

Project report

Special Services: Waste

Integrated Waste Management Plan: 3rd
Generation 2021-2027

Client name

Nelson Mandela Bay Municipality (NMBM)

Reference: 503584

Revision: 07

Submission date: 2025/04/07

Contents

1	Introduction.....	1
1.1	Purpose of report.....	1
1.2	Historical overview.....	1
1.3	Approach and aims of this report	2
2	Legal Framework	4
3	Stakeholder Engagement	6
3.1	Consultation with NMBM	6
3.1.1	Strategic sessions with NMBM Waste Management.....	6
3.1.2	Operational staff	6
3.2	Consultation with external stakeholders	6
3.2.1	Ward meetings.....	7
3.2.2	Public Perception Surveys (PPS).....	7
4	Situation Analysis	12
4.1	Geographical area	12
4.2	Demographics	15
4.2.1	Population profile.....	15
4.2.2	Household profile.....	17
4.2.3	Income profile	17
4.2.4	Availability of basic services	18
4.2.5	Socio-economic profile	19
4.3	Waste profile.....	20
4.3.1	Waste characterisation	20
4.3.2	Recyclable vs Non-recyclable	24
4.3.3	Waste generation and reporting	25
4.4	Status of waste collection services.....	28
4.4.1	Domestic Waste Collection.....	28
4.4.2	Commercial Waste Collection	32
4.4.3	Hazardous Waste Collection	32
4.4.4	Health Care Risk Waste	32
4.4.5	Waste Transporter Contractors	32
4.5	Waste recycling, treatment and disposal.....	33
4.5.1	Waste recycling	33
4.5.2	Treatment and disposal facilities	39
4.5.3	Available airspace at waste disposal facilities.....	43
4.6	Institutional management	43
4.6.1	Financial resources	43
4.6.2	Human resources	49
4.6.3	Facilities and transport	51
5	Needs Analysis	59
5.1	Status and prioritisation of previous IWMP targets	59
6	Goals, Objectives and Target Assessment.....	76
6.1	Identification and evaluation of goals	76
7	Implementation	82

7.1	Implementation instruments	82
7.1.1	Partnerships	82
7.1.2	Funding mechanisms	82
7.2	Implementation plan	83
8	Evaluation, Monitoring and Review Mechanisms	84
8.1	Reporting	84
8.2	Monitoring	84
8.3	Review of IWMP	84
9	Way Forward	85
10	References	86

Appendices

- Appendix A: Policy and Legislation**
- Appendix B: Household Waste Collection Service Data**
- Appendix C: Landfill and Transfer Facility Locations**
- Appendix D: Annual Disposal Tonnages**
- Appendix E: Waste Management Organogram**
- Appendix G: Waste Characterisation Report**
- Appendix F: Public Participation Report (incl Advert)**
- Appendix H: Waste Collection Schedules**
- Appendix I: Implementation Plan**

Figures

- Figure 1: IWMP planning process (DEFF, 2020a)
- Figure 2: Revised waste management hierarchy (DFFE, 2020b)
- Figure 3: Summary of Perception Survey Results
- Figure 4: NMBM locality including allotment areas (Diagram courtesy of NMBM)
- Figure 5: NMBM Wards (Diagram courtesy of NMBM)
- Figure 6: Ethnicity profile of the NMBM (StatsSA, 2016)
- Figure 7: Gender profile of the NMBM (StatsSA, 2016)
- Figure 8: Age profile of Nelson Mandela Bay (StatsSA, 2016)
- Figure 9: Household profile of Nelson Mandela Bay (StatsSA, 2016)
- Figure 10: Income per household in the NMBM (ECSECC, 2017)
- Figure 11: Availability of basic services for NMBM residents (NMBM, 2018; StatsSA, 2018)
- Figure 12: Waste Composition for NMBM (NMBM 2021)
- Figure 13: Waste Composition for each of the consumer areas (NMBM 2021)
- Figure 14: Comparative assessment of Recyclable vs Non-recyclable waste per consumer group
- Figure 15: Arlington Disposal Statistics 2016-2023
- Figure 16: Koedoeskloof Disposal Statistics 2016-2023

- Figure 17: Existing collection rounds in NMBM (Diagram courtesy of NMBM GIS)
- Figure 18: Location of waste drop-off facilities in NMBM (Diagram courtesy of NMBM GIS)
- Figure 19: Figure showing recycled waste in comparison with landfilled waste from July 2020 to June 2021
- Figure 20: S@S pilot project launch
- Figure 21: S@S pilot project material recycled (Courtesy of NMBM)
- Figure 22: Interactive map on Sustainable Seas Trust website (<https://sst.org.za/maps/recycling-and-waste-locations/>)
- Figure 23: 2021-22 Nelson Mandela Bay Municipal Tariff Book
- Figure 24: Nelson Mandela Bay Municipality Organogram (NMBM, 2018)
- Figure 25: Organogram for NMBM Waste Management Sub-Directorate – Top Structure only
- Figure 26: Proposed revised Organogram based on the structure recommended by DFFE
- Figure 27: Operational Boundaries and Depots
- Figure 28: Compactor Age
- Figure 29: Refuse Compactor Fleet Utilisation first half of 2024/2025 financial year

Tables

- Table 1: National legislative requirements relating to solid waste management in South Africa
- Table 2: Provincial legislative requirements applicable to solid waste management in South Africa
- Table 3: Strategies, policies and guidelines applicable to solid waste management in South Africa
- Table 4: Location of notices to the public regarding the availability of the draft IWMP for comment
- Table 5: Historical perception survey results
- Table 6: General comments from Respondents
- Table 7: Demographics of the NMBM ward clusters (StatsSA, 2011)
- Table 8: Number of deaths by age in Nelson Mandela for 2017 (StatsSA, 2020)
- Table 9: Waste categories
- Table 10: Average waste composition per household
- Table 11: SAWIS waste categories used for monthly waste disposal reporting
- Table 12: Total tonnages at all landfills for 20/21 period per waste category
- Table 13: Summary of waste collection services provided by NMBM (StatsSA, 2022)
- Table 14: Description of the various types of waste transfer facilities currently in use in the NMBM
- Table 15: Facilities in NMBM
- Table 16: Commodities recycled at Kragga Kamma
- Table 17: Quantities (tons) of recyclables salvaged from Arlington and Koedoeskloof landfill sites
- Table 18: Permitted landfill sites in the NMBM

Table 19: Permitted private landfill sites in the NMBM (Source: South African Waste Information Centre (environment.gov.za))

Table 20: IDP Budget Requirements (2023 to 2027)

Table 21: Audited Actual Expenditure 2019/20 (National Treasury, 2019)

Table 22: Historical and anticipated operational waste management budgets

Table 23: Fleet per depot/section with budget requirements

Table 24: Critical review of previous IWMP targets and future needs

Executive Summary

Background

In terms of the National Environmental Waste Management Act 59 of 2008, municipalities are required to develop Integrated Waste Management Plans (IWMP) as part of their Integrated Development Plan (IDP). This is the 3rd Generation IWMP which aligns with the 2022-2027 IDP cycle, as provided for in the Municipal Systems Act (MSA). Stakeholders from within and outside the NMBM were consulted in accordance with the MSA prescribed public participation process. The IWMP is aligned to National and Provincial requirements.

Approach

The revision of the 3rd Generation IWMP commenced in 2019, however due to the Covid pandemic and internal procurement obstacles, the document was only finalised in 2023. For this reason, the IWMP will deal with the period 2022 to 2027.

Challenges

NMBM is an economic hub in the Eastern Cape, with an estimated population growth of 1.53 % per annum. Approximately 7% of the total households are informal dwellings and backyard dwellers and appear to have decreased from 12% as reflected in the 2011 Census. Despite a reasonable collection rate of 90% of households with access to waste collection services, there are still challenges experienced with the provision of waste collection services. This ultimately contributes to challenges such as increased illegal dumping.

The situation with illegal dumping has resulted in the strengthening of the by-law and penalties associated with dumping of waste in the City. One of the key instruments to monitor the compliance within the Municipality is the accreditation of waste service providers and generators. The management of building rubble, waste tyres and sewerage sludge waste remains an unresolved challenge.

Waste quantities and character

There has been an average decrease of 16%, year on year, in waste received at the landfill sites, with as much as a 24% decrease during the Covid pandemic. This was measured between 2016 and 2022. The average generation rate per household is in order of 14.3kg per week and was calculated at 0.255 tons/person/annum. The total amount of organic material arriving at landfills constituted almost 36% of the total waste land filled. An additional 37% domestic waste stream consisted of commercial recyclables (paper, cardboard, metal, glass and plastics). By removing these components from the waste stream, the life expectancy of the landfill sites could be doubled.

Waste minimisation initiatives

In order to reduce the amount of waste disposed at our landfill sites, various waste minimisation projects, aligned with education and awareness were implemented. A S@S programme has been implemented in Linton Grange, Bramhope, Westering, Taybank, Moregrove and Western Hills to collect source separated recyclables as part of a two-bag system. Recycling also happens at the Kragga Kamma and Hunters Retreat drop-offs.

Waste Management Infrastructure

NMBM is looking to expand both the Arlington and Koedoeskloof landfills and are in the process of increasing the number of drop-off facilities. NMBM continues to rehabilitate the historic landfill sites of iBhayi and Kwanobuhle.

Funding of Services

For the past 5 years the annual tariff increase was at an average of 5.5%. However, the sustainability of waste minimisation initiatives is at risk as the cost of collection of recyclables are high and waste tariffs would need to increase to allow for increased recovery. Such initiatives, however, would require major capital investments with contractual complexities such as PPP's to enable alternative service delivery options being implemented.

Objectives identified

The following was identified as priority and also listed in the IDP:

- Replacement of refuse compactors and a maintenance plan
- Construction of permanent concrete litter bins in the CBD and the taxi ranks
- Construction of a wet cell at Koedoeskloof
- Update and implement site development plans for Koedoeskloof and Arlington landfill sites
- Improve infrastructure at both landfill sites
- Refurbish mobile exhibition unit in order to capacitate local communities on waste management issues
- Maintain and improve the provision of basic waste management services
- Foster compliance with National and Provincial statutes by developing plans, strategies and policies and review the by-laws

Project implementation

NMBM to focus on Council endorsing this IWMP and approval by the MEC's for COGTA and DEDEAT.

Monitoring

The IWMP will be monitored quarterly through the Solid Waste Management Sub-Directorate and reviewed annually through the annual Business Plans and annual reports to the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT).

1 Introduction

1.1 Purpose of report

To regulate waste management, the Department: Environment, Forestry and Fisheries (DEFF) adopted various objectives as described in Chapter 2 of the National Environmental Management: Waste Act (NEM: WA (Act 59 of 2008)).

The Act also required the development and implementation of a national strategy to achieve the objectives of NEM: WA, resulting in the approval of the National Waste Management Strategy (NWMS) on 9 November 2011. On 28 January 2021, a revised strategy, namely the National Waste Management Strategy 2020, was published and takes into consideration the lessons learned from the 2011 NWMS, while also ensuring alignment with the United Nation's Sustainable Development Goals of Agenda 2030 and South Africa's National Development Plan: Vision 2030.

The objectives and goals of the NWMS is further disseminated at a provincial and local government level in the form of Integrated Waste Management Plans (IWMPs), whose primary objective is to:

- integrate and optimise waste management planning
- maximise efficiency while minimising the associated environmental impacts and financial costs
- improve the quality of life of residents.

NEM: WA requires that municipalities include their IWMPs in their respective IDPs for waste management services to be organised as with other basic services such as water, sanitation, electricity and housing. This ensures that waste management services are appropriately budgeted for and that the service is delivered in a sustainable and effective manner. All IWMPs are legally required to be revised every five years to ensure that they remain valid, to evaluate successes and to identify areas for improvement. ***This report signifies the third IWMP for the Nelson Mandela Bay Municipality (NMBM) and provides the revised and updated vision and objectives for the period 2021 to 2027, taking into account past successes, lessons learned and changes in international and national legislation, policies and agreements.***

1.2 Historical overview

The planning process for an IWMP is cyclic and is continuously applied as depicted in Figure 1. The NMBM's first (1st) IWMP was compiled in 2005 for the period 2005 to 2010 and remained in use until 2015 when the second (2nd) generation IWMP was completed for the period 2016 to 2020.

This document is the third (3rd) generation IWMP compiled by the NMBM Waste Management Sub-Directorate¹ and sets out their plan, vision, objectives and targets for the provision of solid waste management services for the period 2021 to 2027² in all areas falling within its jurisdiction. It also aligns with the NMBM's strategic documents (such as the Integrated Development Plan (IDP)) to ensure alignment with its sustainable development objectives.

¹ Under the umbrella of the Public Health Directorate

² Due to COVID-19 Lockdown and social distancing the process could not be completed in 2020

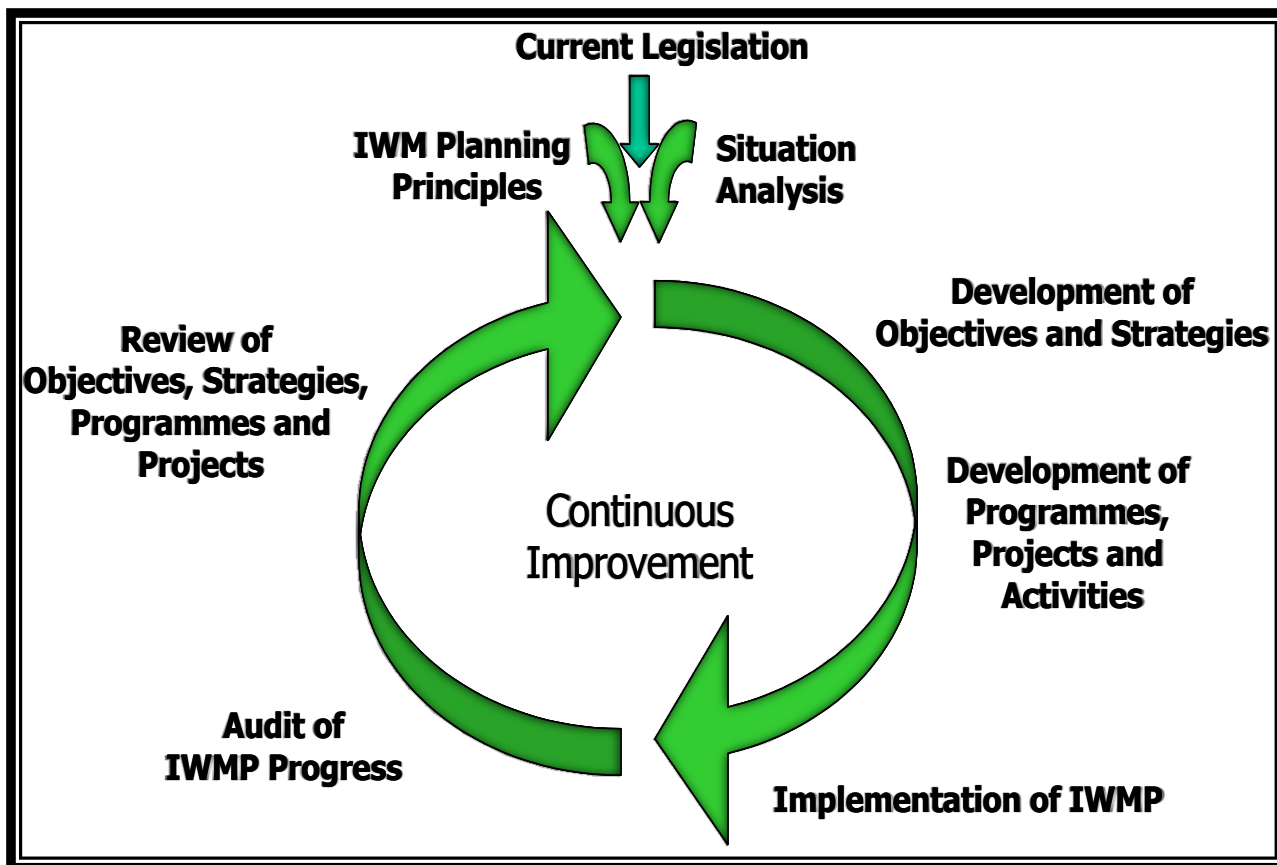


Figure 1: IWMP planning process (DEFF, 2020a)

1.3 Approach and aim of this report

One of the key aspects of the 2020 NWMS is the implementation of a systematic and hierarchical approach to integrated waste management as depicted in the revised waste management hierarchy (Figure 2). The revised waste management hierarchy provides a systematic approach to integrated waste management, addressing avoidance, reduction, re-use, recycling, energy recovery and then safe disposal, as a last resort. The first three stages of the waste management hierarchy are the foundation of *cradle to cradle*³ waste management which sees items re-used or recycled to become new products or materials. The cycle repeats itself until a small portion of the original product enters the next level of the waste management hierarchy, namely recovery. This involves reclaiming specific components or materials or using the waste as fuel. In theory, the small volume of waste that remains, enters the lowest level of the hierarchy to be disposed of in the most environmentally friendly manner possible.

The IWMP consists of operational and support strategies, as well as a schedule of projects and activities. The aim of the IWMP is to give effect to the management strategies of the NMBM Waste Management Sub-directorate including waste minimisation, provision of sustainable and affordable services and compliance with the goals of the National Waste Management Strategy and the objectives of the National Environmental Management Waste Act.

³ Cradle to cradle is a term used to describe a closed-loop lifecycle of a product, emphasizing that waste need not be the end of by-products, but that it could be used as raw material for other purposes. (Haggar & Salah, 2007)

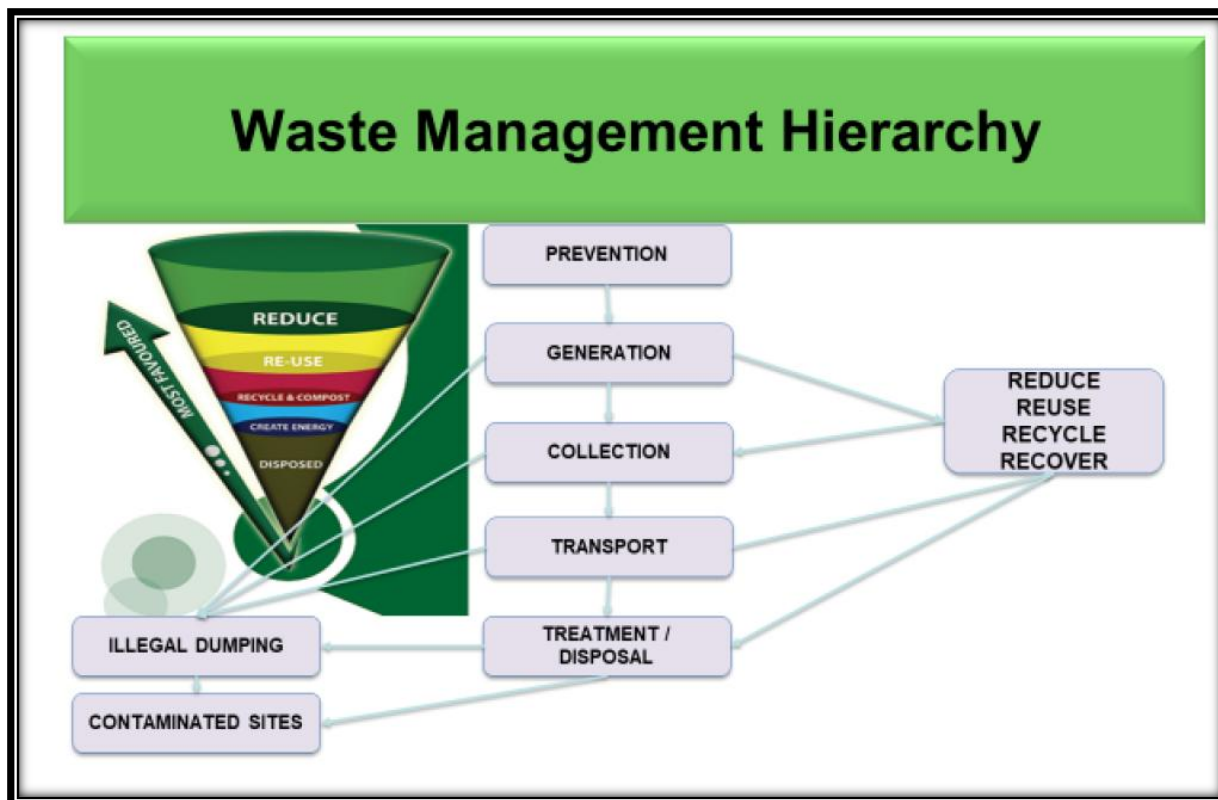


Figure 2: Revised waste management hierarchy (DFFE, 2020b)

The approach adopted to review the 2021 to 2027 IWMP aims to incorporate the revised waste management hierarchy in an integrated manner as part of the following steps:

- 1) Ensuring a thorough understanding of the legal framework that governs waste management in South Africa, including international agreements, etc. (Chapter 2).
- 2) Engaging with stakeholders to form a better understanding of their needs and perceptions regarding waste management (Chapter 3).
- 3) Critically reviewing the current situation within the NMBM in terms of its demographics and waste management profile (Chapter 4).
- 4) Analysing strategic drivers, key issues identified through the stakeholder engagement process and successes and failures of the 2016 - 2020 IWMP in order to identify and/or confirm waste management objectives for the 2021 – 2027 IWMP (Chapter 5).
- 5) Determining the desired state for waste management within the NMBM (Chapter 5).
- 6) Identifying and assessing the revised goals and objectives, including the feasibility of different methods to achieve these goals and objectives (Chapter 6).
- 7) Identifying appropriate implementation methods and developing an implementation plan with clear targets, timeframes and implementation mechanisms (Chapter 7).
- 8) Confirming the process to obtain the necessary approvals for the 2021 - 2027 IWMP (Chapter 8).
- 9) Confirming the legislative requirements with regard to the use of evaluation, monitoring and reviewing mechanisms to ensure the successful implementation of the 2021 – 2027 IWMP (Chapter 8).

2 Legal Framework

The Constitution compels municipalities to take reasonable steps to prevent pollution and ecological degradation, promote conservation and secure the ecologically sustainable development and use of natural resources. The Municipal Systems Act (Act 32 of 2002) and the National Environmental Management Act (NEMA) (Act 107 of 1998), as well as other specific environmental management Acts such as the Integrated Coastal Management Act (Act 24 of 2008) also place environmental responsibilities on the Municipality (NMBM, 2024).

Historically, the Environmental Conservation Act (ECA, Act 73 of 1989), as amended, set out the requirements for permitting, control and management of solid waste disposal sites and provided the first legal definition of waste. ECA's main intention was to reduce the environmental impacts associated with poorly operated landfill sites, but it did acknowledge that the incumbent Minister of Environmental Affairs and Tourism (now the Minister of Environment, Forestry and Fisheries) could make regulations pertaining the reduction, reuse and recovery of waste, although this avenue was never taken. Between 1989 and 2007, there were limited waste policies and regulations introduced, but with the advent of the 1st National Waste Management Strategy (NWMS) in 1999 and the White Paper on Integrated Pollution and Waste Management (IPWM) in 2000, an environment for more rigorous legislation was encouraged.

In 2008, the National Environmental Management: Waste Act (NEM: WA, Act 59 of 2008) was promulgated as the primary legislative tool for waste management in South Africa (Godfrey & Oelofse, 2017). NEM: WA is further supported by various other pieces of legislation, regulations, policies and guideline documents which all need to be taken into consideration while compiling an IWMP and have been listed and described in Table 1 below for ease of reference.

Table 1: National legislative requirements relating to solid waste management in South Africa

Act
The South African Constitution (Act 108 of 1996)
The Environmental Conservation Act (Act 73 of 1989)
The National Environmental Management Act (NEMA, Act 107 of 1998)
The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) by the National Environmental Management: Waste Amendment Act, 2014 (Act No. 26 of 2014) and the National Environmental Management Laws Amendment Act, 2014 (Act No. 25 of 2014)
National Environmental Management: Air Quality Act (NEM: AQA, Act 39 of 2004)
Atmospheric Pollution Prevention Act (APPA, Act 45 of 1965)
National Environmental Management: Integrated Coastal Management Act (NEM: ICMA, Act 24 of 2008)
National Water Act (NWA, Act 36 of 1998)
Municipal Systems Act (MSA, Act 32 of 2000)
Local Government: Municipal Structures Act (LGMSA, Act 117 of 1998)
National Health Act (NHA, Act 61 of 2003)
Hazardous Substances Act (HAS, Act 15 of 1973)
Other supporting legislation

Table 2: Provincial legislative requirements applicable to solid waste management in South Africa

Provincial Legislation
Integrated Environmental Policy for the Nelson Mandela Bay Municipality (IEP, 26 July 2012)
Nelson Mandela Bay Municipality: Waste Management By-Laws (Local Authority Notice 40 of 24 March 2010)
Nelson Mandela Bay Municipality: Air Pollution Control By-Law (Local Authority Notice 33 of 24 March 2010)
Nature and Environmental Conservation Regulations (Provincial Notice 955 of 29 August 1975)
Draft Eastern Cape Environmental Management Bill (Provincial Notice 205 of 2019)
Nelson Mandela Bay Municipality: Municipal Health By-Law, Second Draft (Local Authority Notice 36 of 24 March 2010)

Table 3: Strategies, policies and guidelines applicable to solid waste management in South Africa

Policies
National Development Plan: Vision 2030 (15 August 2012)
White Paper on Integrated Pollution and Waste Management for South Africa (Government Gazette 20978 of 17 March 2000)
The National Waste Management Strategy (NWMS) of 1999, 2011 and 2020
National Policy for the provision of basic refuse removal services for indigent households (General Notice 413 of 2011)
The Minimum Requirements: Waste Management Series (DWAF ⁴ , 1998)

⁴ DWAF was previously the Department of Water Affairs and Forestry, now incorporated into the Department of Water and Sanitation (DWS)
Project number: 503584IWMP2021_Rev07_Master Document_Edited,2025/04/07,Revision 07

3 Stakeholder Engagement

In order to align with the requirements of NEM: WA and the MSA, the public participation process allows for engagement with both internal (i.e. the NMBM's senior management and general operational staff) and external (i.e. Traditional and Government authorities, recyclers, the general public, contractors, members of industry, etc.) stakeholders. As part of this process, the IWMP will be made available for the required 30-day comment period after which it will be finalised.

Please note that due to the Covid-19 pandemic, the public participation process is relying on electronic measures to disseminate information. Public interactions/meetings were planned but cancelled due the third and fourth wave of Covid infections in May 2021 and December 2021/January 2022. In order to prevent further delays a decision was taken to engage public through the electronic media. The draft document will therefore be made available to review electronically on the Nelson Mandela Bay Municipality website's My Waste page (<https://www.nelsonmandelabay.gov.za/page/my-waste>).

3.1 Consultation with NMBM

3.1.1 Strategic sessions with NMBM Waste Management

A strategic planning session was held in September 2019 (with a follow-up session in March 2020) with the management of the NMBM's Waste Management Sub-Directorate to review the 34 goals set out in the 2nd generation IWMP and to gain insight on what the most important goals were for the NMBM when it comes to solid waste management. Further input from the Sub-Directorate senior staff was obtained in a 3-day working session from 8 to 10 March 2022, where this draft IWMP and Waste Characterisation findings were discussed.

This exercise highlighted the most important strategic goals that are expected to have the most significant impact in fulfilling the NMBM's objectives in terms of solid waste management as discussed in Chapter 5.

3.1.2 Operational staff

As previously stated, senior staff were engaged through the process, with specific focus on senior operational staff during the 3-day working sessions from 8 – 10 March 2022. The remainder of staff will be provided an opportunity to comment on the draft IWMP during the public participation process.

3.2 Consultation with external stakeholders

The consultation process for external stakeholders follows the IWMP guidelines and takes into account the relevant communication policies of the NMBM. The following methods will be used to notify the public of the availability of the draft IWMP for comment in electronic format and hard copies:

- ▶ Notification letters will be send (e-mail) to key stakeholders (such as Traditional and Government authorities) identified with the NMBM prior to the public participation process commencing.
- ▶ Advertisement in the PE Express and UD Express to invite all stakeholders to access and comment on the draft IWMP.
- ▶ Placement of notices at different locations across the municipal wards as shown in Table 4. The notices detail the electronic platforms where the draft IWMP can be viewed or downloaded.
- ▶ Dissemination of information via the NMBM's extensive sms-notification system may also be used for this purpose.
- ▶ The NMBM's website (<http://www.nelsonmandelabay.gov.za/MyWaste>) will be used to introduce the project (with links to social media pages) and provide access to the electronic version of the draft IWMP for comment.

- ▶ Social media platforms such as Facebook, Twitter and Groupwise will be used to create awareness of the availability of the draft IWMP for comment and to solicit feedback on solid waste management practices in the Municipality.
- ▶ All contractors registered with the NMBM Waste Management Sub-Directorate will be contacted to provide comment on the draft IWMP.
- ▶ A public road show will be held in selected areas to provide the public an opportunity to comment on the draft IWMP.

Table 4: Location of notices to the public regarding the availability of the draft IWMP for comment

No.	Customer Care Office and Other	Location
1	Thusong Centre	Tyhiniirha Road, Motherwell
2	Zwide Office	Johnson Road, Zwide
3	Mfanasekhaya Gqobose Building	Govan Mbeki Avenue, Central
4	Walmer Office	Heugh Road
5	Cleary Park Office	Cleary Park Shopping Centre
6	Korsten Office	Ablett Street, opposite Livingstone Hospital
7	Kwamagxaki Office	Cor. of Ralo Road and Uitenhage Road
8	New Brighton Office	Ntshekisa Road
9	Uitenhage Office	Uitenhage Town Hall Building
10	Kwanobuhle Office	Ponana Tini Road, next to Fire Station

Public meetings were scheduled to occur, however, due to the 3rd wave of Covid infections all public meetings were cancelled and replaced by Public Perception Surveys.

All comments received during the public participation process will be documented in a comments and response report, and where relevant, incorporated in the final IWMP for approval.

3.2.1 Ward meetings

Due to the Covid-19 pandemic, all ward meetings had to be cancelled. Further communication with the ward councillors regarding the 3rd generation IWMP will however be conducted once the draft plan has been distributed for public comment. Surveys have been distributed to Wards to dispense to the public for the public perception survey.

3.2.2 Public Perception Surveys (PPS)

In order to replace the public meetings, a Public Perception Survey (PPS) was undertaken in 2021 to understand how the public views waste management in the NMBM, and to identify the problems and challenges facing the public in this regard. The surveys were conducted telephonically. A total of 750 surveys were planned and completed.

The public perception survey provided the public with a means of raising concerns regarding waste management in the NMBM. Different communities experience different issues and have different needs with regard to waste management, therefore it is essential to gain feedback from a variety of different groups within the population to gain a broad view of waste management in the NMBM as a whole.

Three perception surveys have been undertaken to date and are available in Table 5. A summary of the results from the fourth perception survey that is currently underway will be included in the final version of the IWMP.

Table 5: Historical perception survey results⁵

Survey date	Results
2001 survey	<p>This survey of 800 respondents focused on disadvantaged communities. The results showed that 48% of participants rated the service they received as good or very good. The following was noted:</p> <ul style="list-style-type: none"> – The NMBM will not remove grass cuttings because residents do not have black bags for it. – The Municipality increases rates without informing residents. – Waste collections are done too early. – If more than five bags of refuse are put out for collection, the NMBM does not collect it. – Illegal dumping sites need to be fenced. – The skips are too high for some people to reach into.
2006 survey	<p>This survey of 558 respondents covered a range of different income areas and concluded that 74.9% of respondents felt that the NMBM met their waste collection needs. The following was noted:</p> <ul style="list-style-type: none"> – Recycling needs to be addressed. – Collection services must be reliable, follow a fixed day and time. – Waste management staff need to improve their communication with customers. – Sufficient number of black bags need to be provided to households. – A toll-free number needs to be provided to handle complaints. – Safety and infrastructure need to be improved at drop-off centres. – The use of SMS to inform the public of changes to collection dates or times. – Weekly collections in low-income areas.
2011 survey	<p>In this survey 1111 respondents were asked to comment on 8 waste related issues namely: (1) Waste collection service, (2) Litter and illegal dumping, (3) Drop-off centres, (4) Waste recycling, (5) Waste disposal, (6) Hazardous domestic waste, (7) Waste management staff, and (8) General. The key findings for the survey are as follows:</p> <ul style="list-style-type: none"> – 55% view the refuse collection service as good or very good. – 57% believe the NMBM is not doing enough to target illegal dumping. – 75% are unaware of who to contact regarding illegal dumping. – 64% of people don't use drop-off centres. – 79% of people do not recycle. – 91% would be willing to separate their hazardous waste. – 87% of people never visit a landfill site. – 84% of people have no interaction with waste management staff. – 90% of those surveyed are unaware of the new waste management by-laws. – 55% view the current waste management service as good, very good or excellent. – 13% view the current waste management service as poor or very poor.

Covid-19 lockdown regulations made public interaction challenging for this purpose and it was decided to amend the methodology used during previous surveys. To this end, structured telephonic interviews were

⁵ Recreated from Integrated Waste Management Plan, 2016.

conducted with residents. Using information in the Consumer Billing System (CBS)⁶, the five (5) operational areas (Addo, Cuyler, Gail Road, Harrower and Struanway) were used as boundaries. This allowed for an even distribution of lower-, middle- and higher-income groups that were surveyed. As the operational areas consists of 10 or more suburbs, five suburbs in each operation area were selected to participate in the survey. Suburbs were selected in the north, south, west, east, and central part of each operation area. Interviewers randomly called residents in each of the selected suburbs using the Consumer Billing System. Calls were made until 30 successful surveys were completed. A total of 750 respondents were called. Areas surveyed included:

Operational Area	Suburbs
Addo Road	<ul style="list-style-type: none"> - Wells Estate - Colchester - Bluewater Bay - Motherwell - Redhouse - Swartkops
Cuyler Road	<ul style="list-style-type: none"> - Fairbridge Heights - Kwanobuhle - Uitenhage/Kariega - Despatch - Rosedale
Gail Road	<ul style="list-style-type: none"> - KwaNoxolo - Malabar - Cleary Park and Hillside - Extension 28 and 29 - Aspen Heights - Heath Park
Harrower Road	<ul style="list-style-type: none"> - Rowallan Park - Westering - Summerstrand - Mount Pleasant - Adcockville
Struanway Road	<ul style="list-style-type: none"> - New Brighton - KwaZakhele - KwaMagxaki - Zwide - KwaDwesi

Respondents were asked 6 questions ⁷related to the 8 issues identified in the previous surveys as well as the planned projects under Public Awareness and Communication. The positive aspects are the positive response to waste collection and the general commitment of the respondents to become involved in recycling. Illegal dumping and lack of drop-off facilities are further key findings of the survey, which is as follows:

- ▶ 99% of the respondents' waste are collected and all respondents noted that their waste is collected weekly.
- ▶ 86% of people would recycle if it was inclusive of the current refuse service.
- ▶ 64% of the respondents would be interested in joining community initiatives focusing on waste.
- ▶ 57% people are not aware of the Waste NMBM Bylaw.
- ▶ 55% are aware of illegal dumping in their area.

⁶ As the information on CBS is privileged, the external team did not have access to the information. Therefore, the Manager: Planning & Contracts compiled a team of municipal employees to assist with the telephonic interviews

⁷ Questions were reduced as this was a telephonic interviewed and it was necessary to reduce number of questions to be asked and therefore obvious questions with high score during previous surveys were omitted viz people visiting Landfill sites and willingness to separate hazardous waste

- ▶ 35% of respondents were aware of the process to report illegal dumping.
- ▶ 33% use local drop-offs.

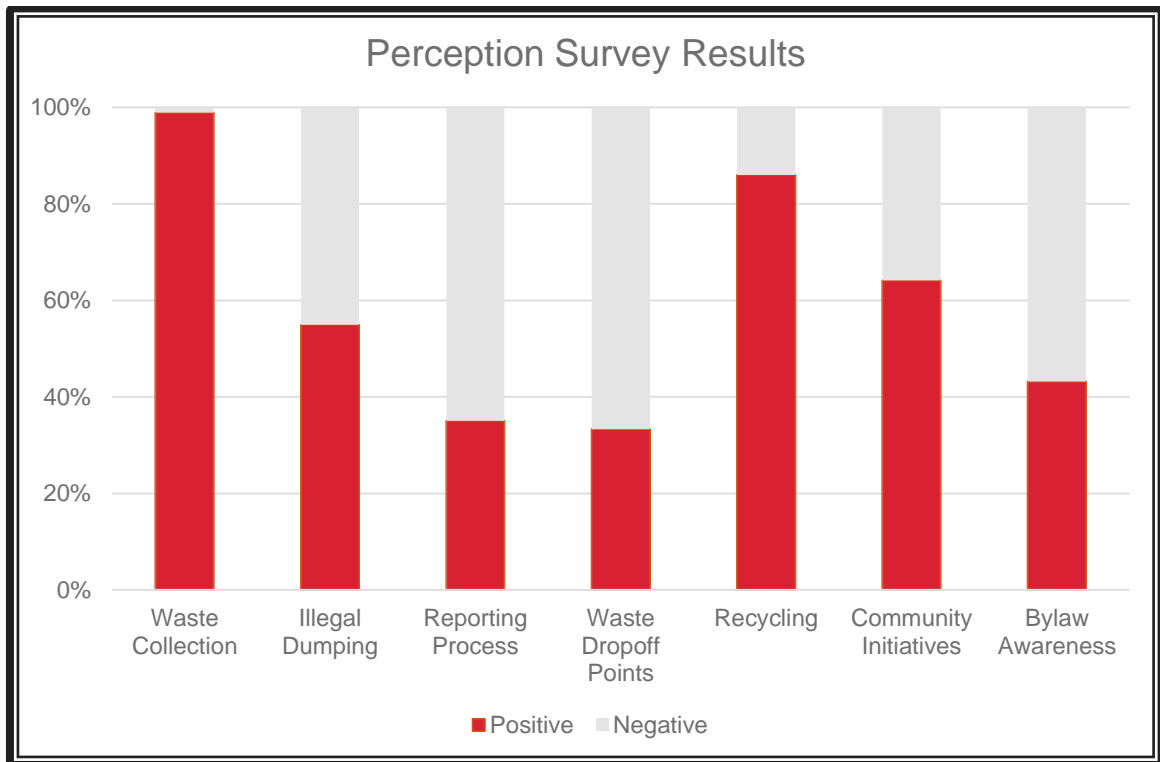


Figure 3: Summary of Perception Survey Results

Pertinent findings per issue identified:

Drop-off Points

- The public mainly use the drop-off points at Addo, Gail and Stuanway to discard general waste despite rating the weekly waste collection as GOOD.
- Cuyler and Harrower drop-off points are mainly used to discard garden refuse.

