINCT

This precinct is recognised as a Growth Area/ Economic Node of the City. It is an Integrated Mixed Use and Residential Development in the Fairview / Willowdene as discussed in detail in the BEPP main document.

UITENHAGE CENTRAL PRECINCT

This project involves the development of an integrated mixed use and recreational precinct that links the Uitenhage Railway Shed development with a planned open space and regional recreational facility. This project is important for the Uitenhage area as it will bring regional recreational opportunities to the area and will support the Railway Shed and Science Park Centre which have been developed by the Municipality.

The precinct will consist of eight sub-projects:

- Project 1: The development of a Precinct Plan to guide the spatial development of the precinct. It will include an urban design framework as well as a list of specific interventions and an implementation plan therefore. The procurement of consultancy services are currently under way and it is envisaged that the Precinct Plan will be concluded during 2020/21.
- Project 2: The upgrade of Railways Sheds on the lease portion that forms part of the Science Centre Precinct. The MBDA has undertaken a conditional assessment of the historic buildings on the site. The refurbishment of the buildings is estimated at R18 million. The appointment of consultants for the design and project management is in the final stages of procurement. The project is expected to commence in 2019/2020 financial year.
- Project 3: The development of the land abutting the Science and Technology Centre. After 10 years of not concluding the Sale of Land and Lease Agreement with the private sector, Council will be requested to consider the

cancellation of the lease and sale and approve the development of the land for high density, mixed use development with a focus on housing.

- Project 4: Unblock the potential of the under-utilised sports facilities (Central Sport fields and Swifts Sports Ground). A structural assessment of the existing buildings must be done. A way forward must be determined on how to deal with the illegal occupants in the buildings.
- Project 5: The John Street Social Rental Housing Project comprising of approximately 385 residential opportunities to be delivered in two phases from 2019 to 2021.
- Project 6: The provision of infrastructure and facilities for the IPTS linking Port Elizabeth and Uitenhage, including a modal interchange.
- Project 7: The Stanford Road Extension linking Port Elizabeth and Uitenhage via Kwanobuhle and the Uitenhage Logistics Park. A critical linkage project.
- Project 8: The development of the Uitenhage Central Precinct in line with the urban framework and implementation plan developed in the Precinct Planning stage.

N2 NODAL PRECINCT

The N2 Growth Area/ Economic Node is discussed in detail in the main BEPP document. The project is both a BEPP Catalytic Land Development Programme and Growth Area. It is situated in the Western Areas, currently one of the fastest growing development areas in the NMBM.

The project area is anchored by the Baywest Shopping Mall of 90 000 m² GLA. The greater area includes 450 000 m² of mixed retail and office space, a hospital, hotel and ICC.

The area is critical for socio-economic integration and will, once fully developed, provide a range of housing opportunities. In order to further the objectives of integration and access, this area will need to be physically linked to the Zanemvula Chatty area via the Western Arterial.

The programme is comprised of the following projects:

- Project 1 (Private Sector): Baywest Precinct Phase 1 consisting of the Mall, Mixed Use, Office, Lifestyle and Residential Development. The mall and one office complex is complete.
- Project 2 (Public/ Private Sector): Redhouse Chelsea Arterial which involved the construction of the Easter Interchange and Link Road between the Mall and Cape Road now known as Baywest Boulevard. Construction is complete.
- Project 3 (Private/ Public Sector): Utopia Precinct planned for Mixed Use Retail and Residential development.
- Project 4 (Public Sector): The N2 North Integrated Residential Development planned for Mixed Residential and Mixed Use development.
- Project 5 (Public Sector): The Greenbushes Bulk Water Main to enhance the capacity of the N2 Nodal Development Area.
- Project 6 (Public Private Sector): The Western Arterial linking the N2 Nodal Development Area with the Northern Suburbs of Bethelsdorp, Bloemendal, Zanemvula and Jachtlakte.
- Project 7 (Public Sector): The Baywest/ Driftsands Collector Sewer.
- Project 8 (Public/ Private Sector): “Gro-gro” informal settlement development.
- Project 9 (Private Sector): Baywest Precinct Phase 2 – mixed Use, Office, Residential and High Tech Light Industrial Development.

BLOEMENDAL ARTERIAL

The Bloemendal Arterial is a critical link that connects the Njoli and Chatty Jachtlakte Hubs. The construction of this critical linkage forms part of the longer-term proposal of the Comprehensive Integrated Transport Plan.

The road is 9 km in length and comprises two portions of 6.5 km and 2.5 km. Once constructed, it will strengthen access and integration by spatially linking the two areas. By improving connectivity between areas, economic activity will also increase.

A spin off of the development of this road will be that it is an essential transport collector to fast track development in the area. The impact will directly assist the predominantly poor area.

CHATTY LINK ROAD

The Chatty Link Road is a critical linkage as it is important for the further development of the mixed use planned area which abuts it. This area will allow development of much needed alternative higher density housing opportunities, community and economic amenities as well as open spaces and meeting places.

The road is a 1.98 km link road between Stanford Road and Bloemendal Arterial Routes and is constructed. Tree planting and a small fitness park complement the road. These have been funded partially using ICDG funding.

WESTERN ARTERIAL

The Western Arterial is a critical link road linking the N2 nodal area to the Chatty Jachtlakte area and greater Uitenhage. It is approximately 10 km in length and preliminary designs are complete. Detailed designs have been finalised for the interchange with the N2 as well as the link between the interchange and Cape Road.

Route alignment between Cape Road and Stanford Road is currently being finalised through the EIA process.

This route will connect areas of poverty and unemployment to the growing N2 economic node. Presently people from Uitenhage and surrounds need to travel to Korsten in order to get to the N2 node which offers many employment opportunities.

MOTHERWELL RAIL CORRIDOR

PRASA is due to invest R1,7 billion for the completion of the first phase of this corridor which will ultimately run from PE CBD to Motherwell NU29 in its first phase.

Detailed designs of the rail link and stations are complete and environmental authorisation is obtained.

An MOU between NMBM and PRASA will be concluded shortly. The MOU makes provision for the institutional and technical support to give effect to the development such as land exchanges and infrastructure provision.

The route is hampered by the existence of informal settlements in the way of the route alignment. These challenges will have to be overcome in due course.

NORTH END COASTAL DEVELOPMENT

This is not a catalytic project but has the longer term potential of being one. 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 will restore beach sand to the severely eroded northern coast area through the redirection of dredged sand from the harbour 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.

The project was presented at the Spatial Planning and Development (SPD) meeting held on 7 May 2019. The SPD is a sub group that reports into the Strategic Interface Forum which exists for intergovernmental collaboration with SOE's and others. The project is long term however there are "low hanging fruits" that can be implemented in the short term subject to budget which presently is a major constraint.

STATUE OF LIBERATION

This project is seen to help grow the tourism products in Nelson Mandela Bay and serve as a compelling attraction for visitors to come to Nelson Mandela Bay. This will also provide an identity for the Nelson Mandela Bay region.

During 2018 NMBM through its entity, MBDA, went out on a national competition for a concept for a Nelson Mandela Statue, dubbed an “Iconic Land Mark Precinct”. The competition involved conceptualizing and designing an Iconic Land Mark Precinct featuring the statue of Nelson Mandela. The award winning concepts and designs were submitted by M&C Saatchi Consortium, a Cape Town based company. A replica of the landmark was unveiled by the Executive Mayor on 10 October 2018.

The Business plan is completed and was presented to the Economic Development Portfolio Committee of Council in October 2019.

The location that has been identified and recommended for the construction of this Landmark Precinct is St Georges Park. This follows a lengthy process of assessment and comparison of various sites through a set of locational criteria. A footprint of about 3h has been earmarked within the overall park of 73h to build the following facilities:

- The tower of light (81 metres tall)
- Grass mounds:
 - Tower of light admin (Ticketing; Emergency Healthcare; Induction Health and safety).
 - Food market (International and local culinary market; Food and art).
 - Interpretation centre (Lecture halls; Conference Spaces; Tower of Light restaurant and gift shop).

- Exhibition centre (Day-care; Learning Spaces; Children's creativity centre and library).
 - Exhibition centre (Venue hire with catering kitchens; Weddings, parties, events).
- Mixed commercial and retail spaces.

All these facilities will be implemented through a phased approach with the tower of light being the priority. The precinct is an anchor project that will pull tourists throughout the world and stimulate geographic spread across the metro, as it will link other sites that have significance to the history of Nelson Mandela.

The cost for the entire development is estimated to R2.7b and phase one is estimated to reach R600m. This budget will be raised from public sector, donor funding and partnership with the private sector.

It is expected that the following high-level activities will unfold leading to the development and completion of the Iconic Landmark Precinct:

- Upon approval of the business plan by council, heritage and environmental impact assessment will be undertaken.
- Consultation at various levels with communities and stakeholders.
- Detailed planning and design of the landmark precinct.
- Funding and investment mobilization.
- Provision of infrastructure and construction of phase one.
- Construction of subsequent phases.
- Delivery and operationalization of the Iconic Land Mark.

RESORTS

Over the years, most of the former tourist resorts in the NMBM have been neglected and left in a state of ruin. This is due to a number of reasons some of which have legal implications. Currently, NMBM derives limited revenue from the operation of Willows, Van Stadens and Springs. Beachview and Maitland have been closed. A new policy is set to revitalise the ailing holiday resorts across Nelson Mandela Bay as the City is working on a new management models to maximise the potential of these neglected facilities.