Waste collection:

- The perception survey results noted that the majority of respondents view waste collection as GOOD.
- Harrower and Struanway Road operational area receiving ratings of VERY GOOD.

Recycling:

- Respondents in the operational areas of Cuyler and Addo Road are interested in joining recycling initiatives.

Community Initiatives

- The respondents in the operational areas of Struanway, Addo and Cuyler Road are interested in municipal community initiatives regarding waste.

Table 6: General comments from Respondents

ADDITIONAL COMMENTS FROM RESPONDENTS: COMPLAINTS, CONCERNS AND CONTRIBUTIONS⁸	
Illegal Dumping	<ul style="list-style-type: none"> - Waste collectors⁹ do not want to accept garden waste. - Some communities have forums to report and monitor illegal dumping and other issues (No illegal dumping / reduced dumping). - Large households generate more waste, and their bins fill up early and they end up illegal dumping their waste. There are no temporary waste disposal facilities in their area. - No follow-ups on illegal dumping complaints and reports. The hotspot areas not monitored to impose fines on those who dump. - Communities are dumping as waste trucks do not collect waste in their streets. - Respondent suggested the Municipality to impose heavy fines on people engaging in illegal dumping activities, “they make our City dirty”. - A resident reported illegal dumping but there is no follow-up from the Municipality.
Waste Collection	<ul style="list-style-type: none"> - Waste collectors refuse to accept waste in plastic bags, only collecting waste on wheely bins (In areas with wheely bins). - In some areas (i.e. Colchester) waste is collected by a company outsourced by the Municipality. Some residents are complaining about poor service of waste collection. They are inconsistent with waste collection days and times. They do not really have a specific day for collecting waste and only take maximum of two bags. Residents hire a bakkie for excess waste and garden waste. - The collection times are not consistent (delays with waste collection not communicated with the public). The waste is left on the streets for days and ends up being torn by waste pickers. They leave it open and it is spread all over by the wind. - Respondent is complaining about provision of plastics bag for waste collection since their bins are old with no wheels and have holes. - During the loading of waste on trucks some waste is dropped in the street. The Municipality must have street sweepers to keep the areas clean.
Recycling	<ul style="list-style-type: none"> - Respondent indicated that clean-ups and recycling are the work of the Municipality as they have their own jobs. - Some respondents are recycling and sell their recyclables to waste trade companies. - A member of the public is concerned that recycling by Municipality will affect the local people, who are already involved in recycling. - Recycling only a good initiative if the Municipality can provide resources (additional bags) or suitable bins. Some respondents suggested the use of bins as the plastic is bad for the environment.
Community Initiatives	<ul style="list-style-type: none"> - Some respondents indicated they will only take part in community initiative if they receive some type of benefit. The projects can assist with job creation for their communities, especially for the youth.
Drop-off Points	<ul style="list-style-type: none"> - Respondent indicated there are no drop-off facilities in most areas.

⁸ Notes made by the staff conducting the survey based on feedback from the respondents.

⁹ Term was waste collector used by public during interviews, NMBM refer to them as refuse carriers.

4 Situation Analysis

This section reviews the current situation in terms of solid waste management in the NMBM. The main objective of this situation analysis is to analyse and quantify all aspects pertaining to the management of solid waste within the NMBM's boundary (including all types of settlements). It includes the demographic profile, the current status with regard to the delivery of solid waste services, the availability of basic services to the community, the NMBM's socio-economic composition and information on financial and human resources. Also, the amounts and types of waste generated, recycled, recovered, treated and disposed of is quantified, as well as the number of persons in the area who are not receiving waste collection services.

4.1 Geographical area

The Nelson Mandela Bay Municipality is the largest of two Category A metropolitan municipalities in the Eastern Cape Province (NMBM, 2019). It was formed in 2001 as an administrative area and incorporates the towns of Gqeberha/Port Elizabeth, Uitenhage/Kariega and Despatch, as well as their surrounding agricultural areas, and comprises an area of 1959 km². For operational management purposes the Municipality was divided into allotments and working areas (see Figure 4). All operational functions are coordinated according to these demarcated areas.

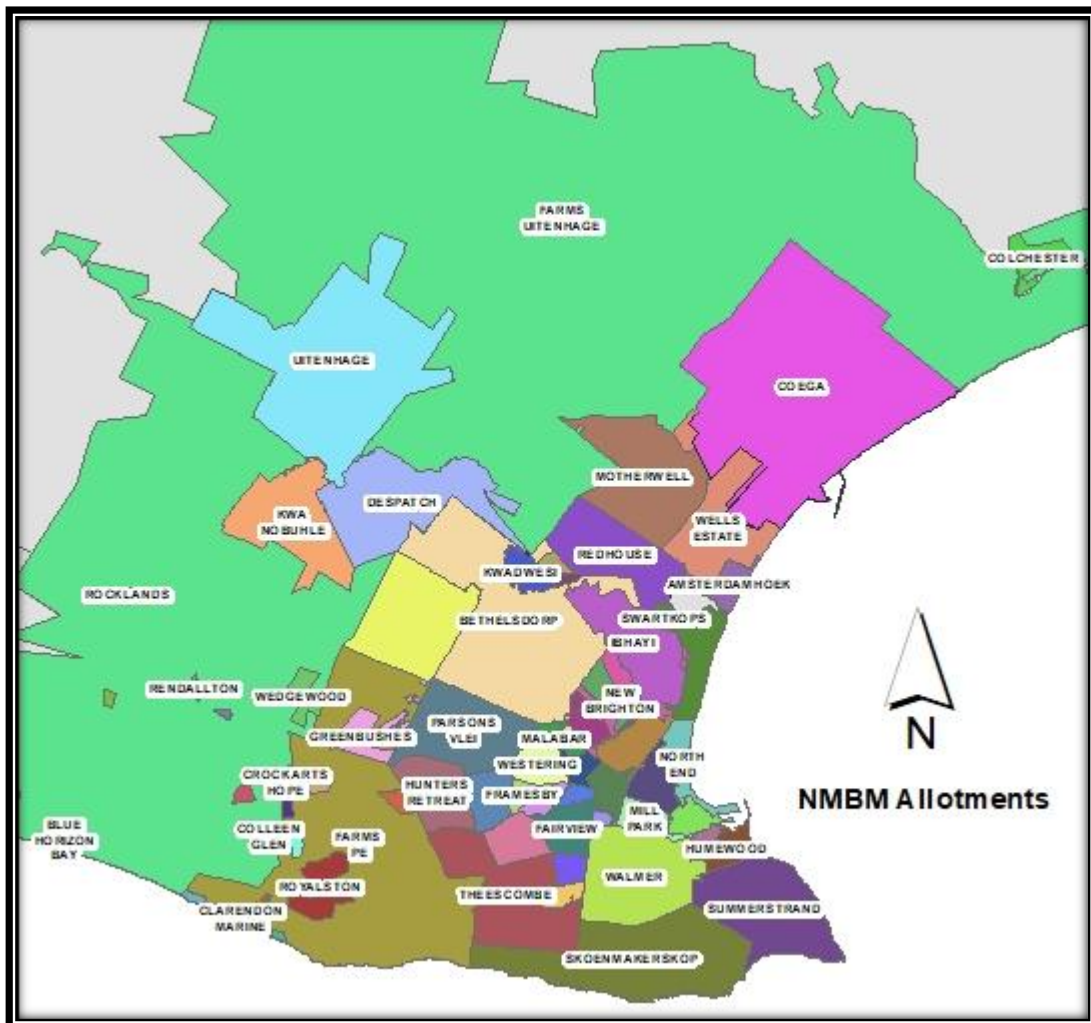


Figure 4: NMBM locality including allotment areas (Diagram courtesy of NMBM)

For political purposes, the NMBM is also subdivided into geopolitical divisions as per Figure 5. During elections and by-elections, residents who are registered voters are asked to vote for an individual who will represent the ward in the political sphere of local government. This individual is known as a Ward Councillor and may or may not be affiliated with a political party. Ward Councillors are a vital link between local government strategies and residents, as they assist in developing mechanisms to consult communities and organisations, assisting the local authority in performing its functions and exercising its powers. One such mechanism is commonly known as a Ward Committee, and ideally, with the Ward Councillor as chairperson, it allows residents to influence municipal planning in a manner which best addresses their needs.

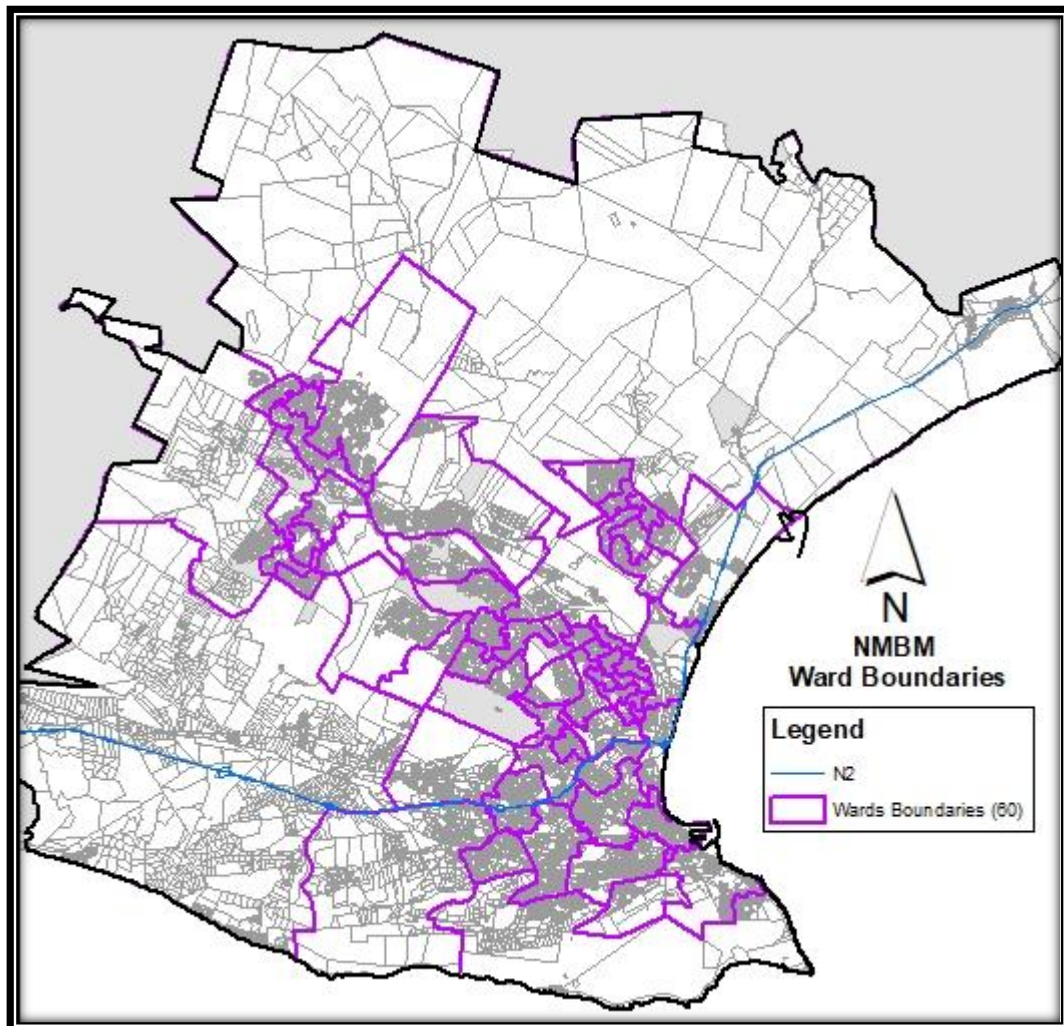


Figure 5: NMBM Wards (Diagram courtesy of NMBM)

For ease of service delivery, the wards are grouped into “ward clusters” or “townships” as indicated in Table 7.

Table 7: Demographics of the NMBM ward clusters (StatsSA, 2011)

Uitenhage/Kariega, Despatch, KwaNobuhle and Bloemendal Cluster	
Wards:	41 - 44 and 46 - 52, as well as the two peri-urban wards 45 and 53.
Total population:	305 458 persons representing 84 995 households.
Average population density:	34.7 persons and/or 8.9 households per hectare.

Housing:	<ul style="list-style-type: none"> ▶ 83.2% of households are living in formal dwellings ▶ 10.4% (± 8 839 households) in informal dwellings and ▶ 6.4% (± 5 440 households) in backyard accommodation (formal and informal).
Employment:	The employment rate is estimated to be 31% and approximately 66% of the population earn less than R3 183 per month.

Motherwell-Wells Estate Cluster

Wards:	23, 54, 55, 57, 58, 59 and 60, as well as the peri-urban ward 56. It includes Motherwell, Wells Estate and Bluewater Bay.
Total population:	165 457 representing 46 522 households.
Average population density:	52.89 persons and/or 14.57 households per hectare.
Housing:	<ul style="list-style-type: none"> ▶ 93.9% of households are living in formal dwellings ▶ 2.9% (± 1 349 households) in informal dwellings and ▶ 3.2% (± 1 489 households) in backyard accommodation (formal and informal).
Employment:	The employment rate is 30% and approximately 71% of the population earn less than R3 183 per month.

Ibhayi-Bethelsdorp Cluster

Wards:	10; 13; 14; 15; 16; 17; 18;19; 20; 21; 22; 24; 25; 26; 27; 28; 29; 30; 31; 32; 33; 34; 35; 36; 37 and 38
Total population:	425 847 representing 107 177 households (StatsSA, 2011).
Average population density:	78.70 persons and 20.16 households per hectare.
Housing:	<ul style="list-style-type: none"> ▶ 81.9% of households are living in formal dwellings ▶ 12.8% (± 13 719 households) in informal dwellings and ▶ 5.3% (± 5 680 households) in backyard accommodation (formal and informal).
Employment:	The employment rate is 30% and approximately 68% of the population earn less than R3 183 per month.

CBD Cluster

Wards:	5, 7 and 11.
Total population:	52 538 representing 16 251 households.
Average population density:	18.78 persons and 5.71 households per hectare.
Housing:	<ul style="list-style-type: none"> ▶ 94.7% of households are living in formal dwellings ▶ 0.7% (± 114 households) in informal dwellings and ▶ 4.6% (± 747 households) in backyard accommodation (formal and informal).
Employment:	The employment rate is 50% and approximately 38% of the population earn less than R3 183 per month.

Southern Areas Cluster

Wards:	1, 2, 3, 4 and 6.
Total population:	95 172 representing 33 438 households.
Average population density:	10.93 persons and 3.91 households per hectare.
Housing:	<ul style="list-style-type: none"> ▶ 86.2% of households live in formal dwellings ▶ 7.9% (± 2 642 households) in informal dwellings and ▶ 5.9% (± 1 973 households) in backyard accommodation (formal and informal).
Employment:	The employment rate is 54% and approximately 37% of the population earn less than R3 183 per month.

N2 – Western Areas Cluster	
Wards:	8, 9, 12, 39 and the peri-urban ward 40.
Total population:	107 582 representing 32 185 households.
Average population density:	11.15 persons and 2.99 households per hectare.
Housing:	<ul style="list-style-type: none"> ▶ 9.16% of households live in formal dwellings ▶ 4.9% (± 1 577 households) in informal dwellings and ▶ 3.5% (± 1 126 households) in backyard accommodation (formal and informal).
Employment:	The employment rate is 61% and approximately 28% of the population earn less than R3 183 per month.

4.2 Demographics

Demographics include population numbers, gender, ethnicity, age, economic and social status. Poverty levels are investigated as well as the education and employment status of the area. Furthermore, fertility, mortality and migration rates are quantified to estimate future population growth and to develop projections of current and future waste quantities generated, for purposes of the IWMP. This information also assists in identifying financial recovery mechanisms for the NMBM, as it allows assessment of the resources required to provide the most efficient waste management services and infrastructure to the community.

4.2.1 Population profile

The population of Nelson Mandela Bay was 1,152 million during the 2011¹⁰ census and increased to 1,263 million by 2016, according to Statistics South Africa (StatsSA). The average growth rate between 2006 and 2016 was estimated at 1.53% which is similar to the growth rate of South Africa as a whole at 1.54% (ECSECC, 2017). The yearly birth rate in NMBM was 18 837 for the year 2019 (StatsSA 2020b). The yearly mortality rate according to StatsSA (2020) is 12 467, and as expected, the highest mortality rate of 37.4% is in the over 65-year age group. The mortality rate of non-natural deaths is 1 316 (10.6%), and natural deaths are mainly due to illnesses such as Diabetes mellitus 1 067 (8.6%), followed by Tuberculosis with 1 064 (8.5%).

Table 8: Number of deaths by age in Nelson Mandela for 2017 (StatsSA, 2020)

Age	0	1-14	15-44	45-64	65+	Unsp.	Total
Number	251	191	3388	3964	4657	16	12 467
Percentage	2	1.5	27.2	31.8	37.4	0.1	100

¹⁰ 2021 census data have not been verified by the time of publishing this plan

Figure 6 and Figure 7 shows the ethnicity and gender profile of the NMBM, respectively, with 60% being Black African, 24% Coloured, 15% White and 1% of Indian descent. In terms of gender, males currently make up 49% of the population (StatsSA, 2016).

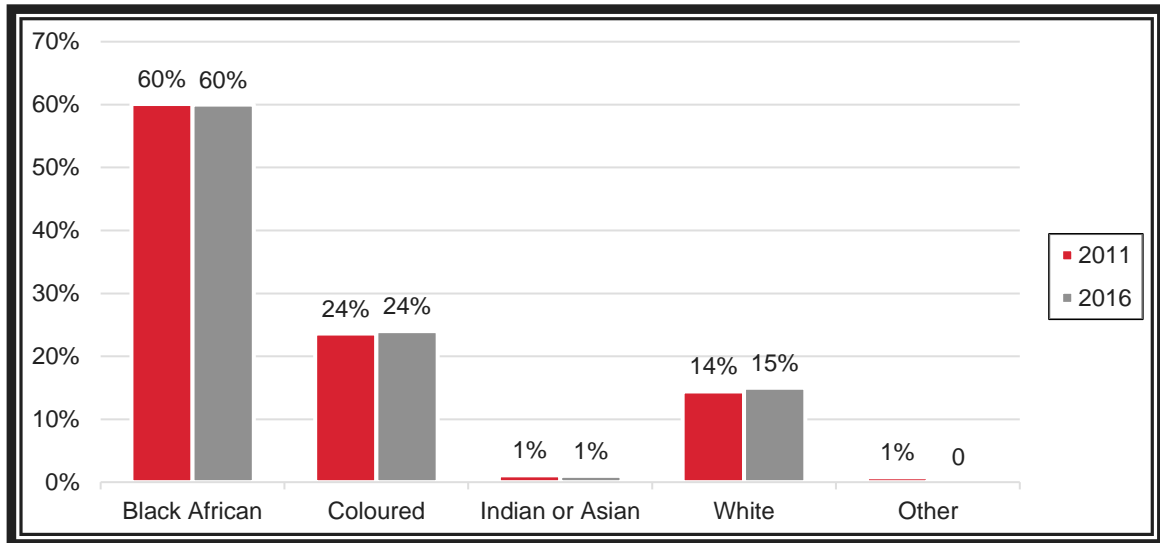


Figure 6: Ethnicity profile of the NMBM (StatsSA, 2016)

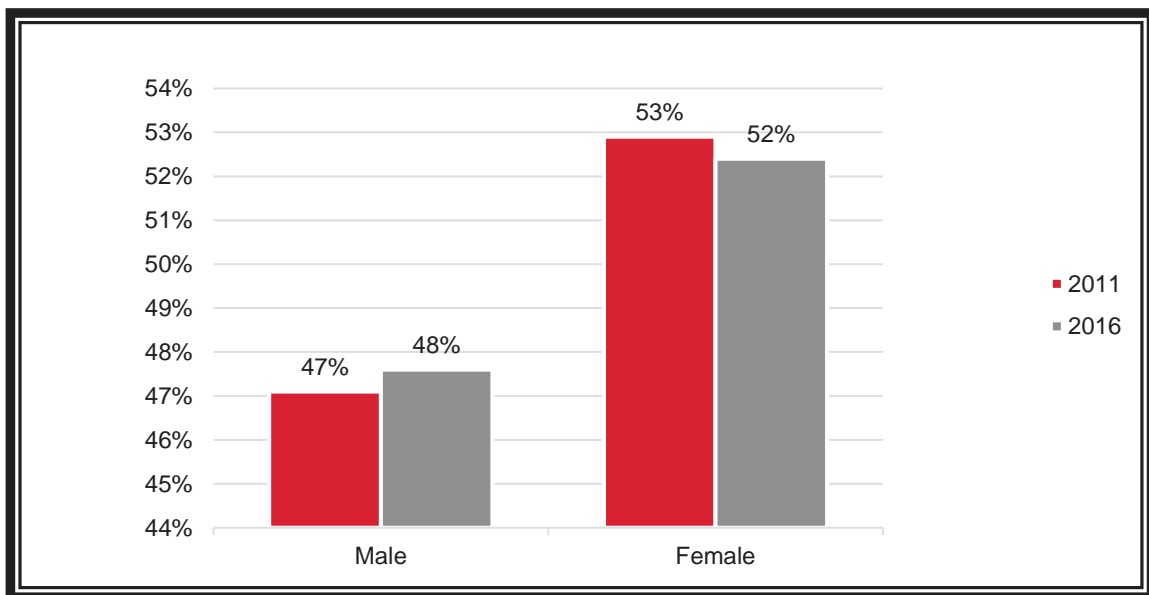


Figure 7: Gender profile of the NMBM (StatsSA, 2016)

The educational profile of males and females aged 20 years and older differ very slightly. Approximately 39.3% of males and 39.7% of females have not completed their secondary education, which is slightly less than the provincial average of 40.5%.

As shown in Figure 8, the NMBM is characterised by a youthful population, with 63% being between the ages of 0 – 34 years. The number of people falling within the age groups 0 – 14 years and over 65 years have increased since 2011 with 5% and 4% respectively. However, the percentage of the population that falls within the workforce age group (i.e. 15 – 64) has declined with 8% during the same period.

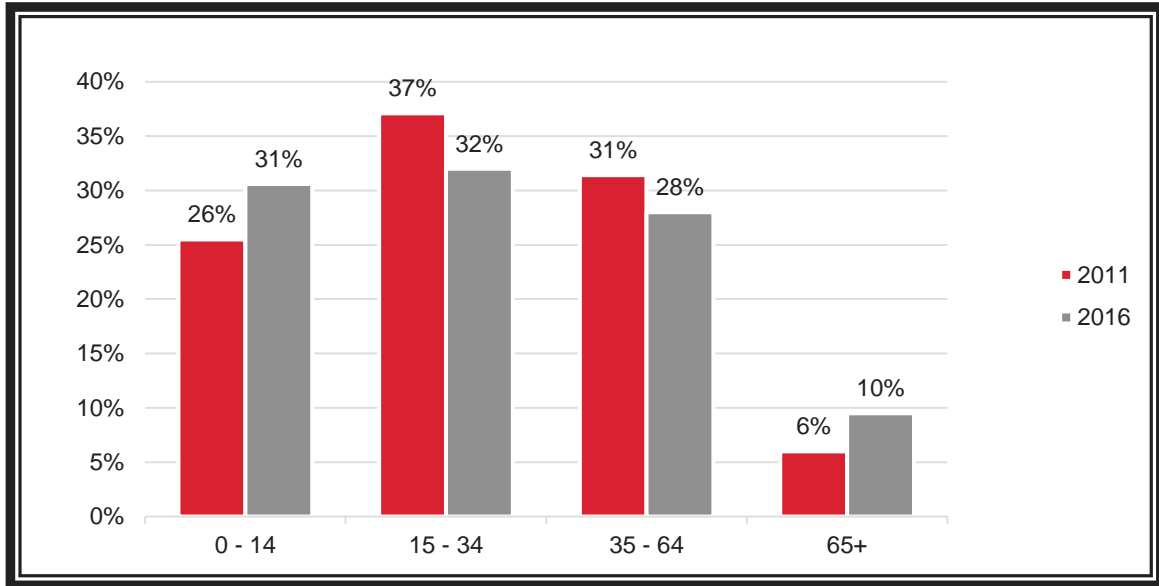


Figure 8: Age profile of Nelson Mandela Bay (StatsSA, 2016)

4.2.2 Household profile

The household profile of the NMBM population is important to determine the current and future waste generation rate per person (per capita). The NMBM has a total of 368 518 households, including formal and informal households with an average size of 3.4 persons per household (NMBM, 2019). Of the 368 518 households identified within the NMBM, approximately 92.5% constitutes formal housing (showing an increase of at least 5% since 2011), while 7% of households are informal dwellings (shacks). Less than 1% of housing constitutes traditional and other forms (NMBM, 2018).

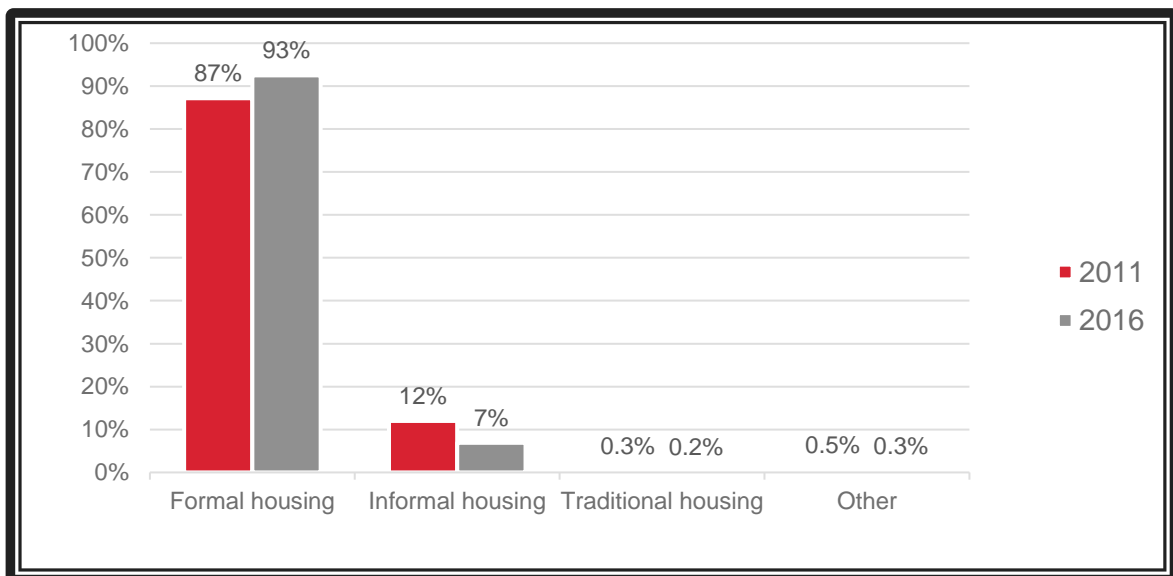


Figure 9: Household profile of Nelson Mandela Bay (StatsSA, 2016)

4.2.3 Income profile

According to the 2011 census data¹¹, 37% of the population is employed and 21% unemployed. The data further shows that 37% of the population is not economically active and the remaining 5% is indicated as

¹¹ No data is available for 2016

“discouraged work seekers”. The impact of the high unemployment rate remains a great concern as it is a direct contributor to poverty conditions. According to the available data shown in Figure 10, 640 000 people were living in poverty in the NMBM in 2016. An average of 16% of households live on less than R30 000 per annum, with 22% of households listing their main income source as a social grant. As a result, approximately 30% of the identified formal households in the city cannot afford basic services.

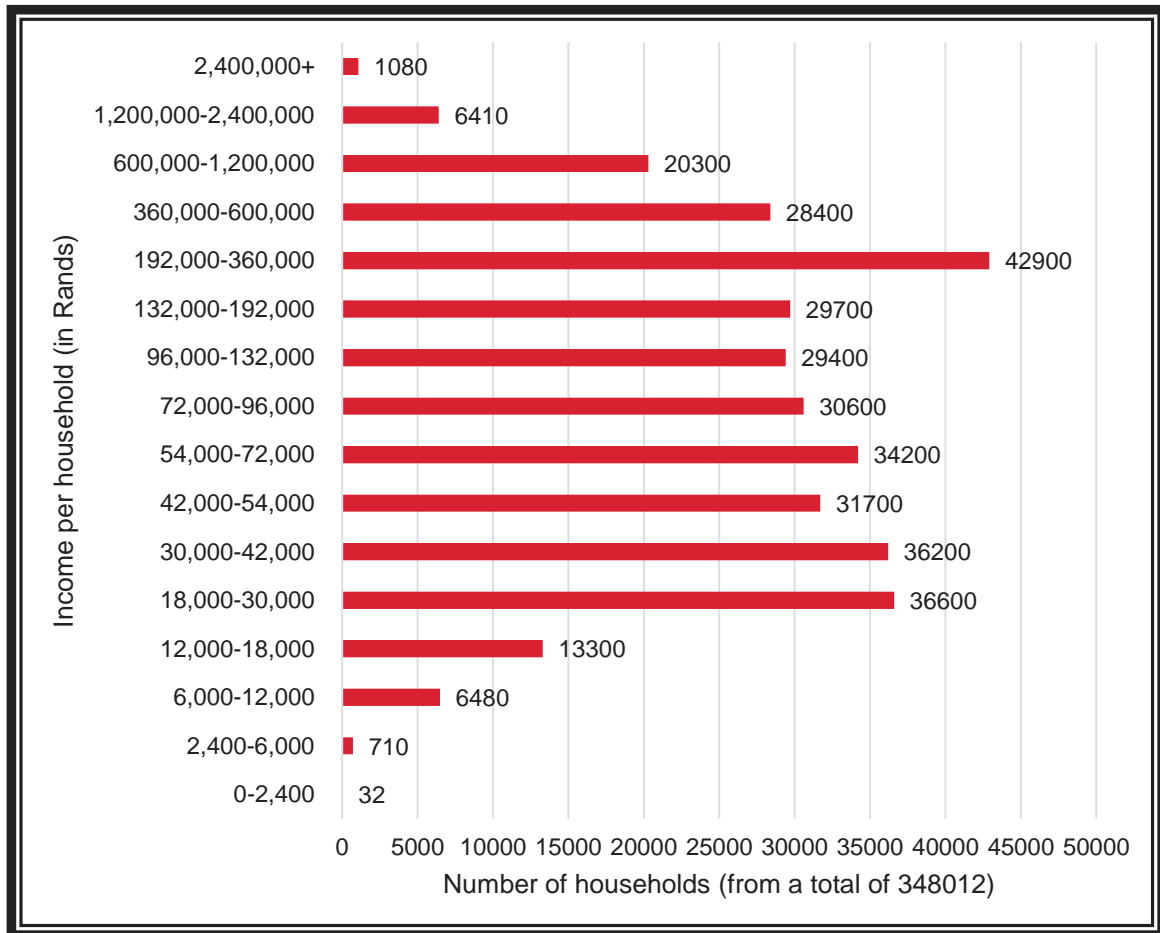


Figure 10: Income per household in the NMBM (ECSECC, 2017)

4.2.4 Availability of basic services

The NMBM is mandated to provide residents and industries within its jurisdiction with water, electricity, sanitation and refuse collection. According to the most recent census data, 90% of the NMBM population has access to weekly refuse removal services and 6% has access to a communal refuse dump.

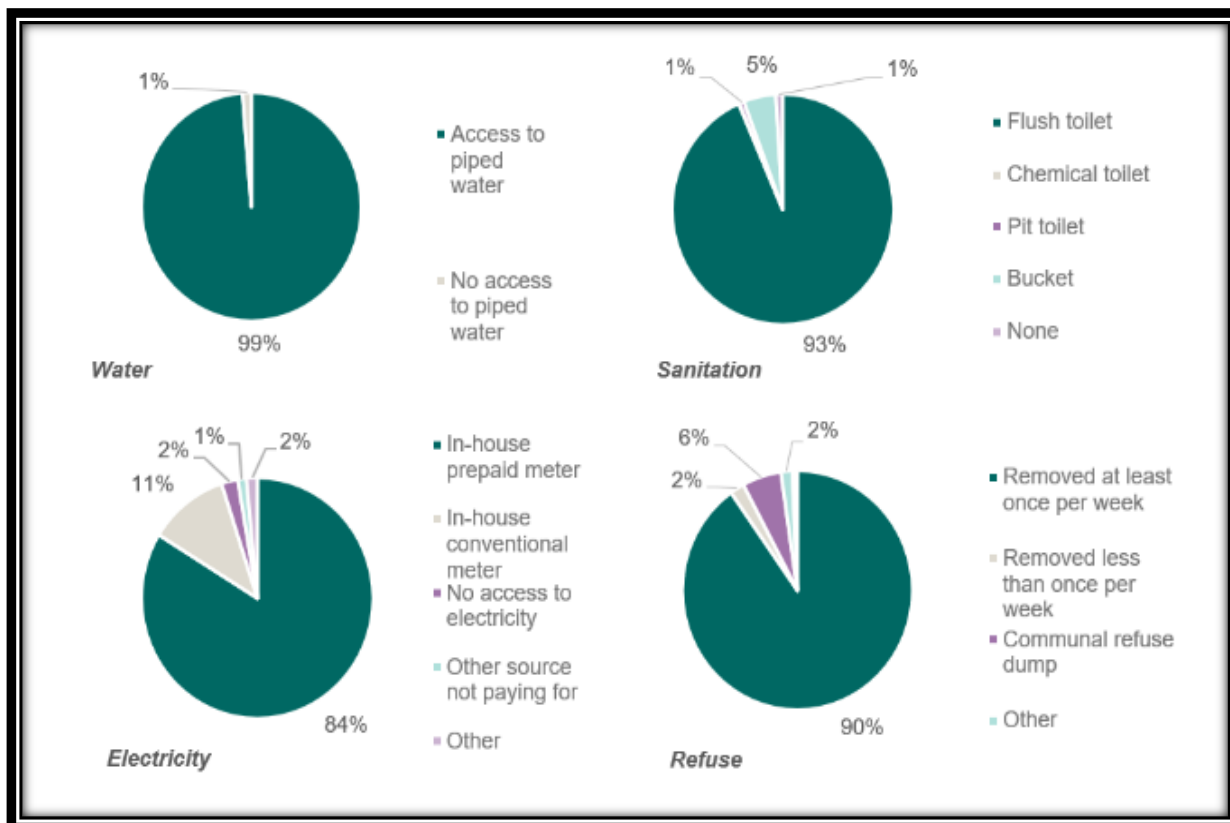


Figure 11: Availability of basic services for NMBM residents (NMBM, 2018; StatsSA, 2018)

4.2.5 Socio-economic profile

Nelson Mandela Bay had a total GDP of R128 billion, and in terms of total contribution towards the Eastern Cape Province, Nelson Mandela Bay ranked highest relative to all the regional economies total for Eastern Cape Province GDP. This ranking in terms of the 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.

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 the Eastern Cape Province and South Africa is expected to grow at 1.15% and 1.16% respectively.

The NMBM is the largest contributor to the Eastern Cape economy as it generates approximately 41.2% of the provincial Gross Geographic Product (GGP). The primary contributing sectors to the local economy are finances, manufacturing, trade and transport, which can be linked to the two major seaports, Gqeberha/Port Elizabeth Harbour and Port of Ngqura. The automotive industry is traditionally seen as the major industry in the Eastern Cape, and NMB contains key manufacturing centres and several assembly plants. Other large production facilities include dairy products, wool, textiles, and pharmaceuticals, as well as the local tourism industry (NMBM, 2018). Most industries have internal recycling programmes from personal discussion including VW, CDC SEZ, Continental Tyres, etc. The CDC SEZ and Portnet mostly produce domestic waste that is removed by a private company and disposed at the Aloes private landfill. It is important to note that most of the waste coming from these industries, including hazardous waste, are currently disposed of at a landfill, therefore innovative solutions must be brought forward to handle the waste in accordance with the waste management hierarchy (Figure 2).

4.3 Waste profile

A key part of waste minimisation is to first ascertain what the current waste stream consists of (waste characterisation). The NMBM is currently lacking this information as the previous waste characterisation surveys undertaken in the NMBM were very limited, consisting of the following:

- 2005 - limited to black bag sampling from one residential area, location not recorded
- 2009 - Walmer, Blue Horizon Bay and Colchester
- 2011 - Mill Park (upper income), Algoa/Young Park (medium income), Soweto-on-Sea and New Brighton (low income)

As the previous surveys are dated and there is insufficient information to extrapolate data from studies done for neighbouring municipalities (Oelofse, Muswema, & Koen, 2016), it was thus necessary for the NMBM to undertake an in-house waste characterisation study. This helps the NMBM obtain an understanding of the financial, social and environmental feasibility of improving the current waste management systems by getting a grasp on the amount and type of waste generated. In turn, it will also inform the NMBM on possible short-, medium- and long-term interventions to address the solid waste challenges, along with the necessary awareness-raising and education initiatives required to include ratepayers in future interventions.

4.3.1 Waste characterisation

To understand the waste profile of the NMBM area, a detailed waste characterisation survey was carried out on domestic waste, as part of this IWMP. Waste was collected from three sample areas in NMBM, representing low, medium and high-income groups, namely Kwanobuhle, Despatch and Summerstrand respectively.¹² The waste was classified according to the ten (10) waste classes provided in the WCG (2017) guideline, which was further sub-divided into 27 subclasses based on information provided by local recyclers (Table 9).

Table 9: Waste categories

Waste Category	Sub-categories
Paper/ cardboard	White Paper, Mixed paper, Corrugated cardboard, Non-corrugated cardboard, Tetra Pak (carton boxes) and Other.
Metal	Metal and Aluminium.
e-Waste	General.
Organic	Garden waste, Food waste and Wood waste.
Glass	General.
Plastics	PET Polyethylene terephthalate, PE-HD High-density polyethylene, PVC, PE-LD Low-density polyethylene, PP Polypropylene, Polystyrene and Other.
Construction waste	Rubble/concrete.
Hazardous waste	Batteries, Fluorescent lamps, Liquid oils/paint/detergents and Health Care Risk Waste (HCRW).
Liquid waste	Decanting any liquids from containers.
Other	General waste/non-classified.

The characterisation revealed notable trends between areas and the different consumer classes (Table 10). Recyclables (paper, cardboard, metal, glass and plastics) were found to make up approximately 29% of the total domestic waste stream, whereas organic material, which consisted mostly of kitchen and garden waste, made up a further 36% of the waste. It is also interesting to note that Summerstrand, the more affluent socio-

¹² Details of the methodology and results are presented in the report titled NMBM Special Support Waste Sub-Directorate: Waste Characterisation 2021 (Zutari, 2021).

economic area, generates the most waste on average per household in all waste categories, which is generally to be expected from the more affluent areas (Figure 12).

Table 10: Average waste composition per household

Waste Type	Kwanobuhle		Despatch		Summerstrand		Total
	Weight in kg	Percentage of the total waste steam	Weight in kg	Percentage of the total waste steam	Weight in kg	Percentage of the total waste steam	Percentage of the total waste steam
Paper/ cardboard	0.85	7%	1.45	11%	2.89	14%	10.59%
Metal	0.35	3%	0.37	3%	0.36	2%	2.46%
E-waste	0.09	1%	0.03	0%	0.05	0%	0.39%
Organic	4.11	34%	5.73	42%	6.35	31%	35.66%
Glass	0.62	5%	0.99	7%	2.69	13%	8.52%
Plastics	0.99	8%	1.04	8%	1.56	8%	7.81%
Construction waste	0.03	0%	0.00	0%	0.19	1%	0.38%
Hazardous waste	1.39	11%	0.73	5%	0.94	5%	7.15%
Other	3.63	30%	3.25	24%	5.01	25%	26.09%
Liquid waste	0.07	1%	0.08	1%	0.35	2%	0.96%
Total	12.13	100%	13.67	100%	20.39	100%	100%

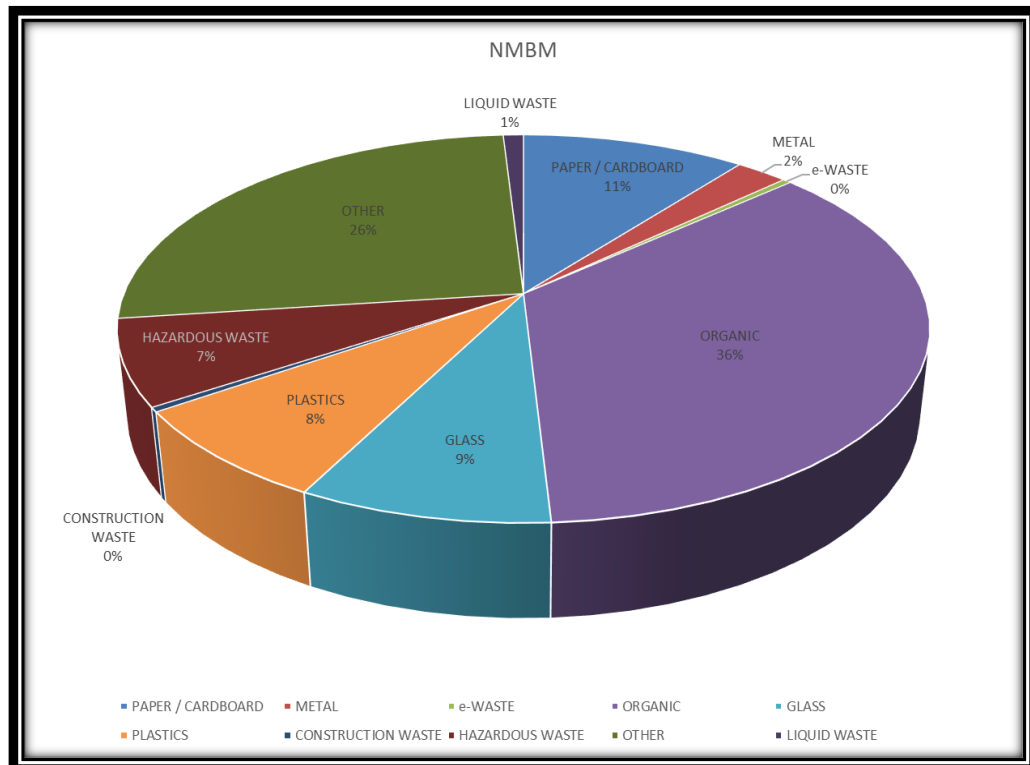


Figure 12: Waste Composition for NMBM (NMBM 2021)

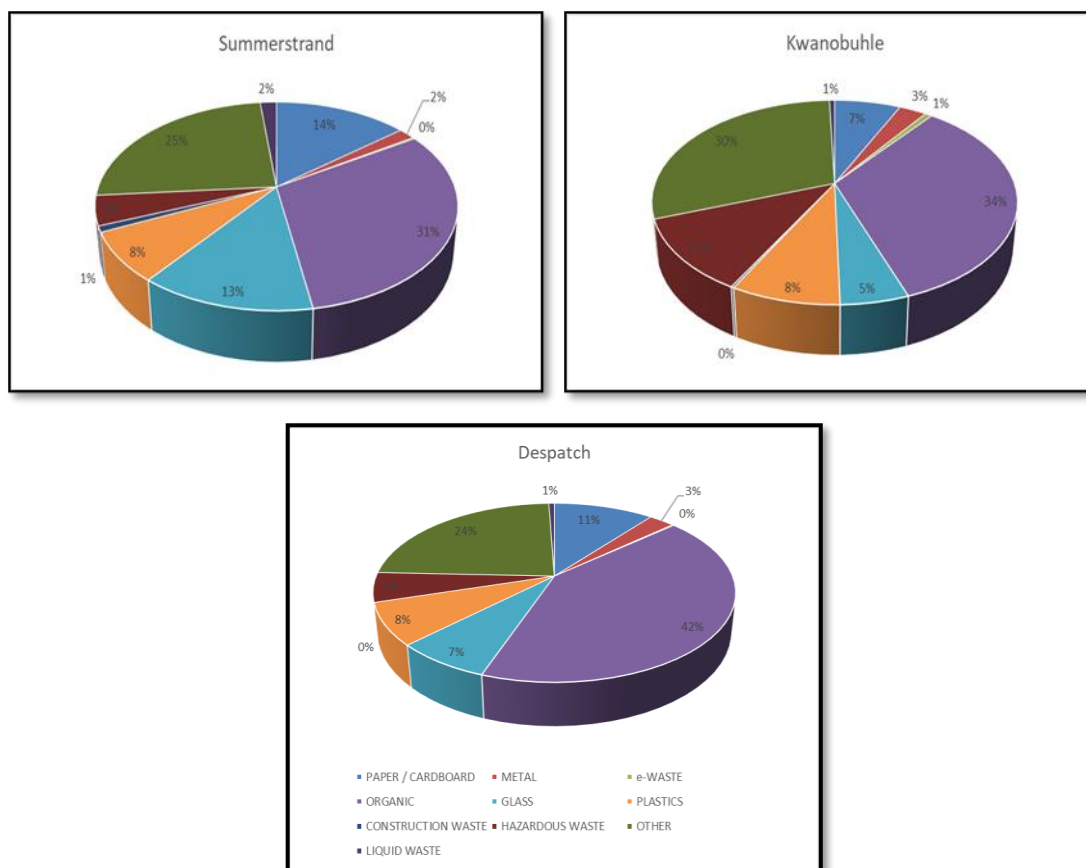


Figure 13: Waste Composition for each of the consumer areas (NMBM 2021)

The following were evident from the data and considered noteworthy to mention specifically for each of the different waste types:

Organics

Organics constituted on average 36% of the total waste collected in the three (3) areas and was the highest proportion by weight of all areas surveyed. ***It should be noted that the organic composition was lower than that observed during previous surveys, and there is a likelihood that this could also be linked to the current drought and water restrictions, and thus the reduced growth in garden plants.***

The percentage of organics was markedly higher in the Despatch area, with near even figures in Summerstrand and Kwanobuhle. In previous surveys, the higher income consumer area made up the biggest portion of organic waste which was attributed to lawn cuttings and other garden waste. It is further likely that Despatch residents do their own gardening, whilst the Summerstrand residents more likely make use of garden services. This could also be attributed to the proximity of two (2) garden waste drop-off facilities near Summerstrand. It is important to note that the composition in both Summerstrand and Despatch had a near equal split between garden and food waste, whilst Kwanobuhle’s garden waste made up 70% of the organic sample composition.

Other waste/General waste

This category covered a significant range of items ranging from product wrappers to polystyrene trays, crockery, textiles and other miscellaneous items. The total amount of this type of unidentifiable waste was 26%, with the Kwanobuhle sample comprising a significant 30% of that area’s total waste stream. The higher amounts in the lower income areas were likely due to the use of wheelie bins that make discarding of bigger

items much easier. This waste category is also consumer driven as a significant proportion of this stream consisted of non-recyclable food wrappings and other packaging.

Paper and cardboard

Cardboard and paper constituted 10.5% of the total weight in the waste sample. This was significantly lower than in previous surveys. In all three sampled areas, corrugated and non-corrugated cardboard made up the bulk of the weight for this category, followed by mixed paper. It is notable that, similar to previous surveys, the higher consumer areas of Summerstrand and Despatch produced the higher fractions compared to the Kwanobuhle area. This is possibly linked to marketing and consumer trends, including marketing material, magazines and packaging of appliances and luxury items. White paper was less evident, as this has a higher recycling value, and it is also possible that this paper might be donated to schools and other organisations that recycle.

Glass

The glass fraction was significantly higher in the high-end consumer area (Summerstrand) with 13% of the waste stream from that area consisting of glass. This is double the fraction size that occur in the other two areas. It is also much higher than previous surveys, although the overall 8.5% average is well aligned to previous surveys that generated similar values. There is a possible link to consumer habits where high-end consumers consume beverages at home and do not visit taverns. A further explanation could be linked to the high proportion of students staying in the Summerstrand area. It is, however, noteworthy that Summerstrand has a significant number of bottle banks and organisations that do recycling. It is thus difficult to make a deduction regarding a trend.

Plastics

The fraction of plastics being disposed of in residential waste is consistent across all three (3) consumer areas, comprising a consistent 8% of the waste stream. The majority of waste in the plastics category in all three areas is PET - Polyethylene Terephthalate, followed by low-density polyethylene. The subdivision of plastics was also very similar between areas, with only differences in the fractions of coloured PET bottles observed. It should further be noted that due to the low weight of the plastic items, the methodology of weighing the waste cannot be considered the most accurate way of determining the proportion of this waste stream.

Hazardous waste

This component comprised 7% of the total waste stream, and it is notable that the Kwanobuhle area produced nearly double that of other areas. The majority of the hazardous waste was classified as Health Care Risk Waste (HCRW), which includes sharps, medicines, infectious waste such as Covid- related consumables, facemasks, used disposable nappies and dog faeces. There was no differentiation between the items during sorting, as handling of this waste needed to be minimised. In line with previous studies, it was found that disposable nappies made up the bulk of this fraction of the waste stream. This may explain why the proportion of hazardous waste is higher in Kwanobuhle as there are likely to be a greater number of disposal nappies in the waste stream given that 10.7% of the population is 4 years or younger (StatsSA, 2011).¹³

Other items of hazardous waste included batteries and fluorescent tubes, as well as liquids such as oil, paint and detergents. Although this waste is a minimal percentage of the waste stream, it is still concerning and should not be entering the domestic waste stream

¹³ Despatch 8.8% and PE 9,6%

E-waste

The e-waste fraction was very small and comprised <1% of the waste stream in all the areas. It is notable that e-waste is more prevalent in the lower consumer area of Kwanobuhle, which could be attributed to the use of wheelie bins in this area as it is easier to dispose of large size items such as old TVs, radios or other e-waste in the bins. Previous studies did not categorise e-waste as a separate item but likely included it under the category of hazardous waste. In order to allow a comparison with previous studies, the e-waste component in this survey was recorded separately but included in the hazardous waste category during analysis.

Metal

The results for metals are consistent for all three (3) areas and average 2.5% of the total waste stream. Non-aluminium cans made up the majority of the metal fraction. In all three areas, the percentage of aluminium waste collected forms a very small component of the overall metal waste stream. It is likely that given the high recycling value of aluminium that these items are donated to schools and other organisations.

Construction waste

Construction waste was negligible, making up less than 0.5% of the total waste stream. However, it should be noted that a significant amount of illegal dumping is taking place in NMBM, most of which is construction waste.

Liquid waste

Liquid waste was not previously assessed by other surveys. This category consisted of liquids decanted from discarded containers in the waste and made up 1% of the total waste stream. The highest amounts recorded were in the Summerstrand area and it is not clear if there is a correlation with the high glass component in this area. However, it is concerning that liquid is found in the waste stream as it means it is deposited at landfill that contribute to leachate. As this can be considered as hazardous waste, the fraction was added to the hazardous waste category for classification purposes.

4.3.2 Recyclable vs Non-recyclable

The waste characterisation study set out to determine a representative composition of the domestic waste stream in NMBM. The findings confirm that there is a significant volume of recyclable material in the current waste stream. This offers a considerable opportunity to reclaim and recycle waste and to thus reduce the total amount of waste going to landfill. This is in line with the National Waste Management Strategy (NWMS 2020). For the purposes of this section, recyclable waste refers not only to those materials commonly and commercially recycled, but also to those that could conceivably be removed from the current domestic waste stream to reduce the pressure on landfill.

The most prominent fraction of the waste stream that are not recyclable is the fraction labelled as “Other”, comprising 26% of the total waste fraction. This does not differ significantly between areas and should be seen as what makes up the bulk of a domestic waste stream that would go to landfill.

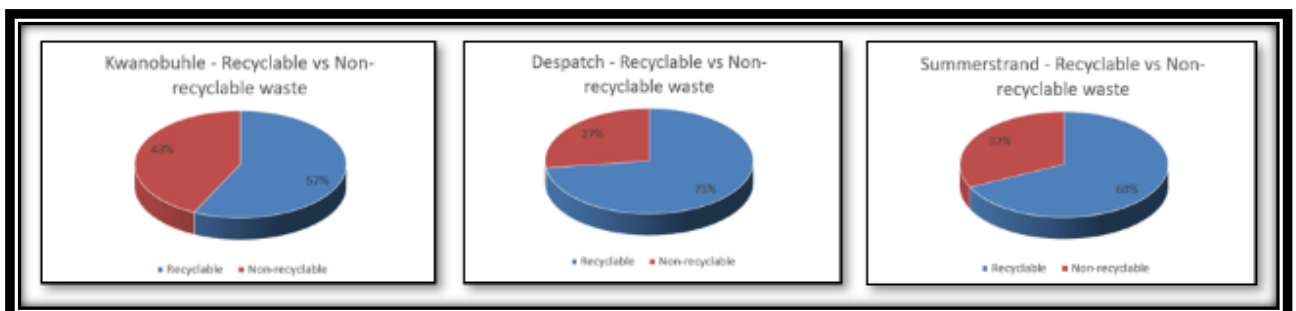


Figure 14: Comparative assessment of Recyclable vs Non-recyclable waste per consumer group

The other significant component is the “Organic” fraction that can be seen as recyclable, as per the definition and discussed above. The bulk of the organic fraction could be used to make products such as compost. This type of “waste to beneficial use” concept is very much in accordance with the recommendations in the NWMS (2020). From Waste Characterisation report (Appendix G), it is thus clear that the waste stream could be reduced by nearly two-thirds ($\pm 65\%$) via recycling; which would culminate in reduced volumes of waste to be collected and disposed of, reduced number of collection trips and the saving of landfill airspace, which in turn would contribute to major cost savings for the NMBM.

4.3.3 Waste generation and reporting

The Waste Management Sub-Directorate manages its data and records in-house. All data is saved on a central server. They have in-house GIS ability and use GIS to map waste infrastructure and services like street sweeping, refuse rounds and disposal facilities. GIS is used for the mapping and monitoring of illegal dumping hot spots. The GIS information is linked to quarterly illegal dumping audits.

Waste disposal tonnage records are collected at the landfill sites using electronic weighbridges and the weighbridges are connected to a central server in the Lillian Diedericks Building. Data is submitted to the South African Waste Information System (SAWIS)¹⁴ monthly in terms of the adopted waste categories for reporting (Table 11).

Table 11: SAWIS waste categories used for monthly waste disposal reporting

SAWIS WASTE CATEGORIES			
Description	Category	Description	Category
Municipal waste	GW01	Paper	GW50
Commercial and industrial waste	GW10	Plastic	GW51
E-waste	GW18	Glass	GW52
Garden waste	GW2001	Metals	GW53
Wood waste	GW2003	General: Other	GW99
Construction and demolition waste	GW30	Hazardous: Waste oil	HW0701

The SAWIS was developed in 2005 by the then DEA as a method for reporting waste information. The public, industry, businesses and the government can all access waste information on the SAWIS. The NMBM has been reporting waste management activities on the SAWIS since their involvement in a DFFE pilot project in 2006.

Hazardous waste is listed on the SAWIS, however, the NMBM does not accept hazardous waste at any of the existing landfills and is therefore not reporting any tonnages on the SAWIS¹⁵. The facility ceased to receive hazardous liquid waste at the end of June 2018, as clients did not respond to the request to provide the Municipality with the chemical analysis of the waste that they dispose. All hazardous waste is disposed at the Aloes Facility that is under management of EnviroServ.

Future waste trends, in terms of quantities for the planning period, should be estimated using the information collected on the domestic waste generation rates per capita for each socio-economic category/type i.e. the population, population distribution, and commercial and industrial waste generation rates. In this instance, the information is taken as it is from section 4.2.

¹⁴ Government Notice Regulation 625 of 2013, National Waste Information Regulations in Terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) gives guidance on the waste types which should be reported on the South African Waste Information Centre (SAWIC).

¹⁵ This was confirmed in writing from DFFE in March 2021

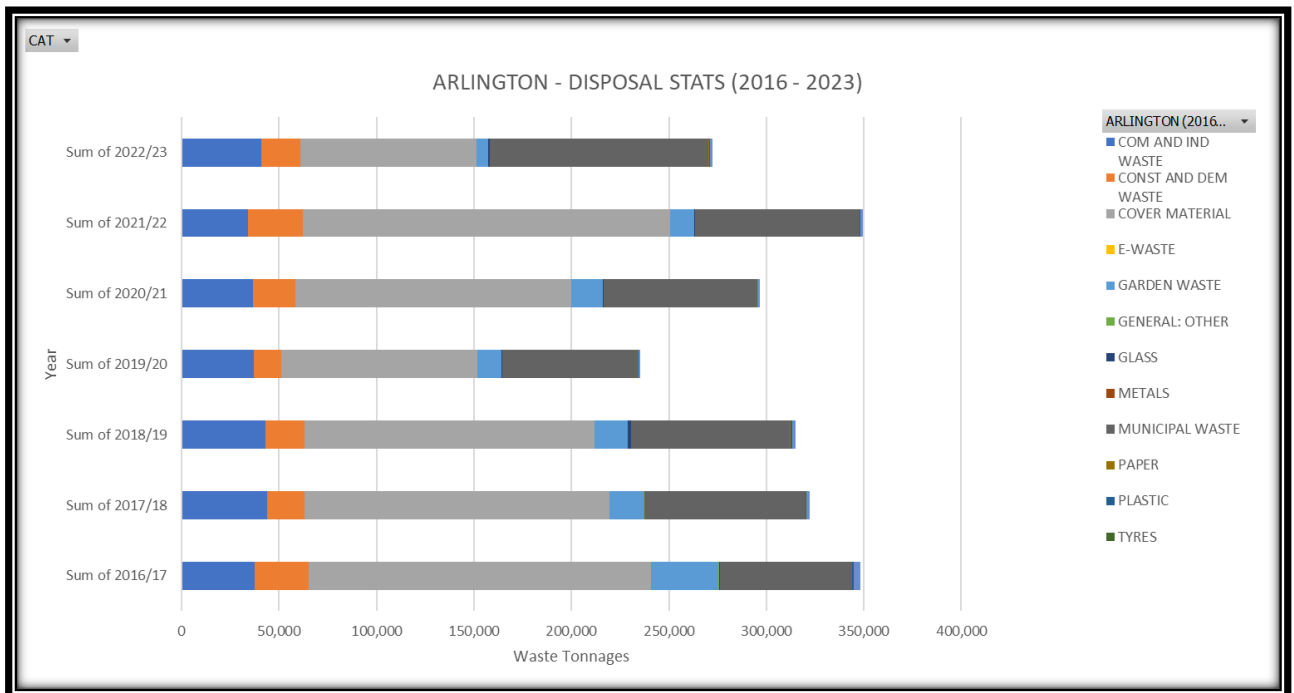


Figure 15: Arlington Disposal Statistics 2016-2023

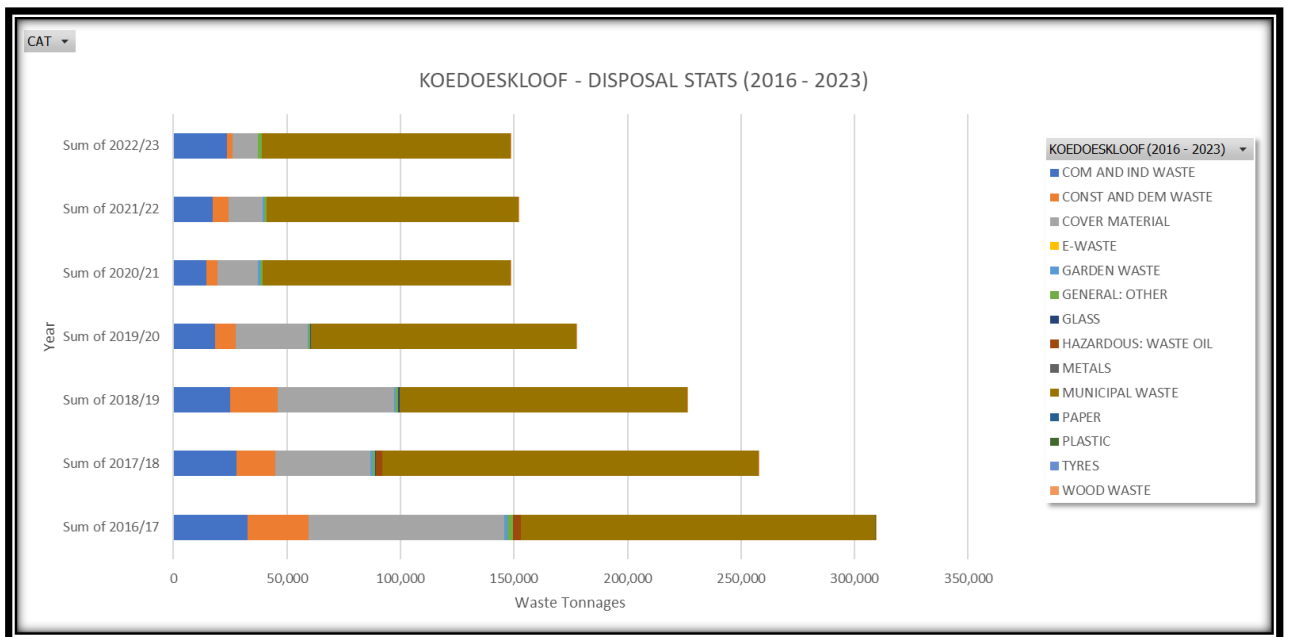


Figure 16: Koedoeskloof Disposal Statistics 2016-2023

Table 12: Total tonnages at all landfills for 22/23 period per waste category

MONTHLY TOTALS PER WEIGHBRIDGE CATEGORIES (2022-23)															
Description	Category	July (kg)	Aug (kg)	Sept (kg)	Oct (kg)	Nov (kg)	Dec (kg)	Jan (kg)	Feb (kg)	Mar (kg)	Apr (kg)	May (kg)	June (kg)	Total kg	Total tons
Cover material	CM	14,580,500	17,867,180	13,426,800	15,824,540	16,951,000	4,099,180	2,964,000	4,936,000	3,840,000	1,949,500	2,405,000	2,697,500	101,541,200	101,541
Recycling recovered	GW00	192,520	103,460	97,820	88,240	39,240	28,080	0	0	0	0	0	0	549,360	549
Municipal waste	GW01	12,753,800	17,132,640	18,828,300	22,963,040	20,256,620	20,308,940	19,699,400	18,289,500	19,602,000	16,911,001	17,203,400	17,794,500	221,743,141	221,743
Commercial and industrial waste	GW10	4,765,700	4,669,880	5,074,680	5,193,480	6,057,180	4,862,900	5,273,400	5,296,500	6,037,500	5,526,000	6,052,500	5,961,000	64,770,720	64,771
E-waste	GW18	0	1,240	0	200	0	0	0	0	0	0	13,500	0	14,940	15
Garden waste	GW2001	788,220	896,740	830,100	895,460	1,043,740	532,660	280,000	300,000	285,000	157,000	156,500	84,000	6,249,420	6,249
Wood waste	GW2003	86,000	114,540	111,600	239,960	146,900	35,560	184,500	82,500	93,500	51,500	101,500	127,000	1,375,060	1,375
Construction and demolition waste	GW30	2,794,980	2,939,500	3,280,460	2,301,980	2,685,460	1,487,320	939,500	902,000	1,779,500	877,500	1,151,500	1,081,500	22,221,200	22,221
Paper	GW50	21,140	21,780	36,360	22,040	36,040	3,260	16,000	21,000	39,500	15,500	19,500	32,000	284,120	284
Plastic	GW51	39,100	29,760	24,200	16,760	15,460	6,920	13,500	37,000	31,000	13,000	34,000	43,500	304,200	304
Glass	GW52	28,180	18,640	73,200	35,460	50,680	23,620	12,500	14,500	25,000	6,500	16,500	200,000	504,780	505
Metals	GW53	820	0	1,260	1,620	0	0	0	2,000	2,500	0	4,000	0	12,200	12
General: Other	GW99	82,860	197,820	96,100	30,040	42,500	70,500	146,000	163,500	195,000	206,000	238,500	198,500	1,667,320	1,667
Total		36,133,820	43,993,180	41,880,880	47,612,820	47,324,820	31,458,940	29,528,800	30,044,500	31,930,500	25,713,501	27,396,400	28,219,500	421,237,661	421,238

4.4 Status of waste collection services

Different forms of waste collection and transportation services are provided in NMB as discussed in the sections below. These include:

- Domestic waste collection
- Commercial waste collection
- Hazardous waste collection
- Health care risk waste
- Community entities
- Waste transporter contractors
- Waste drop-off facilities
- Waste receptacles

4.4.1 Domestic Waste Collection

The collection of waste is a basic service that has a significant impact on public health and the appearance of the city. Despite the increasing population and waste quantities the Municipality is striving to provide adequate services.

Majority households (90.8%) within the build-up urban footprint¹⁶ are provided with a weekly domestic collection service by the NMBM. The remaining 9.2% (including informal households on privately owned erven and erven not earmarked for human settlements development) take their refuse to the nearest drop-off sites (StatsSA, 2022).

Table 13: Summary of waste collection services provided by NMBM (StatsSA, 2022)

Service	No. of households	% of households
Refuse removed at least weekly	326 182	90.80
Using a communal collection point	24 032	6.69
Other refuse disposal (farms)	9 198	2.51
Total	359 412	100

The formal refuse service for households is a weekly kerbside waste collection service of plastic bags and wheelie bins which must be placed at the nearest road for collection on scheduled days for each area as shown in Annexure H. All areas have a collection schedule for an effective and efficient collection system. Community entities were previously utilised to service households where the Municipality has challenges to render waste collection service. The contractors use their own transport to collect waste within the assigned area to the closest municipal waste facility. By utilising the community entities, the directorate contributes to job creation amongst the poor communities¹⁷.

Some of the biggest challenges for the NMBM's Waste Management Sub-Directorate includes illegal dumping, inadequate airspace at landfills and inadequate refuse collection abilities¹⁸.

¹⁶ Excluding informal areas on privately owned erven and erven not earmarked for human settlement development

¹⁷ These are not currently functional

¹⁸ Collection abilities are hampered by lack of vehicles due to old age and slow procurement processes. Excluding informal areas on privately owned erven and erven not earmarked for human settlement development.

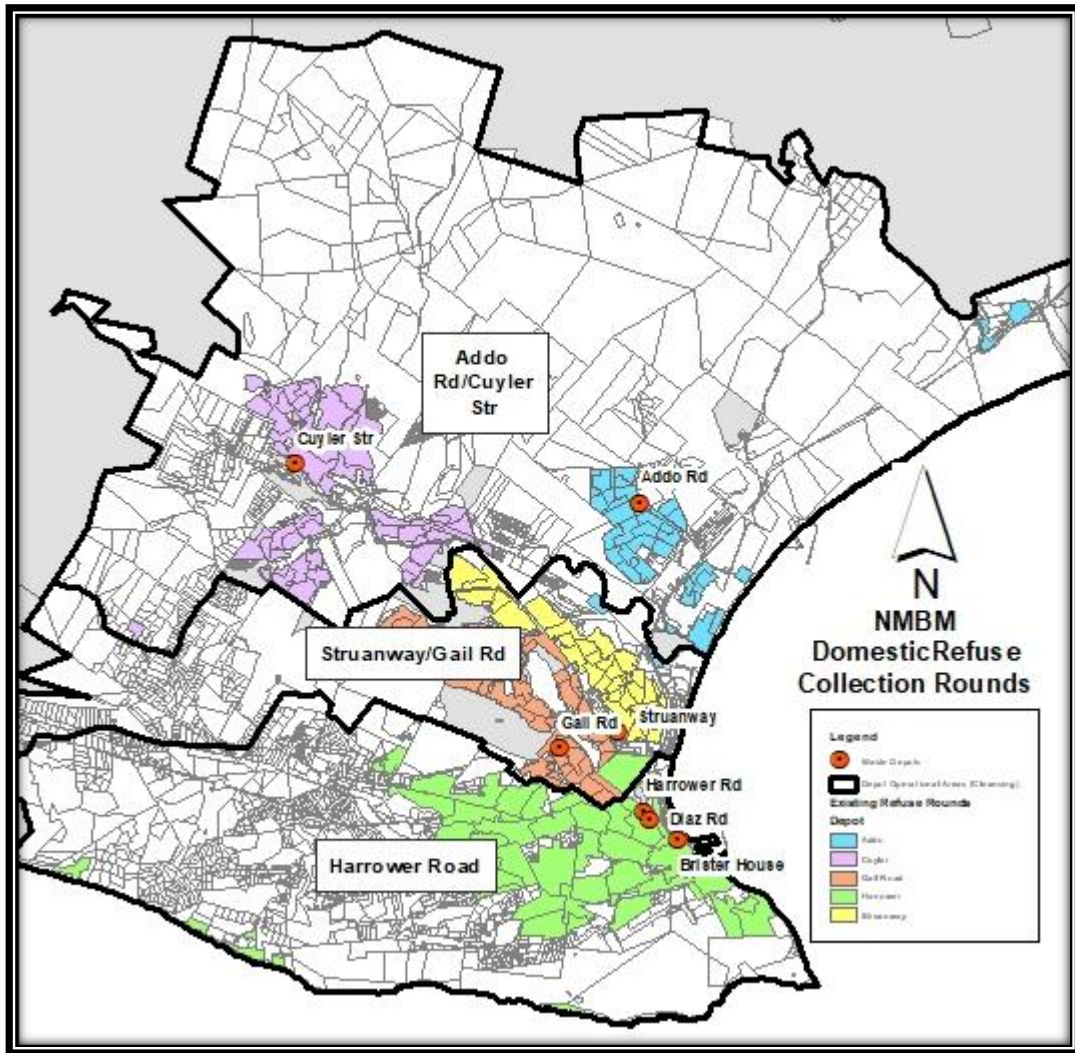


Figure 17: Existing collection rounds in NMBM (Diagram courtesy of NMBM GIS)

Waste drop-off facilities

The NMBM developed a master plan for current and future facilities (Gibb, 2016). Table 14 provides a list of the different types of waste drop-off facilities currently in use in the NMBM. The locations of all drop-off facilities are available in Annexure C. Although these facilities are earmarked to only receive garden waste, bulky waste and source separated recyclables, experience has shown that general domestic waste and trade waste is also disposed at these facilities due to lack of effective management. Majority of these facilities require infrastructure improvements, staff and management control. Kragga Kamma & Gillespie are the two upgraded and licensed sites.

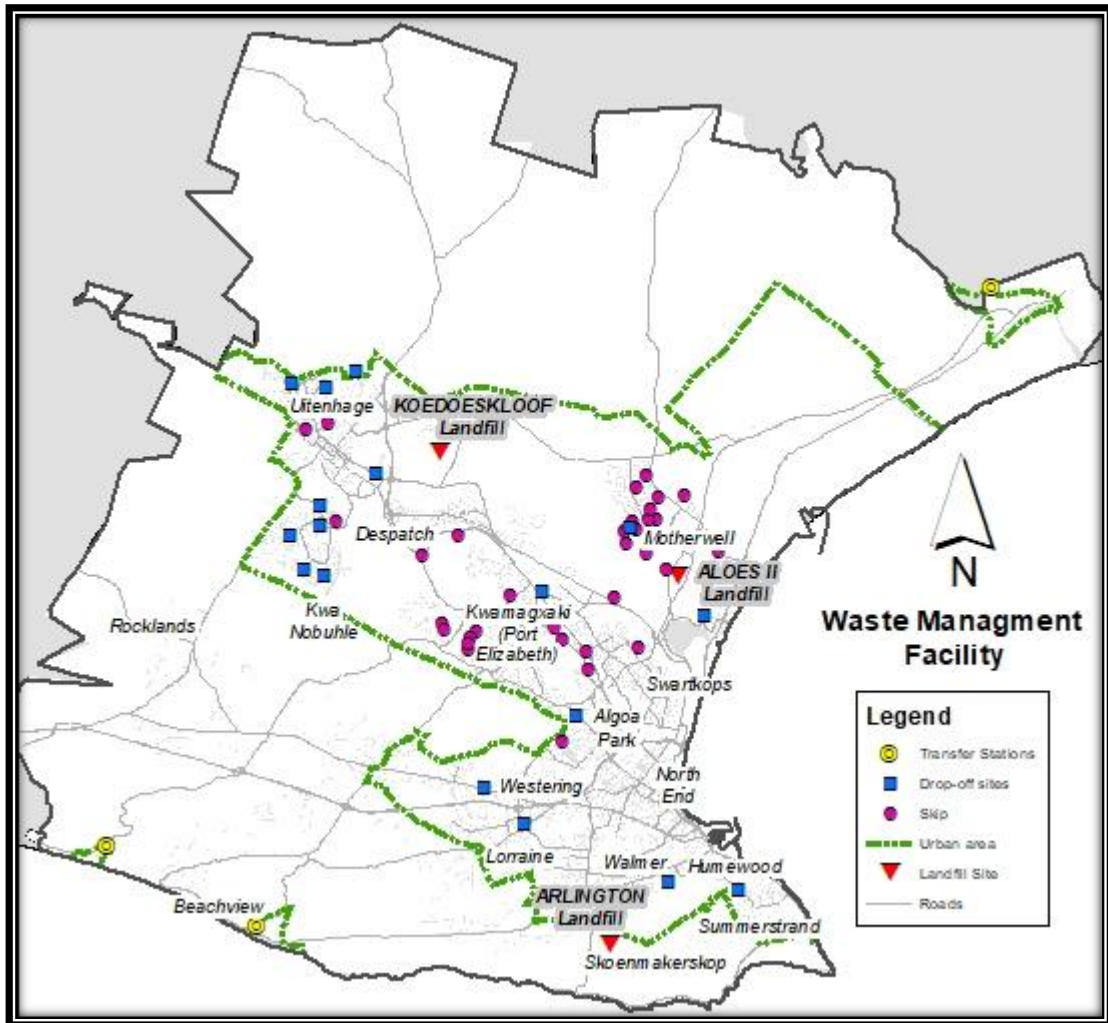


Figure 18: Location of waste drop-off facilities in NMBM (Diagram courtesy of NMBM GIS)

Table 14: Description of the various types of waste transfer facilities currently in use in the NMBM

Facility type	Description
Temporary skip sites	These are large bulk skips placed in communities for receiving only surplus garden waste and bulky waste, which is not collected as part of the household collection service. These skips are provided in an attempt to discourage illegal dumping. The skips are not permanent features and are moved by the NMBM as required. These skips are typically not manned in the NMBM. There are 27 temporary skips across the NMBM.
Communal collection points	These are large bulk skips placed in communities for receiving garden waste, bulky waste and general domestic waste. The NMBM places these in a centralised point in informal areas where a door-to-door refuse collection is not possible (often due to poor road infrastructure). Currently there are none of these communal collection points in the NMBM.
Recycling points	Small facilities where the public can drop off separated recyclables. They typically consist of 3 or 4 small separate bins only for recyclables. In the NMBM they are currently provided by private organisations such as certain garages, churches and supermarkets. As defined in the National Domestic Waste Collection Standards (GN21 of 2011), these facilities are to be accessible and clean and are considered important for reinforcing the recycling behaviour in the city. The current facilities in the NMBM are all privately managed.

Facility type	Description
Drop-off centres	These are municipal facilities where the public is able to drop off garden waste, bulky waste, and source separated recyclable. These are formal, constructed sites with vehicle access ramps, receiving skips and are manned and fenced. The facilities were previously referred to as Garden Refuse Transfer Stations. These sites are for residents only and trade waste is not accepted. There are 18 such facilities in the NMBM. Allowance was made for recycling at Hunters Retreat and Kragga Kamma drop-off facilities.
Transfer stations	These municipal facilities are similar to the above in design, but in addition to accepting garden waste, bulky waste, and source separated recyclable, they also accept general domestic waste. These are typically in outlying areas that is a distance from the two (2) landfill sites. The municipal collection service uses these sites for transferring collected waste into bulk transportation vehicles before sending waste to landfill. There are two (2) such facilities in the NMBM, namely Colchester and Blue Horizon Bay. Seaview, Colchester and Hunters Retreat are also earmarked for future transfer stations.