SOLAR 250MW INVESTMENT PROJECT

In order to maintain its initiatives towards a balanced energy mix, a low carbon economy and a sustainable income from energy, the NMBM has advertised an investment opportunity for small scale embedded generation from the installation of solar panels on the roofs of domestic, commercial and industrial buildings. The simple intention is for the investor to sell or rent the solar system to the user at a fixed electricity tariff with a known increase over a period of 20 years. The NMBM, as the network owner and operator will collect the revenue as per normal and pay over to the investor the amount of generation in kWh less a "wires charge". This is the value of money needed by the NMBM to maintain and recapitalise the electrification network.

If successful, the program could lead to large scale investments and concomitant job creation.

It will also ensure that the NMBM maintains its source of revenue and attempts to prolong if not prevent "Grid defection" where the entire revenue stream is lost. The program is advertised and explained on the NMBM website.

INNOVATIVE ELECTRIFICATION

The current growth in illegal connections has seen an increase in the number of faults and failures on the NMBM grid. It has also led to dangerous and unsafe conditions where a dangerous "spiderweb" of thin wires cuts across the informal settlements. The NMBM is developing a system and has installed a number of the new safer and regulated connections which provide the residents with a specific limited usage which is safe reliable and cost effective.

DEVELOPMENT OF THE TOWNSHIP ECONOMY

The NMBM has placed a strong focus on the economic development of Townships and other previously neglected areas. The focus will be on the development of businesses in these areas, improvement of infrastructure and links between business hubs. The city is developing a plan to deliver economic infrastructure to township communities and improve services and facilities for residents, businesses and visitors.

NMBM is also the recipient of the CSP offering for Township Economic Development. This project is expected to roll out from March 2020. Initial meetings have been held with management and the service providers.

The reviewed Informal Trading Policy was approved by the Nelson Mandela Bay Municipality Council on the 30 November 2017. The policy responds to the need for a common approach towards informal trading in the jurisdictional area of the Nelson Mandela Bay Municipality. It lays the foundation for informal trading in a manner that benefits those involved in it – traders, property owners and customers alike.

The policy gives further expression to government's commitment to implementing a legitimate regulatory framework for this dynamic sector. This necessitated the speedy development and management of the challenges that were faced by the informal trading sector within the Municipality. To this end an Informal Trading Management Committee was established with representatives from different Directorates. It meets monthly to deal with challenges pertaining the informal sector.

The following priority hotspot areas have been identified to deal with these challenges:

- Ziyabuya Kwadwesi (Pilot project)
- Korsten
- Walmer

- Kenako
- Market Square (Uitenhage)

Application forms for trading permits were developed and the Committee is involved when decisions are made for issuing of trading permits making sure these trading permits are in line with the Municipal Policies.

A data base of Informal Traders in different parts of NMBM has been developed. Informal traders were given forms to register where they trade. Qualifying informal traders are issued with temporary licences until the area has been formally demarcated and trading plans approved. To date 566 permits have been issued.

The provision of infrastructure will assist in developing informal traders and mainstreaming them into formal economy. This forms part of enabling environment for small businesses to grow. Infrastructure refers to fencing, paving and ablution facilities. Work is being undertaken to empower the informal traders on health issues, Municipal By Laws and business skills.

The following sites are identified for informal trading activities and are in the process of being rezoned:

- Erf 5433 in Kwadwesi (Ziyabuya Mall);
- Erf 8473 in Walmer (Corner 17th Avenue and Buffelsfontein Road) and
- Erf 349 in Zwide (next to ETC Training centre) to be demarcated as informal trading sites.

When approved these sites will be designed to suit the needs of different informal traders.

SOLID WASTE DIVERSION AND BENEFICIATION – WASTE PARK

The management of solid waste in the city is a concern, from legislative, environmental and human health perspectives. The need for alternative resource development (renewable resource-based energy, for example) and the concern about closed material cycles (the conventional use of products and packaging from purchase to end of use in landfills) prompted countries and cities like the NMBM to adopt sustainable service delivery practises. A looming concern from 2011 and reflected in the latest Integrated Waste Management Plan (IWMP) has been the prevalence of illegal dumping.

In 2011, Nelson Mandela Bay Municipality entered into an agreement with Eskom Holdings SOC Limited (Eskom) to jointly explore the likelihood of a waste-to-energy initiative in the city. This led to the concept of a waste-to-energy project. In 2013, A technical feasibility study was undertaken to investigate the potential of a municipal-led waste-conversion project in Nelson Mandela Bay. The plans for this project were to deliver a privately-funded and managed 'Waste Park', which would comprise infrastructure including materials recovery facilities (MRF), refuse transfer station (RTS) and landfill gas recovery (LGR). The ultimate goal is to divert waste from ending up in landfills, produce materials for recovery, organic composting or recycling opportunities and convert landfill gas into energy, whilst providing economic opportunities and market streams

The primary objectives of the project include:

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

Catalytic funding was provided by Eskom in 2012 (after a Memorandum of Agreement - MoA - was signed between the parties). As the principal electricity generation entity in SA, Eskom is concerned with the generation of energy from renewable resources due to electricity generation crisis which are currently experienced. Where energy recovery is possible, a crucial objective was the development of renewable energy by employing waste-to-energy technologies, meeting national targets on diversification of the energy mix and reducing carbon emissions.

A notable South African example of landfill energy from landfill gas extraction is the Marianhill Landfill site in the city of Ethekwini (Durban), which has been operating since 2006. Despite challenging technical and carbon trading conditions, the site has offset almost 2 million tonnes of CO₂ by January 2015. A further lesson from this project is that landfill gas is only a viable renewable energy resource when linked to a form of carbon finance mechanism.

Soon after the MoA was signed in 2012, a multi-disciplinary Project Steering Committee (PSC) was established to guide the Project Development Phase. The City Manager, to manage the subsequent appointees (Transactional Advisor) and ensure effective liaison and deliverables, also appointed a municipal-based Project Officer.

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) for a Solid Waste Diversion and Beneficiation Project. The Project is divided into 2 (two) sub-projects:

- The Landfill Gas Extraction Project
- 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 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 SEZ (Special Economic 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'.

This project was placed on hold in 2017. However, the procurement process was reinitiated in 2019. What is currently crucial to the project's development is the appointment of a transactional advisor, who will be responsible for the design, environmental and other legal approval processes, commissioning and overall project management for the delivery of the Project.

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 Water Master Plan was approved by Council in 2006 and is currently being reviewed. However, the recommended expansions to the infrastructure remain relevant, as set out below. The Sanitation Master Plan was approved by Council in 2012 and as in the case of water also supports both basic and economic infrastructure.

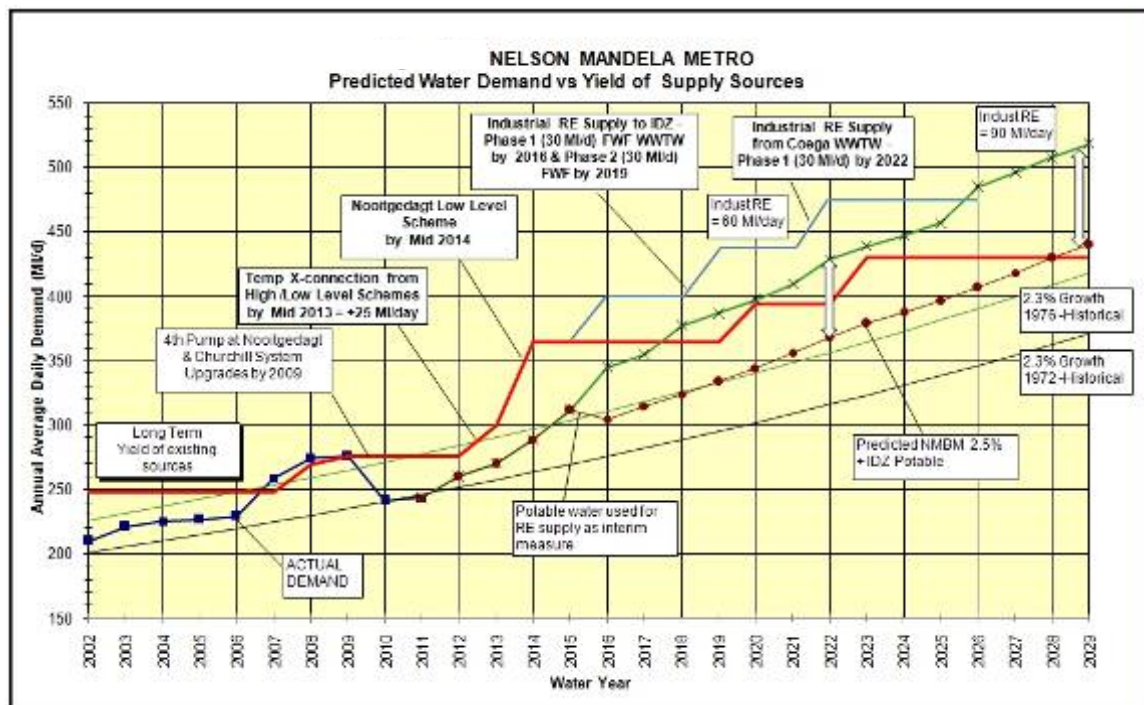
3.1 Water Master Plan (WMP)

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 existed in the previous BEPP has now been partially addressed with the completion of the Nooitgedacht Low Level Scheme Phase 2 making an additional 50 Ml/d of water available, which provides water for all new developments, as well as the Coega Special Economic Zone Phase 3 was planned for completion in December 2019. Due to funding delays from DWS, the anticipated completion date has now moved to March 2021 with final commissioning by June 2021.