Table 15: Facilities in NMBM

Facility name	Area	Type of facility	Status
Tambo	Uitenhage/Kariega	Drop-off centre	Formal
Gillespie	Uitenhage/Kariega	Drop-off centre	Formal
Verwoerd	Uitenhage/Kariega	Drop-off centre	Formal
Laksman	Rosedale, Uitenhage	Drop-off centre	Formal
Jolobe	Kwanobuhle	Drop-off centre	Formal
Zolile	Kwanobuhle	Drop-off centre	Formal
Sarili	Kwanobuhle	Drop-off centre	Formal
Ngeyakhe	Kwanobuhle	Drop-off centre	Formal
Nthambanani	Kwanobuhle	Drop-off centre	Formal
Ralo Street	Kwamagxaki	Drop-off centre	Formal
Hunters Retreat	Hunters Retreat	Drop-off centre	Formal
Kragga Kamma Road	Sunridge Park	Drop-off centre	Formal
5th Avenue	Walmer	Drop-off centre	Formal
Strandfontein Road	Summerstrand	Drop-off centre	Formal
Stanford Road	Helenvale	Drop-off centre	Formal
Blue Water Bay (Tippers Creek)	Blue Water Bay	Drop-off centre	Formal
Umnulu	Motherwell	Drop-off centre	Formal
Blue Horizon Bay	Blue Horizon Bay	Transfer station	Formal
Sea View	Sea View	Future transfer station	Informal
Colchester	Colchester	Future transfer station	Informal

Waste receptacles

The National Domestic Waste Collection Standards (GN 21, Jan 2011) refer to appropriate standards for collection receptacles, and these should be adhered to. At present, several receptacles, particularly those bulk containers at drop-off centres, are dilapidated.

4.4.2 Commercial Waste Collection

The NMBM provides a collection service for trade waste generated by businesses, schools, flats, shops, offices and town house complexes with the exclusion of hazardous or industrial waste.

All waste generated by business is classified by the NMBM as “business waste”. This includes:

- All waste generated during business operations. An example is a grocery store or ‘spaza shop’ that will generate packaging waste such as boxes and plastic wrapping after new products are taken out of packaging for re-sale. This includes all aspects of running the business from the office work to the cleaning.
- Waste generated by employees and visitors at the business premises.

The owner of the building/landlord or the person occupying/renting the building for business can apply for a “trade” refuse removal contract.

4.4.3 Hazardous Waste Collection

The NMBM does not presently manage hazardous waste facilities. Collection and transportation are managed by private companies as discussed in section 4.4.6. Certain types of hazardous waste such as batteries and fluorescent light bulbs can however be dropped off at various retail outlets such as Makro, Builders Warehouse and Pick & Pay. Bulk volumes of these items are being managed through private waste management companies such as EnviroServ, X-treme Projects and Oricol. The NMBM waste transporter database can also be consulted (see section below).

4.4.4 Health Care Risk Waste

The waste characterisation survey found that health care risk waste (HCRW) constituted 90% of the hazardous waste in the areas surveyed. There are no licensed, commercial HCRW treatment facilities in the NMBM and hence most of this waste is transported to facilities outside the NMBM, including to the Western Cape and East London for treatment in a private autoclave facility.

4.4.5 Waste Transporter Contractors

The NMBM established a waste transporter register in line with the NMBM waste bylaws, promulgated on 24 March 2010. All companies or individuals providing a commercial service as a waste transporter must be registered with the NMBM Waste Management Sub-Directorate. Additional requirements of transporters registered on the database are to keep weighbridge receipts for a period of 12 months and to provide clients with receipts for the volume and type of waste that is collected and subsequently disposed of (see <https://www.nelsonmandelabay.gov.za/page/my-waste>).

4.5 Waste recycling, treatment and disposal

4.5.1 Waste recycling¹⁹

Pillar 2 of the 2020 National Waste Management Strategy - Effective and Sustainable Waste Services requires municipalities to implement separation at source initiatives such as providing for a separate service or kerbside collections. The NMBM identified unsatisfactory levels of recycling as a priority issue in 2005 and 2016. The NMBM has since launched several initiatives. The Public Perception Survey (PPS) undertaken for this IWMP indicated a demand by the public that recycling should be implemented in the NMBM. The NMBM does not see recycling as a core function and therefore have not implemented a formal recycling programme.

The NMBM has undertaken various initiatives to promote recycling and actively create an enabling environment for the private sector to initiate such initiatives. Given the substantial investment required to develop recycling infrastructure, the NMBM has historically not budgeted for developing such facilities. The only recycling facilities is the Kragga Kamma and Hunters Retreat drop-off centres. Recycling is currently limited to private sector initiatives. There are several small recycling companies operating in the NMBM, the majority of which sell recyclables in bulk to selected larger organisations. A single private company offers a door-to-door collection service for recyclables at a monthly fee. During the PPS a concern was raised that private recyclers may lose their current income should formal recycling commence in the NMBM. Therefore, it is important to involve existing recyclers where possible, but at the same time be wary that future bigger communal projects are not hijacked by a few for personal financial gain.

The lack of a formal recycling programme is also evident in the available waste collection data, which shows that only 0.49% of the 503 845 tonnes of general waste taken to landfill sites, was recycled during the period from July 2021 up to June 2022²⁰.

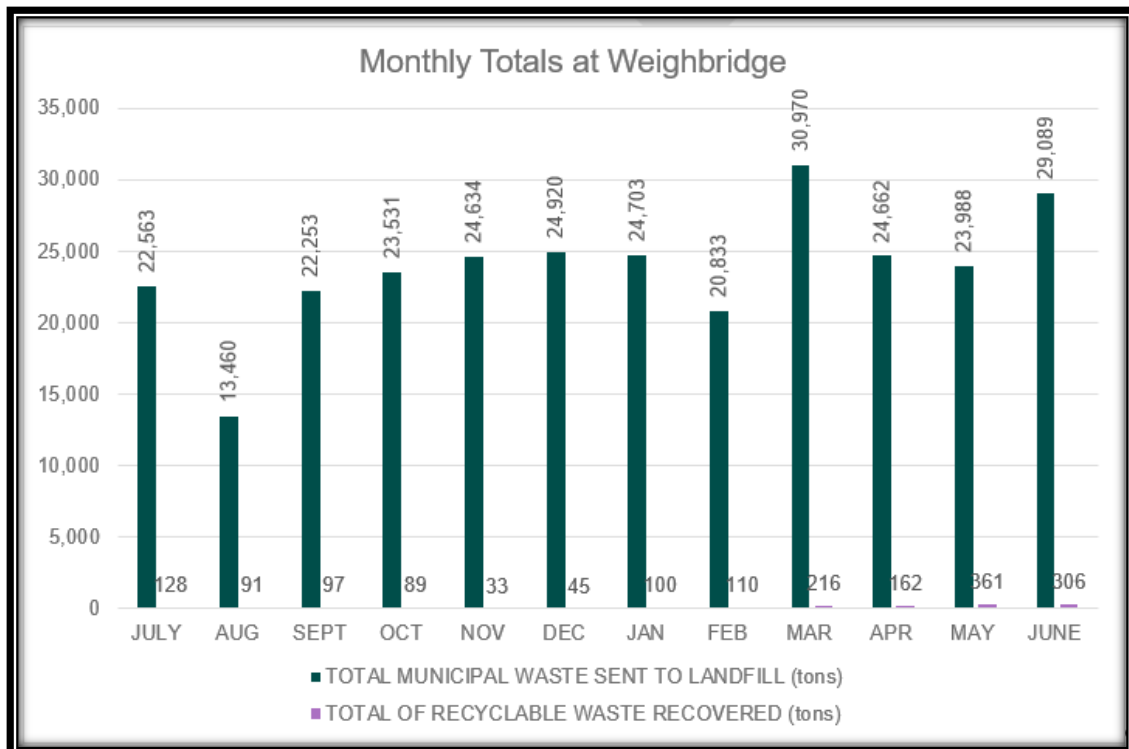


Figure 19: Figure showing recycled waste in comparison with landfilled waste from July 2020 to June 2021

¹⁹ This information is based on data collected during 2016-2020 IWMP, overall recyclers were not keen to share information that would be captured in a public document.

²⁰ Data not available due non-functioning weighbridges

4.5.1.1 Recycling initiatives

Recycling at Landfills

Formal and informal recycling occurs at both Arlington and Koedoeskloof landfill sites. The NMBM awarded tenders to formalise recycling at Koedoeskloof. The recycling at the landfill sites will be managed by a service provider who will employ and manage pickers.

Formalising recycling at the site will reduce the number of informal recyclers and reduce health, safety and security problems. Pickers will be required to wear a PPE and a highly visibility vest and will only be permitted to work on designated areas of the landfill site (e.g. area where compactors and vehicles are not operating in).

Collection from the waste body is not efficient as only small volumes of recyclables are removed. Most recyclables are buried by new waste and the recyclables collected in this way are of low quality as they are contaminated by other waste types.

Separation at Source (S@S)

Valuable lessons were learnt through the collapse of the Blue Horizon Bay project and a similar project needs to be implemented in an alternative area to fully understand its feasibility. Areas will be identified through pre-determined criteria and by using the Waste Characterisation Study results to identify areas that will generate enough recyclables. It is the practice of separating recyclable materials from general waste at the point of generation (e.g. in your home) to prevent it from entering the general waste stream that is destined for a landfill site. It is a way to prevent dry recyclable waste from becoming contaminated and ending up at a landfill site.



Figure 20: S@S pilot project launch

Households participating in a Source Separated Recycling initiative receive separate bags, i.e. a clear/coloured bag for dry recyclable material and a black bag for all other general waste. Phase 1 is conducted in a portion of Ward 9, comprising of the suburbs of Westering/Linton Grange/ Bramhope/Taybank/Moregrove. The area consists of approximately 2000 households and the project commenced in October 2021. There is cooperation between the sub-directorate, waste pickers and residents to assist with a seamless process. A total of 103 tons of recycling material were diverted from the landfill site during the start of the project in October 2021 to December 2024.

4.5.1.2 Commodities recycled

This section will focus on commodities recycled and as there is limited statistics on recycling volumes, for that purpose the statistics received from Kragga Kamma will be interpreted and compared with data from S@S and waste characterisation. Where relevant, the information sourced during the 2016 IWMP will also be used.

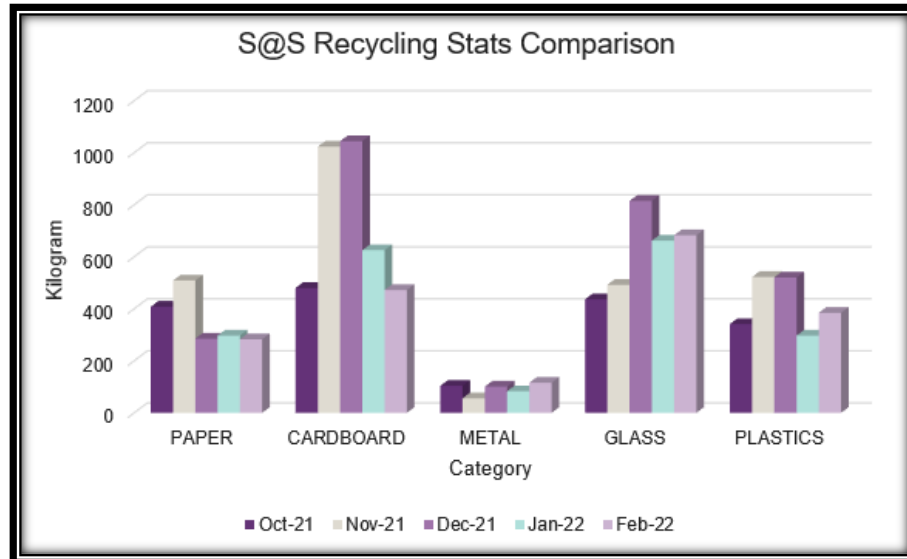


Figure 21: S@S pilot project material recycled (Courtesy of NMBM)

Table 16: Commodities recycled at Kragga Kamma

Month	HL1 / Wit	K4 - C/Box	S/Mix	CMW	F/N	Shrink	Mag	Alu cans	Cans	Plastic	HD	Tetrapak	Hard Plastic (PP)	Glass	Clear PET	PET	E WASTE	TOTAL
January	580	4200	0	0	0	0	0	40	460	205	317	455	100	7640	1100	129	0	15226
February	260	4160	0	0	0	0	0	120	100	47	114	311	148	5000	640	140	0	11040
March	600	4220	0	0	0	0	0	320	0	60	177	150	13	8880	1100	563	0	16082
April	641	5020	0	0	0	0	0	8	280	38	196	109	113	6540	1320	42	0	14306
May	700	3920	0	0	0	0	0	50	233	154	248	170	42	7480	926	79	0	14000
June	540	5180	0	0	0	0	0	100	249	32	174	216	63	7920	788	177	0	15438
July	940	7500	0	0	0	0	0	63	219	98	170	156	57	4260	521	348	0	14330
August	926	3480	220	0	0	0	0	11	258	105	214	276	51	9020	671	336	0	15565
September	1301	2060	0	0	920	0	260	64	193	111	175	152	74	6580	760	122	0	12770
October	420	6060	0	0	360	0	140	8	420	120	261	191	40	6140	1574	272	0	16004
November	580	4960	0	0	660	0	60	29	220	57	298	164	40	6480	820	159	0	14526
December	720	5400	180	0	780	0	480	0	260	30	272	135	75	9260	367	619	0	18576
TOTAL in kg	8208	56160	400	0	2720	0	940	813	2890	1054	2614	2483	813	85200	10585	2983	0	177862
% of total recycle stream	4.6 %	31.6%	0.2%	0.0%	1.5%	0.0%	0.5%	0.5%	1.6%	0.6%	1.5%	1.4%	0.5%	47.9%	6.0%	1.7%	0%	

4.5.1.3 Existing recycling facilities

Arlington and Koedoeskloof landfill sites

The NMBM previously awarded a contract for recycling at the Arlington and Koedoeskloof landfill sites, but this contract expired²¹ and was only advertised in 2021. The aim of formalising recycling at the landfill sites is to reduce the number of informal pickers, and improve health, safety and security. Table 17 presents details of the waste salvages from Arlington and Koedoeskloof as was reported up to December 2014, as contracts were not renewed. The latest figures are not available.

Table 17: Quantities (tons) of recyclables salvaged from Arlington and Koedoeskloof landfill sites

Category	Arlington		Koedoeskloof		Combined
	Annual total (tons)	Monthly average (tons)	Annual total (tons)	Monthly average (tons)	Annual total combined (tons)
Light steel	141.5	11.8	134.9	11.2	276.4
Light steel cans	149.4	12.5	127.7	10.6	277.1
Heavy steel	124.2	10.3	127.6	10.6	251.8
Copper	5.6	0.5	8.4	0.7	14
Aluminium	3.1	0.3	2.2	0.2	5.3
Stainless steel	2.5	0.2	6.9	0.6	9.4
Lead	1.8	0.1	2.1	0.2	3.9
Lead battery	1.9	0.2	3.4	0.3	5.3
Brass	3.0	0.3	9.6	0.8	12.6
Zinc	1.7	0.1	4.	0.4	6.2
Cardboard	166.9	13.9	120.4	10.0	287.3
Empty bottles	-	-	18.6	1.6	18.6
PET	-	-	22.	1.9	22.9
Paper	101.2	8.4	34.3	2.9	135.5
Plastic	27.4	2.3	32.9	2.7	60.3
TOTAL	730.2	60.9	656.2	54.7	1,386.4

In 2021/22 approximately 322 143 tonnes²² of waste were disposed at the Arlington and Koedoeskloof landfill sites (see Section 4.6.3). Only 1 739 tonnes²³ of this waste were removed for recycling. Less than 0.39%²⁴ of waste disposed of at the landfill site are being recycled.

²¹ The tender was advertised in 2021 and an appointment was only made at Koedoeskloof.

²² 2014 this figure was 571,483 tonnes

²³ 2014 this figure was 1,386.4 tonnes

²⁴ 2014 this figure was 0.25%

Private sector recycling

Some of the larger recycling companies active in NMBM are Cannibal Recycling Company, The Waste Trade Company, Comwaste, Buhle Waste, Interwaste and Greencycle. The Iqayialethu Primary Co-operative Limited (Zone 6 Coega SEZ) and Helenvale Recyclers (Gail Road Depot) are also registered private recyclers. A detailed map of registered recyclers and facilities are available on the Sustainable Seas Trust website (<https://sst.org.za/maps/recycling-and-waste-locations/>). All sites are added and maintained by recycling companies, private citizens and government agencies. It shows recycling for paper, cardboard, glass, plastic, cans, tins, carton, metal, and e-waste.

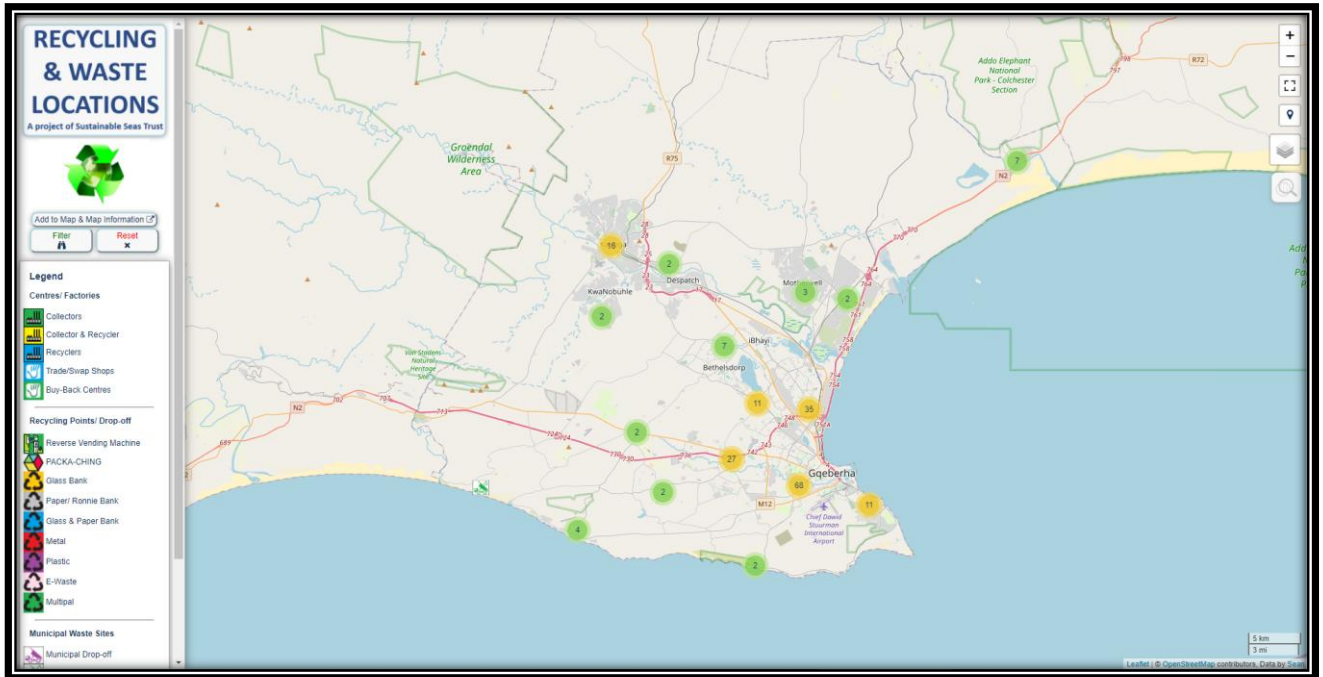


Figure 22: Interactive map on Sustainable Seas Trust website (<https://sst.org.za/maps/recycling-and-waste-locations/>)

Driftsands composting facility

A municipal composting facility was constructed at the Driftsands WWTW in Gqeberha/Port Elizabeth, with the intention of generating compost for use by the NMBM. The facility operated for a short period of time post construction but has since stalled due to operational challenges and a skills shortage.

Hazardous waste recycling

The NMBM does not currently provide any recycling services or facilities for hazardous waste. Certain types of hazardous waste such as batteries and fluorescent light bulbs can be dropped off at certain private companies and retailers. In addition to EnviroServ (discussed under Section 4.5.2), Oricol Environmental Services owns a treatment facility in Uitenhage/Kariega and are treating the following:

- Liquid waste in an organic or inorganic liquid treatment plant
- High hazardous waste using thermal destruction
- Contaminated soils using microbial treatment or thermal destruction

E-waste recycling

The e-Waste Association of South Africa (eWASA) was established in 2008 and manages the e-waste industry in South Africa. According to eWASA, there are three e-waste drop-off points within Gqeberha/ Port Elizabeth,

including two private companies²⁵ and one at WESSA. There are also two private companies who recycle components of e-Waste. In addition, there are several private e-waste collection points.

NMBM entered into a Memorandum of Understanding (MOU) with eWASA for a period of twelve (12) months in order to manage the establishment of a sustainable environmentally sound e-waste management system for the Public Health Directorate (Solid Waste Management). An item will be submitted to council to have this MOU extended for another twenty-four (24) months.

4.5.2 Treatment and disposal facilities

The NMBM does not operate any waste treatment facilities. Commercial waste treatment facilities in the NMBM are limited to that at the Aloes hazardous landfill (chemical treatment such as liming) and at the Oricol liquid waste facility in Uitenhage/Kariega. The Uitenhage/Kariega facility treats contaminated or oily liquid waste by chemical dosing or separating out solids using dissolved air floatation. No commercial incinerators or autoclaves are operated in the NMBM.

Currently there are no waste incinerators in the Eastern Cape Province. Private developers have expressed interest in building an operating incinerator. A permitted municipal waste incinerator was previously operated in Eveready Road in Gqeberha/Port Elizabeth but is now closed. The land and the incinerator both belong to the NMBM. Incineration of medical waste used to be undertaken at a small scale at several hospitals and clinics in the area but has generally been shut down due to poor incinerator performance.

Landfill sites

Arlington and Koedoeskloof are the two operational municipal landfill sites used for the disposal of solid waste in the NMBM. Koedoeskloof, which is licensed to receive certain hazardous liquid waste, has been operational since 1984²⁶. Arlington, the largest landfill site in the NMBM, is licensed as a general site, and was opened in 1984 but only started receiving waste in 1987.

The Aloes landfill site is the only H:H landfill in the NMBM and is operated as a commercial site by a private operator. Aloes receives hazardous waste, including cover material, solid industrial, solid hazardous, liquid, sludge liquids and sludge solid waste.

The tables below present further details for the landfills and Figure 18 shows the location of landfill sites in the NMBM.

Table 18: Permitted landfill sites in the NMBM

Landfill site	Previous Class	Waste types allowed	Status	Annual waste received (tons)	Owner
Arlington	G:L:B	General waste	Permit Issued (16/2/7/M 200/D1/Z 1/P278, by the then Department of Water Affairs and Forestry, dated 27 October 1997)	216,000 tons of which 101,000 tons are cover material	NMBM

²⁵PE Metals and eWaste Technologies Africa.

²⁶ Since 2018, NMBM does not accepted hazardous liquid waste at this site

Landfill site	Previous Class	Waste types allowed	Status	Annual waste received (tons)	Owner
Koedoeskloof	H:h ²⁷	The permit was issued for a Class 1 and Class 2 landfill site. General waste and certain hazardous liquid waste, however, hazardous material are no longer accepted at the site. In terms of current legislation (the National Environmental Management: Waste Act No. 59 of 2008, as amended (NEM:WA)) the site is classified as a solid waste disposal site Class B site and may accept Type 2, 3 and 4 waste.	Permit Issued (B33/2/12 00/7/P37) on 24 September 1992 by the then Department of Water Affairs and Forestry (DWAF) (now the Department of Water and Sanitation (DWS)).	106,000 tons of which 14,000 tons are cover material	NMBM
Aloes Hazardous	H:H ²⁸	Privately Owned. Hazardous waste, including cover material, solid industrial, solid hazardous, liquid, sludge liquids and sludge solid waste	Licence issued 28 February 2022	N/A	Enviroserv

Table 19: Permitted private landfill sites in the NMBM (Source: South African Waste Information Centre (environment.gov.za))

Municipality	License No	Facility Name	Description	Waste Classification	Facility Type	Data Awarded	Locality
Nelson Mandela Bay	12/9/11/L221/1	FFS PE	Temporary storage and treatment of hazardous waste	Hazardous	Storage of waste	2010-06-10	Portion 3529 North End
Nelson Mandela Bay	12/9/11/L272/1	General Motors	Temporary storage, sorting and grinding of general and hazardous waste	Hazardous	Storage of waste	2010-05-05	Erf 13, 15 and 16 Sidwell
Nelson Mandela Bay	12/9/11/L151/1	Goodyear	Storage including temporary storage and	Hazardous	Storage of waste	2010-04-09	Erf 17655 Algoa Road,

²⁷ Indicating a "low hazard" site in terms of the 2005 'Minimum Requirements for Waste Disposal by Landfill' guideline.

²⁸ Indicating a "high hazard" site in terms of the 2005 'Minimum Requirements for Waste Disposal by Landfill' guideline.

Municipality	License No	Facility Name	Description	Waste Classification	Facility Type	Data Awarded	Locality
			the sorting, shredding, grinding or bailing of general and hazardous waste				Uitenhage
Nelson Mandela Bay	B33/2/1 300/P44	Kilian Brickfields	Operation of waste disposal site for general waste	General	Disposal of waste on land	1993-01-13	Portion 369 of Farm Strath-somers Estate, Division of Kirkwood
Nelson Mandela Bay	B33/2/1 200/42/P95	Martins - Waste Tech (Pty) Ltd	Operation and development of waste disposal site for general waste	General	Disposal of waste on land	1994-03-29	Erf 561 Farm Wells Estate
Nelson Mandela Bay	12/9/11/P90	The Reclamation Group: Burman Rd Deal Party	Waste disposal site	General	Recycling and recovery of waste	2009-02-27	Erf 553 Swartkops
Nelson Mandela Bay	12/9/11/P93	The Reclamation Group: National Ports Authority Berth 14 Facility	Waste disposal site	General	Disposal of waste on land	2009-02-27	Port Elizabeth Harbour
Nelson Mandela Bay	12/9/11/P91	The Reclamation Group: Pyotte Street Recycling Facility	Waste disposal site	General	Disposal of waste on land	2009-02-27	Division of PE being Lot 12 of Lots 73 and 74 in Village of Korsten
Nelson Mandela Bay	12/9/11/P92	The Reclamation Group: Grahams-town Road Recycling Facility	Waste disposal site	General	Recycling and recovery of waste	2009-02-27	Portion 1 of Erf 3 and remainder of Erf 4, Swartkops
Nelson Mandela Bay	12/9/11/L221/1	FFS Refiners (Pty) Ltd -	Temporary storage and treatment of	Hazardous	Storage of waste	2010-06-10	Portion 3529

Municipality	License No	Facility Name	Description	Waste Classification	Facility Type	Data Awarded	Locality
		Port Elizabeth	hazardous waste				North End
Nelson Mandela Bay	12/9/11/L546/1	Nirove Paint Stripping	Waste storage, wastewater treatment and incinerating of hazardous waste	Hazardous	Storage of waste	2012-01-16	22 Kurland Road, Perseverance, Erf 981 Red-house
Nelson Mandela Bay	12/9/11/L433/1	Fishwater Flats Wastewater Treatment Works	Expansion of wastewater treatment waste and construction of facilities	Hazardous	Effluent, wastewater or sewage treatment works	2013-01-23	Erf 41 Portion 1 Swartkops
Nelson Mandela Bay	12/9/11/L988/1	Kelvin Jones WWTW	Expansion	General	Effluent, wastewater or sewage treatment works	2013-05-30	Erf 137 and Erf 675 Uitenhage
Nelson Mandela Bay	12/9/11/L624/1	Aloes II Waste Treatment Facilities	Storage, recovery and treatment	Hazardous	Treatment of waste	2013-09-23	Portion of Erf 1 Farm Wells Estate 205
Nelson Mandela Bay	12/9/11/L266/1/R1	PPC Cement SA (Pty) Ltd, Port Elizabeth	Licence renewal	Hazardous	Storage of waste	2017-02-14	Erf 13 Swartkops
Nelson Mandela Bay	12/9/11/L1021/1/24G	Cape Produce Company	Treatment and construction	Hazardous	Treatment of waste	2018-07-24	1 Studebaker Street, Markman Industrial Estate
Nelson Mandela Bay	CA/A/2/003/14	Volkswagen motor vehicle manufacturers working group	Sorting, shredding, grinding, crushing or bailing of general waste	General	Recycling and recovery of waste	2015-04-20	Bennet Street, Neave Industrial Area

4.5.3 Available airspace at waste disposal facilities

The Site Development Plans (SDPs)²⁹ for both Arlington and Koedoeskloof were compiled by SRK Consulting between 2015 and 2019. Elias Barnard Consulting (Pty) Ltd was appointed to provide an external review of the Arlington SDP. Based on the review EB Consult pointed out that there was a calculation error in determining the remaining lifespan of the existing Arlington disposal area. Where Phase 1 had to be developed to receive waste in 2027/28 only, the corrected calculations point to around 2022. It was therefore highlighted that the SDP will need to be revised. This has not happened and therefore no accurate forecast is possible. It is however concerning that EB Consult pointed out that airspace will be depleted in 2022.

The SDP for Koedoeskloof indicate that the site will reach capacity in May 2021. This was based on the 2017 data (281 535 tonnes per annum), with a projected 3% annual growth. Given the current waste loads as depicted in Table 14 this might have been over-estimated. However, given the current data of 106 498 tonnes it is likely to run out of airspace before the fourth generation IWMP is compiled. It is therefore urgent that expansion of the landfills be addressed as a priority by the NMBM.

4.6 Institutional management

This section discusses the institutional aspects of the Waste Management Sub-directorate, within the Public Health Directorate. This includes human and financial resources as at the time of the compilation of the report.

4.6.1 Financial resources

Successful urban development can only take place if a city has a stable and sustainable financial base, with a reliable revenue stream and well-thought-out expenditure strategies. The NMBM is struggling to manage their finances effectively. There are two types of budgets:

- ▶ Capital budget deals with major costs that you pay once to develop something. The capital budget puts money aside for planned expenditure on long-term purchases and big investments such as land, buildings, motor vehicles, equipment and office furniture that will be a municipal asset for more than a year.
- ▶ Operating budget deals with the day-to-day costs and income to deliver municipal services. The Municipality's operating budget lists the planned operating expenditure (costs) and income for the delivery of all services to the community. Operating expenditure is the cost of goods and services from which there will be short-term benefit - that is, the services will be used up in less than one year.
- ▶ There are various sources of income that can be used by municipalities to finance their expenditure. This section outlines the various sources of municipal income.

Main sources of capital budget financing

- ▶ External loans - External loans (from a bank or other financial institution) are an expensive form of financing the capital budget because of the high interest rates in South Africa.
- ▶ Internal loans - Many municipalities have internal "savings funds" such as Capital Development Funds or Consolidated Loan Funds. These funds can make internal loans to the municipality for the purchase or development of capital items.
- ▶ Contributions from revenue - When purchasing a small capital item, the small total cost can be paid for from the operating income in the year of purchase.
- ▶ Government grants - Municipalities may apply to national government for grants for infrastructure development. The two main funds available are:
 - CMIP [Consolidated Municipal Infrastructure Programme] – available from the Department of Provincial and Local Government
 - Water Services Projects – available from the Department of Water Affairs

²⁹ Report number 453151/1, SRK, July 2015 & Report number 453151/1, SRK, July 2015

- ▶ Donations and public contributions - Local and foreign donors may sometimes donate a capital item or money to be used specifically for the purchase of a capital item, in a disadvantaged area.
- ▶ Public/Private Partnerships - Capital costs can be paid for by means of partnerships between the private sector and the municipality. In most cases the private sector partner will have a profit motive in the services and capital being financed, so the terms and conditions must be carefully defined, to protect the community's interests.

Main sources of operational budget financing

- Property Rates
- Service Charges/Tariffs (see Figure 23)
- Fines
- Equitable share - The equitable share is an amount of money that a municipality gets from national government each year

See details of actual expenditure based on above revenues in Table 21 below.

Table 20: IDP Budget Requirements (2023 to 2027)

Targets	Capital	Operational
Planning	R5 100 000	R1 300 000
Waste Minimisation	R3 965 000	R1 300 000
Waste Transfer and Disposal	R164 075 000	R35 700 000
Illegal Dumping		R4 400 000
Public Awareness and Communication		R4 000 000
Legislation and Enforcement	R2 500 000	R3 000 000
Staff Development		R3 000 000
Appointment of a Transactional Advisor for the Waste Diversion and Beneficiation Project		R3 500 000
Targets	Capital	Operational
Cleansing Services	R5 100 000	R54 381 676
Refuse Collection Services	R156 000 000	R101 219210
Waste Transfer and Disposal	R250 000 000	R48 269 843
Public Awareness and Communication	R2 000 000	R500 000
	R413 000 000	R204 370 729

Table 21: Audited Actual expenditure 2019/20 (National Treasury, 2019)

No	Item	Code	Function	Amount
1	OPERATING REVENUE	0100	Solid Waste	
2	Property Rates	0200	Solid Waste	
3	Property Rates - Penalties And Collection Charges	0300	Solid Waste	
4	Service Charges	0400	Solid Waste	R192 746 229
5	Rent Of Facilities And Equipment	0700	Solid Waste	R4 233 491
6	Interest Earned - External Investments	0800	Solid Waste	
7	Interest Earned - Outstanding Debtors	1000	Solid Waste	R21 179 607

No	Item	Code	Function	Amount
8	Dividends Received	1100	Solid Waste	
9	Fines	1300	Solid Waste	
10	Licences and Permits	1400	Solid Waste	
11	Agency Services	1500	Solid Waste	
12	Transfers Recognised - Operating	1600	Solid Waste	R112 772 141
13	Transfers Recognised - Capital	1610	Solid Waste	
14	Other Revenue	1700	Solid Waste	R12 080 653
15	Gain On Disposal Of Property, Plant & Equipment	1800	Solid Waste	
16	Total Operating Revenue Generated	1900	Solid Waste	R343 012 121
17	Less Revenue Foregone	2000	Solid Waste	
18	Total Direct Operating Revenue	2100	Solid Waste	R343 012 121
19	INTERNAL TRANSFERS – (must net out with corresp. items under)	2200	Solid Waste	
20	Interest Received - Internal Loans	2300	Solid Waste	
21	Internal Recoveries (Activity Based Costing, etc.)	2500	Solid Waste	
22	Dividends Received - Internal (From Municipal Entities)	2600	Solid Waste	
23	Total Indirect Operating Revenue	2700	Solid Waste	
24	Total Operating Revenue	2800	Solid Waste	R343 012 121
25	OPERATING EXPENDITURE	2900	Solid Waste	
26	Employee Related Costs - Wages & Salaries	3000	Solid Waste	R172 039 148
27	Employee Related Costs - Social Contributions	3100	Solid Waste	
28	Less Employee Costs Capitalised	3200	Solid Waste	
29	Less Employee Costs Allocated To Other Operating Items	3300	Solid Waste	
30	Remuneration Of Councillors	3400	Solid Waste	
31	Debt Impairment	3500	Solid Waste	R60 301 977
32	Collection Costs	3600	Solid Waste	
33	Depreciation and Asset Impairment	3700	Solid Waste	R775
34	Interest Expense - External Borrowings	3900	Solid Waste	R73 470
35	Redemption Payments - External Borrowings (Gamap To Remove)	4000	Solid Waste	
36	Bulk Purchases	4100	Solid Waste	
37	Other Materials	4110	Solid Waste	R14 916 402
38	Contracted Services	4200	Solid Waste	R42 935 539
39	Grants and Subsidies	4300	Solid Waste	
40	Other Expenditure	4400	Solid Waste	R60 211 643

No	Item	Code	Function	Amount
41	Loss On Disposal Of Property, Plant & Equipment	4500	Solid Waste	
42	Contributions To/(From) Provisions	4550	Solid Waste	
43	Total Direct Operating Expenditure	4600	Solid Waste	R350 478 954
44	INTERNAL TRANSFERS - (must net out with corresp. items under)	4700	Solid Waste	
45	Interest - Internal Borrowings	4800	Solid Waste	
46	Internal Charges (Activity Based Costing, etc.)	5000	Solid Waste	
47	Contributed Assets	5010	Solid Waste	
48	Total Indirect Operating Expenditure	5100	Solid Waste	
49	Total Operating Expenditure	5200	Solid Waste	R350 478 954
50	SURPLUS	5300	Solid Waste	
51	Operating Surplus/(Deficit) - Total Revenue Less Total Exp.	5400	Solid Waste	-R7 466 833
52	Taxation	5500	Solid Waste	
53	Operating Surplus/(Deficit) - After Tax	5600	Solid Waste	-R7 466 833
54	Cross Subsidisation	5800	Solid Waste	
55	Plus Interests In Entities Not Wholly Owned	6600	Solid Waste	
56	Surplus/(Deficit) After Tax, Cross Subsidies & Share Of As	5900	Solid Waste	-R7 466 833
57	OTHER ADJUSTMENTS AND TRANSFERS	6200	Solid Waste	
58	Dividends Paid (Municipal Entities Only)	5700	Solid Waste	
59	Asset Financing Reserve (Afr)	6210	Solid Waste	
60	Housing Development Fund	6220	Solid Waste	
61	Depreciation Reserve Ex Afr	6230	Solid Waste	
62	Depreciation Reserve Ex Govt Grants	6240	Solid Waste	
63	Depreciation Reserve Ex Donations And Contributions	6250	Solid Waste	
64	Self-Insurance Reserve	6260	Solid Waste	
65	Revaluation Reserve	6270	Solid Waste	
66	Other	6280	Solid Waste	
67	Change To Unappropriated Surplus/ (Accumulated Deficit)	6700	Solid Waste	-R7 466 833

National Treasury's guideline is that 40% of the capital budget should go to asset renewal. However, the share of capital expenditure that should be spent on renewal will depend on the extent and condition of a city's asset base, backlogs and growth. In the 2019/20 financial period, the NMBM only spend 21%. The percentage share for Solid Waste Infrastructure as part of total capital expenditure by infrastructure category is considered to be 3% by National Treasury. The figure for NMBM is only 1% (South African Cities Network, 2020). The operational budget of Waste Management for the period 2016 - 2024 is depicted in Table 23.

Table 22: Historical and anticipated operational waste management budgets

Category	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024
Employee related cost	R80 389 190	R89 799 360	R96 917 160	R104 599 800	R228 191 720	R234 402 640	R251 879 310	R273 008 820
Impairment - receivables	R88 781 200	R16 733 330	R14 806 830	R12 578 620	R39 646 650	R42 025 450	R41 773 300	R41 310 810
Contracted services	R42 059 550	R49 880 240	R46 714 510	R49 549 380	R58 173 300	R60 077 530	R63 522 520	R67 109 830
Depreciation	R38 833 100	R37 871 620	R42 778 590	R44 917 500	R176 020	R246 430	R261 220	R276 900
Impairment – other	R-	R-	R-	R-	R-	R-	R-	R-
Repairs and maintenance	R1 304 190	R712 550	R1 487 140	R1 576 450	R2 588 770	R2 475 870	R2 652 730	R2 866 300
Finance cost	R40 660	R43 100	R45 660	R48 440	R66 170	R61 870	R57 060	R51 840
General expenses	R41 825 870	R38 647 970	R42 816 410	R45 386 200	R68 464 720	R69 610 600	R71 676 720	R77 375 020
Operating leases	R18 980	R19 710	R20 900	R7 200	R339 660	R362 430	R388 420	R418 110
Inventory	R20 363 380	R17 130 290	R19 098 050	R20 244 020	R11 149 600	R12 455 780	R11 349 800	R9 309 350
Total Operating Cost	R313 616 120	R250 838 170	R264 685 250	R278 907 610	R408 796 610	R421 718 600	R443 561 080	R471 726 980

MISCELLANEOUS FEES AND CHARGES									
	2021/2022	2021/2022	2021/2022	2022/2023	2022/2023	2022/2023	2023/2024	2023/2024	2023/2024
	TOTAL VAT EXCLUSIVE	VAT	TOTAL VAT INCLUSIVE	TOTAL VAT EXCLUSIVE	VAT	TOTAL VAT INCLUSIVE	TOTAL VAT EXCLUSIVE	VAT	TOTAL VAT INCLUSIVE
E. WASTE MANAGEMENT									
(1) TRADE WASTE COLLECTION SERVICE									
(a) Emptying charge per month, for each 85 litre bin or bag cleared once per week	R 104.56	R 15.68	R 120.25	R 109.79	R 16.47	R 126.26	R 117.49	R 17.62	R 135.11
(b) Emptying charge per month, for each 1.1 m3 container cleared once per week	R 986.55	R 147.98	R 1,134.54	R 1,035.88	R 155.38	R 1,191.26	R 1,108.49	R 166.27	R 1,274.77
(c) Domestic animals (cats & dogs) collection per visit	No charge			No charge			No charge		
(d) Hire charges per month for 1.1 m3 container	R 496.97	R 74.55	R 571.51	R 521.82	R 78.27	R 600.09	R 558.39	R 83.76	R 642.15
(e) Provision and removal of bulk containers 30 m3 per lift.	R 680.90	R 102.14	R 783.04	R 714.95	R 107.24	R 822.19	R 765.06	R 114.76	R 879.82
(f) Provision and removal of bulk containers 15m3 per lift.	R 470.79	R 70.62	R 541.41	R 494.33	R 74.15	R 568.48	R 528.98	R 79.35	R 608.32
(2) WASTE DISPOSAL CHARGES (ARLINGTON AND KOEDOESKLOOF WASTE DISPOSAL SITES)									
A. DOMESTIC & COMMERCIAL WASTE CATEGORIES									
(a) MUNICIPAL WASTE	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.17	R 192.78	R 28.92	R 221.70
(b) COMMERCIAL AND INDUSTRIAL WASTE	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.17	R 192.78	R 28.92	R 221.70
(c) ELECTRONIC-WASTE	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.17	R 192.78	R 28.92	R 221.70
(d) WOOD WASTE	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.17	R 192.78	R 28.92	R 221.70
(e) PAPER	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.17	R 192.78	R 28.92	R 221.70
(f) PLASTIC	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.17	R 192.78	R 28.92	R 221.70
(g) GLASS	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.17	R 192.78	R 28.92	R 221.70
(h) METALS	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.17	R 192.78	R 28.92	R 221.70
B. OTHER WASTE CATEGORIES									
(a) CONSTRUCTION AND DEMOLITION WASTE	R 57.53	R 8.63	R 66.16	R 60.40	R 9.06	R 69.46	R 64.64	R 9.70	R 74.33
(b) MATERIAL- BUILDERS RUBBLE SUITABLE TO BE USED AS COVER MATERIAL (brick size and smaller)	no charge			no charge			no charge		
(c) GENERAL- OTHER (Special waste) on application	R 361.69	R 54.25	R 415.94	R 379.77	R 56.97	R 436.74	R 406.39	R 60.96	R 467.35
(d) GARDEN WASTE (equal to or less than 2 tons)	no charge			no charge			no charge		
(e) GARDEN WASTE loads more than 2 tons (Pay for total load that is from 0 to total load)	R 171.57	R 25.74	R 197.31	R 180.15	R 27.02	R 207.18	R 192.78	R 28.92	R 221.70
(3) NOT WEIGHED									
Disposal charges per vehicle load or part load, where there is no weighbridge or when weighbridge is not in use.									
(a) Small vehicles (LDV-bakkie) up to 1 tonne load capacity:									
Refuse	R 86.29	R 12.94	R 99.24	R 90.61	R 13.59	R 104.20	R 96.96	R 14.54	R 111.50
Rubble	R 24.49	R 3.67	R 28.17	R 25.72	R 3.86	R 29.58	R 27.52	R 4.13	R 31.65
(b) Medium vehicles (LDV- Trailer) up to 4 tonne capacity:									
Refuse	R 343.82	R 51.57	R 395.39	R 361.01	R 54.15	R 415.16	R 386.32	R 57.95	R 444.27
Rubble	R 80.79	R 12.12	R 92.90	R 84.83	R 12.72	R 97.55	R 90.77	R 13.62	R 104.39
(c) Large vehicle (TRUCK) up to 7 tonne load capacity:									
Refuse	R 601.80	R 90.27	R 692.07	R 631.89	R 94.78	R 726.67	R 676.18	R 101.43	R 777.61
Rubble	R 161.47	R 24.22	R 185.69	R 169.55	R 25.43	R 194.98	R 181.43	R 27.21	R 208.64
4. Extra large vehicle (TIP TRUCKS, COMPACTORS, ROLL ON ROLL OFF TRUCKS, 30M3 SKIP) over 7 tonne load capacity:									
Refuse	R 859.54	R 128.93	R 988.47	R 902.52	R 135.38	R 1,037.90	R 965.78	R 144.87	R 1,110.65
Rubble	R 242.63	R 36.39	R 279.02	R 254.76	R 38.21	R 292.98	R 272.62	R 40.89	R 313.51
(A) HAZARDOUS WASTE									
(a) NO TREATMENT REQUIRED									
(under 7 m3 load) per tonne	R 609.26	R 91.39	R 700.65	R 639.72	R 95.96	R 735.68	R 684.57	R 102.68	R 787.25
(exceeding 7 m3 load) per tonne	R 609.26	R 91.39	R 700.65	R 639.72	R 95.96	R 735.68	R 684.57	R 102.68	R 787.25
(B) OTHER WASTE									
(under 7 m3 load)	R 3,447.78	R 517.17	R 3,964.94	R 3,620.17	R 543.03	R 4,163.20	R 3,873.92	R 581.09	R 4,455.01
(exceeding 7 m3 load)	R 4,925.37	R 738.81	R 5,664.17	R 5,171.64	R 775.75	R 5,947.39	R 5,534.14	R 830.12	R 6,364.27
5. DOMESTIC WASTE COLLECTION CHARGES									
Domestic Waste Collection Charge per month in formal households	R 132.29	R 19.84	R 152.14	R 138.91	R 20.84	R 159.74	R 148.64	R 22.30	R 170.94
Domestic Waste Collection Charge per month in informal households	R 33.57	R 5.04	R 38.61	R 35.25	R 5.29	R 40.54	R 37.72	R 5.66	R 43.38

Figure 23: 2021-22 Nelson Mandela Bay Municipal Tariff Book

4.6.2 Human resources

4.6.2.1 Organisational and institutional matters

The Administration of the City is currently headed by the (Acting) City Manager. The City Manager is appointed by the Municipal Council and appoints an Executive Management Team to assist in running the administration. The Executive Management Team comprises 10 Senior Managers, each responsible for a portfolio, which largely matches the corresponding political portfolio. The organisational structure of the Municipality is presently being reviewed. The current organisational structure of the whole NMBM is as follows:

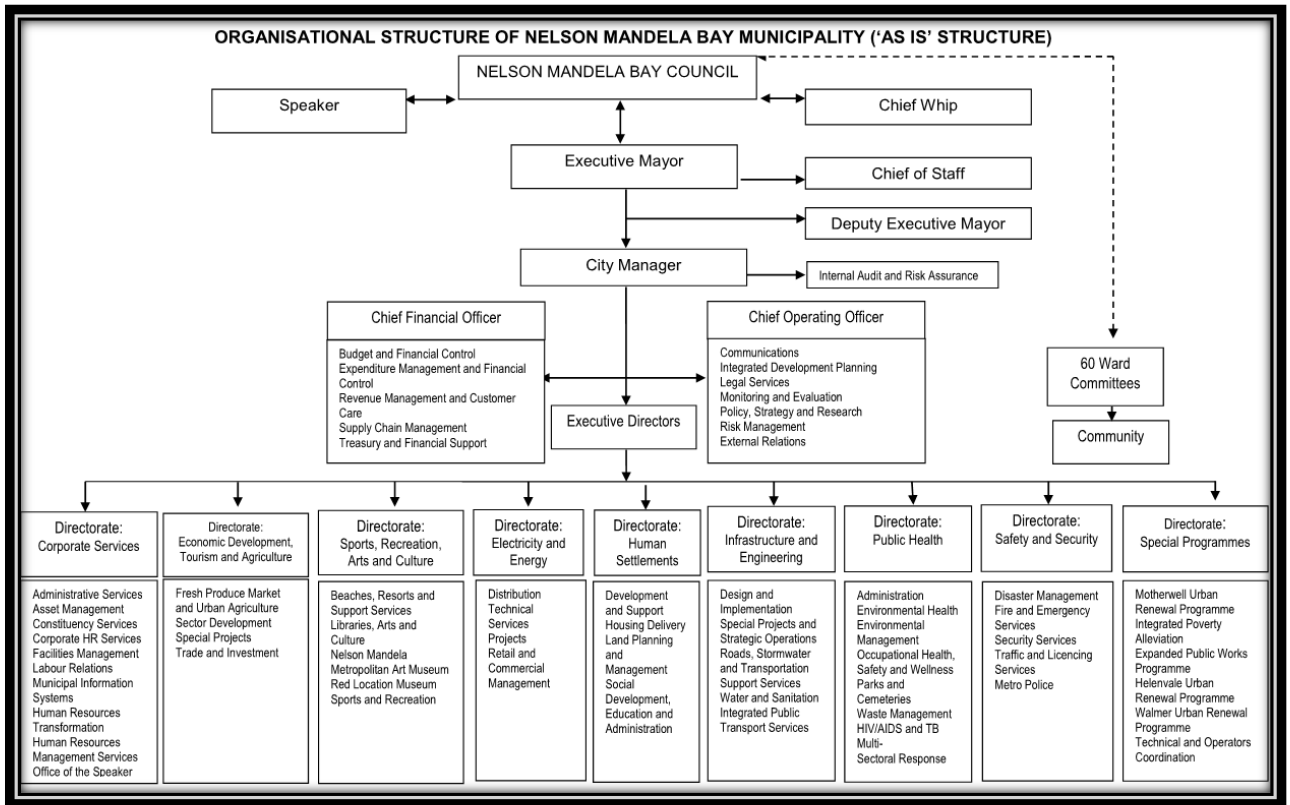


Figure 24: Nelson Mandela Bay Municipality Organogram (NMBM, 2018)

The Waste Management Sub-Directorate falls under the administration of the NMBM's Public Health Directorate, with its management described in the organogram as per Figure 25 below.

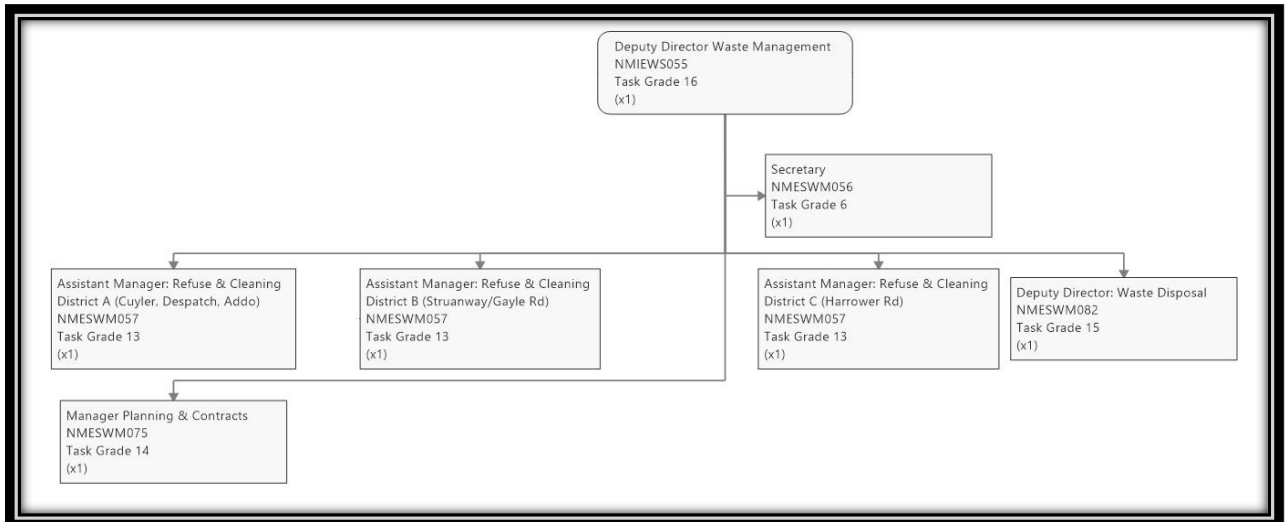


Figure 25: Organogram for NMBM Waste Management Sub-Directorate – Top Structure only

There are 736 approved positions on the Waste Management Sub-Directorate's organogram³⁰. A number of employees are working in acting positions due to vacant posts. At present, a total of 10 office staff and 319 operational staff positions are vacant.

The vacant positions (329) are namely:

- Manager: Planning & Contracts x1
- Assistant Manager: Refuse & Cleansing x1
- Superintendent x7
- Senior Supervisor x1
- Community Liaison Officer x3
- Controller: Contracts x1
- Administrator: Development
- Clerk: Admin x3
- Stores Attendant x4
- Drivers x20
- Refuse Carriers x31
- General Assistants/Workers/Sweepers x257

The unfilled posts are largely due to budget cuts and a moratorium on the filling of posts which date back to 2003 - 2011. The staff interviews confirmed that vacant posts have had significant impacts on the performance and standards of the Waste Management Sub-Directorate.

Nelson Mandela Bay is one of the municipalities where employee-related costs increased by 11. 2% even though employee numbers decreased by 3.2%. This can occur as a result of higher overtime or non-salary costs, or a change in structure in the metros, with a shift to more senior staff on higher salaries (South African Cities Network, 2020).

³⁰ December 2022

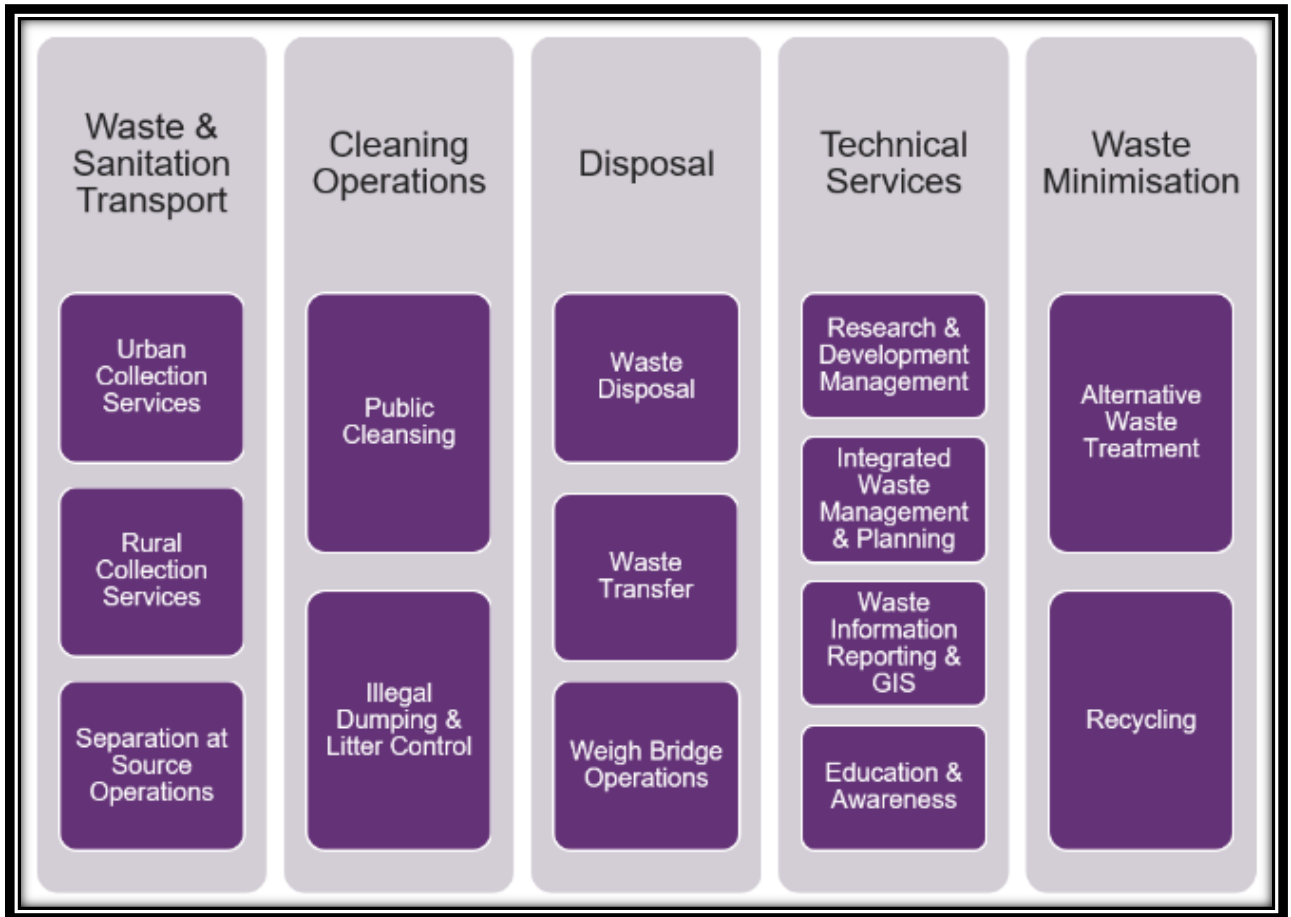


Figure 26: Proposed revised Organogram based on the structure recommended by DFFE

4.6.2.2 Waste Management Officer

The designation of a Waste Management Officer (WMO) at a municipal level is important in order to ensure that there is constant communication between all three spheres of government on the implementation of the Waste Act. In relation to the development of IWMP, a WMO could potentially play a critical role in ensuring that a municipality should develop its IWMP for compliance purposes. Chapter 3, Section 10(3) of the Waste Act requires that the National Department, Provinces and Municipalities designate WMOs in writing. The Department has developed a guideline on the designation of a WMO which contains information on the duties of a WMO as well as the delegations of power and engagements with other WMOs. The local government sphere WMOs will act as a point of contact between other spheres of government on waste management issues. This includes the development and implementation of IWMPs which will assist Provinces or the National Department in obtaining any information pertaining to the implementation of the IWMP's i.e. reporting on a municipality's progress with regard to reaching its targets as per the IWMP, as well as ensuring that a municipality includes IWMP reporting in the annual performance reports as called for by the MSA.

The Designated Waste Management Officer for the NMBM is the *Deputy Director: Waste Management* (refer to organogram in Figure 25)³¹.

4.6.3 Facilities and transport

Waste Facilities means facilities for the storage, storage for transfer, transfer, treatment, or disposal of waste, including sewage treatment plants and ponds, hazardous waste handling, transfer, treatment, storage,

³¹ Council has approved the appointment

injection, or disposal facilities, solid waste transfer, storage, treatment or disposal facilities, and other structures and facilities for the management or disposal of waste. "Waste facilities" includes recycling facilities but excludes small recycling collection facilities when appropriately accessory to a permitted use or as otherwise specified. Most of this was discussed under Section 4.4 and focus will only be on management and transport. The NMBM used waste management depots to provide a base for delivering the waste management service across the city. They also function as a safe storage for the waste management fleet. The following waste management depots are in operation:

- Harrower Road
- Cuyler/Despatch Depot
- Addo Depot
- Gail Road Depot
- Struanway Depot

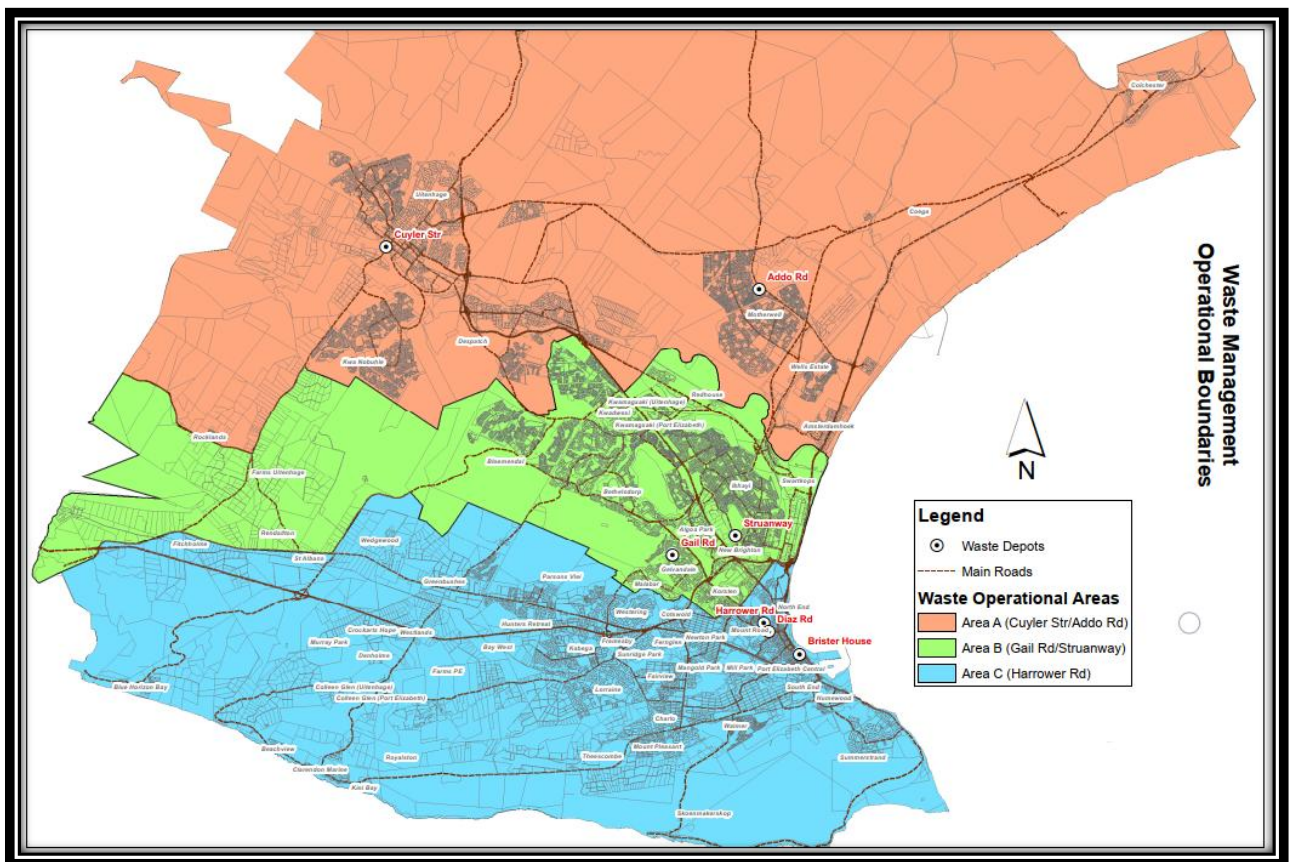


Figure 27: Operational Boundaries and Depots

4.6.3.1 Waste Infrastructure & Facilities

Four (4) landfill sites and eighteen (18) drop-off sites are situated within the NMBM area.

Arlington Landfill

The Arlington Landfill site is situated on Erf 118, off Victoria Drive, near the Arlington Racecourse (Gqeberha/Port Elizabeth). The site is roughly 135 hectares in size with disposal currently taking place in the northern half of the site. It is surrounded by natural vegetation dominated by alien invasive species such as blue gums, Rooikrans and wattle. The Walmer Township is located to the north-east of the site, with the Chief

Dawid Stuurman International Airport (previously known as Port Elizabeth International Airport) situated 3km to the east of the site. Access to the site is via the M18/Victoria Drive.

The site has a permit (permit number 16/2/7/M200/D1/Z1/P278) which was issued in 1997 by the then Department of Water Affairs and Forestry (now the Department of Water and Sanitation). In terms of current legislation (the National Environmental Management: Waste Act No. 59 of 2008, as amended) the site is classified as a Class B site and may accept Type 2, 3 and 4 waste. External Compliance Audits completed for Arlington is the following:

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
84.8%	84%	87.7%	85.6%	86%	85%	70%	70%	78%	Covid	Covid	50%	47%

The site services the entire city of Gqeberha/Port Elizabeth, excluding Despatch, Kariega/Uitenhage and Kwanobuhle, which are serviced by the Koedoeskloof landfill site. The site currently receives approximately 216 555 tonnes of waste per annum, with an 8% decrease year on year from previous IWMP.

The future development of the site will be towards the northwest of the site. The Service Delivery Plan (SDP) was reviewed and the Independent Specialist³² recommended that the plan be revised as a matter of urgency as the site is running out of airspace.

Koedoeskloof landfill

The site is situated about 4km east of the town of Kariega/Uitenhage and 3 km north of the town of Despatch and is one of the large general waste disposal sites in NMBM. Access to the site is via the MR461 (approximately 1.4 km down this road) that turns off the R367 linking Kariega/Uitenhage and Despatch (Grahamstown Road). The site is roughly 50 ha in size, which is partially fenced and consists of 5 disposal cells. The cells are referred to as Cell 1 to Cell 5. Currently disposal takes place in Cell 5, however, this is nearing its capacity.

The land adjacent to the site is vacant land featuring dense Sundays Valley Thicket within the Albany Thicket biome. The vegetation is characterised by the presence of woody trees, shrubs, and succulents. The landfill lies within a valley with a major stormwater pathway draining the southern and northern flanks of the valley. The greater area incorporating the landfill is bounded by the R367, MR461, R334 and R75. The Koedoeskloof landfill is located along the DR01938 that links the R367 and R334 approximately 4 km to the east of Kariega/Uitenhage. The site is operational and accepts general waste. Koedoeskloof has experienced challenges regarding the types of waste disposed at the site as previously hazardous waste were also disposed at the site. With the present extension of the site and storm water design, the lifespan is expected to be extended to 40 years (NMBM, 2016). The Koedoeskloof landfill site (hereafter referred to as “the site”) is situated on Portion 1 of the Farm Cuyler Manor 320, Kariega/Uitenhage, Eastern Cape. The site has a permit (permit number B33/2/1200/7/P37) that was issued on 24 September 1992 by the then Department of Water Affairs and Forestry (DWAf) (now the Department of Water and Sanitation (DWS)). The permit was issued for a Class 1 and Class 2 landfill site. The site was divided into two disposal areas, a domestic solid waste disposal site, Class 2, and a Class 1 disposal site for hazardous liquids.

In terms of current legislation (the National Environmental Management: Waste Act No. 59 of 2008, as amended (NEM:WA)) the site is classified as a solid waste disposal site Class B site and may accept Type 2, 3 and 4 waste and a class A disposal site for the hazardous liquids area.

The waste body at the site has finite airspace, as defined by the permitted footprint and design parameters approved in the existing licence. The Koedoeskloof landfill site will not be able to receive waste once it reaches airspace capacity. It is anticipated that this will be reached in mid-2022. Alternative airspace within the current permitted boundary is limited, hence there is an urgent need to expand the existing landfill site facilities. Considering that the landfill site was commissioned in 1992 and given the current and future waste generation

³² EB Consulting

potential in the NMB area, there is a need for the expansion of landfill facilities. External Compliance Audits results for Koedoeskloof are the following:

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
84.8%	84%	87.7%	85.6%	86%	85%	70%	70%	78%	Covid	Covid	71%	70%

The site services Despatch, Kariega/Uitenhage, Kwanobuhle, Motherwell and a portion of the Northern Areas. The site currently receives in the order of 152 067 tonnes of waste per annum. The volumes received have decreased by approximately 20% year on year.

iBhayi landfill (Decommissioned)

The iBhayi landfill is situated between the suburbs of New Brighton and KwaZakhele. The site was utilised from 1981 to 2001, however, it is no longer operational. Rehabilitation of the lower portion of the site is complete. Rehabilitation of the upper site has not been implemented thus far as approximately 3 000 households are currently occupying the area. A closure permit is required once these households have been relocated. The information provided in the closure report indicated that the iBhayi site commenced operation as a landfill in 1981. Prior to that it was used as a sand quarry and saltpan. The total waste thickness of the waste body is unknown and may be as much as 20m with a significant portion consisting of hazardous waste (SRK, 2002).

The rehabilitation of the site was to take place in two phases. Phase I was implemented for the lower level of the site (northern section). A draft closure report was compiled for the work that has already been done but this is still to be finalised. Costing for final closure is still to be done. Recommendations made in the closure report of 2002, some of which are still to be implemented, were:

- Improve cover and capping
- Contour slopes
- Establish proper vegetation cover
- Assess leachate generation
- Upgrade stormwater control
- Collect and vent methane
- Initiate performance monitoring

It must be noted that the closure report was compiled in 2002 and therefore many items may no longer be relevant. The proposed end use for the site is sports facilities and open-air recreation. Prevention of occupation of the site is specifically mentioned.

KwaNobuhle landfill (Decommissioned)

The KwaNobuhle landfill site is situated in a former clay quarry cut into a fairly steep hillside that forms the north-western border of KwaNobuhle Township. The site covers approximately 36 ha. The site stopped accepting waste in 1989 and was closed and capped in 1990. Rehabilitation measures at the KwaNobuhle landfill site were completed in July 2003 for the closure of the site. This was done in accordance with the requirements of the then DWAF.

The landfill accepted domestic and industrial waste. The classification of the site during operation is uncertain, however, the closure permit has been issued for a H:h site. Two lagoons that were previously used to dispose industrial liquid waste are situated above (north of) the area used for disposal of solid waste. These lagoons have been closed and rehabilitated and are no longer visible. The lagoons situated to the north are remnants of evaporation dams of the old tannery site that belonged to East Cape Tanning (ECT) and are situated on thin unsaturated alluvial soils (Maclear, 1996). The volumes classify it as a medium-sized landfill. Some waste was unidentified and some solvents and hydrocarbons were accepted. As liquid waste was accepted, the classification would be B+ irrespective of the water balance.

Transfers and drop-off facilities

In order to address the issue of illegal dumping of waste, the NMBM constructed facilities where the public may dispose of garden and bulky waste. The different types of facilities are discussed in Section 4. In summary they are the following:

- Temporary skip sites x22
- Communal collection points x3
- Recycling points x 1
- Drop-offs x18
- Transfer stations x2

4.6.3.2 Fleet management

Transport is an essential but expensive aspect of providing waste management services. The NMBM is struggling to meet their legal mandate of providing at least a weekly waste collection service to all households due to a limited budget.

Vehicle breakdowns are a symptom of other problems, including vehicle age, poor road conditions, overloading and lack of routine maintenance. The breakdown of municipal waste collection vehicles results in inconsistent collection services. Disrupted waste collection services may result in waste being illegally dumped. This is especially the case in situations where drop-off centres are considered too far away or where drop-off centres do not accept general waste.

In order to ensure the efficiency of the waste collection service, the Municipality maintains their transport fleet. It has a Fleet Management Department that is responsible for servicing the vehicles. The maintenance of the fleet is handled by a separate municipal department, even though the Waste Management Sub-Directorate conducts its own condition assessment. The vehicles are inspected on a regular basis to ensure the reliability of the transport fleet. Routes and distance travelled are planned between collection point and disposal facility to use the transport optimally.

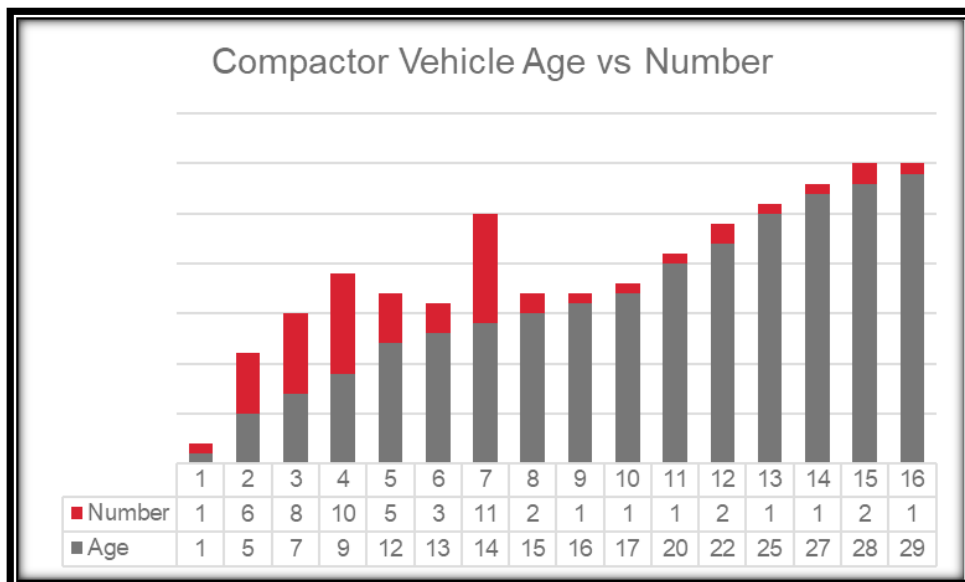


Figure 28: Compactor Age

VEHICLE UTILISATION

The most useful indicator is the number of vehicles used on revenue-earning service at a particular time as a percentage of the number of vehicles available for service at that time (i.e. excluding those undergoing maintenance or repair or not available for other reasons). Utilisation is sometimes expressed as a percentage of the total licensed or owned fleet. The NMBM set a utilisation rate of 85% and 100%, while industry prefer a >95% utilisation rate. A small number of vehicles may be kept as spares in case of breakdowns.

The Municipality owns the majority of the fleet used for waste management. In the 2024/25 financial year the refuse compactor fleet only achieved a **10.8%** utilisation rate (see Figure 29). The fleet is plagued by breakdowns. This could be ascribed to vehicles having an average age of 7.45 years³³, while it is recommended that vehicles should not be older than seven (7) years. Harrower, Struanway and Cuyler depots have the most exposure with an average vehicle age exceeding 8.6 years. Of the collection fleet only 27% of the vehicles are on or below the recommended 7 years replacement age (Figure 28). Secondly, the lack of a preventive maintenance programme that creates a sense of accountability for breakdowns, and where breakdowns are no longer seen as random events but can be foreseen and managed. Thirdly, a lack of funds and procurement policies that cause delay in the purchasing of essential parts. Due to the limited operational vehicles the Municipality leases additional vehicles to ensure service delivery.

The NMBM Council took a resolution to recapitalise its own fleet by means of an available budget of R90 million for the purchasing of new Refuse Compactors for the next 3 financial years (2024 - 2026). The same budget amount has been made available for the next 2 outer financial years.