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 finalised Algoa Water Reconciliation Study report will also be used as strategic input in the preparation of the Water Master Plan which is under preparation.

The anticipated historic growth for Nelson Mandela Bay has been 2.3%; however, developments such as the Housing Programme and the Coega SEZ would increase the medium-term growth pattern. In addition, as a result of the housing backlog and the establishment of new informal settlements, the growth in water supply is expected to be higher than the above growth. 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 SEZ, show that the biggest need for water is in the north/northeast of the metropolitan area. This confirms the need for the augmentation of the water supply from Nooitgedacht. It also highlights the need to evaluate the need to upgrade internal bulk / link services to support infill development and increased densification of developments.

FIGURE 23: Predicted Water Demand of NMBM

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

The capital investment required to support the anticipated water required is partially contained in Table 8 above, but will need to be dealt with in detail in the Long Term Financial Plan of the NMBM. This includes possible construction of a desalination sea water plant in collaboration with CDC that will be explored.

3.1.1 Drought in the Algoa Water Supply System

Since December 2015 the Algoa Water Supply System has received below the 20-year average rainfall in the catchment area. The NMBM has introduced water restrictions since September 2016. As a result of the reduction in the dam levels the NMBM was declared a local Drought Disaster Area on 22 May 2017 in terms of the Disaster Management Act. This has culminated in the National Disaster Management Centre declaring a National Drought Disaster that was gazetted on 13 February 2018. (Gazette 41439 No 107). The average dam levels reduced to 17% in August 2018. Rain in September 2018 increased average levels to 53%.

The NMBM submitted a Drought Mitigation Plan to the Provincial / National Drought Disaster authority amounting to R2.2 billion. An amount of R97 million was awarded to the City for drought mitigation in March 2018. The NMBM further declared a local state of disaster on 30 December 2019 (Gazette 4363 No 339).

The funds were used for the drilling of boreholes as per the grant conditions. In addition, R233M was received in March 2019 for the construction of a Water Treatment facility to treat the high levels of iron and manganese in the Coega Kop Boreholes. This amount was reduced to R200 million after the carryover. The objection received under this contract was considered and addressed. The selected bidder has now been appointed.

There remains a water supply shortfall as the Impofu Dam, which is the major dam supplying water to the NMBM, is only at 16.6% (23 March 2019). In addition, it must also be pointed out that Kouga is at 16.03% (23 March 2019).

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. Two major sewer links are under planning and construction and these are the Lorraine Driftsands sewer to serve the N2 Node and surrounding areas and the Swartkops Sewer to serve the Jachtlakte / Zanemvula development areas. 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 more than a R1 billion, followed by Kelvin Jones and Driftsands WWTW. The latter works deal with developments in KwaNobuhle and Uitenhage and Driftsands supports the developments of Walmer Gqebera up to the N2 Node.

Economic infrastructure for development such as the Coega Wastewater Treatment Works and the Coega Return Effluent Scheme, is needed to support the Coega SEZ. Further development of the SEZ will be hampered without funding for these projects. An investment of approximately R750 million 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 SEZ. This plant is planned for an ultimate capacity of 120 Ml/d costing in the region of R3000M. A start up capacity of 40-50Ml/d will be required.

Coupled to this is the need to eradicate the remaining 6010 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) – Contract has expired, however additional ablation facilities have been manufactured and are in stock.
- Communal Toilets (Individual toilets clustered together, waterborne connectivity) – tender document is in draft stage.
- Plumbed free-standing toilets (Individual scattered toilets, waterborne connectivity) – tender document is in draft stage.
- 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 – tenders to be called during the 1 quarter of 2020/21.

Formal Settlements:

- Metro House construction.
- The reduction in buckets from 16 317 to the present 6 010 was predominantly as a result of the relocation of communities from informal settlements to formal settlements where either a subsidised house is constructed or a toilet/bathroom is constructed on a serviced site. The programme is progressing reasonably well. However, some wards do not accept some of the options for eliminating buckets. Of significance is that one area alone that is refusing the interim solutions has approximately 2000 buckets- one third of those in existence. A further contributing factor to this backlog is the recently established informal settlements where additional interim services are now required that make an additional burden on the budget.

3.3 Asset condition

This data is based upon a study (Infrastructure Maintenance Backlog Assessment) that was conducted in 2011 and escalated.

TABLE 19: Water Backlog Maintenance

<i>Water Backlog</i>	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, 2019

TABLE 20: 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, 2019

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 21: 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, 2019

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 5 years 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 22: 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)	1,156,250,000
5	Road maintenance projects	2,875,000,000
6	Bridge maintenance projects	606,250,000
7	Public transport projects	4,950,000,000

NO.	PROJECT DESCRIPTION	TOTAL PROJECT COST – five years (Rand)
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		12,562,500,000

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 23: Maintenance Backlog

		Total Operational Maintenance and Rehabilitation Backlogs	Annual Requirement to Eliminate Backlog	Budget 2017/18	Budget 2018/19	Budget 2019/2020	Budget 2020/2021
	Roads & Stormwater						
1	Maintenance / Rehabilitation of Subsidised Roads	660 000 000	122 200 000	26 184 135	27 896 547	30 970 340	34 108 560
2	Maintenance / Rehabilitation of -Non subsidised Roads	1 890 000 000	385 700 000	43 015 216	43 410 957	44 037 740	44 940 004
3	Maintenance / Rehabilitation of Stormwater Facilities	830 000 000	180 400 000	21 678 920	25 789 410	29 530 260	30 573 130
4	Road Signs & Markings	116 000 000	26 300 000	3 500 000	3 710 000	3 932 600	4 168 556
5	Maintenance / Rehabilitation of Bridges	540 000 000	117 000 000	896 000	4 000 000	2 060 000	1 123 600
6	Resurfacing of Roads	2 000 000 000	2 170 000 000	0	12 980 586	13 406 840	15 625 590
				95 274 271	117 787 500	123 937 780	130 539 440

Source: NMBM 2019

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

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, alternative forms of energy, tariff structures, losses and theft are creating a much reduced gross profit margin.

The following table indicates the year on year costs associated with bulk electricity purchases from Eskom.

TABLE 24: Eskom Bulk Purchases

Eskom Bulk Purchase										
	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Purchases in Consumption (GWh)	3803	2819	3845	3609	3511	3538	3591	3525	3490	3461
Purchases in Rand (ZAR Million)	1181	1508	1912	2106	2167	2361	2721	2892	2870	3180

Source: NMBM 2020

Consumption growth in terms of GWh purchased from Eskom has been decreasing by an average of 2% over the last five years even though the number of overall consumers has increased by an average of 12% over the same five-year time period.

TABLE 25: Indication of customers, consumption and revenue

Year	Total customers	Energy consumption (kWh)	Revenue (ZAR)
2011/ 2012	315 349	3 498,516	2 876 250 701
2012/ 2013	321 037	3 223,927	3 061 294 846
2013/ 2014	271 653	3 113,762	2 953 624 090
2014/ 2015	283 886	3 103,225	3 154 996 743
2015/ 2016	296 155	3 135,774	3 550 810 149
2016/ 2017	306 205	3 045,813	3 693 703 315
2017/ 2018	314 104	3 002,662	3 687 191 074
2018/ 2019	323 091	2 963,513	3 753 045 159

Source: NMBM 2020

TABLE 26: Customer numbers per customer category

Category	Customer Numbers /Category									
	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Domestic Credit	34 029	32 010	30 002	28 813	27 926	26 748	25 850	24 444	23 615	23 041
Domestic Prepaid	254 995	265 723	276 492	283 637	235 303	248 905	256 748	267 983	276 699	286 143
Small Business	2 958	2 768	3 144	3 089	3 007	2 912	2 843	2 779	2 711	2 657
Medium Business	5 665	5 514	5 413	5 201	5 116	5 014	4 928	4 844	4 709	4 674
Large Business	290	302	298	297	301	307	310	311	320	327
Business Prepaid							5 476	5 844	6 050	6 249
Total Customers	297 937	306 317	315 349	321 037	271 653	283 886	296 155	306 205	314 104	323 091

Source: NMBM 2020

TABLE 27: Revenue (Rand Million) per customer category (sales)

Category	Revenue (Rand Million) /Customer Category									
	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Domestic Credit	178	200	227	255	253	250	275	267	259	262
Domestic Prepaid	470	562	663	760	721	762	805	843	837	861
Small Business	22	25	37	40	35	36	40	40	40	44
Medium Business	309	380	454	499	479	521	585	596	648	643
Large Business	895	1 107	1 468	1 477	1 434	1 555	1 778	1 873	1 829	1 870
Street lighting	14	21	27	31	30	31	34	33	34	36
FBE							35	42	40	37
Total Rand Million	1 888	2 295	2 876	3 062	2 952	3 155	3 552	3 694	3 687	3 753

Source: NMBM 2020

This table indicates the importance of large business customers within the NMBM as over half the consumption is utilised by large business customers.

TABLE 28: Consumption Contribution (%) per customer category

Category	Consumption Contribution /Customer Category (%)						
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Domestic Credit	7%	7%	7%	7%	6%	6%	6%
Domestic Prepaid	21%	21%	21%	21%	21%	21%	21%
Small Business	1%	1%	1%	1%	1%	1%	1%
Medium Business	14%	14%	14%	14%	14%	14%	14%
Large Business	53%	52%	53%	54%	55%	55%	55%
Street lighting	2%	2%	2%	2%	1%	1%	2%
FBE	2%	2%	2%	2%	2%	2%	2%

Source: NMBM 2020

In 2018/19 Commercial customers procured over 70% of the electricity sold by NMBM. The major clients include, among others, Volkswagen Group South Africa, AgniSteels South Africa, Goodyear South Africa, BORBET South Africa, Continental Tyre South Africa, Crown Chickens and Mondelez International. In June 2019 the top twenty customers procured 58 GWh electricity, 24% of the total electricity sold in NMBM.