³³ Based on 2022 studies

WASTE MANAGEMENT REFUSE COLLECTION FLEET UTILIZATION																
Period: July 2024 - June 2025																
Cuyler Depot	Round	Type	July	Aug	Sept	Octo	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Fin year ave	
9253	28	Trade	0%	0%	0%	0%	0%	0%							0%	
9254	51	BB	0%	0%	0%	0%	0%	0%							0%	
B0232	52	WB & BB	0%	0%	0%	0%	0%	0%							0%	
230	53	BB	0%	0%	0%	0%	0%	0%							0%	
9304	54	BB	0%	0%	0%	0%	0%	0%							0%	
B0158	56	WB	100%	45%	71%	0%	0%	0%							36%	
B0231	57	WB	0%	0%	0%	0%	0%	0%							0%	
B0157	58	WB	0%	0%	0%	0%	0%	0%							0%	
9303	59	WB	0%	0%	0%	0%	0%	0%							0%	
8319	Spare	WB	0%	0%	0%	0%	0%	0%							0%	
Depot Average			10%	5%	7%	0%	0%	0%							4%	
Struanway Depot	Round	Type	July	Aug	Sept	Octo	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Fin year ave	
B0041	31	WB	0%	4%	24%	26%	0%	0%							9%	
B0089	32	WB	0%	0%	0%	0%	0%	0%							0%	
B0087	33	BB	48%	41%	90%	39%	19%	18%							43%	
B0039	34	WB	0%	0%	48%	65%	100%	100%							52%	
B0040	35	WB	70%	100%	100%	0%	0%	0%							45%	
206	Spare	WB	0%	0%	0%	0%	0%	0%							0%	
209	Spare	WB	0%	0%	10%	83%	80%	50%							37%	
Depot Average			17%	21%	39%	30%	28%	24%							27%	
Gall Road depot	Round	Type	July	Aug	Sept	Octo	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Fin year ave	
B0372	11	BB	0%	0%	0%	0%	0%	0%							0%	
B0341	13	WB	100%	45%	0%	43%	0%	0%							31%	
B0371	15	WB	0%	0%	0%	0%	0%	0%							0%	
B0230	16	WB	0%	0%	0%	0%	0%	0%							0%	
B0088	18	WB	0%	0%	0%	0%	0%	0%							0%	
9826	27	Trade	0%	0%	0%	0%	0%	0%							0%	
9251	Spare	BB	0%	0%	0%	0%	0%	0%							0%	
8797	Spare	WB	0%	0%	0%	0%	0%	0%							0%	
Depot Average			13%	6%	0%	5%	0%	0%							4%	
Harrower Depot	Round	Type	July	Aug	Sept	Octo	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Fin year ave	
9529	1	BB	0%	0%	0%	0%	0%	0%							0%	
9305	2	BB	0%	0%	0%	0%	0%	0%							0%	
9824	3	BB	39%	100%	81%	78%	95%	100%							82%	
B0229	4	BB	17%	0%	33%	70%	71%	0%							32%	
B0370	5	BB	0%	0%	0%	0%	0%	0%							0%	
9825	6	BB	0%	0%	0%	0%	0%	0%							0%	
B0615	7	BB	0%	0%	0%	0%	0%	0%							0%	
9828	21	Trade	61%	100%	81%	65%	0%	0%							51%	
B0369	23	Trade	100%	100%	76%	100%	100%	100%							96%	
9827	24	Trade	0%	0%	0%	0%	0%	0%							0%	
B0342	25	Trade	0%	0%	0%	0%	0%	0%							0%	
B0156	26	Trade	100%	91%	90%	100%	100%	100%							97%	
9252	Spare	Trade	0%	0%	0%	0%	0%	0%							0%	
9249	Spare	Trade	0%	0%	0%	0%	0%	0%							0%	
9306	Spare	BB	0%	0%	0%	0%	0%	0%							0%	
204	Spare	BB	0%	0%	0%	0%	0%	0%							0%	
9530	Spare	BB	0%	0%	0%	0%	0%	0%							0%	
9250	Spare	BB	0%	0%	0%	0%	0%	0%							0%	
9302	Spare	BB	0%	0%	0%	0%	0%	0%							0%	
Depot Average			17%	21%	19%	22%	19%	16%							19%	
Addo Depot	Round	Type	July	Aug	Sept	Octo	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Fin year ave	
B0037	41	WB	0%	0%	0%	0%	0%	0%							0%	
B0038	42	WB	0%	0%	0%	0%	0%	0%							0%	
8796	43	BB	0%	0%	0%	0%	0%	0%							0%	
B0032	44	WB	0%	0%	0%	0%	0%	0%							0%	
B0155	45	WB	0%	0%	0%	0%	0%	0%							0%	
231	Spare	WB	0%	0%	0%	0%	0%	0%							0%	
Depot Average			0%	0%	0%	0%	0%	0%							0%	
AVERAGE REFUSE FLEET UTILIZATION									10,8%							

Figure 29: Refuse Compactor Fleet Utilisation first half of 2024/2025 financial year

Table 23: Fleet per depot/section with budget requirements

Fleet type	Depot/Section							Total fleet type	Costing/unit	Total costing
	Harrower Road	Gail Road	Struanway	Motherwell	Cuyler/ Despatch	Disposal	Planning			
Compactor: Black bag	6	0	0	1	2	0	0	9	R2 600 000	R23 400 000
Compactor: Wheely bin	0	1	5	4	5	0	0	15	R2 600 000	R39 000 000
Compactors - Trade	3	1	1	0	1	0	0	6	R2 600 000	R15 600 000
LDV (4x2)	2	0	1	0	2	0	0	5	R328 000	R1 640 000
LDV (4x4)	0	0	0	0	0	0	5	5	R475 000	R2 375 000
16-seater minibus	0	0	0	0	0	0	1	1	R320 000	R320 000
Side tipper (7 ton)	5	5	5	5	5	0	0	25	R569 250	R14 231 250
Tipper (8 ton)	3	3	3	3	3	6	0	21	R1 029 250	R21 614 250
Front-end loader	1	1	1	1	1	0	0	5	R1 014 402	R5 072 010
Black bag delivery (7 ton)	1	0	0	0	1	0	0	2	R517 000	R1 034 000
Excavator	0	0	0	0	0	2	0	2	R2 277 000	R4 554 000
Water tanker (7000ℓ)	0	0	0	0	0	2	0	2	R664 317	R1 328 634
Heavy-duty front-end loader	0	0	0	0	0	2	0	2	R2 070 000	R4 140 000
D8 dozer	0	0	0	0	0	3	0	3	R870 000	R2 610 000
Landfill compactor	0	0	0	0	0	2	0	2	R2 380 582	R4 761 164

5 Needs Analysis

The Sub-Directorate commenced with sessions during September 2019, with a follow-up in March 2020, to review the previous IWMP and to set new goals. The second session was attended by Ms Lulama Daniels (EC DEDEAT Provincial Waste Management Officer) who guided some of the processes. As mentioned previously, Covid-19 and the subsequent lock-down derailed this process and it recommenced in 2022. A third series of consultations were done with NMBM staff in March 2022.

The aim of the exercise was to give the NMBM a better idea of what to focus on, as not all items will be covered within this IWMP and there will be issues/questions around the IWMP not meeting all the targets which were set. With this exercise the NMBM can prove the rationale behind concentrating only on the ones that are most important, considering limited funding.

This section presents the waste management needs (limited to municipal services) in the NMBM that was identified through a series of strategic planning sessions that were conducted during 2020. During these sessions, the targets from the 2016-2020 IWMP were reviewed and scored as follow:

- Scoring session 1 took into consideration cost, time and complexity. Values up to a total of 15 was assigned, where 8 - 15 shows the highest significance.
- Scoring session 2 considered the consequence of the target. Values up to a total of 6 were assigned, where 1 - 2 has the highest significance (e.g. legal consequences and public health risks).
- Scoring session 3 looked at priorities. Values up to a total of 6 were assigned, where 1 is the highest significance.

5.1 Status and prioritisation of previous IWMP targets

After this exercise all variables (cost, time, complexity, consequence and priority) were taken into consideration, and targets were categorised in order of importance in order to identify the NMBM's future waste management needs. These items were then again scored i.t.o. consequence up to a total of 6, where 1 - 2 has the highest significance (e.g. legal consequences and public health risks). The items are then again scored i.t.o. priority up to a total of 6, where 1 is the highest significance. After this exercise all variables (cost, time, complexity, consequence and priority) were taken into consideration, and items were then categorised in their order of importance. The wording of some of the items was slightly adapted to be more specific.

High importance

IWMP Item 1: Waste Infrastructure and Operational Demand Masterplan

IWMP Item 6: Revision of Waste Management Organogram and Resources

IWMP Item 19: Ensure compliance with all permit conditions and applicable legislation at Landfill Sites

Moderate importance

IWMP Item 14: Expansion of the Two Bag Source Separation Recycling Project

IWMP Item 15: Pilot Centralised Composting at landfill sites

IWMP Item 18: Increasing the number of Transfer Stations/Drop-off Centres in line with WM Strategy

IWMP Item 29: Review by-laws

The aim of the process was to give the NMBM a focus, as not all items will be covered within the 2021 – 2027 IWMP. As questions will be raised around the 2016 – 2020 IWMP not meeting all the targets which were set, this process gives the rationale behind concentrating only on the ones which are most important, considering the limited funding available to the Sub-Directorate.

Table 24: Critical review of previous IWMP targets and future needs

TARGET 1: WASTE INFRASTRUCTURE AND OPERATIONAL DEMAND MASTERPLAN							
Description				Needs			
<p>The NMBM's waste infrastructure requires expansion, especially transfer stations, drop-off facilities and landfill sites. Currently no long-term infrastructure plan exists. Considering that budgeting for these facilities, planning and developing have long planning lead times, and the complexities regarding land procurement, it is important that the process of identifying possible sites for development and budgeting must commence soon. It is essential that this plan be integrated with other development programs in the NMBM.</p> <p>Potential land parcels should be identified together with the town planning division, and this should be workshopped with the various directorates.</p>				<ul style="list-style-type: none"> ▶ Expansion of waste infrastructure, especially transfer stations, drop-off facilities and landfill sites. ▶ Development of long-term infrastructure masterplan that takes into consideration current infrastructure shortfalls, and future needs with regard to landfill sites, transfer stations, drop-off centres and drop-off points, future service areas and the waste strategy. 			
Cost, time & complexity	12	Consequence	1	Priority	2	Revised priority	2
Continuation of target	<p>Yes - the item remains a very high priority with several other items dependent on the item. Carry over to next IWMP and keep priority as high. Align with site development plans and drop-off sites masterplan.</p>						
	Target precursors	None		Target dependents	11, 14, 15, 18, 19, 20		

TARGET 2: WASTE BENEFICIATION AND WASTE TO ENERGY (PLANNING PHASE)							
Description				Needs			
<p>The NMBM commenced with a feasibility study in 2011 to investigate waste to energy options in the NMBM. This culminated in a feasibility study which considered various options for waste beneficiation, including waste diversion, processing and treatment and is at a final technical feasibility stage.</p> <p>The current recommendation is that a single Waste Park be developed at a single location in the NMBM. Waste diversion and beneficiation at the waste park is intended to significantly reduce waste to landfill and reduce transportation and operating costs. There will also be opportunities for revenue generation through recycling and energy production.</p>				<ul style="list-style-type: none"> ▶ Advertise a tender for the appointment of a transactional advisor to lead as project manager on behalf of the NMBM and to oversee the entire project from planning and procurement to implementation. ▶ Obtain a good understanding of the envisaged infrastructure requirements for landfill sites to plan for and accommodate future waste to energy projects. 			
Cost, time & complexity	13	Consequence	1	Priority	1	Revised priority	4
Continuation of target	<p>Yes – considering the NMBM's capacity and financial constraints, the specialist advisory appointment will be finalised before any other movement can take place on this item. The specialist advisor must also look at other municipalities and their challenges to have a comprehensive report on feasibility within the NMBM.</p>						
	Target precursors	1, 19		Target dependents	None		

TARGET 3: WASTE GUIDELINES AND DEVELOPMENT STANDARDS

Description		Needs					
<p>As urban areas expand, it is essential that developers understand their responsibilities for provision of waste management infrastructure. These may range from financial contributions for development of public infrastructure such as transfer stations or drop-off facilities, or design requirements to ensure individual buildings include the correct waste storage facilities and appropriate access.</p> <p>The NMBM will draft guidelines that will serve to advise developers of their waste management responsibilities including:</p> <ul style="list-style-type: none"> • Spatial reservations • Capital contributions • Type of development in accordance with differential standard 		<p>The NMBM does give comment on an <i>ad hoc</i> basis on site development plans, town house developments, security estates, etc. The comments by the Waste Directorate are based on standards that have not been formally recorded/published i.e. based on experience of staff and institutional knowledge. There is thus a lack of proper/formal guidelines, also nothing in the by-laws (apart from the need for a refuse storage chamber) dealing with waste infrastructure requirements for new developments. DEDEAT noted that the guidelines must take climate change into account considering the climate change approach coming from National DFFE within the waste sector. Licences/permits will all have conditions associated in terms of climate change. It should also be considered in terms of by-laws for enforcement purposes, which can also be used by the NMBM as a mechanism to obtain carbon credits.</p>					
Cost, time & complexity	6	Consequence	4	Priority	4	Revised priority	3
Continuation of target	Yes - Priority was upgraded to ensure the item is not left behind.						
	Target precursors		None		Target dependents		None

TARGET 4: WASTE CHARACTERISATION AND SAMPLING STANDARDS							
Description		Needs					
<p>Many waste characterisation initiatives have been undertaken over the years. There has however been a lack of consistency in the methodologies used, meaning that comparison of results is done with low confidence.</p> <p>The NMBM will use the approach undertaken during the 2011 waste characterisations and sampling exercise for the review of this IWMP and compile a standard to be used for future waste characterisations and sampling that ensures statistical reliability. Protocol used and sample plan to be included.</p> <p>Waste characterisations will be undertaken annually in different parts of the NMB area. Each characterisation exercise will be properly documented in a report that presents a full description of the methodology used, the generated raw data, graphical presentation of the data and conclusions.</p> <p>Waste characterisations need to form part of the new organogram and form part of an employee's job description to ensure they are completed.</p>		<p>No specific document. Sampling has taken place in 2021 (\pm 10% sample). Once a year should be sufficient in terms of sampling frequency. If there is a document with standards, the NMBM can look at alternatives to using the waste management/collection fleet and staff, e.g. rent a truck and get EPWP staff trained.</p>					
Cost, time & complexity	8	Consequence	4	Priority	4	Revised priority	2

Continuation of target	Yes - Waste characterisation is a key component in the national strategy for waste management and should be prioritised. Many other items are dependent on its completion.		
	Target precursors	None	Target dependents
			1, 5, 9, 10, 11, 14, 15, 17, 18, 19, 25

TARGET 5: FEASIBILITY STUDY: RECYCLING OF DOMESTIC HAZARDOUS WASTE

Description		Needs	
<p>The National Domestic Waste Collection Standards (GN21 of 2011) now clearly states that municipalities are to create an enabling environment for the recycling of “mainstream recyclables” (paper, cardboard, plastic, glass, etc.) and “non-mainstream” recyclables (e-waste, scrap metal, batteries, fluorescent lights, used oil, etc.). The NDWCS requires municipalities to facilitate the recycling of “non-mainstream” recyclables (domestic hazardous waste). The NMBM does not currently have the facilities to accept domestic hazardous waste and most of this waste ends up being disposed of at landfill sites.</p>		<p>On hold. Nothing done. Will carry over to next IWMP depending on waste characterisation results, infrastructure requirements and general feasibility. This item should be revisited once DEDEAT’s draft recycling strategy is finalised. At this stage, raw data can be collected regarding waste quantities in the NMBM (Item 4).</p>	
Cost, time & complexity	-	Consequence	-
		Priority	-
		Revised priority	4
Continuation of target	Yes - The item was given a priority 4 at this stage but should be upgraded once DEDEAT’s recycling strategy for EC has been finalised.		
	Target precursors	1, 4, 9, 10, 11, 14, 18, 19	Target dependents
		19	

TARGET 6: REVISION OF WASTE MANAGEMENT ORGANOGRAM AND RESOURCES

Description		Needs	
<p>The organogram for the Waste Management Sub-Directorate was last revised in 2002. Waste management legislation have changed significantly since then and the NMBM requires more human resources in several areas including waste planning and enforcement.</p> <p>The need for a review of the organogram was also highlighted in the Illegal Dumping Strategy completed in 2010. A full review of the organogram is to be undertaken. The finalisation of the organogram should be preceded by a full analysis of the core functions and associated logistics, i.e. Buildings & Plant, etc.</p>		<p>The NMBM Waste Management Sub-Directorate are in the process to develop and formalise an organogram and job description for each position.</p> <p>The NMBM as a Metro will align the organogram proposed by DFFE and it will be similar to the City of Cape Town’s model.</p>	
Cost, time & complexity	7	Consequence	1
		Priority	1
		Revised priority	1
Continuation of target	No - At the time of the previous strategic session it was a high priority for the Sub-Directorate.		
	Target precursors	None	Target dependents
		The majority of IWMP items are to a certain extent dependent on a	

				proper functioning and capable staff component.
--	--	--	--	---

TARGET 7: TO PURSUE THE UTILISATION OF COMMUNITY BASED ENTITIES IN EXECUTION OF WASTE MANAGEMENT FUNCTIONS							
Description				Needs			
<p>Community Entities are currently performing Waste Management functions in 10 areas of the Municipality. A further 30 areas have been identified as an expansion to the current programme.</p> <p>Based on past experiences, the actual scope of work to be performed have been amended, and contracts will vary from a cleaning contract only (erstwhile Ward Based Litter Picking Project) to full-scale Waste Management Community Entities which will include refuse collection, litter picking and cleansing, manning of drop-off centres and, as and when required, introducing recycling initiatives.</p> <p>This programme will comply with EPWP principles and will be registered on the EPWP database to report on the number of full-time job opportunities created, which will contribute to the job creation initiatives.</p>				<p>Currently no funding. The advertisement of a contract will not take place in the next 4 years and the model to be used in future will also change from the previous.</p>			
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	No – completed						
	Target precursors		N/A		Target dependents		N/A

TARGET 8: WHEELY BIN REPLACEMENT POLICY	
Description	Needs
<p>The NMBM provides each house in a wheelie bin collection area with one wheelie bin. At present there is no policy that governs the issuing of additional bins. During the period August 2012 – December 2014, the NMBM issued an additional 2 167 wheelie bins. At a unit cost of R400, this amounts to a total of R866 800. Residents are requesting new wheelie bins if their bins are stolen or damaged. The waste management depots have exhausted their supply of wheelie bins and there are no wheelie bins currently in stock.</p>	<p>There is a draft policy in place. There is however no funding available at this stage to replace wheelie bins. One can thus perhaps finalise the policy so that once funding becomes available, the policy can be implemented. The wheelie bin system was initially rolled out in the Kariega/Uitenhage area and has been working (drop-off facilities are provided as well for disposal of excess waste). The reason for use is areas not being serviced frequently and roaming animals. Was also rolled out in Ibhayi but didn't work. Broken and stolen bins are an issue as they cannot be replaced, and people use black bags instead. The trucks are however equipped for wheelie bins and staff told not to not pick up black bags. Ideal would be to move back to black bags and only use wheelie bins for areas such as duplexes and townhouse complexes. Trucks can be adapted by removing the lifting gear for wheelie bins, i.e. would not need new compactor trucks. Finalisation of policy will probably require public consultation as well.</p>

Cost, time & complexity	8	Consequence	5	Priority	5	Revised priority	3
Continuation of target	Yes - Priority was upgraded. A cost calculation/feasibility exercise must be done to establish the best option.						
	Target precursors	21, 22		Target dependents	1, 3, 14, 17, 20		

TARGET 9: DEVELOP A WASTE MINIMISATION STRATEGY

Description		Needs					
<p>The NMBM is currently undertaking and planning for a number of recycling initiatives. There is however no strategy in place for the waste minimisation and recycling vision and priority for the city. The strategy should also look at the value chain of recyclables.</p> <p>The NMBM will draft a Waste Minimisation Strategy which answers the questions:</p> <ul style="list-style-type: none"> • What do we want to achieve in the next 10 years on waste minimisation in the NMBM? • What are the geographical focus areas? • What are the quick wins? • Where is investment required? <p>The strategy will also include an implementation plan.</p>		<p>Still needs to be done. Ideal tool to coordinate various actions/activities (some in the IWMP), i.e. roadmap for waste minimisation.</p>					
Cost, time & complexity	12	Consequence	2	Priority	2	Revised priority	2
Continuation of target	Yes – Not yet completed and remains a high priority.						
	Target precursors	1, 4		Target dependents	3, 5, 7, 8, 10, 11, 14, 15, 17, 18, 19, 20		

TARGET 10: “WHERE AND HOW TO RECYCLE” INFORMATION DOCUMENT

Description		Needs					
<p>There is a dire need to facilitate recycling in the NMBM area. The National Domestic Waste Collection Standards (GN21 of 2011) now clearly states that municipalities are to create an enabling environment for the recycling of “mainstream recyclables” (paper, cardboard, plastic, glass, etc.) and “non-mainstream” recyclables (e-waste, scrap metal, batteries, fluorescent lights, used oil, etc.).</p>		<p>Has been completed including presentations, induction material, pamphlets, etc. Communication department is assisting, and distribution is via CLOs and schools.</p>					
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	Yes - Keep the item as a low priority. Once a recycling strategy is in place it can be updated.						
	Target precursors	9		Target dependents	11, 14, 15, 20, 15		

TARGET 11: TO FACILITATE RECYCLING AT SELECTED AND PRIORITISED TRANSFER AND DROP-OFF CENTRES (REPHRASED WORDING IN IWMP TO REPLACE “METRO- WIDE RECYCLING”)

Description		Needs					
<p>For recycling to be successful, it must be easily accessible to the public. There are presently an insufficient number of municipal and private facilities in the NMBM where the public can drop recyclables. The existing facilities are mostly privately owned and not spread uniformly throughout the NMBM area.</p> <p>The existing municipal transfer stations and drop-off centres are obvious places to introduce recycling. The collection of recyclables would most likely be undertaken by private recycling companies.</p>		<p>Need to differentiate between transfer stations and drop-off sites. There are only two transfer stations in the NMBM, one in Colchester and the other in Seaview/Beachview. All other sites are drop-off sites: 9 in Gqeberha/Port Elizabeth and 9 in Despatch and Kariega/Uitenhage. The idea is to upgrade existing drop-off facilities to enable recycling. None of the sites are registered/licensed at this stage. The need to be registered/licensed (SAWIS/NEM:WA) should be verified when the sites are upgraded with recycling facilities - can perhaps be done as a combined application (subject to DEDEAT's approval). The busier sites should be prioritised for upgrading and formalisation – change IWMP item from “To facilitate Recycling at all Transfer Stations and Drop-off Centres” to “To facilitate Recycling at selected and prioritised Drop-off Centres”.</p>					
Cost, time & complexity	13	Consequence	2	Priority	2	Revised priority	2
Continuation of target	<p>Yes - This item will most likely be carried over to the next IWMP as a few of the goals must be implemented over a longer period than this assignment allows. It also requires significant upfront work and input.</p>						
	Target precursors	1, 9, 10, 21, 22, 25		Target dependents	N/A		

TARGET 12: TO FACILITATE IN-HOUSE MUNICIPAL RECYCLING

Description		Needs					
<p>The NMBM needs to lead by example in all areas of waste management, including recycling. A paper recycling system was operational on certain floors of the Lillian Diedericks Building and has since been terminated. Challenges identified as being part of the failure of this pilot projects included the following: the system proved non-viable to the contractor who was required to pay for the collection of the paper, an inexperienced contractor was used, cleaning staff was reluctant to empty the recycling containers in offices, as it was deemed extra work, and it was difficult for Waste Management as a Sub-Directorate to enforce this onto other directorates.</p> <p>It is important that a recycling program be reinstated in the larger municipal offices/buildings. The previous challenges should determine the process to be followed when pursuing this project, i.e. the financial model need to be reconsidered and an experienced contractor appointed to ensure the system is sustainable.</p>		<p>Nothing in place at this stage. A previous project failed as the service provider expected the NMBM to pay them for collection and removal of recycled material. It was generally difficult to implement recycling in the NMBM facilities/buildings as there are low participation rates. It was suggested that Facilities rather manage the process through a supply chain tender process. Recycling at the NMBM facilities might also be more feasible when a two-bag system is rolled out to the rest of the Municipality. It was concluded that the item should rather not be carried over to the next IWMP as it is an internal NMBM matter and not an item which has to be publicly recorded. Due to other pressing priorities, it was agreed that this item will not be pursued further at this stage.</p>					
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A

Continuation of target	No – item is closed out. Given the need to prioritise important items, this item will be closed out until a Municipality-wide recycling initiative is in place. The NMBM can link into that system once that is available, instead of having a separate recycling initiative.		
	Target precursors	N/A	Target dependents

TARGET 13: FORMAL REVIEW OF BLUE HORIZON BAY RECYCLING PROJECT

Description		Needs					
A Source Separation (two-bag recycling system) has been operational in Blue Horizon Bay since 2008. The NMBM has learnt lessons through this project, as this was the first recycling project to be undertaken by the Municipality and it is important to ensure these are not lost. The NMBM will therefore document all lessons learnt in a formal project review report.		Has not been done. Institutional knowledge is an issue as everybody that were involved has left and no formal records are available. It's unlikely that a review will add value. The NMBM knows it failed because of the small number of households, distance to CBD and low level of participation. Take it off - not a priority. Not enough data to write the report – record as such and not representative of the NMBM.					
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors	N/A	Target dependents	N/A			

TARGET 14: EXPANSION OF TWO-BAG SOURCE SEPARATION RECYCLING PROJECT

Description		Needs	
<p>The National Domestic Waste Collection Standards emphasise the responsibility of all local authorities to facilitate collection of recyclables at source. A two-bag collection system for recyclables and general waste is an effective “at source” collection system. It has challenges and cost implications, however, the NMBM has piloted a two-bag collection system in Blue Horizon Bay but need to test this system in other areas to fully understand its feasibility.</p> <p>The NMBM will therefore roll out a two-bag collection system in at least one new area. Soweto-on-Sea and Beachview/Seaview area currently being considered. The project could involve:</p> <ul style="list-style-type: none"> • Upfront education and awareness campaign in the relevant neighbourhoods (distribution of flyers, the use of the Mobile Exhibition Unit, etc.) • Provision of extra bags for recyclables (preferably clear bag) • Collect recyclables (in-house or outsource to contractor) 		Issues with infrastructure available. Need to define scope for recyclers at landfills.	

<ul style="list-style-type: none"> Secure contract with private contractor to receive and process recyclables. 							
Cost, time & complexity	11	Consequence	1	Priority	1	Revised priority	1
Continuation of target	Yes - This item remains a high priority for the NMBM's Waste Management as they have a responsibility to promote separation at source recycling across the whole Municipality.						
	Target precursors	-			Target dependents	-	

TARGET 15: PILOT CENTRALISED COMPOSTING AT LANDFILL SITES

Description	Needs						
This study should include various types of viable composting (purchasing of a chipper) as well as what is saved on transport costs if containers are emptied less since greens are removed. If the project is deemed to be feasible, the NMBM should assist the Co-op with implementation of a pilot project. This function should be added to future tender specifications of Community Entities should the project be found to be viable.	▶ Move focus off BHB. Focus on landfill sites - rephrase. Not parking it – moving it to different area. MoU. Landfill machine – allowed for a chipper on as and when basis. MoU with Reliance.						
Cost, time & complexity	8	Consequence	2	Priority	3	Revised priority	3
Continuation of target	Yes - The item remains a priority for the NMBM.						
	Target precursors	-			Target dependents	-	

TARGET 16: REVIEW AND UPGRADE OF ONLINE WASTE EXCHANGE (NMBM WEBSITE, LANDING PAGE, MYWASTE)

Description	Needs						
The NMBM has developed and continues to operate a web-based Waste Exchange aimed at encouraging waste minimisation through the exchange of waste material in the NMBM area and thereby reducing the disposal of waste to landfill. The NMBM will document lessons learnt from this process in a formal review report which could be published as an article/paper. Following the review of the Waste Exchange the system will be upgraded as appropriate.	There, but not being used. Outdated. Not the best platform. Purpose to divert from landfill – things not waste. Replace with single link to MyWaste on NMBM landing page and local companies – encourage to update their details on MyWaste. Scrap and replace with link. The challenges are to identify the best platform for this service (there are existing platforms such as Facebook/Gumtree which can be utilised), to know the market and to know how feasible the idea is.						
Cost, time & complexity	5	Consequence	4	Priority	5	Revised priority	3
Continuation of target	Yes - The item was upgraded i.t.o. priority as it is important to have a platform for waste exchange operational in the NMBM, and National and Provincial government has a keen interest in these types of programmes.						
	Target precursors				Target dependents	Link Item 20	

TARGET 17: TO INVESTIGATE THE MOST APPROPRIATE AND COST-EFFECTIVE UTILISATION OF MUNICIPAL FLEET IN WASTE MANAGEMENT

Description	Needs

<p>Currently the Waste Management Sub-Directorate is rendering services by making use of the vehicles allocated to it by the Fleet Management Sub-Directorate located under the Infrastructure and Engineering Directorate. During times when there are shortages of fleet, i.e. breakdowns, clean-up campaigns, additional and replacement fleet/plant will be hired from external service providers (again via a Fleet Management tender from external suppliers as and when required).</p> <p>This situation may lead to underutilisation, or ineffective utilisation, as the urgency and dedication to make vehicles available may be lacking when having to procure via another Sub-Directorate.</p>		<p>Done internally by Fleet Management – already issues with turnaround time, etc. 54 trucks owned. Currently only 10% is operational. Main issue is the hydraulic lifts for wheelie bins. Study is urgent. Can outsource several components – don't need to get rid of assets. Two-bag system – might need different trucks at some stage. Do they want to split trucks - 50/50 split might not work because we don't know the % of recyclables yet. Might compromise normal waste collection – trips, etc. There was a request to appoint a transport engineer – didn't happen. Need to prove in writing. Need to prove that you have a challenge. No written agreement between WM and Fleet Management. Situation assessment of what's wrong. Need to link transport needs to masterplan and other IWMP items, e.g. wheelie bin policy.</p>					
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	No – The item is finalised.						
	Target precursors	-			Target dependents	-	

TARGET 18: INCREASING THE NR OF TRANSFER STATIONS/DROP-OFF CENTRES IN LINE WITH WM STRATEGY

Description	Needs						
<p>Additional waste drop-off centres and transfer stations are required throughout the NMBM area but especially in low-income areas where most residents do not have transport to travel long distances. The drop-off centres and transfer stations can be equipped with recycling facilities to fulfil the requirement in the Eastern Cape Provincial IWMP. Application for appropriate licences with DEDEAT. This project will follow the Waste Master Plan.</p>	<p>Discussions under 11, also 1 and 9. Masterplan – upgrading 2 and building 1 new. Funding is a problem. Masterplan – priorities set – comments from town planning. Facilities also differ significantly in the lower and middle - high income areas. Need DEDEAT input. Set a more realistic target for next IWMP.</p>						
Cost, time & complexity	14	Consequence	2	Priority	3	Revised priority	3
Continuation of target	Yes – This item remains a priority to the Municipality. NMBM to collate SALT comments. NMBM to liaise with NMBM I&E Wastewater Conveyance Section (Anderson Mancotywa) regarding cover material for Arlington. Zutari to complete the waste management strategy.						
	Target precursors	-			Target dependents	-	

TARGET 19: ENSURE COMPLIANCE WITH ALL PERMIT CONDITIONS AND APPLICABLE LEGISLATION AT LANDFILL SITES

Description	Needs
<p>Arlington and Koedoeskloof are being expanded on continuous basis, and to ensure compliance with permit conditions, 5-year implementation programmes are currently being prepared.</p> <p>From audits conducted, certain operational management procedures need to be attended to,</p>	<p>Various serious issues. Difficult to group it under one IWMP item, a separate needs analysis and prioritisation is needed.</p>

e.g. presence of litter pickers, and some upgrading of access control measures.							
Cost, time & complexity	15	Consequence	1	Priority	1	Revised priority	1
Continuation of target	Yes - The item remains a very high priority for the NMBM.						
	Target precursors	-		Target dependents	-		

TARGET 20: IMPLEMENTATION OF THE ILLEGAL DUMPING STRATEGY

Description		Needs					
<p>The NMBM drafted an Illegal Dumping Strategy in 2010 which has since been adopted by Council. The strategy maps out steps to be taken in the short, medium and long term in order to curb the high levels of dumping currently experienced in the NMB area.</p> <p>These include:</p> <ul style="list-style-type: none"> • Immediate actions: appoint additional town rangers, awareness projects, revise by-law schedule and identify redundant municipal land • Short term actions: addressing hot spots, and undertaking community projects • Medium to long term expenses: clearing illegally dumped waste, increasing frequency of collections, and improving capital infrastructure. <p>NMBM will implement this strategy in a phased manner to accommodate budget restrictions.</p>		<p>There is a strategy. Recon of study. Short, intermediate and long-term actions. Some has happened, other not. Need funding. Frequency of collection tied in here. 2012 document. Some of it carried over to the next IWMP. Illegal dumping is a major issue in the NMBM. There is an associated by-law. The problem is enforcement (there are currently only 5 enforcement officers for the whole Municipality) and it links back to Item 6 – organogram where shortages of enforcement staff can be addressed. It also links back to the available infrastructure to promote safe disposal of waste, discouraging illegal dumping.</p>					
Cost, time & complexity	7	Consequence	3	Priority	4	Revised priority	4
Continuation of target	Yes - The item remains a priority but can only be addressed if other items on the IWMP are finalised.						
	Target precursors	1, 6		Target dependents	-		

TARGET 21: PUBLIC AWARENESS STRATEGY AND PLAN

Description		Needs					
<p>The NMBM drafted an Illegal Dumping Strategy in 2010 which has since been adopted by Council. The strategy maps out steps to be taken in the short, medium and long term in order to curb the high levels of dumping currently experienced in the NMB area.</p> <p>These include:</p> <ul style="list-style-type: none"> • Immediate actions: appoint additional town rangers, awareness projects, revise by-law schedule and identify redundant municipal land • Short term actions: addressing hot spots, and undertaking community projects • Medium to long term expenses: clearing illegally dumped waste, increasing 		<p>No plan. Ad hoc. Illegal dumping survey. Same of each area to determine why people dump at certain hotspots.</p>					

frequency of collections, and improving capital infrastructure. NMBM will implement this strategy in a phased manner to accommodate budget restrictions.							
Cost, time & complexity	6	Consequence	4	Priority	5	Revised priority	5
Continuation of target	Yes - Not a high priority at this stage, however, a plan must still be put in place.						
	Target precursors	-			Target dependents	-	

TARGET 22: REVIEW PUBLIC AWARENESS & EDUCATION PROGRAMME

Description				Needs			
<p>The NMBM's on-going awareness and education activities include distribution of flyers and awareness with the Mobile Exhibition unit at community events, door-to-door visits, schools, businesses, etc.</p> <p>To enhance this ongoing programme, the NMBM will:</p> <ul style="list-style-type: none"> • Undertake an annual review of the success of activities for the year. The cost versus effectiveness of the programmes need to be analysed to identify the best use of funds. • Undertake a formal review of awareness material and update as needed. • Consider expanding the programme to include "give-aways", e.g. pens and caps as means of drawing more public interest. • Assess the current problems experienced and develop appropriate education and awareness material for each. 				No need for review - ongoing. Sort out mobile exhibition unit.			
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors	-			Target dependents	-	

TARGET 23: PREPARING A PUBLIC PERCEPTION PROTOCOL DOCUMENT

Description				Needs			
It is important that residents of the NMB area are satisfied with the waste service for which they are paying. In order to determine the perception that residents have of waste management in the NMBM, a perception survey will be carried out on a 5-yearly basis together with the revision of the IWMP. A standard assessment system should be adopted by the NMBM to facilitate comparison of results.				Completed.			

Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors				Target dependents		

TARGET 24: REVIEW OF THE COMPLAINTS MANAGEMENT SYSTEM

Description				Needs			
<p>The National Domestic Waste Collection Standards (GN21 of 2011) set clear standards for managing incoming complaints. Complaints must be responded to within 24 hrs and a register of complaints received and actions taken must be maintained. At present complaints have many entry points into the Public Health Directorate and the Waste Management Sub-Directorate. This includes the central NMBM complaints line situated at the JOC, the individual waste depots, the management offices in Lillian Diedericks Building and 14th floor Public Health Help Desk.</p> <p>The Public Health Directorate had previously established a directorate-specific complaints line, but this has since stopped operating. The Waste Management Sub-Directorate will investigate options for meeting the requirements of the above standards and implement a system that is deemed appropriate and that are in line with the current systems used in the NMBM.</p>				<p>Outsourced to larger public health system. KPI now. Reporting on non-collections, will be rolled out to all complaints eventually. Edams system.</p>			
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors	-			Target dependents	-	

TARGET 25: DEVELOP AN INFORMATION LEAFLET ON "HOW TO HANDLE YOUR WASTE"

Description				Needs			
<p>The National Domestic Waste Collection Standards (GN21 of 2011) stipulate that local authorities have a responsibility to produce guidelines for domestic waste management. A leaflet has been developed for the rural areas (farms, small holdings) with information on "how to handle your waste". A similar leaflet should be developed for the urban areas.</p> <p>There is presently a shortage of accessible information for residents on key waste management issues, i.e. what services are rendered, information on what is not allowed according to the by-laws, etc.</p> <p>When compiling a guideline document for public consumption, it needs to address:</p> <ul style="list-style-type: none"> • Kerb-side collections: What is acceptable, what is not and how to tell the difference. • Recycling: What is recyclable, separating at source, and where to drop off. 				<p>Done.</p>			

<ul style="list-style-type: none"> Hazardous waste: What to do with your hazardous domestic waste. Illegal dumping, by-laws and the applicable fines. 							
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors	-		Target dependents	-		

TARGET 26: WASTE INFORMATION CALENDAR

Description				Needs			
<p>The NMBM will produce a Waste Information Calendar for public distribution. The purpose of the calendar will be to mainstream responsible waste management practices in the Municipality. The following could be considered:</p> <ul style="list-style-type: none"> Investigate the appropriate way (i.e. tender route, appointment of marketing company, etc.) To be collection area (depot) specific. Display information to include local recycling facilities, waste complaints numbers, emergency numbers. Funded through advertisements from local businesses. 				<p>Info conveyed through other systems/platforms. Item can be replaced by something more important.</p>			
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors	-		Target dependents	-		

TARGET 27: IN-HOUSE WASTE INFO PORTAL

Description				Needs			
<p>The NMBM holds a significant amount of waste related information (legislation, waste related data, past reports, maps, etc.) electronically. In order to ensure that staff has access to this information, the location thereof will be formalised on a system located on the intranet. Training will be provided regarding what is available and where it can be found. Information will be loaded and updated as appropriate.</p>				<p>Not in place yet. The NMBM would like to pursue. Internal. Speak to IT whether they can do it or not. DEDEAT has a national waste information system available (SAWIS). The NMBM is feeding into SAWIS in terms of weighbridge measurements. A GIS system is available in the NMBM for each directorate's infrastructure/services.</p>			
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors	-		Target dependents	-		

TARGET 28: REVIEW OF THE WEIGHBRIDGE SOFTWARE AND THE CURRENT CATEGORISATION SYSTEM

Description	Needs
-------------	-------

<p>The current weighbridge software is becoming outdated and it is difficult to upgrade. Reporting functions is not included, and the system is getting slower as more data is added. Some of the categories used for the classification of waste at weighbridges at landfill sites are non-descriptive and not in line with the National WIS reporting requirements. The standardised classification of waste is critical as well as the reporting on the waste disposal statistics.</p> <p>The NMBM will therefore undertake a review of its current weighbridge software and update waste classification including:</p> <ul style="list-style-type: none"> • Alignment of waste categories and codes with National norms and standards. • Upgrading of existing software to be capable of generating statistical reports as this is now a legal requirement. • Upgrading of overall measurement and recording system at landfill sites. • Assess the effect of new waste categorisation on current tariffs. 				<p>It has been updated and the Municipality has an appointed service provider, if there are any issues. This item may be revisited if regulation changes occur i.t.o. waste categories.</p>			
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors	-		Target dependents	-		

TARGET 29: REVIEW BY-LAWS							
Description	Needs						
The NMBM Waste Management by-laws were adopted in 2010. However, the process of drafting these began several years prior to the National Environmental Management: Waste Act (59 of 2008). The by-laws need to be revised to include gaps identified between the current by-laws and the Waste Act. By-laws should be reviewed and updated on a 5-yearly basis as needed.	No bylaws on waste minimisation and NEM: WA legislation. Status quo assessment. The challenge is in its promulgation once finalised. There is a current revision of the NMBM's by-laws. It must be decided whether the NMBM's Waste Management will promulgate on its own or wait for the full NMBM by-law revision to be finalised.						
Cost, time & complexity	12	Consequence	2	Priority	2	Revised priority	2
Continuation of target	Yes - This item remains a high priority for the NMBM's Waste Management, i.t.o. enforcement of strategies and plans.						
	Target precursors	-		Target dependents	-		

TARGET 30: ENFORCEMENT STRATEGY							
Description	Needs						
The NMBM is in the process of developing an enforcement unit who will be responsible for by-law enforcement, focusing largely on illegal dumping. A strategy or plan will be required to guide this	Does have a unit - five rangers and CCTV control officer. One per depot. NEM: WA fines – standardise. Waste management inspector requirements. Final document was drafted. Community project. People need to be developed/capacitated to step into crucial roles and						

process. The NMBM will therefore draft a strategy which will consider: <ul style="list-style-type: none"> • Fining protocols • How to apply penalties • Recovery systems • How waste will work with other departments, e.g. DEDEAT, etc. • Identify staff that can act as Town Rangers or be trained as Town Rangers • Identify training for staff • Include CCTV control room functions 				provide the necessary support for enforcement to be successful.			
Cost, time & complexity	6	Consequence	3	Priority	4	Revised priority	4
Continuation of target	Yes - This item is dependent on other items of the IWMP to be finalised.						
	Target precursors	6, 20		Target dependents	-		

TARGET 31: REVIEW OF INDUCTION MATERIAL							
Description				Needs			
All newly appointed Waste Management staff to undergo induction training, conducted and facilitated by the Waste Management Sub-Directorate. The material used for induction training will be subject to formal review every two years to ensure the content is current.				Completed.			
Cost, time & complexity	N/A	Consequence	N/A	Priority	N/A	Revised priority	N/A
Continuation of target	N/A						
	Target precursors	-		Target dependents	-		

TARGET 32: REVIEW OF SKILLS PLAN AND IDENTIFY RELEVANT WASTE TRAINING							
Description				Needs			
There is a need to capacitate the Waste Management Sub-Directorate staff, particularly with regard to technical aspects of waste management. Guidelines should be drafted of the skills requirements per job description. The existing skills development plan should be altered according to these guidelines. This plan will be reviewed and updated annually, together with a review of available Waste Management courses and will be approved by the Skills Development Focus Group.				Should be operational. Issues with finding appropriate training. Have a template for skills development. Check with other municipalities what they're doing. Training for landfill management will be included in the operation management plan. Courses are being offered, and usually when there are changes in legislation, the competent authorities roll out training sessions for affected parties to close the knowledge gap.			
Waste Management courses need to be approved by the NMBM and the Local Government SETA and placed on the approved list of service providers.							

Cost, time & complexity	5	Consequence	4	Priority	4	Revised priority	4
Continuation of target	Yes - None						
	Target precursors	-		Target dependents	-		

TARGET 33: IWMP AWARENESS CAMPAIGN/REPEAT IN-HOUSE AWARENESS CAMPAIGN							
Description	Needs						
<p>The objectives and planned projects as documented in this IWMP should be communicated to the Waste Management Sub-Directorate staff through an internal awareness campaign.</p> <p>Update sessions should thereafter be held in order to inform staff of progress made on key projects and where needed, general awareness of waste management issues.</p>	<p>Can address as individual project as well. Once minutes are done, can perhaps consolidate and develop a brief communication to other staff. Given that a Public Participation Process (PPP) must be done for the new IWMP, the idea is to have a staff development component (specifically linking crucial information and expectations pertaining to the relevant NMBM Directorates/Sub-Directorates) included under the PPP.</p>						
Cost, time & complexity	6	Consequence	5	Priority	5	Revised priority	5
Continuation of target	Yes - This item can be done once the new IWMP has been developed.						
	Target precursors	-		Target dependents	-		

TARGET 34: INVESTIGATE POSSIBLE ALTERNATIVE FUNDING SOURCES							
Description	Needs						
<p>There is an ever-increasing demand to provide adequate infrastructure to reward acceptable levels of waste removal. With current limits set for provision on capital budgets, it has become critical that possible alternative sources of funding be identified, together with the requirements for accessing such funds. The possibility of forming PPP's will be included. This project will entail the investigation of alternative sources of funding and preparing a manual for use as and when suitable projects are identified. Identified projects can also be linked with sources upfront.</p>	<p>Not using funding sources available. MIG funding. The NMBM to get list of funding sources. DEDEAT can assist if they are aware of the funding needs of municipalities. Municipalities (including NMBM) should provide annual reports to DEDEAT on their progress and take it as an opportunity to highlight the need for funding/intervention.</p>						
Cost, time & complexity	9	Consequence	2	Priority	2	Revised priority	2
Continuation of target	Yes - It remains a high priority to access external funding wherever possible, as the Municipality has many priorities with not enough funds. However, there must be an understanding of what is needed first before funding can be applied for.						
	Target precursors	-		Target dependents	-		

6 Goals, Objectives and Target Assessment

6.1 Identification and evaluation of goals

The desired end state entails identifying priorities and goals that a municipality wishes to attain with regard to waste management. Using the information collected on the historical and present waste management situation, strategic goals for the IWMP should be developed. These should aim to address the gaps and the needs of the community and more importantly should respond to the Waste Act requirements. A program on how these will be attained is developed as an implementation plan. The strategic goals must be set based on the relevant waste legislation, regulations and policies and should be guided by the waste management hierarchy principles. Further, it should also include the setting of targets for waste management services such as collection, recycling, recovery and disposal. The setting of goals, objectives and targets must also take into consideration the municipal response to the goals and targets set in the National Waste Management Strategy.

The National Waste Management Strategy provides a set of goals that municipalities must achieve in the next five years in order to give effect to the Waste Act. It contains an action plan with various targets to be achieved by municipalities in the next five years. It is important that there should be a target date by which municipal strategic goals and targets are to be attained within the 5 years from the date the IWMP has been approved.

Strategic goals can be divided into:

- ▶ Immediate: 1 year
- ▶ Short term: 2 to 3 years
- ▶ Medium term: 3 to 5 years
- ▶ Long term: 5 to 10 years

In order to align the NMBM's goals with those of the Eastern Cape IWMP (2018 - 2023) and the NWMS (2020), the following goals were formulated:

- ▶ Goal 1: Promote recycling and recovery of waste
- ▶ Goal 2: Ensure the effective and efficient delivery of waste services
- ▶ Goal 3: Develop legislative tools to enforce the Waste Act and other applicable legislation
- ▶ Goal 4: Ensure sound budgeting and financing for integrated waste management
- ▶ Goal 5: Ensure the safe and proper disposal of waste
- ▶ Goal 6: Education and awareness
- ▶ Goal 7: Compliance and enforcement

Goal 1: Promote recycling and recovery of waste			
Intermediate goals	Short term goals	Medium term goals	Long term goals
Establish mechanisms for promoting separation at source.	Roll out separation at source to 30% of households.	Roll out separation at source to 70% of households.	100% households receiving separation at source.
Conduct a feasibility study to determine whether there is a need to establish buy-back centres.	Develop plans to establish buy-back centres.	Buy-back centres established.	
Develop a composting strategy to divert garden waste from landfill.	Establish a compost recycling facility at/near Arlington landfill.	Compost recycling facility operational.	Maintain existing facility and establish an additional facility.

Goal 1: Promote recycling and recovery of waste	
Target:	Divert 20% of recyclable waste away from landfill sites.
Legal requirements:	Norms & Standards for Disposal of Waste by Landfill, 2023; Waste Act 59 of 2008, and Norms and Standards for Storage of Waste, 2013.
Financial requirements:	Costing of 2 - 4 labourers per drop-off site per month.
Human resource requirements:	To be determined.
Equipment requirements:	Bin requirements, transport/truck requirements to be used & its maintenance plan, supervisory staff.
Other requirements:	Budget to be set aside for during emergencies, in case of industrial strike action drop-off sites are used as an alternative site for domestic disposal of waste.
Consequences if not achieved:	No recycling initiatives will be implemented.



Goal 2: Ensure the effective and efficient delivery of waste services			
Intermediate goals	Short term goals	Medium term goals	Long term goals
Compile Operational Manual to assist landfill supervisors/ operators with managing the facilities in line with audit recommendations.	Apply for an amended waste licence to align all facilities approved under current legislation.	Educate landfill supervisors/operators in order that the disposal facility can be run in accordance with the licence requirement.	Educate waste disposal supervisors/operators in order that the disposal facility can be run in accordance with the licence conditions.
Determine the available waste disposal airspace and apply for a waste licence to construct a new waste disposal facility.	Secure funding for the construction of a new waste disposal facility. Construction of waste disposal facility.	Secure funding for the construction of a new waste disposal facility. Construction of waste disposal facility.	Secure funding for the construction of a new waste disposal facility. Construction of waste disposal facility.

Goal 2: Ensure the effective and efficient delivery of waste services	
Target:	100% refuse collection service to all households of the NMBNM.
Legal requirements:	Constitution of the Republic of SA, NEMWA, NEMA, and Norms and Standards for Disposal of Waste Landfill.
Financial requirements:	Refuse administration (R20 million).
Human resource requirements:	Filling of all vacant positions of refuse and cleansing services.
Equipment requirements:	Recapitalisation of fleet (refuse compactors, tipper trucks, front-end loaders and flat deck trucks, roll-on/roll-off trucks, and bin lifter truck). R100 million.
Other requirements:	Purchasing of new LDVs for supervisory staff.
Consequences if not achieved:	Refuse will not be collected, and supervisory role will not be done effectively if there is no transport to do so.



Goal 3: Develop legislative tools to enforce the Waste Act and other applicable legislation

Intermediate goals	Short term goals	Medium term goals	Long term goals
Continue reporting monthly on SAWIS.		Appoint additional GIS operator to take over function.	Update bylaws
Attend the quarterly EQM forum presented by DEDAET and report back.		Review the Integrated Waste Management Plan	

Goal 3: Develop legislative tools to enforce the Waste Act and other applicable legislation

Target:	Recruitment of town rangers and peace officers.
Legal requirements:	Enforcement of the Waste By-law and other by-laws.
Financial requirements:	R3 million.
Human resource requirements:	There are 5 existing town rangers and another 5 is required.
Equipment requirements:	LDVs are required.
Other requirements:	PPE, and municipally contracted Peace Officers.
Consequences if not achieved:	Limited enforcement of Waste Management By-laws.


Goal 4: Ensure sound budgeting and financing for integrated waste management

Intermediate goals	Short term goals	Medium term goals	Long term goals
Conduct full cost accounting for waste services.			Review and implement tariffs for waste collection and disposal.
Allocate budget for waste services from equitable share funding.	Allocate budget for waste services from equitable share funding.	Allocate budget for waste services from equitable share funding.	Allocate budget for waste services from equitable share funding.

Goal 4: Ensure sound budgeting and financing for integrated waste management

Target:	Implement all IWMP projects (projects that are included and budgeted for on the approved IMWP for the NMBM).
Legal requirements:	Compliance with the National Environmental Management Waste Act, no. 59 of 2008.
Financial requirements:	R4 million.
Human resource requirements:	Filing of all vacancies of 3x CLOs and Planning Section, Manager: Planning and Contracts, Development Officer position, 1x Driver MEU position to be filled for conducting of education and awareness programmes.
Equipment requirements:	Transport requirements as per JD of each post.
Other requirements:	Filling of lower-level vacancies of street sweepers, refuse carriers and drivers.

Goal 4: Ensure sound budgeting and financing for integrated waste management

Consequences if not achieved:	Minimal or limited implementation of IWMP projects.
-------------------------------	---


Goal 5: Ensure the safe and proper disposal of waste

Intermediate goals	Short term goals	Medium term goals	Long term goals
Develop a strategy for the collection of waste services.	Increase the roll-out of waste collection services by 50% of households (including indigents).	Increase the roll-out of waste collection services by 70% of households (including indigents).	Increase the roll out of waste collection services by 100% of households (including indigents).
Submit reconsolidated fleet statement monthly.			
Do feasibility to replace communal skips with containers.		Replace skips.	
	Upgrade bins on beach front.	Upgrade drop-offs.	
Do Transport Assessment study to determine effectiveness of fleet.	Implement recommendations from transport study.		Compile standard tender documents to replace fleet. Replace fleet older than 10 years.

Goal 5: Ensure the safe and proper disposal of waste

Target:	Develop and approve new development plans for Arlington and Koedoeskloof landfill sites, submit them for approval to National DEAT, closure and rehabilitation of hazardous pond at Koedoeskloof, construction of the new wet cell for both landfill sites, fencing of Koedoeskloof landfill site, diversion of 50% of recyclable waste away from the landfill sites, construction of the ablution facilities, finalise the construction of the new weighbridge, formalisation of the waste pickers, consistent auditing of the landfill sites (closed and active sites).
Legal requirements:	National Environmental Management Waste Act, no. 59 of 2008, Norms and Standards for Disposal of Waste by Landfill, 2013, National Waste Management Strategy, 2020.
Financial requirements:	R150 million (3-year financial plan to fund this).
Human resource requirements:	Filling of vacancy of Senior Superintendent for Waste Disposal.
Equipment requirements:	LDV for supervisory staff.
Other requirements:	Upgrade of staff offices together with the ablution facilities.
Consequences if not achieved:	Non-compliance with the permit conditions of the landfill sites, penalties of up to R10 million might be imposed to the Accounting Officer.



Goal 6: Education and awareness			
Intermediate goals	Short term goals	Medium term goals	Long term goals
Develop an education and awareness strategy and training materials to roll out education and awareness campaigns.		Education and awareness campaigns implemented in a sustainable manner.	
	Develop a school competition programme to encourage schools' involvement in waste management issues, i.e. recycling.	Roll out the competition and work closely with the schools to ensure maximum participation.	

Goal 6: Education and awareness	
Target:	Repairs for MEU (Mobile Exhibition Unit) or purchasing of new mobile trolley - truck for conducting education and awareness programmes around the NMBM, filling of vacancies of CLOs, filling of vacancy of Development Officer and filling of vacancy of Manager: Planning and Contracts.
Legal requirements:	National Environmental Management Waste Act, no. 59 of 2008.
Financial requirements:	R5 million.
Human resource requirements:	1x Manager: Planning and Contracts, 1x Development Officer, 5x CLOs, 1x driver for MEU.
Equipment requirements:	Transport for the abovementioned staff as per their signed contracts/JD.
Other requirements:	Tools of trade such as laptops, education and awareness material.
Consequences if not achieved:	Limited education and awareness will be conducted.



Goal 7: Compliance and enforcement			
Intermediate goals	Short term goals	Medium term goals	Long term goals
Determine the required number of Rangers for the Municipality to enforce by-laws and other waste transgressions.	Appoint staff to enforce by-laws. Enforce by-laws.	Enforce by-laws.	Enforce by-laws.
Develop a system for residents to report waste transgressions.	Allocate person to take responsibility and report back.		
Perform an internal audit of landfill sites quarterly			Perform external annual audit of landfill sites

Goal 7: Compliance and enforcement			
Intermediate goals	Short term goals	Medium term goals	Long term goals
within one month of the end of the quarter.			before end of February each year.
		Review the Integrated Waste Management Plan.	

Goal 7: Compliance and enforcement	
Target:	Increase the number of fines issued to the perpetrators that are dumping illegally.
Legal requirements:	National Environmental Management Waste Act, no. 59 Of 2008.
Financial requirements:	Filling of vacancies for Town Rangers and enter into contract with Peace Officer.
Human resource requirements:	Filling of vacancies 3x Town Rangers.
Equipment requirements:	LDVs for transportation in order to enforce by-laws.
Other requirements:	Required tools of trade such as fine books, PPE and batons.
Consequences if not achieved:	Limited enforcement will occur.

7 Implementation

7.1 Implementation instruments

7.1.1 Partnerships

- ▶ **Public-public partnerships:** this can be a partnership (between a District Municipality and Local Municipality) for collaborating on waste services such as the establishment of a regional waste disposal facility or in instances where local municipalities have limited capacity to provide the delivery of waste services.
- ▶ **Public-private partnerships (PPP):** for collaborating on financial assistance for waste services, establishment of waste management facilities, establishment of separation at source and other waste management initiatives, i.e. development and management of waste disposal facilities, establishment and management of MRFs, transfer stations, and recycling facilities.
- ▶ **NGO/Community-based Organisations (CBO's):** partnership with the Municipality in order that they may participate or carry out awareness, and education campaigns and programs.

The following provides a snapshot of how these partnerships could work, as well as indicates the various aspects that a municipality could partner on with the identified stakeholders.

- ▶ **Public-private-partnerships:** could be formed by calling for proposals from interested parties to indicate how they are going to deliver a certain aspect to waste management. Once the tender has been concluded, the Municipality should sign a memorandum of understanding (MOU) in order to ensure that the conditions contained in the MOU are met. The Municipality could decide to play an oversight role while the service provider will be responsible for the delivery of the service. Some of the services could include carrying out recycling initiatives through Community Entities (Co-ops), private companies or through a community-based waste collection method, etc.
- ▶ **Leases:** in this type of a partnership a municipality would lease land to Co-ops or a private company to establish a buy-back centre in order to carry out recycling.
- ▶ **Privatisation:** of a waste collection service, i.e. the transportation aspect to the service/ transfer of ownership whereby a driver-owner scheme could be in place. This entails the owner of a truck being the actual driver that provides the service on behalf of the Municipality.
- ▶ **Joint ventures:** in a wide variety of areas such as in operating a waste disposal site, or in the construction of a waste disposal facility where a private company would be responsible for the project or certain aspects thereof.

7.1.2 Funding mechanisms

Below are some examples of economic instruments that could be considered for funding the various aspects to waste management.

Funding mechanisms for recycling

Recycling initiatives could be funded through public-private initiatives whereby the Municipality could provide receptacles for separation at source by households and a recycling company could, at their cost, collect the recyclables.

Another scenario could be that of community-based recyclers, wherein they could organise themselves and with the help of a municipality participate in recycling where they could be the ones employed in carrying the

further sorting of recyclables in a buy-back centre, which could then be sold to recycling companies as a way of generating income to sustain the program.

Further, the following funding models could be employed in order to ensure the financial sustainability of waste management initiatives:

- ▶ Fiscal funding allocation.
- ▶ User charges, e.g. volumetric charging.
- ▶ Revenue collection from penalties, fines or levies.
- ▶ Establishing of partnerships with industry, wherein the industry may finance aspects of recycling, i.e. fund the transport costs to carry out recycling (the NWMS has identified the packaging industry as one of the industries that must develop an Industry Waste Management Plan which should stipulate how it will deal with packaging waste so that it does not land up at waste disposal facilities).

Funding mechanisms for waste collection and transportation

To facilitate the funding of waste collection and transportation, possible sources of funding for waste collection and transportation could include:

- ▶ Payment for services rendered (full cost accounting will ensure that appropriate fees are charged) in order for waste management services to be delivered sustainably. Cross-subsidisation could be explored whereby poor communities could be subsidised by paying households in order for basic services to be rendered to indigent households.
- ▶ Local government budgetary allocations (from equitable share funding allocation).
- ▶ Use of public-private partnerships.

7.2 Implementation plan

For the Waste Management Sub-Directorate to provide effective and efficient service, adequate operational and capital budget should be provided to effectively achieve the deliverables. For more details related to budget and resources, refer to Section 4.6.

The Implementation Plan for the IWMP is included as ANNEXURE C

8 Evaluation, Monitoring and Review Mechanisms

8.1 Reporting

Section 13(3) of the NEM:WA requires annual performance reports to be prepared in terms of Section 46 of the Municipal Systems Act. The purpose of these reports is to provide feedback on the implementation of the IWMP with regard to the following aspects as set out in Section 13(2) of NEM:WA:

- ▶ The extent to which the plan has been implemented during the period.
- ▶ The waste management initiatives that have been undertaken during the reporting period.
- ▶ The delivery of waste management services and measures to be taken to secure the efficient delivery of waste management services, if applicable.
- ▶ The level of compliance with the plan and any applicable waste management standards.
- ▶ The measures taken to secure compliance with waste management standards.
- ▶ The waste management monitoring activities.
- ▶ The actual budget expended on implementation of the plan.
- ▶ The measures that have been taken to make any necessary amendments to the plan.

8.2 Monitoring

The implementation of the IWMP must be monitored quarterly by the designated WMO in terms of the Municipality's progress in meeting the goals, objectives and targets set out in the Implementation Plan (available in Appendix I). More specifically, the report must include, but is not be limited to, the following:

- ▶ Strategic concerns: The NMBM's performance and progress with regard to short, medium and long term goals, objectives and targets, and if any amendments are required to the IWMP in response to strategic or financial concerns.
- ▶ Financial concerns: Monitor the actual budget used in terms of the forecasted budget expenditure, while also reviewing budgeting constraints and confirming available budget with respect to existing/current waste management operations/projects and the implementation of this IWMP.
- ▶ Public accountability: Keeping councillors, stakeholders and residents informed of the status of the IWMP's implementation, including waste management initiatives.

8.3 Review of IWMP

Since IWMPs are part of municipal Integrated Management Plans, all municipalities are required to review their IWMPs every five years. This helps to ensure the successful implementation thereof by confirming the status quo, identifying gaps, needs and lessons learned. As such, the next review of this IWMP would commence in 2027 for publication in 2028.

9 Way Forward

As per Chapter 3, Section 11(4)(a)(ii) of the NEM:WA (Act 59 of 2008), each municipality must include their approved IWMP in its IDP as contemplated in Chapter 5 of the Municipal Systems Act to be approved by Council. This is to ensure that the approved IWMP forms part of the municipal IDP with the goals and targets contained in the IWMP prioritised and that Council will implement the IWMP. Furthermore, this allows that waste management infrastructure is streamlined with other essential services such as water and sanitation, housing and electrification.

Going forward, this IWMP will be made available to the public for a 30-day comment period. All comments received during this period will be captured and responded to in a Comments and Response Report and incorporated into the Final IWMP which will be submitted to the MEC for approval.

In accordance with Section 11(4) of NEM:WA, the MEC may within 30 days of receiving the IWMP request the NMBM to adjust the plan in accordance with the MEC's proposal if the plan -

- a) does not comply with a requirement of NEM:WA, or
- b) conflicts with, or is not aligned with, or negates any relevant IWMP or the national waste management strategy, or
- c) request the NMBM to comply with a specific provision of NEM:WA related to the development of the IWMP if the Municipality has failed to comply with the process or provision of the Act, or
- d) approve the IWMP for implementation.

Should any amendments be required to the IWMP during its five-year validity period, the same process described above would apply.

10 References

- Cooperative Governance & Traditional Affairs, 2020. *N52/Nelson Mandela Bay Metro : Profile and Analysis - District Development Model*, Pretoria: Cogta.
- CSIR, 2000. *Guidelines for Human Settlement Planning and Design (Boutek Report No. BOU/E2001)*, Pretoria: CSIR.
- CSIR, 2019. *Greenbook: Adapting South African Settlements to Climate Change*. [Online] Available at: <https://riskprofiles.greenbook.co.za/> [Accessed 19 July 2019].
- DEA, 2011. *National Waste Management Strategy*, s.l.: Department of Environmental Affairs (DEA).
- DFFE, 2005. *Waste information Centre*. [Online] Available at: <http://sawic.environment.gov.za/> [Accessed 24 June 2021].
- DFFE, 2020b. *National Waste Management Strategy*, Pretoria: Department:Environment, Forestry & Fisheries.
- DFFE, 2020. *Integrated Waste Management Plan Guideline Document*. [Online] Available at: iwmp.environment.gov.za [Accessed 04 2020a].
- DWAF, 1998. *Minimum Requirements Waste Disposal to Landfill*, Pretoria: DWAF.
- ECSECC, 2017. *Nelson Mandela Bay Metro Municipality Socio Economic Review and Outlook*, Vincent: Eastern Cape Socio Economic Consultative Council (ECSECC).
- Gibb, 2016. *Nelson Mandela Bay Municipality Integrated Waste Management Plan 2016-2020*, Port Elizabeth: NMBM.
- Gibb, 2016. *NMBM Drop-off facility Master Plan*, Port Elizabeth: Unpublished .
- Gibb, 2019. *Eastern Cape Provincial IWMP*, s.l.: DEDEAT.
- Godfey, L. & Oelofse, S., 2017. Historical Review of Waste Management and Recycling in South Africa. *Resources*.
- Godfrey, L. & Oelofse, S., 2017. Historical Review of Waste Management and Recycling in South Africa. *Resources*, 6(4), p. 57.
- Haggar, E. & Salah, P., 2007. *Sustainable Industrial Design and Waste Management: Cradle to Cradle for Sustainable Development*, s.l.: s.n.
- Maclear, L. G., 1996. *The Geohydrology of the Swartkops River Basin-Uitenhage Region, Eastern Cape*, Cape Town: Unpublished MSc Thesis UCT.
- Macrotrends, 2020. *Nelson Mandela Bay, South Africa Metro Area Population 1950-2020*. [Online] Available at: [Source](https://www.macrotrends.net/cities/22499/nelson-mandela-bay/population) [Accessed May 2020].
- Municipal Demarcation Board, 2020. *MDB Know Your Wards 2020*. [Online] Available at: <https://dataportal-mdb-sa.opendata.arcgis.com/apps/c2636e8bf46448de94224fc40fd5d8ec/explore> [Accessed 23 November 2021].
- National Treasury, 2019. *Current and historical Municipal budget and financial performance data from the National Treasury. 4 years of data..* [Online] Available at:

<https://municipaldata.treasury.gov.za/table/inexp/?year=2021&municipalities=NMA&amountType=AUDA&functions=1011>

[Accessed 30 March 2022].

NEM:WA, 2014. *Act No. 26 of 2014: National Environmental Management: Waste Amendment Act, 2014*, Pretoria: Government Gazette.

NMBM, 2010. *Waste Transporters*. [Online]

Available at: <https://www.nelsonmandelabay.gov.za/waste-transporter>

[Accessed 27 May 2021].

NMBM, 2018. *Integrated Development Plan (2018 - 2022)*, Port Elizabeth: Nelson Mandela Bay Municipality (NMBM).

NMBM, 2019. *Built Environment Performance Plan (BEPP)*, Port Elizabeth: Nelson Mandela Bay Municipality (NMBM).

NMBM, 2020. *Demographic Information*. [Online]

Available at: <https://municipalities.co.za/demographic/1/nelson-mandela-bay-metropolitan-municipality>

[Accessed 04 2020].

NMBM, 2024. *2022/23-2026/27 Integrated Development Plan (Edition 30)*, Gqeberha: NMBM.

Oelofse, S. H., Muswema, A. P. & Koen, R., 2016. *The changing face of waste management – considerations when conducting a waste characterisation study*. Johannesburg, Institute of Waste Management of South Africa, p. 5.

South African Cities Network, 2020. *State of City Finances 2020*, Johannesburg: South African Cities Network (SACN).

SRK, 2002. *IBayi Closure report*, Port Elizabeth: Unpublished.

StatsSA, 2011. *Census 2011*, s.l.: s.n.

StatsSA, 2011. *My Settlement*. [Online]

Available at: http://www.statssa.gov.za/?page_id=4286&id=6717

[Accessed 15 March 2021].

StatsSA, 2016. *Community Survey*. [Online]

Available at: <http://www.statssa.gov.za/>

[Accessed 04 2020].

StatsSA, 2018. *General Household Survey*, s.l.: s.n.

StatsSA, 2020b. *P0305 Recorded live births 2019*, Pretoria: Government Printer.

StatsSA, 2020. *Mortality and Causes of Death in South Africa: Findings from death notifications*, Pretoria: Government Printer .

StatsSA, 2022. *General Household Survey, Selected development indicators, Metros 2020*, Pretoria: StatsSA.

Sustainable Seas Trust, n.d. *Recycling and Waste Locations*. [Online]

Available at: https://sstafrika.org.za/my_map/index_waste_recycle.html

[Accessed 10 March 2022].

Abbreviations

CBO	Community Based Organisation
C&D	Construction and Demolition
COGTA	Cooperative Governance and Traditional Affairs
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environment Affairs (original name under which documents were issued currently DFFE)
DFFE	Department of Forestry, Fisheries and the Environment
EMI	Environmental Management Inspector
EPR	Extended Producer Responsibility
EPWP	Extended Public Works Programme
e-Waste	Electronic Waste
eWASA	e-Waste Association of South Africa
GDP	Gross Domestic Product
HCRW	Health Care Risk Waste
IDP	Integrated Development Plan
IWMP	Integrated Waste Management Plan
IndWMPs	Industry Waste Management Plans
MEC	Member of Executive Council
MiG	Municipal Infrastructure Grant
MOU	Memorandum of Understanding
MRF	Material Recovery Facility
MSA	Municipal Systems Act
NGO	Non-Governmental Organisation
NPSWM	National Pricing Strategy for Waste Management
NT	National Treasury
NWMS	National Waste Management Strategy
NEM:WA	National Environmental Management Waste Act, 2008, as amended in 2014
NPA	National Prosecuting Authority
PETCO	Plastic Recycling South Africa
POPs	Persistent Organic Pollutants
SABS	South African Bureau of Standards
SACN	South African Cities Network
SAEWA	South African E-Waste Alliance
SALGA	South African Local Government Association
SANS	South African National Standards
SAPS	South African Police Service
SARS	South African Revenue Service
SAWIC	South African Waste Information Centre

SAWIS	South African Waste Information System
SDF	Spatial Development Framework
SEIAS	Socio-Economic Impact Assessment Study
SETA	Sector Education Training Authority
SMME	Small, Micro and Medium Enterprise
SOP	Standard Operation Procedure
SoWR	State of Waste Report
Stats SA	Statistic South Africa
WCMR	Waste Classification and Management Regulations
WMO	Waste Management Officer
WWTW	Wastewater Treatment Works

Glossary of Terms

Basic refuse removal	A baseline service level as established under Clause 9.1 of the National Policy of Basic Refuse Removal to Indigent Households (Notice 413 of 2011).
Best Practicable Environmental Option	means the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term (NEM:WA, 2008).
Best Practice	Process, technique, or innovative use of technology, equipment or resources that has a proven record of success in providing significant improvement in cost, schedule, quality, performance, safety, environment, or other measurable factors which impact on an organisation (Gibb, 2016).
Biogas	Refers to the mixture of gases produced by the breakdown of organic matter in the absence of oxygen (anaerobically), primarily consisting of methane and carbon dioxide (NWMS 2020).
Biomass	Refers to plant or animal material used for energy production (electricity or heat), or in various industrial processes as raw substance for a range of products (NWMS 2020).
Buy-back facility	A centre where people sell recyclable material they have collected. Recycling companies buy recyclable materials from the buy-back centres and pay only for the materials they can use. (Municipal Waste Sector Plan, 2012).
Business waste	Waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment or government administration purposes, as defined in Schedule 3 (NEM:WA 2014).
By-law	Legislation passed by the Council of a municipality binding in the Municipality on the persons to whom it applies (Municipal Systems Act, 2000).
Carcinogen	A chemical substance or a mixture of chemical substances which induces cancer or increase its incidence when inhaled, ingested or absorbed through the skin (SANS 10234:2019).
Circular Economy	An economy that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles (NWMS 2020).
Clean Production	The continuous application of integrated preventative environmental strategies to processes, products and services to increase overall efficiency and to reduce impact of such processes, procedures and services on health and the environment (NEM:WA, 2008).
Composting Facility	Facility for the aerobic decomposition of biodegradable organic matter to produce compost (Municipal Waste Sector Plan, 2012).
Community Entities	An enterprise jointly owned and managed by its employees, which provides waste-related services (e.g., litter-picking, street sweeping) to the communities as per contract with an authority. They are envisioned to bring about an improved feeling of ownership and responsibility in communities and generate entrepreneurship in previously disadvantaged communities.
Cradle to cradle	A term used to describe a closed-loop lifecycle of a product, emphasising that waste need not be the end of by-products, but that it could be used as raw material for other purposes (Haggar & Salah, 2007).
Decommission	In relation to waste treatment, waste transfer or waste disposal facilities, means the planning for and management and remediation of the closure of a facility that is in operation or that no longer operates.

Disposal	The burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land (NEM:WA, 2008).
Domestic waste	Waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes (NMBM Municipality: Waste Management By-laws, 2010).
Drop-off centre	A facility where the public is able to drop off garden refuse, source separated recyclables and bulky waste, for which there is no kerb-side collection service. These are formal, constructed sites. These sites are for residents only and trade waste is not accepted. These facilities were previously referred to as Garden Refuse Transfer Stations by the NMBM (Gibb, 2016).
Environment	The surroundings within which humans exist and that are made up of (i) the land, water and atmosphere of the earth (ii) micro-organisms, plant and animal life (iii) any part or combination of (i) and (ii) and the interrelationships among and between them, and (iv) the physical, chemical, aesthetic and culture properties, and conditions of the foregoing that influence human health and well-being (NEMA, 1998).
Environmental Governance	The processes of decision-making involved in the control and management of the environment and natural resources. It is also about the manner in which decisions are made (i.e. are they made behind closed doors or with input from the broader public). Principles such as inclusivity, representation, accountability, efficiency and effectiveness, as well as social equity and justice, form the foundation of good governance.
Garden waste	Organic biodegradable waste material generated from the likes of a typical garden or similar vegetation waste generated from municipal parks and gardens.
General waste	Waste that does not pose an immediate hazard or threat to health or to the environment, and includes (a) domestic waste (b) building and demolition waste (c) business waste (d) inert waste, or (e) any waste classified as non-hazardous waste in terms of the regulations made under Section 69, and includes non-hazardous substances, materials or objects within business, domestic, inert, building and demolition waste (NEM:WA, 2014).
Gross Geographic Product (GGP)	GGP is an indicator used to measure the size of an economy. The GGP of a particular area (i.e. province, region or city) amounts to the total value of goods and services produced within that economy in a given year.
Hazardous waste	Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within business waste, residue deposits and residue stockpiles as outlined in Schedule 3 (NEM:WA, 2014).
Human Development Index	HDI is a means of measuring well-being by considering factors such as life expectancy, literacy, education, standard of living and Gross Domestic Product per capita. The HDI index is measured from 0 to 1.0 with 0 indicating poorly developed areas and 1.0 indicating areas that are better developed (i.e. their population is better off).