From the table above it is evident that large business/industrial customers are vital to NMBMs revenue. Although there are only 327 large business customers (0.1% of the customer base), they procured 1 631 GWh electricity in 2018/19 (55% of consumption) which amounted to 1870 million in terms of revenue from electricity sales.

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

TABLE 29: 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
2016/2017	(R3,693,703,315)	(R2,892,128,296)	(R801,575,019)	22 %	13.4
2017/2018	(R3,687,191,074)	(R2,870,435,742)	(R816,755,332)	22%	13.95
2018/2019	(R3,460,029,222)	(R2,913,823,872)	(R546,205,350)	16%	14.34

Source: NMBM 2020

With a population growth rate of 1.54% it is expected that customer numbers in NMBM should increase. However, it is to be expected that the increase in energy consumption will partly be offset by the rising unemployment rate, suppressed disposable income and increased poverty.

The price of electricity, tariff increases, alternative energy options and more energy efficient appliances/equipment could suppress future sales growth.

Low economic growth prospects, the political environment in South Africa and the Nelson Mandela Bay Municipality, increased costs of electricity, stability of electricity supply and load shedding are hampering economic activity, depressing economic expansion and causing commercial customers to implement new technologies and renewable energy options in an effort to reduce their reliance of electricity supply from NMBM and Eskom.

The NMBM is a frontrunner in creating an enabling environment and attracting investment in the green economy sector. Currently two wind farms exist in the Metro.

At this stage the PV related opportunities include 283 installations with an indicative capacity of 7,8 megawatt yielding a potential of 8424-megawatt hour (MWh) per annum. From a wind perspective, the biggest wind farm consists of a generation capacity of 27-megawatts which is currently feeding into the grid.

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, the electricity crisis in South Africa and to help reduce the amount of carbon emissions due to generation from fossil fuels.

The current condition of the electrical infrastructure requires a major injection of funds and manpower 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.

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 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 of aged and relatively new infrastructure. The majority being older with some equipment older than 40 years. It is therefore urgent that major upgrade, refurbishment and replacement takes place. The following is a reflection of the first 5 years of work required in order to start making inroads into this problem.

The total cost for the various categories is as follows:

Major Substations	R 106 423 200
Minor Substations	R 327 333 333
Overhead Lines	R 240 000 000
Power Transformers	R 25 850 000
<i>Total over 5 years</i>	<i>R 699 606 533</i>

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 to medium voltage. Below is a breakdown of the funding required for the short to medium term projects.

TABLE 30: Electricity Projects

Immediate Projects	2019/20	2020/21	2021/22
Walmer Lorraine	R2 500 000	R4 500 000	R4 500 000
Mount Road Reinforcement	R500 000	R1 000 000	R4 500 000
Uitenhage Reinforcement	R2 000 000	R3 000 000	R3 000 000
Hunters Reinforcement	R800 000	R2 000 000	R3 000 000
Summerstrand Reinforcement	R1 000 000	R2 000 000	R2 500 000
Western Reinforcement	R2 700 000	R2 000 000	R2 000 000
Ibhayi Reinforcement	R1 600 000	R1 600 000	R1 600 000
Newton Park Reinforcement	R1 000 000	R1 000 000	R1 000 000
Bethelsdorp Reinforcement	R1 100 000	R1 100 000	R1 100 000
Malabar Reinforcement	R1 000 000	R1 000 000	R1 000 000
Wells Estate	R1 500 000	R1 500 000	R2 000 000
Rural Areas (Peri Urban)	R0	R0	R0
Redhouse	R500 000	R500 000	R500 000
Despatch (San Souci Reinforcement)	R500 000	R500 000	R500 000
Korsten	R500 000	R500 000	R500 000
Miscellaneous Mains	R5 000 000	R0	R0
Township Development	R4 000 000	R0	R0
Total Cost	R26 200 000	R22 200 000	R27 700 000

Source: NMBM 2020

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 31: High Voltage Projects

Immediate Projects	2019/20	2020/21	2021/22
Swartkops/Deal Party Line	R80 000	R1 300 000	R15 300 000
Deal Party 132kV Substation	R-	R-	R8 000 000
Nivens Drift Substation	R300 000		
17 th Avenue Substation	R4 200 000	0	R16 000 000
Lorraine-17 th Avenue Line	R200 000	R12 550 000	R7 000 000
Chelsea 63MVA Replacement	R500 000	R15 000 000	
Perl Road 3rd Transformer		R8 000 000	
San Souci 132kV Extension	R0	R6 000 000	R25 000 000
Chatty Chelsea Line	R	R200 000	R1 000 000
Swartkops-Deal Party	R200 000	0	R0
17 th Avenue Powercable	R0	R6 000 000	R0

Source: NMBM 2020

Electricity Losses

Losses are an on-going concern, as it results in a loss of revenue and overall reduced efficiency of the utilisation of the electrical resources. Creative programmes such as the Innovative Undeclared Informal Electrification Programmes have been implemented to assist in the reduction of non-technical electrical losses caused by tampering and socio-economic factors. The total losses as a percentage is 14.34% of total electricity, Non-Technical losses as a percentage is 8.34% and Technical losses as a percentage is 6%.

A strategy to deal with non-technical losses has identified the following programmes:

- Audits to identify and deal with illegal connections, direct connections and bypasses.
- Installation of smart meters that are integrated to the vendor system.
- Installation of distribution bulk meters.
- Procurement of services in order to supplement the Audits namely the Back to Basics programme.
- Replacement of credit meters with prepayment meters for residential customers.

- Greater collaboration and co-ordination between the monthly meetings between the Electricity & Energy and Budget & Treasury Directorates to identify, investigate and correct incorrect billing.
- The replacement of old CT's and VT's metering measuring equipment, in High Voltage customers.
- Innovative Undeclared Informal Electrification Programme

The tables below show the percentage losses per financial year from 2017 to 2019 with Rand Values.

TABLE 32: Losses of financial years 2017, 2018 and 2019 and Rand value

DESCRIPTION	2016/17	2017/18	2018/19
Electricity Losses	13.35%	13.95%	14.34%
Total Rand value of Electricity losses	R345,983,126.68	R339,512,105.74	R370,996,505.43

Source: NMBM 2020

TABLE 33: Revenue collection and budget protection for 2019/2020

PROJECT TITLE	PROJECT ID	WARD NO.	AMOUNT R
REVENUE COLLECTION AND PROTECTION			
Upgrade of Commercial Meters – remote metering	20182549	-	5 427 000.00
Smart Prepayment meters	20182550	-	10 942 700.00
Meters and Current Transformers	19940149	990	3 000 000
TOTAL BUDGET TO BE IMPLEMENTED			19 369 700.00

Source: NMBM 2020

A strategy to deal with technical losses has identified the following programmes:

- Redesign and reconfigure the electrical network taking into account the impact of electrical equipment used and infrastructural configurations and optimal power flow in order to increase efficiency.
- Reduction of various voltage levels in the electrical network, which will also result in greater efficiency.

The table below indicates some of the projects that assist in the reduction of technical losses.

Table 34: Capital Projects to reduce technical losses 2019/20

PROJECT TITLE	PROECT ID	WARD NO.	AMOUNT R
INFRASTRUCTURE REINFORCEMENT / REFURBISHMENT / PROJECTS			
Reinforcement of Electricity Network – Walmer / Lorraine	20030471	3 & 4	2 500 000,00
Reinforcement of Electricity Network – Western	20042992	40	2 700 000,00
Reinforcement of Electricity Network – Redhouse	19960190	30	500 000,00
Reinforcement of Electricity Network – Wells Estate	19960193	60	1 500 000,00
Reinforcement of Electricity Network – Summerstrand	19960195	2	1 000 000,00
Reinforcement of Electricity Network – Malabar / Helenvale	19980402	10	1 000 000,00
Reinforcement of Electricity Network – Swartkops	20000175	16	2 200 000,00
Reinforcement of Electricity Network – Uitenhage	20010119	48	2 000 000,00
Reinforcement of Electricity Network – Despatch	20030470	36	500 000,00
Refurbishment of Electricity Network – HV Lines	20050187	990	5 000 000,00
Reinforcement of Electricity	20042993	-	1 000 000,00

PROJECT TITLE	PROECT ID	WARD NO.	AMOUNT R
Network – Overhead Lines			
Reinforcement of Electricity Network – New Substations	20100122	3, 6, 60, 1, 40, 7, 10, 11, 36, 37, 38, 41, 44 & 52	6 000 000,00
Reinforcement of Electricity Network – Bethelsdorp 11Kv	19970063	31 & 25	1 100 000,00
Reinforcement of Electricity Network – Korsten	20000172	11	500 000,00
HV Transmission line	20182551	-	45 000 000,00
TOTAL BUDGET TO BE IMPLEMENTED			67 800 000,00

Source: NMBM 2020

NMBM is in the process of attaining grant funding from KfW (German Development Bank) which would assist the NMBM to be more sustainable and to achieve one of their goals of promoting renewable energies within the Metro.

The proposed KfW programme will support NMBM with the modernization of the urban electrical infrastructure while enabling renewable energy (RE) alternatives to be added to the energy mix. The NMBM has proposed three network projects to be considered for funding in order to modernise the network, improve the networks performance, increase the reliability of supply, reduce electrical losses, improve the power quality and to uplift the social economic conditions within the Metro.