Illegal Dumping	Means any waste discarded by a person in any place other than a waste disposal facility (designated landfill, drop-off, transfer station) or designated receptacle.
Incineration	Any method, technique or process to convert waste to gases and residues by means of oxidation (NEM:WA, 2008).
Indigent	A condition in which total household income is less than R3 720 per month.
Industry	Includes commercial activities, commercial agricultural activities, mining activities and the operation of power stations (NEM:WA, 2008).
Inert waste	Waste that - (a) does not undergo any significant physical, chemical or biological transformation after disposed (b) does not burn, react physically or chemically biodegrade or otherwise adversely affect any other matter or environment with which they may come into contact, and (c) does not impact negatively on the environment because of its pollutant content, and due to the toxicity of its leachate is insignificant as listed in Schedule 3 (NEM:WA, 2014).
Landfill	An authorised site for the controlled disposal of waste material, also a waste disposal site (Municipal Waste Sector Plan, 2012).
Integrated Development Planning	It is the Municipality's principal people-driven strategic developmental planning document. Importantly, it ensures close co-ordination and integration between projects, programmes and activities, both internally (between clusters and directorates) and externally (with other spheres of government).
Integrated Waste Management	Means employing several waste control and disposal methods, i.e. reduce, re-use, recycle, incineration and landfilling, to minimise the environmental impact of commercial and industrial waste streams.
Minimum Requirements	Refers to the Minimum Requirements series of documents relating to the handling, classification, treatment and disposal of general and hazardous waste, published by the Department of Water Affairs and Forestry in 1998 and updated periodically (DWAF, 1998).
Materials Recovery Facility	A specialised plant that receives, separates and prepares recyclable materials for marketing to end-user manufacturers and/or recycling companies (Municipal Waste Sector Plan, 2012).
Nelson Mandela Bay Municipality (NMBM)	The Nelson Mandela Bay Municipality, a Category A municipality established by Part 2 of Schedule 1 of Notice 85 in the Eastern Cape Provincial Gazette No. 654 on 27 September 2000, promulgated in terms of Section 12(1) of the Local Government: Municipal Structures Act 117 of 1998, for the municipal area described in such notice (Integrated Environmental Policy for the NMBM, 2012).
Policy	Provides guidance for legislation and administration. Does not refer to the development of implementation plans or operational issues, and does not define roles and responsibilities (NMBM IWMP, 2016).
Polluter Pays Principle	All costs associated with waste management should, where possible, be borne by the waste generator.
Recovery	The controlled extraction or retrieval of any substance, material or object from waste (NEM:WA, 2008).
Recycle	The process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material (NEM:WA, 2008).
Recycling Point	A facility where the public can drop off source-separated recyclable material into marked containers/bins. No money is paid for the recyclables. Recycling points

	are usually found at schools, libraries and vehicle service stations. These facilities are owned and serviced by the private sector (NMBM IWMP, 2016).
Re-use	To utilise the whole, a portion of or a specific part of any substance, material or object from the waste stream for a similar or different purpose without changing the form or properties of such substance, material or object (NEM:WA, 2008).
Sustainable Development	The integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations (NEMA, 1998).
Swop Shop	A facility where waste is traded for other commodities, temporarily stored before it is transported more economically to either recycling centres or landfills.
Tariff	A service charge that the Municipality charges for the use of services. The prices of these services should be affordable for the people who use the services, and to the Municipality itself. Ward committees should advise councillors on the services needed in the area, what is an affordable price (or "tariff") for the services, and how to ensure that people pay for their services. Community organisations should get involved in consultation meetings to discuss efficient and cost-effective service delivery.
Temporary Skips	These are large bulk skips placed in communities for surplus garden waste and bulky waste only, and which is not collected as part of the household collection service. These skips are provided in an attempt to discourage illegal dumping. The skips are not permanent features and are moved by the NMBM as required. These skips are not manned (NMBM IWMP, 2016).
Transfer stations	A facility where waste is temporarily stored before it is transported more economically to either recycling centres or landfills (Municipal Waste Sector Plan, 2012). In the NMBM, these formal facilities are similar to the drop-off centres in design, but in addition to accepting garden refuse, recyclables and bulky waste, they also accept all general domestic waste. These are typically in outlying areas and are used to accumulate waste before it is transported to the landfill sites (NMBM IWMP, 2016).
Treatment	Any method, technique or process that is designed to: (a) change the physical, biological or chemical character or composition of waste, (b) remove, separate, concentrate or recover a hazardous or toxic component of waste, or (c) destroy or reduce the toxicity of waste in order to minimise the impact of the waste on the environment prior to further use or disposal (NEM:WA, 2008).
Waste	(a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all waste as defined in Schedule 3 to this Act, or (b) any other substance, material or object that is not included in Schedule 3 that may be defined as waste by the Minister by notice in the Gazette. but any waste or portion of waste, referred to in paragraphs (a) and (b) ceases to be a waste (i) once an application for its re-use, recycling or recovery has been approved, or after such approval, once it is, or has been re-used, recycled or recovered, (ii) where approval is required, once waste is, or has been re-used, recycled or recovered,

	(iii) where the Minister has, in terms of Section 74, exempted any waste or portion of waste generated by a particular process from the definition of waste, or
	(iv) where the Minister has, in the prescribed manner, excluded any waste stream or portion of a waste stream from the definition of waste (NEM:WA, 2008).
Waste Avoidance	Preventing waste generation altogether (i.e., zero waste generation) (NMBM IWMP, 2016).
Waste Beneficiation	Refers to the treatment of waste to improve its physical or chemical properties to use it as a raw material in production processes and extracting economic value (NMBM IWMP, 2016).
Waste Characterisation	The systematic assessment to determine the types and quantities of waste generated in the municipal area.
Waste disposal facility	Any site or premises used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premises (NEMWA, 2008).
Waste Exchange	The activity that takes place when waste is exchanged between companies, individuals or organisations, in order for it to be of mutual benefit to both parties. Waste from one could even be raw material for another (NMBM IWMP, 2016).
Waste Generation	The weight or volume of materials and products that enter any given waste stream before recycling, composting, land filling or combustion takes place. Can also represent the amount of waste generated by a given source or category of sources (NMBM IWMP, 2016).
Waste Management Hierarchy	The Waste Management Hierarchy reflects the different waste management options, from reduction (more preferred) through to re-use, recycling, recovery, treatment/destruction, and lastly disposal (least preferred), that should all form part of an integrated waste management system (NEMA, 2008) (NMBM IWMP, 2016).
Waste Information System	A computerised database containing information about waste management organisations and agencies, as directed to be established as part of the implementation of the National Waste Management Strategy of South Africa (DEFF, 2005).
Waste Management Licence	A licence issued in terms of Section 49 of the National Environmental Management, Waste Act 2009 (NEM:WA, 2008).
Waste Management Officer	A waste management control officer designated in terms of Section 10 of the National Environmental Management, Waste Act 2009 (NEM:WA, 2008).
Waste Management Services	Waste collection, treatment, recycling and disposal services (NEM:WA, 2008).
Waste Minimisation	Waste minimisation is a waste management approach that focuses on reducing the amount and toxicity of hazardous waste generated. Waste minimisation techniques focus on preventing waste from ever being created, otherwise known as source reduction, and recycling. These techniques can be practiced at several stages in most waste generating processes, but require careful planning, creative problem-solving, changes in attitude, sometimes capital investment, and genuine commitment (NWMS 2020).
Waste Reuse/ Recovery	The recovery or reapplication of a package or product for uses similar or identical to its originally intended application, without manufacturing or preparation processes that significantly alter the original package or product. Recovery can also refer to the recovery of energy from waste (NMBM IWMP, 2016).
Waste Stream	The total flow of waste falling under a particular waste category from activity areas, businesses units, and operations that is recovered, recycled, reused, or disposed of in landfills, e.g. domestic waste, hydrocarbon waste, etc. (NMBM IWMP, 20216).

Waste Transporter	A company or individual that provides a commercial service as a transporter of waste must be registered as a Waste Transporter with the Nelson Mandela Bay Municipality in terms of the NMBM Waste Management By-Laws (NMBM, 2010).
Waste Treatment Facility	Any site that is used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of the waste (NEM:WA, 2008).
Wheelie bin	A 240ℓ plastic wheeled container used by households for disposal of domestic waste (CSIR, 2000).

Appendix A: Policy and Legislation

Appendix B: Household Waste Collection Service Data

KOEDOESKLOOF MONTHLY TOTALS PER WEIGHBRIDGE CATEGORIES (2020-21)															
Description	CAT	JULY kg	AUG kg	SEPT kg	OCT kg	NOV kg	DEC kg	JAN kg	FEB kg	MAR kg	APR kg	MAY kg	JUNE kg	TOTAL kg	TOTAL tons
COVER MATERIAL	CM	3 625 300	495 820	2 116 680	1 813 860	1 181 380	507 040	889 000	1 066 880	1 948 440				13 644 400	13 644
RECYCLING RECOVERED	GW00	0	0	0	6 540	0	0	0	0	13 000				19 540	20
MUNICIPAL WASTE	GW01	10 451 360	2 674 280	9 157 220	7 492 940	7 962 680	9 991 900	9 718 487	7 364 980	13 019 140				77 832 987	77 833
COM AND IND WASTE	GW10	1 374 499	346 700	1 324 420	1 226 320	1 245 320	1 168 960	1 151 720	947 540	1 468 150				10 253 629	10 254
E-WASTE	GW18	0	0	0	0	0	0	0	0	0				0	0
GARDEN WASTE	GW2001	54 360	9 100	105 260	184 300	280 280	21 360	39 660	19 320	35 320				748 960	749
WOOD WASTE	GW2003	17 560	0	17 920	2 720	720	8 640	0	5 120	0				52 680	53
CONST AND DEM WASTE	GW30	537 720	98 500	323 740	257 740	254 260	435 700	267 000	301 060	761 480				3 237 200	3 237
PAPER	GW50	0	0	0	0	0	0	0	0	0				0	0
PLASTIC	GW51	0	0	0	0	0	0	0	0	0				0	0
GLASS	GW52	0	0	0	0	0	0	0	0	9 820				9 820	10
METALS	GW53	0	0	0	0	0	0	0	0	0				0	0
GENERAL: OTHER	GW99	20 380	8 580	87 900	96 320	56 480	85 640	71 720	120 020	151 680				698 720	699
HAZARDOUS: WASTE OIL	HW0701	0	0	0	0	0	0	0	0	0				0	0
TOTALS		16 081 179	3 632 980	13 133 140	11 080 740	10 981 120	12 219 240	12 137 587	9 824 920	17 407 030	0	0	0	106 497 936	106 498

Description	CAT	JULY kg	AUG kg	SEPT kg	OCT kg	NOV kg	DEC kg	JAN kg	FEB kg	MAR kg	APR kg	MAY kg	JUNE kg	TOTAL kg	TOTAL tons
COVER MATERIAL	CM	11 098 220	12 046 460	14 276 580	12 254 760	11 372 200	7 427 580	9 397 920	10 937 820	11 821 360				100 632 900	100 633
RECYCLING RECOVERED	GW00	127 700	91 460	97 360	82 500	32 640	45 300	100 360	110 000	203 260				890 580	891
MUNICIPAL WASTE	GW01	5 042 140	5 779 380	5 914 060	7 235 040	8 097 700	7 305 060	6 716 640	5 468 540	7 981 400				59 539 960	59 540
COM AND IND WASTE	GW10	2 814 240	2 453 340	2 845 360	3 272 540	3 359 320	3 232 300	3 040 800	2 980 400	3 406 300				27 404 600	27 405
E-WASTE	GW18	0	0	0	1 460	8 360	1 040	2 360	0	0				13 220	13
GARDEN WASTE	GW2001	1 112 540	950 840	1 250 359	1 424 320	1 407 420	1 333 160	1 506 900	1 378 760	1 497 040				11 861 339	11 861
WOOD WASTE	GW2003	60 760	75 220	66 600	143 820	135 100	74 260	126 640	115 160	96 400				893 960	894
CONST AND DEM WASTE	GW30	1 014 560	992 360	1 070 040	2 082 660	1 734 560	1 165 260	1 970 120	2 057 910	2 379 740				14 467 210	14 467
PAPER	GW50	11 640	7 260	12 020	10 540	35 960	35 880	39 580	18 420	17 220				188 520	189
PLASTIC	GW51	23 100	22 520	23 420	26 580	32 860	31 360	24 060	18 440	44 980				247 320	247
GLASS	GW52	22 640	41 680	45 920	73 800	21 880	29 320	26 540	34 560	99 660				396 000	396
METALS	GW53	5 660	100	8 400	0	680	0	280	3 140	2 040				20 300	20
GENERAL: OTHER	GW99	0	0	0	0	0	0	0	0	0				0	0
TOTALS		21 333 200	22 460 620	25 610 119	26 608 020	26 238 680	20 680 520	22 952 200	23 123 150	27 549 400	0	0	0	216 555 909	216 556

Appendix C: Landfill and Transfer Facility Locations

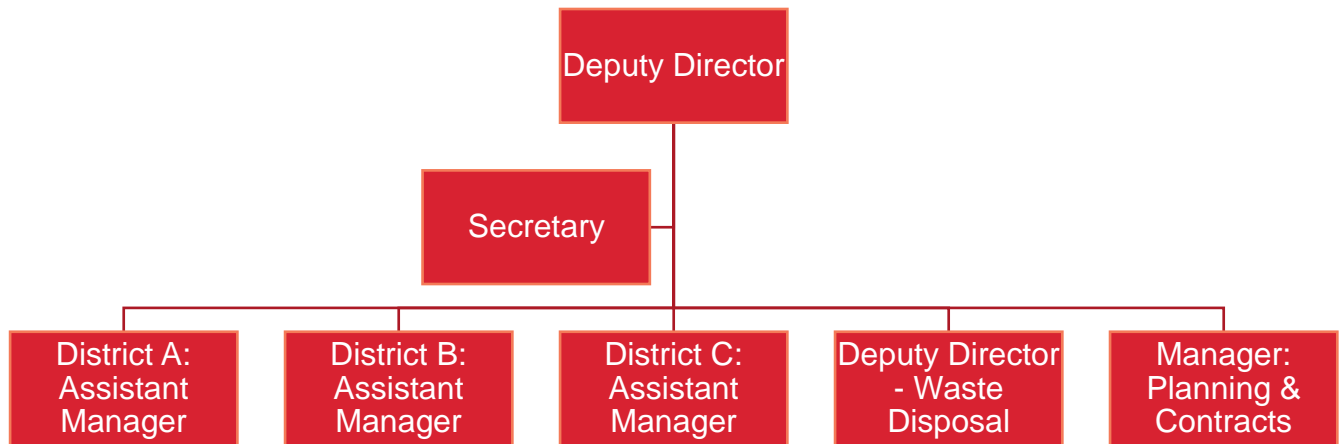
Appendix D: Annual Disposal tonnages

ARLINGTON (2016 - 2023)								
ARLINGTON (2016 - 2023)	CAT	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
COVER MATERIAL	CM	175,454	156,303	148,594	100,586	141,751	188,604	90,356
MUNICIPAL WASTE	GW01	67,778	82,415	81,478	69,234	78,266	84,404	112,322
COM AND IND WASTE	GW10	37,352	43,722	42,999	37,105	36,758	34,141	41,046
E-WASTE	GW18	15	34	21	2	13	3	6
GARDEN WASTE	GW2001	34,529	17,580	16,916	12,589	15,877	12,163	6,048
WOOD WASTE	GW2003	3,309	1,896	2,078	1,105	1,377	1,174	1,343
CONST AND DEM WASTE	GW30	28,059	19,532	20,267	13,847	21,492	27,976	19,999
PAPER	GW50	59	32	270	176	250	164	274
PLASTIC	GW51	670	278	649	316	305	272	302
GLASS	GW52	169	155	1,912	366	485	409	486
METALS	GW53	31	13	14	21	24	8	12
TYRES	GW54	230	26	0	0	0	0	0
GENERAL: OTHER	GW99	561	243	9	29	0	5	30
TOTALS		348,216	322,227	315,208	235,376	296,597	349,323	272,224

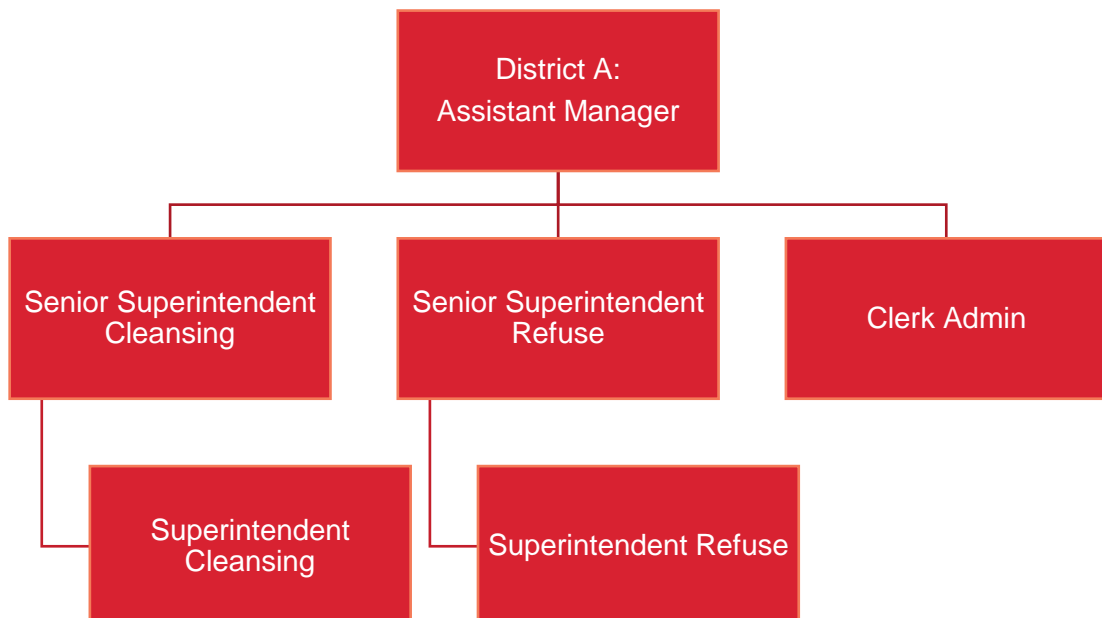
KOEDOESKLOOF (2016 - 2023)								
KOEDOESKLOOF (2016 - 2023)	CAT	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
COVER MATERIAL	CM	85,933	41,868	51,222	31,706	17,861	15,328	11,185
MUNICIPAL WASTE	GW01	155,996	165,700	126,549	116,878	109,222	111,038	109,421
COM AND IND WASTE	GW10	32,565	27,719	24,862	18,452	14,422	17,245	23,725
E-WASTE	GW18	7	0	0	0	0	1	9
GARDEN WASTE	GW2001	1,518	1,020	745	363	891	415	202
WOOD WASTE	GW2003	475	160	434	92	69	51	32
CONST AND DEM WASTE	GW30	27,072	17,076	21,059	9,074	4,964	6,870	2,222
PAPER	GW50	5	3	3	0	0	0	10
PLASTIC	GW51	127	183	45	8	0	0	3
GLASS	GW52	32	488	695	307	10	32	19
METALS	GW53	4	0	0	3	0	0	0
TYRES	GW54	19	14	0	1	0	0	0
GENERAL: OTHER	GW99	2,429	1,169	1,097	768	1,034	1,087	1,637
HAZARDOUS: WASTE OIL	HW0701	3,529	2,538	0	4	0	0	0
TOTALS		309,712	257,938	226,712	177,656	148,473	152,067	148,465

Appendix E: Waste Management Organogram

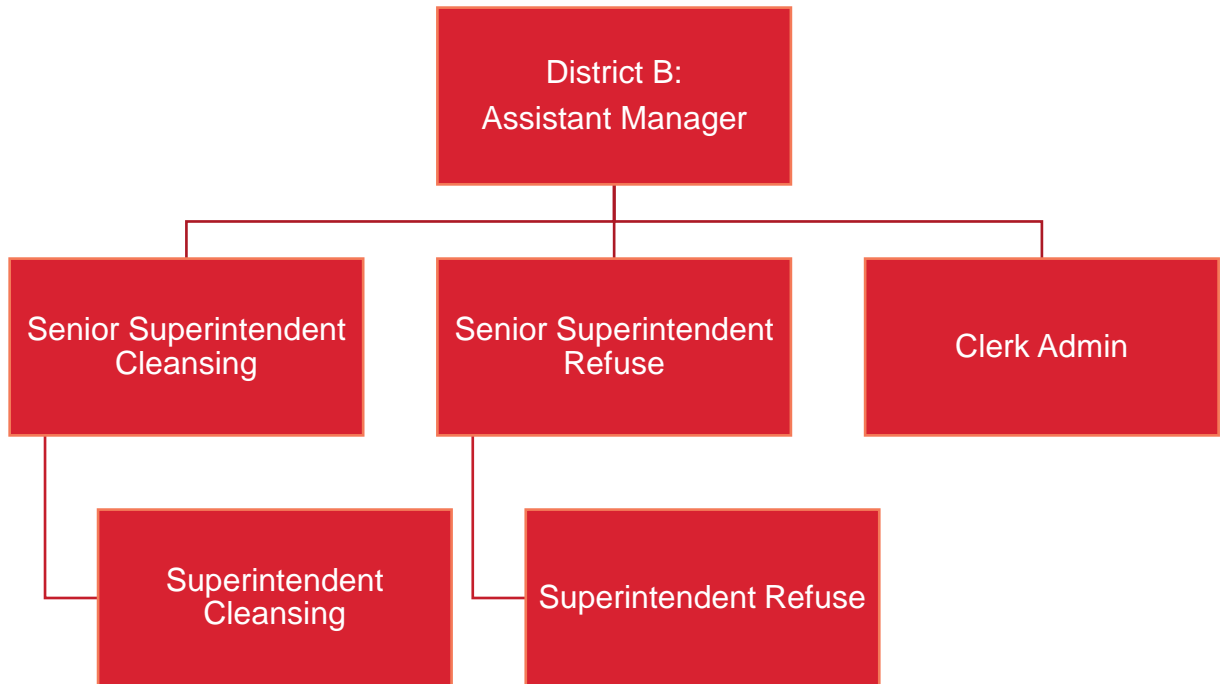
Nelson Mandela Bay Waste Management Staff Organogram (top structure only)



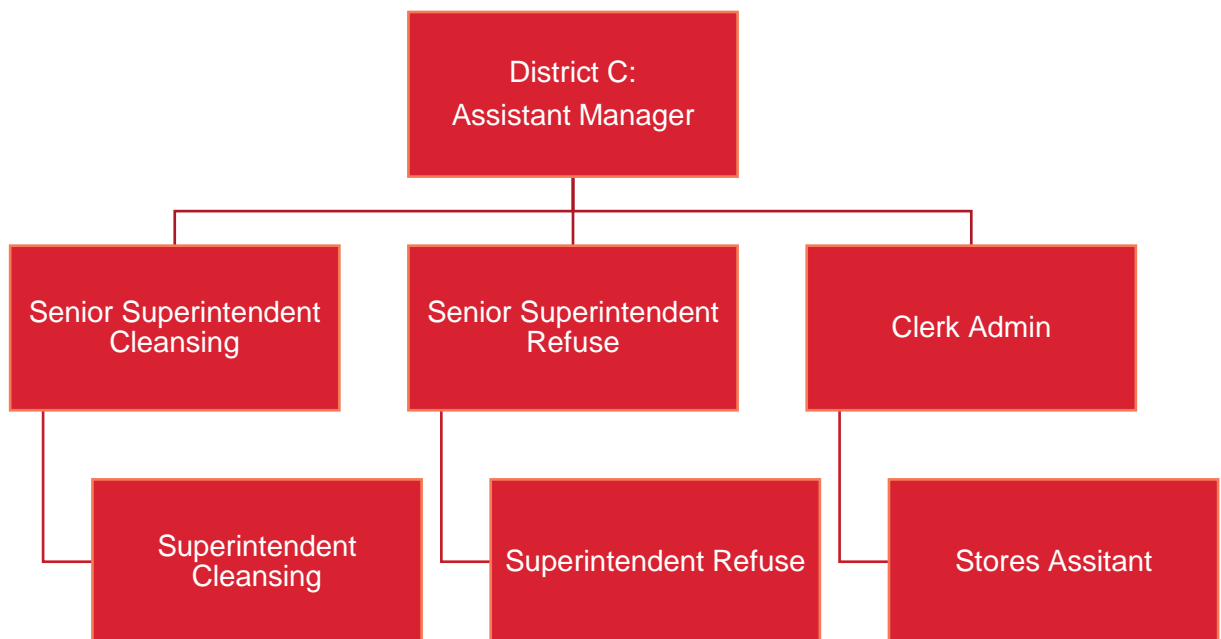
District A Organogram



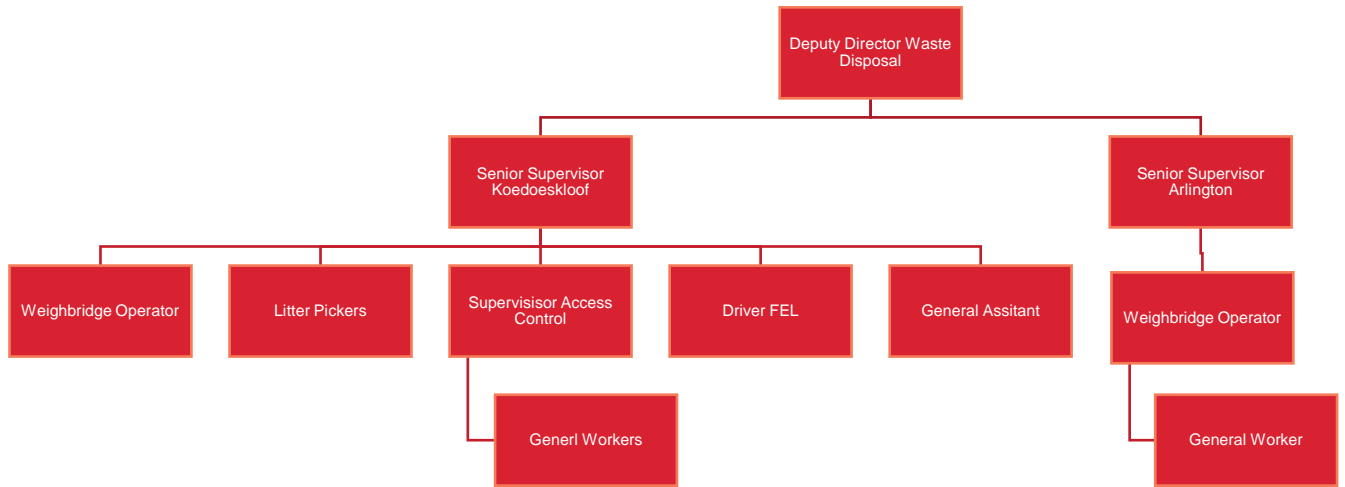
District B Organogram



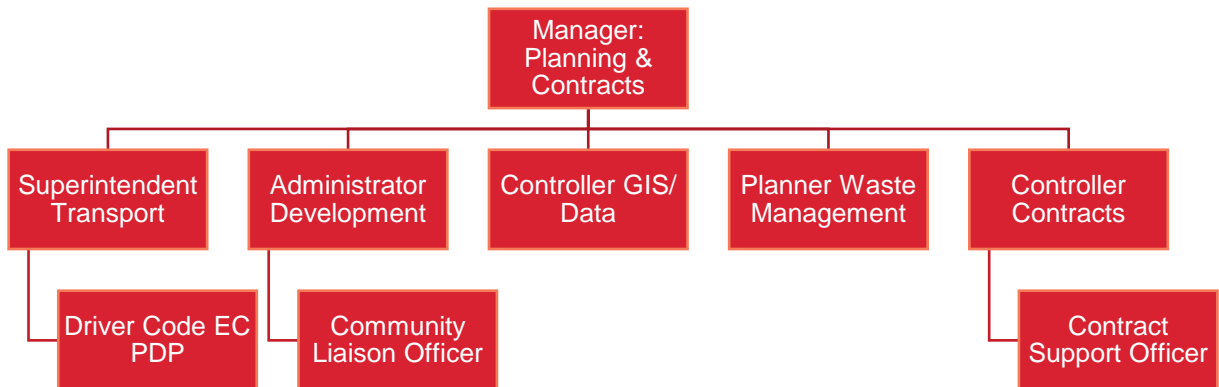
District C Organogram



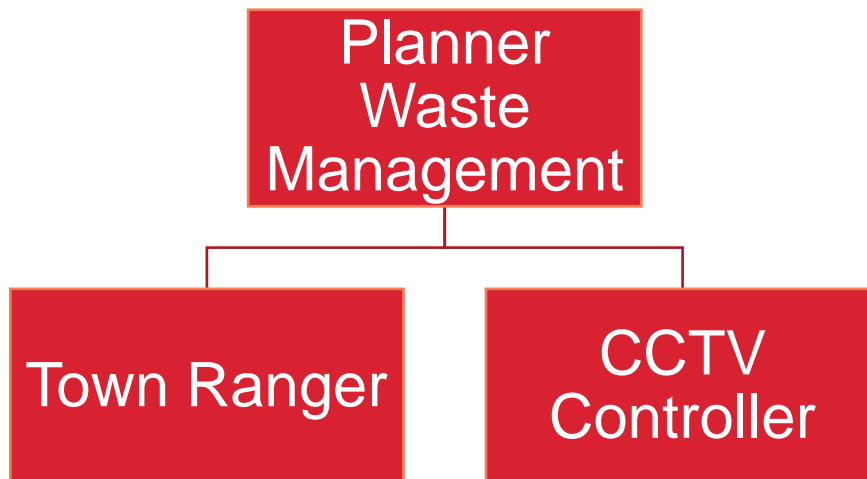
Waste Disposal Organogram



Planning and Contracts Organogram



Waste Planning Organogram



Appendix G: Waste Characterisation Report

Appendix F: Public Participation Report (incl Advert)

Appendix H: Waste Collection Schedules

Businesses, schools, flats and townhouse complexes managed by a body corporate are excluded from this schedule, as they are serviced via a Trade/Contract Waste removal service.

All non-collection complaints should be reported to the 0800 20 50 50 number.

REFUSE COLLECTION SCHEDULE: **HARROWER ROAD DEPOT**

Direct Complaints / Queries: 041 506 2018

MONDAY
<ul style="list-style-type: none"> • Summerstrand, Humewood, Humerail, • Forest Hill, Brookes Hill, St George's, South End • Central (south of Richmond Hill St.) • Richmond Hill (south of Stanley) • Walmer (east of 11th Ave.) • Victoria Park
TUESDAY
<ul style="list-style-type: none"> • Mill Park, Mount Croix, Glendinningvale, Millard Grange • Parsons Hill, Kensington, Korsten, Linkside • Holland Park, Steytler, Cotswold (north of Burt Dr.) • Adcockvale, Perridgevale, Greenacres • Sydenham, North End • Sidwell, Neave, Ferguson • Richmond Hill (north of Stanley St.)
WEDNESDAY
<ul style="list-style-type: none"> • Mount Pleasant, Pari Park, Miramar • Providentia, Salisbury Park, Charlo • Lovemore Heights, Broadwood, Greenshields Park • Charlo, Walmer Heights, Springfield • Fairview, Willowdene, Overbaakens, Walmer Downs, Pinelands • Mangold Park, Newton Park, Glenhurd • Walmer (west of 11th Ave.)
THURSDAY
<ul style="list-style-type: none"> • Lorraine, Kamma Park, Kragga Kamma Park • Woodlands, Weybridge Park, Lorraine Manor • Goldwater, Kamma Heights, Vergelegen, Kamma Creek • Cotswold, Fernglen, Sunridge Park, Glenroy Park • Beverley Grove, Pine Grove, Cotswold (south of Burt Dr.) • Framesby, Kabega, Treehaven, Brymore, Sherwood • Ben Kamma, Vikingvale, Kunene Park, Willow Glen
FRIDAY

- Bridgemead, Morningside, Francis Evatt Park, Parsonsvei,
- Kabega Park (north of Baakens River, Avondale Rd., Great West Way & Kabega Rd.)
- Van Der Stel, Tulbagh, Rowallan Park
- Taybank, Moregrove, Wonderview
- Schoenies, Westering, Linton Grange, Bramhope
- Framesby (north of Great West Way)

REFUSE COLLECTION SCHEDULE: **CUYLER & DESPATCH DEPOT**

Direct Complaints / Queries: **041 944 1137**

MONDAY

- KwaNobuhle Area 02, 03, 04, 08, part of Area 01 & 06
- Kamesh Phase 2 & 3 & Tiryville, part of Rosedale (between Acacia, Papegaai, Lovebird)
- Vanes, Levyvale, Jansensdal, part of Mosel (between Tomlinson, Mosel & North St.)
- Despatch - Bothasrus (south of Botha St.)
- Khayamnandi & Izinyoka, Khayamnandi Ext.

TUESDAY

- KwaNobuhle Area 01 & 07 (north of Makapa St.) and part Area 04 (between JW Faku & Ponana Tini St.), Solomon Mahlangu
- Thomas Gamble, Allanridge West, Mountain View, part of Rosedale (between Acacia, Rosedale, Mossie & Kamesh Rd.), part of McNaughton (between Mossie, Maduna & Limekaya)
- Van Riebeeckhoogte (between Frere, Goedehoop & Van Riebeeck St.)
- Scheepershoogte (north of Van Riebeeck St.)
- Strelitzia Park Ext, Winterhoek Park, Strelitzia Park & Fairbridge Heights Ext (east of Aalwyn Dr.)
- Fairbridge Heights, Valleisig (north of Van Riebeeck)
- Despatch - Campher Park, Manor Heights, Bothasrus (north of Botha St.)

WEDNESDAY

- KwaNobuhle part Area 01 (north of Hlungulu St.), 02 (north of Mbandla St.), 06 (south of Pilani Ntsiko Rd.) & 07 (south of Mondile St.)
- KwaNobuhle Area 03A, part of KwaNobuhle Area 8 (east of 1st Avenue)
- Joe Modise, Peace Village, Hani/Ramaphosa
- Kabah/Langa Phase 1, 2 & part of Phase 3 (north of Shuttle St.)
- Part of Rosedale (between 24th Ave., Rosedale Dr., Heron, North St. Ext.), Rosedale Ext.

- Part of Mosel (east of Mosel Rd.), part of Strelitzia Park and Fairbridge Heights Ext. (west of Aalwyn Dr.)
- Despatch - Bothasrus (south of Berg St.), portion of Central and Azalea Park
- Reservoir Hills, Sakkiesdorp, Daleview & Moovalley

THURSDAY

- KwaNobuhle Area 02, 06
- Greenfields, Mandelaville, Joe Slovo & Pola Park, Kabah/Langa Phase 3 (south of Shuttle St.)
- Part of McNaughton (between 24th Ave., Maduna & 22nd Ave.)
- Scheepershoogte & Valleisig (south of Van Riebeeck), Van Riebeeckhoogte (between Frere, Union Ave.)
- Penford, College Hill, Mosel (between Tomlinson, Mosel & High St.)
- Uitenhage Central (between Cannon to Caledon)
- Despatch - Windsor Park & Heuwelkruin, portion of Central (north of Main St.), portion of Retief (south of Dr HF Verwoerd Dr.)

FRIDAY

- KwaNobuhle part Area 07 (south of Ponani Tini Rd., Makapa & Katsha St.)
- KwaNobuhle Area 5, 9, 10 & part of 11
- Blikkiesdorp, Gerald Smith, Jubilee Park, Kabah/Langa Ph 4/5 & Middle Street
- Part of Cannon Hill (east of Milner St.), part of Penford (south of Leisching St.)
- De Mist, Dr Brawn, Eric Dodd, Central (south of Caledon St.)
- Despatch - Retief up to Dr HF Verwoerd

REFUSE COLLECTION SCHEDULE: **ADDO ROAD DEPOT**

Direct Complaints / Queries: **041 506 2521**

REFUSE COLLECTION

MONDAY

- Tjoksville, Motherwell NU 11, NU 12 & NU 30

TUESDAY

- Motherwell NU 2 & NU 10
- Ramaphosa Village, Kamvelihle Phase 1 & 2
- St George's Strand, Bluewater Beach
- Swartkops & Redhouse

WEDNESDAY

- Motherwell NU 1 & part of Ramaphosa West
- Part Motherwell NU 8 (between Ngonyama/Tyinira)
- Motherwell NU 3 & NU 4

THURSDAY

- Motherwell NU 7 & NU 9, part of NU 8
- Part of Motherwell NU 6 (south of Nyara)
- Part of Motherwell NU 8 (between Tyityaba, Ngonyama & Tyinira St.)
- Blue Water Bay & Amsterdamhoek

FRIDAY

- Motherwell NU 5 & part NU 6, Wells Estate

SCHEDULE: GAIL ROAD DEPOT

Direct Complaints / Queries: 041 506 2372

MONDAY

- Helenvale, Jarman, Glenhaven (from Gail to Stinkhout)
- Springdale, Allan Heights, Barcelona, 7de Laan, Bramlin Temp Houses
- Part of Malabar (south of Haworthia Dr. & north of Oceanview)

TUESDAY

<ul style="list-style-type: none"> • Schauderville, Korsten, Saltlake, Windvogel • Bridge Haven, Gelvan Park, Parkside, Young Park • Glenhaven (Stinkhout to Beetlestone) • Malabar (Oceanview Dr., Haworthia Dr. & Viola Str. & Crossandra Str.)
WEDNESDAY
<ul style="list-style-type: none"> • Govan Mbeki • Arcadia, Salsoneville, Sancto • Arcadia North, Ext. 13, West End • Algoa Park (between Dyke Rd. & Uitenhage Rd.)
THURSDAY
<ul style="list-style-type: none"> • Bethelsdorp Ext. 17, 18, 19, 23, 24, 26, 27, 28 & 29 • Bethelsdorp Ext. 20, 21, 22, 30, 31, 32, 33 & 34 • Jegelsville (Bethelsdorp Village), Cleary Park, Heath Park
FRIDAY
<ul style="list-style-type: none"> • Chatty (East of Bloemendal arterial) • Booyens Park, Nceba Faku Village, Vastrap • Ext. 37 (KwaNoxolo), Block 23 • KwaNoxolo, Timothy Valley & Frans Valley • Hillside, Cleary Park Ext. 10 (east of University Rd.) • Algoa Park (south of Dyke Rd.)

REFUSE COLLECTION SCHEDULE: **STRUANWAY DEPOT**

Direct Complaints / Queries: 041 506 2284

MONDAY
<ul style="list-style-type: none"> • Part of Zwide (north of 6th St. & Qeqe St. up to Kani & Koza St.) • Westville, Westville North, Limba, Barcelona • KwaDwesi, KwaDwesi Ext.
TUESDAY
<ul style="list-style-type: none"> • Part of Zwide (between Qeqe, Mkhuze & Salamntu St., Nkwenta, Nkwenta, Ntsundwana & Njoli St.), Sisulu Village

<ul style="list-style-type: none"> • Part of KwaZakhele (between Tonjeni, Maronga, Daku & Salamntu St.) • Mandela Village (KwaZakhele) • Part of Soweto-on-Sea (between Johnson Rd. to Qeqe St.)
WEDNESDAY
<ul style="list-style-type: none"> • Part of KwaZakhele (between Jali St., Mahambehlala St., Majamba St., Salamntu St., Mavuso St.) • Part of Zwide (east of Salamntu St.) • Luthando, Msakhane Village, Buyambo, Swartkops Silvertown & Nkatha/Nduna • Sharpville, Ekuphumleni & Mahambehlala/Seyisi
THURSDAY
<ul style="list-style-type: none"> • Part of KwaZakhele (between Maronga, Mbilini, Maqoma) • Part of New Brighton (between Ntshekisa, Struanway, Hlawula, Jali & Umga) • Mavuso, Meke & Endongeni East & West • Chris Hani, KwaNoxolo/Njoli & Mandela Village • Part of Soweto-on-Sea (between Bafan & Johnson St.) • Qaqawuli Ph. 1 & 2
FRIDAY
<ul style="list-style-type: none"> • Part of New Brighton (between Ntshekisa Rd., Avenue E, Ferguson Rd., Hlawula St., Kwaza St.) • Part of Kwazakhele (east of Mahambehlala St.) • Qaqawuli MK & Silvertown MK • Msanganaville, Red Location, Jabavu St. Hostel

Households in the following areas are serviced by Community Entities on behalf of the Municipality.

Any complaints with regard to the Waste Management Services in these areas must be reported to the 0800 20 50 50 number.

SERVICED BY ENTITIES – HARROWER DEPOT
<ul style="list-style-type: none"> • Kuyga • Gqebera (Walmer) • Blue Horizon Bay/Beachview, Seaview, Kini Bay
SERVICED BY ENTITIES – CUYLER DEPOT
<ul style="list-style-type: none"> • Rocklands RDP • Witteklip • Fitchet Corner Informal

SERVICED BY ENTITIES - ADDO DEPOT

- | |
|--|
| <ul style="list-style-type: none">• Motherwell NU 12 & NU 29• Greater Tjoksville (Steve Tshwete Village)• Colchester |
|--|

Appendix I: Implementation Plan

In diversity there is beauty and there is strength.

MAYA ANGELOU

Document prepared by:

Company name

Registration number

Lion Roars Office Park
Cnr Heugh Road & 3rd Ave Walmer, Port Elizabeth

South Africa

PO Box 5328, Walmer 6065

T +27 41 503 3900

F +27 86 600 4037

E portelizabeth@zutari.com