NMBM has a wheeling agreement with a Nersa licenced third party whereby NMBM receives a wheeling fee for each kWh which is wheeled into the grid. This licenced party provided approximately 6 GWh of renewable energy to some of the NMBM consumers in September 2019.

4. TRENDS AND DEMAND FOR RESIDENTIAL INFRASTRUCTURE

The NMBM has, over the past decade, successfully provided a steady stream of RDP housing. The current provision of RDP housing financially 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. This 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.
- 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 “E” 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 is due to be tabled for adoption in 2019/20.

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 and includes the reality of housing costs (at minimum), internal reticulation, bulk servicing, social amenities and retail opportunities based on the estimated housing needs as contained in the Shisaka Report. The estimated needs have been adjusted to allow for subsequent delivery as well as inflation.

It is concluded that the delivery cost per erf is approximately double the subsidy amount allowed, if community infrastructure is considered.

TABLE 35: Cost of Community Infrastructure

Estimated housing need for lower income households by 2032		
Current households in need (backyards / informal settlements)	38845	
Estimated new low income households by 2032	76963	
Total lower income household need (estimated)	115808	
Less: Households assisted with house or serviced site 2011-2019	25727	
Total estimated need for social infrastructure	90081	
Estimated cost for development	Cost per erf	Total cost
Housing Expenditure	R 116,867	R 10,527,496,227
Indicative First Order Summary - Social Facilities		
Schools	R 27,346	R 2,463,355,026
Clinics	R 15,314	R 1,379,518,450
Police Stations	R 6,563	R 591,165,571
Sports Facilities	R 2,188	R 197,088,220
Community Centres	R 8,751	R 788,253,791
Libraries	R 2,188	R 197,088,220
Parks and Recreation/Greening	R 2,188	R 197,088,220
Private Investment - Retail	R 27,346	R 2,463,355,026
Total - Social Facilities	R 91,883	R 8,276,912,523
NMBM Internal Reticulation (Basic Scraped Roads, Water & Sanitation)	R 31,439	R 2,832,065,567
NMBM Electricity Reticulation	R 13,553	R 1,220,876,801
Total Housing, Social Facilities & Internal Reticulation	R 253,742	R 22,857,351,118
NMBM Bulk Reticulation (Bulk water, sewer and roads and stormwater upgrade)	R 159,597	R 14,376,639,341
Total Housing, Social Facilities and Bulk Infrastructure	R 356,770	R 37,233,990,459

Source: NMBM 2020

Note: About R30 300 per erf must be added to tar the roads and provide stormwater control.

The estimates in the above table are based on:

- Revised Shishaka Demand Analysis
- Escalation of 10% on Cost of Installation
- Escalation of 10% on NMBM Bulk Reticulation

Buildings, the natural environment, vegetation and open spaces are important for creating liveable environments. In addition, education, 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.

6. TRENDS AND DEMANDS FOR SPORT, RECREATION, ARTS AND CULTURE FACILITIES

6.1 Sport, Recreation, Arts and Culture

“South Africa, as a developing country with rapidly growing socio-economic demands and as a respectable player in global affairs including sport and recreation, is facing numerous challenges, which include amongst other things the creation of sustainable sport and recreation infrastructure.” (Quote taken from the then Minister of Sport and Recreation Fikile Mbalula’s foreword on the Norms and Standards for Sport and Recreation Infrastructure Provision and Management 2008).

The National Sport Ministry has conducted research and used several case studies, from an international and national perspective, to extract best practises and guiding principles with regard to norms and standards for sport and recreation infrastructure.

The findings reveal that planning, provision and management of facilities occurs in a fragmented manner in most municipalities. The purpose of the research was primarily to develop norms and standards that addressed the following four elements:

- Provision and Management of facilities
- Technical Specifications
- Operations and Maintenance and
- Safety and Security

These norms provide the legislative framework that regulates the planning, provision, management, maintenance and protection of the future use of facilities. It encourages a clustered approach to the planning of new developments, rather than the traditional stand-alone development of sport facilities that have no adjacent socio-economic activities to make them more sustainable. It warns against a narrow approach of relying solely on normative standards for planning purposes. Rather, it advocates for the joint working of several stakeholder departments in local government to arrive at solutions that are in the best interests of sport and

recreation. The result should always be an improved quality of life of local residents and neighbourhoods.

NMBM therefore adopted the SRSA Norms and Standards for Sport and Recreation Infrastructure Development Provision (Volume I & 2) as its guiding document for the provisioning, maintenance and management of sport and recreation infrastructure. (3 October 2014).

In working towards the achievement of the 2030 ideal sport system the National Sport and Recreation Plan (NSRP) was developed to support the National Development Plan. The NSRP details the programmes, projects and activities that will be undertaken by all role players in the sport sector to achieve the objectives of, and create an enabling environment for, an active and winning nation.

Strategic Objective 9 of the NSRP seeks “to ensure that SA sport and recreation is supported by adequate and well-maintained facilities.” The country has a serious challenge regarding the building, shared utilization, equitable access and maintenance of sport and recreation facilities. This has far-reaching consequences for the transformation and development of the sport sector. This is no different in the Nelson Mandela Bay Municipality. The provision and maintenance of facilities forms the foundation for the entire sport and recreation system.

There are a total of 355 Sports Recreation Arts and Culture infrastructure assets spread across the Municipal area; consisting of various sport fields, stadia, pools, indoor sport centres, libraries, museums and heritage assets as well as beach front facilities.

In 2018/19 the need for sport, recreation, arts and culture facilities was identified as the second highest IDP priority by communities of the Nelson Mandela Bay Municipality. In the 2019/20 IDP it again ranks in the top ten priorities.

The 2017/18 Customer Satisfaction Survey also indicates a below acceptable satisfaction rate within communities with regard to sports and recreation facilities. This is a clear indication of insufficient provision in relation to the demand for social

infrastructure and the existing backlog for social infrastructure that continues to grow as new human settlements are developed without the required social 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; reduction of crime and substance abuse; and the general health and wellbeing of communities.
- Profiling the city as a preferred tourist destination.
- The economic impact of hosting major sport, recreation and cultural events.
- The contribution towards profiling the city as a preferred destination to host national and international sport and recreation events.

Investment in revenue generating sports infrastructure can assist to deliver economic impact into the local economy and social benefits to communities. In addition, heritage assets must be preserved, conserved and activated through the establishment of resources within the city that must be well managed, maintained, used and celebrated.

Furthermore, the liberation heritage resources within the city that have been and must still be developed, should form part of the National Heritage Liberation Route where over a longer term period, the objective would be to create an opportunity for the resources to be recognized as world heritage resources.

Nelson Mandela Bay has two Museums and an Art Gallery, namely the Red Location Museum of Struggle and Resistance History and the Nelson Mandela Metropolitan Art Museum and Red Location Art Gallery. These are internationally acclaimed facilities whose major contributions are to collect, preserve and exhibit and foster an understanding and enjoyment of works of art. Museums add to the knowledge economy of the city by being the creators of new knowledge by stimulating discussions around how and why culture, heritage and art is valued. Through exhibitions, events, research and publications on culture, heritage and art, Museums

ensure that important discussions around nation building occur. By interrogating the past and exploring what is new in the present, Museums help communities find value in their lives and their culture and heritage using art and therefore manage change in their lives and create a vision for the future.

Arts, culture, heritage, and museums are key factors that increase the desirability of a city as both a tourist attraction and as a place to live and work. Developing Cultural Precincts will ensure the attraction of people to the city and leverage shared resources to stimulate the creative economy and attract diverse communities from around the city to stimulate social cohesion through shared participation.

The identification, development and sustainability of Cultural Precincts is a responsibility that NMBM must implement as part of establishing infrastructure as well as other significant spaces where both creative and cultural industries find expression that in turn encourage the tourism industry. Identification and marketing of these precincts in the metro is work in progress wherein a precinct may have within any of either, memorial / heritage site, cultural / art centre, theatre, museum, heritage / art route, library etc.

Current trends internationally and nationally demand public libraries to provide:

- digitisation of local resource such as community history, maps photographs, local artist work and resources found in local documents, research and creation.
- collections moved from traditional to electronic resources accentuating a need to redesign library spaces to meet the 21st century demands and trends.
- increased electronic resources which requires additional employee support for users to train in the use of new technology i.e. the red location digital library.

The continuing high employment creates continued need for libraries, to help people get access to free internet, email; newspapers, books and Materials to provide community support.

CSIR research as quoted in the library policy; suggests that a trip to the library must be a 5-minute walk. More libraries would need to be developed to meet the requirement. The use of physical libraries as social hubs and community centres has become more central to their continued existence. The primary goal of the NMBM Library Service is to develop its libraries to become centres of excellence that reflect the needs of the community they serve.

The Coastal areas

The White Paper on Sustainable Development and the Integrated Coastal Management Plan aim to achieve sustainable coastal development through integrated coastal management. The Integrated Coastal Management Plan further places responsibilities on local authorities to promote conservation of the coastal environment and to ensure that the use of natural resources within the coastal zone is socially and economically justifiable and sustainable.

Nelson Mandela Bay Municipality, has 120 km coastline characterized by pristine beaches providing a wide range of recreational opportunities, including safe swimming, sunbathing, walking, snorkelling and scuba diving. The coastline is of great value due to its diverse array of natural and heritage resources, which are key tourism and socio-economic assets.

The provision of amenities of a high standard at all the beaches in Nelson Mandela Bay, from parking and boardwalks to ablutions and restaurants, ensures a rich visitor experience. The strategic plan of the Municipality includes the development, upgrading and maintenance of recreational facilities mainly focusing on beaches and resorts into clean and safe world class facilities that promote a sense of pride from residents.

Sport and Recreation Industry Size

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

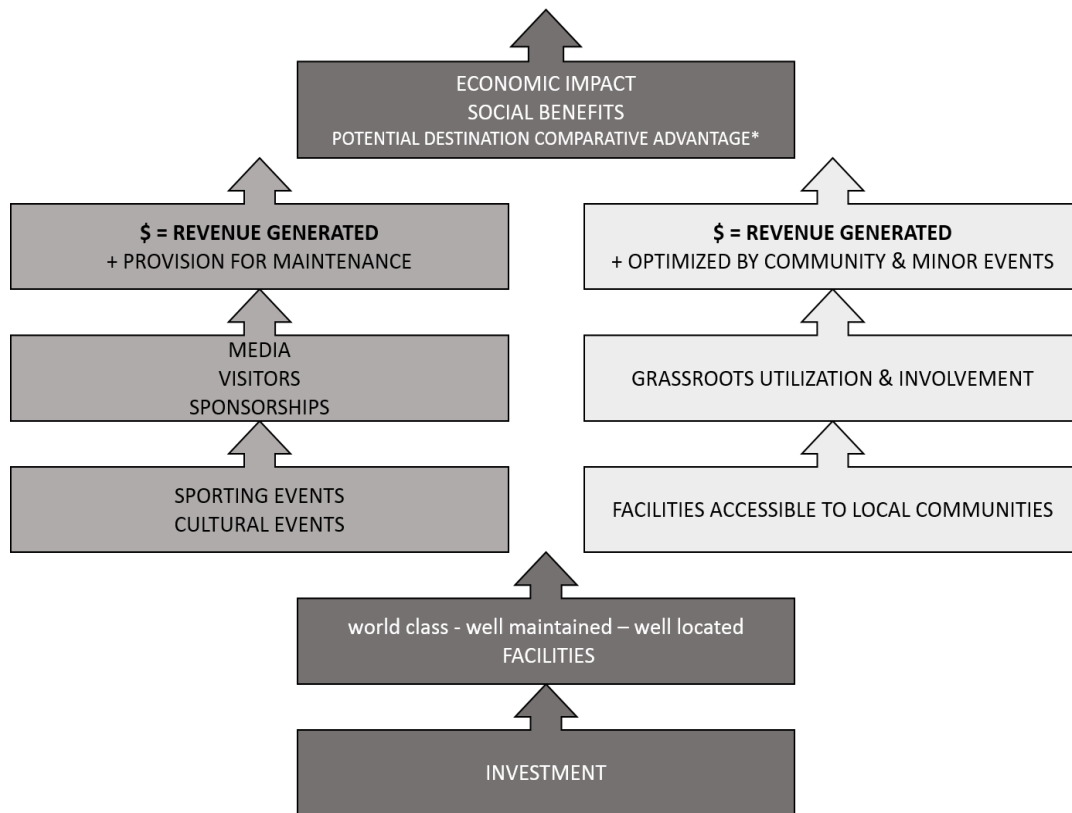
Creative and Cultural economy industry size

In SA the Film industry alone generates R7,4 billion p.a., Music R2 billion, and publishing R6 billion. This equates to around 2,0% of GDP. The industry employs over 100 000 people.

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

FIGURE 24: Capital investment in Sport, Recreation; Arts and Culture Infrastructure



Source: NMBM, 2019

**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.*

Impact of Climate Change on Sport Recreation, Arts and Culture

The environmental impact of building sport, recreation, arts and cultural infrastructure is a given; large stadiums, museums, grass-covered sports fields, swimming pools and beachfront developments have a significant environmental footprint in the city. Within the South African context, the impact of climate change is evident in the following ways:

- Hotter temperatures, particularly in the inland areas
- More intense droughts, heatwaves and fires
- More intense storms, flooding and rainfall events in certain areas
- Rising sea levels

For sports and recreational facilities, their daily operations also have environmental impacts. Therefore, sustainable operational management plans or environmental management plans (EMPs) and environmental management systems (EMS) for these and other facilities are valuable; EMPs and EMS can reduce the negative climate impacts and promote sustainable use of resources within these facilities; water-wise landscaping, alternative water harvesting or reclaimed water use and energy efficiency or renewable energy can reduce the vulnerability of these facilities to climate change impacts.

Nonetheless, climate change impacts on recreation and sporting infrastructure can be direct and indirect.

Direct Impacts:

- Reduced irrigation of dedicated sport grounds and public open recreational spaces.
- Increased evaporation requiring more water for existing turf, pools.
- Reduced playing surface quality.
- Damage to facilities, eg: cricket pitches, tennis courts, swimming pools, beach recreation facilities.
- Reduced flushing of water ways.

Indirect Impacts:

- Alternative water supplies, such as borehole water, become more expensive.
- More frequent monitoring and reporting of facilities, water-use efficiencies.
- Compromised fitness-related health programs.
- Reduced opportunity for freshwater-based recreational activities.
- Increased coral bleaching and reef death affecting recreational diving.
- Forced, permanent or temporary closure of facilities.

The typical weather conditions in Nelson Mandela Bay are sought after by local residents, sportspersons, spectators, and visitors. The generally mild conditions are an asset to the city, with international outdoor sporting events and other ocean-focused activities occurring throughout the year. As with sport and adventure tourism, normal tourism relies on predictable climatic conditions and seasonality (Fitchett *et al.* 2016). However, future climate predictions for NMBM include an increase in both the mean maximum temperatures and heat wave frequencies, for longer-term projections (the years 2056 to 2095).

In 2012, it was estimated that the higher temperatures predicted for South Africa would increase the burden of disease (BoD) in the country. Hotter, humid and extreme weather conditions can exacerbate many existing health conditions, such as cardiovascular disease, asthma and high blood pressure. Extreme heat can affect outdoor activities and outdoor work, such as construction and maintenance work (Myles, 2012).

Impact of higher temperatures

- Limitations on outdoor activities or more indoor programs.
- Increased exposure to UV Radiation.
- Increased exposure to disease-causing agents in recreational waters.
- Funding demands increase for sport field lighting and air conditioned indoor facilities if summer daytime events are rescheduled to evening fixtures.

Impact of more frequent and extreme natural events

Direct Impacts:

- Greater risk of storm or fire damage to facilities and infrastructure.
- Increased flood risk for facilities located within multiple-use corridors.
- Increased risk of damage to coastal facilities; beaches and resorts.
- 100-year flood models may underestimate the likelihood of extreme events.
- Potential structural engineering issues from extreme natural disasters.
- Potential geotechnical problems from extracting too much ground water.

Indirect Impacts:

- Difficulty in obtaining extreme event/ natural disaster insurance.
- Greater need for recreation centres to provide emergency facilities during extreme weather events.
- Disruption to electricity during extreme weather conditions.
- Economic stress for facility managers through loss of income and assets.

Impact of rising sea levels

- Dislocation of facilities and communities in low-lying areas.
- Great risk of storm surge in low-lying areas.
- Adverse impact on freshwater ecosystems.
- Increased beach erosion from changing wave activity making swimming and surfing dangerous.

In conclusion, it must be noted that the influence of climate change may affect low-cost, regular community-based sport and recreation participation. It is vital that urban green spaces are recognized as underpinning the very fabric of our sport, leisure and recreational industries and that water used to maintain them is considered necessary.

The Sport, Recreation, Arts and Culture Directorate Infrastructure Development Strategy towards the next 5 -10 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.
- Adherence to the SRSA Norms and Standards for Sport and Recreation Infrastructure Development (Volume 2) as adopted by Council.
- Planning and development of Sport, Recreation and Cultural Precincts.
- Development of master plans for each precinct and the costing thereof.
- The upgrade and rehabilitation of existing sport, recreation, beach & cultural facilities.
- Development of 5-10 Maintenance Plan to deal with ageing infrastructure under capital maintenance and operational repairs and maintenance.
- 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; eg: borehole and grey water systems; LED flood lights/ Solar systems, trees planted for shade and water conservation, etc.
- The development of synthetic/ artificial pitches for hockey and football to reduce reliance on water for irrigation.
- Sport, Recreation, Arts and Culture Programs that will promote citizen health and wellness.

6.2 Status Quo of Parks in the Metro

NMBM Parks Division is committed to create, landscape and maintain public open spaces and cemeteries in a sustainable, aesthetic, eco-friendly and safe manner 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 are realised through the appropriate allocation of resources. The Policy will assist with classification of Parks and determination of the minimum standards of development as well as a commitment towards ensuring appropriate allocation of resources to implement the set standards.

Currently developed urban parks and verges measuring 1065 ha in size are being maintained within the boundaries of the Metro. This consists of Major Parks, neighbourhood parks, play parks as well as landscaped verges and centre islands along major routes. The number of developed parks increases annually as the funding for this is provided consistently. Provisioning and development of Public Open Spaces 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.

Despite the consistent capital budget allocation, a huge backlog still exists due to inadequate funding for development of Public Open Spaces in new human settlements as well as established settlements due to inferior quality of park development. The amount of budget made available for each park determines the standard of development and positive steps have been taken in this regard. 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 larger population and offset the uncomfortable living environment that has been created by densification. Provision of adequately developed and well maintained parks will mitigate against some of the negative elements of living in high density settlements.

Frequent maintenance and revamping of facilities is crucial as wear and tear occurs at a higher rate in high density settlements than low density ones. The value of open space in improving the quality of life and uplifting the dignity of the community is extensively recognised. The role that parks fulfill in 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. Crime and illegal dumping in areas where undeveloped open spaces have been converted to recreational parks has been drastically reduced and this positive effect has resulted in a greater demand for development in settlements where that have not yet been reached due to limited resources.

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 residential erven as well as socio economic status of these communities, it is impossible for recreational needs to be provided within individual family budgets of home owners, therefore public open spaces provide the only hope for beatification and recreation.

The value of Parks within communities is 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.

Residents are already reaping some of these benefits where undeveloped filthy land has been turned into productive recreational facilities for the enjoyment of the community. The aim is for all parks to cater for the needs of the whole family with a variety of installed infrastructure to meet the needs of adults, the youth and small children. This arrangement has resulted in improved security of park users.

Due to constant change in our climate, consideration has been given to the nature of each park to be developed. Designs adapt to the prevailing environment to ensure sustainability. Climate change threatens to undermine efforts aimed at development and the achievement of IDP goals hence the need to adopt climate responsive models of development. Quality open spaces are important to provide the cooling effect for the environment and mitigate against the negative effects of climate change within urban areas.

Status Quo of Cemeteries in Nelson Mandela Bay

Currently there are 36 Cemeteries in the NMBM of which 24 are closed and 12 are operational. It is anticipated that NMBM, like many cities, will run short of burial space in the future therefore there is a need to identify and provide resources for suitable burial land as well as alternative burial methods.

A study was conducted in 2011 to gather information regarding vacant land in operating cemeteries. Most of it cannot be used to allocate graves for various reasons. Geotechnical investigations need to be conducted in order to identify a realistic lifespan of the operative cemeteries as old cemeteries were developed without undergoing a thorough process of studying underground conditions. There is

an urgent need for a master plan to provide information regarding available burial land, new cemetery acquisition and development in order to prevent the crisis situation that might arise should the present operational cemeteries become full.

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

An exercise to identify suitable parcels of land for burial purposes has commenced and is in a preliminary assessment stage involving the identification of suitably sized land parcels in “well located” areas, regardless of ownership. The next step will be to subject those even identified to further assessment where the viability of the parcels will be assessed in terms of environmental viability; technical viability (availability and access to infrastructure and services); valuation and cost of acquisition as well as other relevant criteria. It is envisaged that a preliminary report herein will be available for consideration and further action during 2019/20 financial year.

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.

Cemeteries experience vandalism, theft and stray animals which are a challenge due to lack of fencing. Significant 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. Twenty one (21) out of the thirty six (36) Cemetery have already been fenced with a robust type fencing. With consistent budget provision annually, all existing cemeteries will be secured in the future. Fifteen cemeteries still need fencing at an estimated cost of R33 million.

The Metro's historic standard of development is not uniform and as a result of this, the tariffs to bury the dead had to be adjusted to correspond with the varying service levels. The majority of cemeteries in the former PEM areas are in a better condition compared to the ones in historically disadvantaged areas. Notwithstanding this, 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 however these unfortunately have also deteriorated over time.

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 manage cemetery capacities and life spans, identify grave re-use opportunities and search 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 dating back to the early 1900s. All records can be found within 30 seconds. This has also assisted in the detection of fraud and corruption in NMBM where over R10m of lost revenue was detected through the use of the Cemetery Manager software.

Currently the demand for burials in selected cemeteries far exceeds capacity and will result in rapid reduction of their lifespan. Residents are encouraged to bury their loved ones in cemeteries that are closer to where they live or choose alternative methods.

7. TRENDS AND DEMAND FOR TRANSPORTATION

Fundamental to the concept of the Integration zones is the accessibility of precincts and nodes via public transport. 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 on 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 IPTN 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.

7.1 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 36: 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.

7.2 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 functional precincts that are linked by transport.

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 2018/19 financial year.

Overall, however, the MSDF 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.

It is important to note that the NMBM's current IPTN planning is limited to the MTEF period only as apart from the data collected from the surveys conducted in July 2016 on the Starter Service routes and the data that was modelled from the 2004 surveys for the entire city, there is no current data available on public transport operations. Consequently, at the beginning of the Household Travel Surveys are being conducted with the intention of undertaking an overhaul of the Comprehensive Integrated Transport Plan (CITP) and updating the Public Transport Plan towards the development of a 20 year Integrated Public Transport Strategy.

8. TRENDS AND DEMAND FOR SUSTAINABLE DEVELOPMENT

The Nelson Mandela Bay Municipality is mandated to deliver services in a sustainable manner. Sustainable development is broadly defined as development which meets the need of the present without compromising the ability of future generations to meet their own needs.

This includes a responsibility with regard to ensuring ecosystem services or benefits provided by the natural environment. In a local context, sustainable development embraces all resources, ecological and others, which form part of service delivery. This is linked to how municipalities plan and deliver services. The NMBM's IDP has a strong focus on Local Economic Development and job-creation projects for waste minimisation, beautification and education and awareness-raising for residents.

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), (NEMA). NEMA and other specific environmental management legislation which emanate from it, specifically the Environmental Impact Assessment Regulations inclusive of all Listing Notices (2014 as amended), continue to guide development and any activity which has potential negative environmental impacts. The ethos for the 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. Another guiding principle is “duty of care”, which assigns responsibility for the owner of an activity or development to assess potential or actual impacts, address the impacts and be accountable for negative environmental outcomes of the activities.

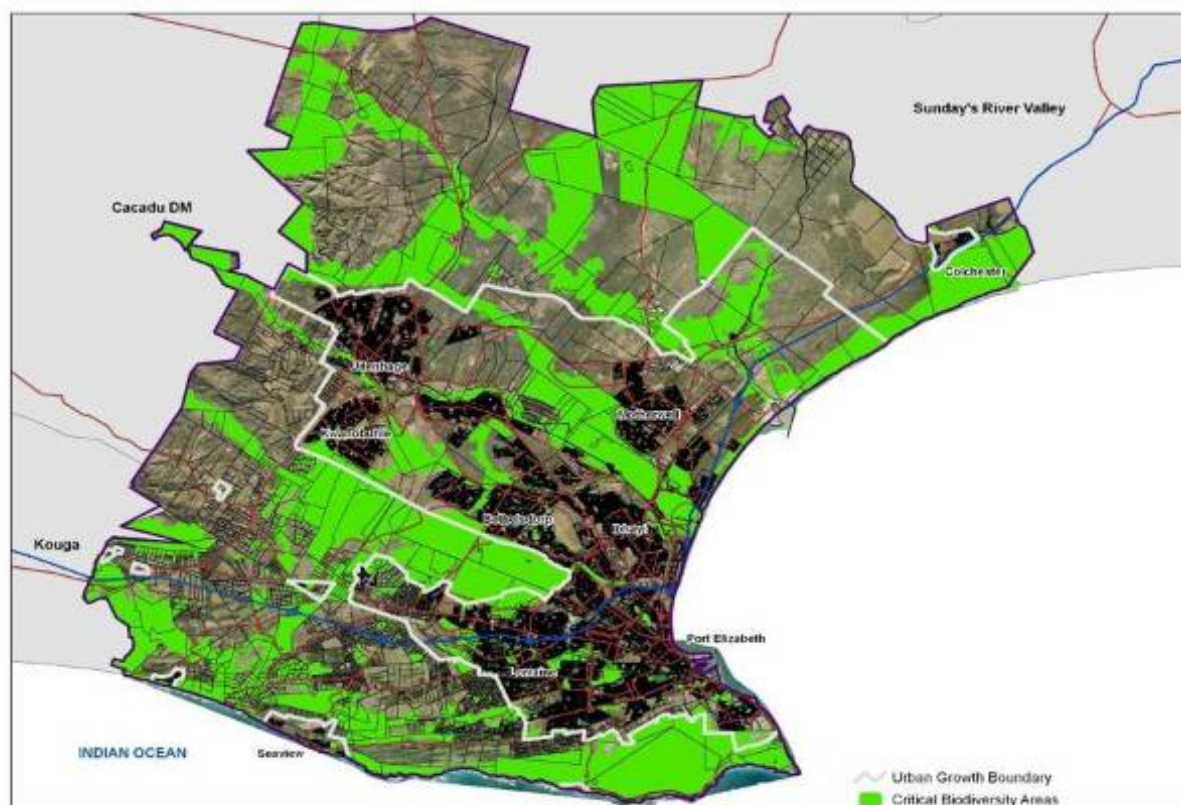
Unsustainable development (e.g. urban sprawl; illegal developments), exploitative growth and investment in environmentally draining projects place constraints on urban growth and challenge access to green economy opportunities.

The National Environmental Management Biodiversity Act, Act 10 of 2004 and other environmental legislation still requires 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 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 development of the municipality's first Bioregional Plan, launched in 2011. A bioregional plan is based on a systematic biodiversity plan, such as the Nelson Mandela Bay Metropolitan Open Space System (NMB MOSS), and is intended to guide land-use planning, environmental assessments and authorisations, and natural resource management. Once gazetted, in terms of the Biodiversity Act No 10 of 2004, there is a statutory requirement for alignment between the bioregional plan and other statutory planning instruments (for example, SDFs and IDPs).

The final NMBM Bioregional Plan was signed by the then-MEC in December 2014 and was published in the Provincial Gazette in March 2015. The Biodiversity layer of this Bioregional Plan informed the 2015 SDF.

The NMBM Bioregional Plan 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 Environmental Authorisation processes at a strategic level. This process ensures that biodiversity priorities are legally enforceable, and are incorporated into sector planning processes of the NMBM. A minor review and refinement of the NMBM Bioregional Plan was completed in the 2015/2016 financial year.

FIGURE 25: NMBM Metropolitan Open Space System

Source: *NMBM Metropolitan Spatial Development Framework, 2009*

The NMBM Bioregional Plan, which aims to conserve biodiversity at a regional level, is primarily concerned with guiding land use planning and decision making through improving the legal standing and consideration of Biodiversity/Conservation areas. This plan was the first that a municipality has developed and gazetted in South Africa, and is legally binding for developments within the NMBM. 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.

The Bioregional Plan currently is being revised to determine the current status of vegetation types “on the ground” and this determination may release previously restricted parcels of land for development in future. Public Open Spaces are opportunities to create integrated communities, promote non-motorized transport modes, and create liveable, breathable cities. The natural resources planning, inventory and operational management of the NMBM's nature reserve network and green infrastructure network ensures that ecosystem values, functions are regulated

as these values underpin, amongst others, watershed health and hydrological integrity in a city that is water stressed.

The National Environmental Management Act 107 of 1998, and the updated Environmental Impact Assessment (EIA) regulations of 2014 and Listing Notices of 2014 as amended, 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.

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 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.

The coastal zone of a city such as Nelson Mandela Bay has valuable assets for the ocean economy. 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-induced storm surges and related coastal erosion. To this end, the National Environmental Management: Integrated Coastal Management Act, Act 24 of 2008, allows for the development of a Municipal Coastal Management Programme (coastal management plan). 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 NMBM management plan was revised with the Coastal Development Line (hazard lines) study having been completed and provincially promulgated in 2015. The delineated coastal development lines as well as the management plan inform appropriate development along the coastline of the Metro. The Municipality's Coastal Management Programme (2015) is valid for a five-year period between reviews. Due to other priorities, the review of the Coastal Management Programme (CMP) will occur in the 2020/2021 financial year.

Due to budget constraints, this review will likely entail a preliminary study to determine the updating requirements in light of new or amended legislation.

Nelson Mandela Bay manages (under the Department of Environmental Affairs: Oceans & Coast) the protection of a declared Marine Protected Area (MPA) at Sardinia Bay. 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 (the review of which is awaiting comment from the Executive Management forum) are tools which can sustainably direct the choices and service delivery approaches which the city takes

In 2014, a greenhouse gas inventory (GHGI) was developed for the city. This GHGI is a tool which identifies the sectors within the city that contribute to higher greenhouse gas emissions. In 2015 the NMBM Climate Change and Green Economy Action Plan was delivered. This plan comprises a scientifically-sound climate projection for a 100 year period, a collaborative vulnerability assessment and proposed sector interventions to respond to the challenges of climate change. It also aims to identify the sustainable economic opportunities (which contribute to the green economy) from these interventions. 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).

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 long been at the core of the municipality's spatial vision.

On 28 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 Centre, it houses rainwater harvesting tanks, solar powered heating & lighting systems, gas powered cooking systems, recycling, community gardening and has multi-functional spaces. A number of other energy efficient or "green buildings" have been erected by non-municipal entities in the City.

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. Approximately 108 000 households were targeted in face-to-face information sessions, and community members were employed through the Extended Public Works Programme (EPWP).

Despite these actions, climate change responses remain largely isolated. There is no dedicated department or official for climate change response work. Different municipal departments have played their part in sustainable development and/or climate change actions. However, this decentralized approach requires coordination.

Another tool, approved by the NMBM Council in 2009, is the Green Procurement Implementation Strategy. Green or sustainable procurement addresses sustainable, local-sourced and inclusive economic development through the procurement process. Green procurement intends to move the NMBM toward the inclusion of environmental criteria in both its Supply Chain Management Policy, and procurement processes. Achieving this will encourage the development and diffusion of goods and services with the least negative impact on the environment and will support sustainable local economic development (LED).

However, in implementing this procurement approach, the following learnings have occurred:

- There is reluctance by supply chain management officials to defend environmentally sustainable specifications (despite a long history of consultation and awareness raising) due to brand loyalty and assumptions of 'inferior' or non-functional 'greener' products.
- National procurement legislation for municipalities does not cater for sustainable procurement. The NMBM Supply Chain Management Policy does not include environmental specifications because these are not stated by the Municipal Finance Management Act nor the Preferential Public Finance & Procurement Act.
- 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 (The arguments in these litigation cases has been that localization is used to create unfair competition).
- Green procurement initially only focused on purely ecologically-sound products, or those which were not harmful to the environment. Trends in thinking have evolved to include social sustainability as well as financial sustainability within the larger sustainable development goals for sustainable public procurement.

Continuous work on sustainability and collaboration between Environmental Management and Supply Chain Management (SCM) Sub-Directorates has resulted in a Sustainable Public Procurement (SPP) approach since 2018. In 2018, the Senior Director for SCM attended an externally-funded workshop for Sub-Saharan local government entities, hosted in Bonn, Germany. A South African municipal network of SPP practitioners has also been established. Currently, a small team of SPP practitioners scrutinise contracts prior to them entering the Bid Specification Committee and consult with project managers to achieve the best environmental specifications for contracts, where applicable. SPP intends to create a more inclusive economy by focusing on advancing the requirements for sustainable goods and services.

An Environmental Management System (EMS) was initiated in 2012 at the Nelson Mandela Bay Multi-Purpose Stadium. This tool is a condition of the Stadium's environmental authorisation.

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-meteorological (Floods & Storms) and Hydro-meteorological (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.

The impacts of climate change experienced in Nelson Mandela Bay are noticeable changes to typical weather patterns within seasons; increased flooding and prolonged drought periods and coastal storm surges.

Climate change is a cross-cutting issue, which influences governance, integrated city planning, mobility, energy, waste as well procurement, and transport planning. In this regard National legislation is clear that government is responsible for combating the impacts of climate change and creating adaptive capacity in all areas of its mandate. Approaching service delivery in a sustainable manner will not always result in reducing the impacts of climate change, however. This is due to the constant balancing act that municipal mandates must demonstrate between competing interests, funding challenges, community needs and legal boundaries.

Whilst there is a National mandate for local government to take on various climate change-related issues, this mandate is not clearly defined. Local government nevertheless has the power to assign specific powers for mitigation and adaptation in-house. These actions could, can and have taken the form of coastal management plans, developmental set back lines, infrastructural guidelines, energy plans, and the management of natural resources. Fiscal mechanisms to support local government capital and operating expenditures currently do not offer incentives to municipalities in order to mainstream effective climate change responses in local government activities.

There are nevertheless two fundamentals to Climate Change:

Nevertheless, there are two fundamentals to understanding climate change:

- (i) The measurement or determination of climate-change-inducing emissions are entering the atmosphere and the undertaking of mitigation actions to reduce or off-set these emissions (climate change mitigation); and
- (ii) The undertaking of actions that reduce the risk or vulnerability of people or physical features which are informed by various climate predictions or community-based knowledge or indigenous knowledge (adaptation to climate change).

The NMBM Air Quality Section is the local permitting authority with regard to private sector industrial emission permissions. Nevertheless, data in this regard and licencing information is not evaluated locally but submitted to National Government Agencies for collation. The NMBM is not in a position to quantify or compile a greenhouse gas emission register with reliable data due to fact that that monitoring of greenhouse gasses requires complex data analysis programs which are currently not functional. NMBM cannot effectively report on its emission status and whether or not it has effective emission mitigation measures in place. Devolution of authority from a National level to local level with regard to data analysis has yet to take place.

This is not to say that the City does not involve itself in climate change mitigation measures. Interrogation of the IDP and KPI's of the various directorates reveal that there are concerted efforts being undertaken to mitigate against climate change. Certain actions undertaken by the Public Health Directorate relate to (i) maintenance and establishment of parks, (ii) tree planting and protection of natural areas, (iii) bush clearing to increase water flow in wetland areas (iv) management of landfill sites (v) implementation of "set back lines" with regard to coastal developments and implementation of various environmental legislative norms and protocols that critically evaluate development taking into consideration mitigation against climate change.

Other Directorates are also directly or indirectly working on climate change mitigation. These include (i) Electricity supply with the phasing in of energy efficient LED lighting (ii) Disaster Management with plans that mitigate against climatic abnormalities such as flooding (iii) Water and Sanitation with plans to augment water supply.

Climate change is a truly cross cutting discipline and it affects civil society and the entire economy as well as many specific sectors including energy, transport, agriculture, forestry, water resource management and provision of water services and health.

The National Climate Response Strategy of the DEA continues to promote integration between the programmes of the various government departments to maximise benefits to the country while minimising negative impacts.

Hydro-meteorological (Floods & Storms) and Hydro-meteorological (Droughts), and then Environmental Degradation (in order of importance) have and will continue to impact on 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.

The value-added benefits of ecological infrastructure are as important as the built environment benefits. Ecosystem services are technically 'free' services which form part of the services which the Municipality delivers. Examples are beautiful open spaces for residents to enjoy and gain cultural or psychological benefits from, flood attenuation of functioning wetlands, good rainfall which supports local or small-scale farming, and good geological formations which support structural foundations for residential expansion. Competing needs between people and the environment will always occur. However, when ecosystem services can no longer function adequately, costly alternative infrastructure must be installed. Increased and unsustainable urban expansion places pressures on existing natural infrastructure and creates more surface area for rainfall runoff and less infiltration to groundwater systems. Unchecked urban sprawl increases the loss of biodiverse ecosystems and their services, and sprawl creates challenges to integrated transport systems. Sustainable, integrated and densified urban development is therefore integral to creating sustained benefits for the Municipality.

9. 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 mind-set of communities and other role-players 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.