Bitou Local Municipality

Bitou Local Municipality
Waste Minimisation Plan
Implementation Plan

DRAFT

GE39065

June 2021

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Bitou Local Municipality
Waste Minimisation Plan
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2	02/03/2021	97	Version 2. Objectives and Targets	I. Malloy	K. Flood	K. Flood

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4	02/06/2021	121	Version 4. Draft WMP	I. Malloy	K. Flood	K. Flood

Distribution List

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Abbreviations / Acronyms / Definitions

BLM	Bitou Local Municpality
CCA	Chromated Copper Arsenate
CFL	Compact Fluorescent Lamp
CoJ	City of Johannesburg
COVID-19	Corona Virus Disease 2019
C&DW	Construction and Demolition Waste
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DEFF	Department of Environment, Forestry and Fisheries
EMS	Environmental Management System
EPR	Extended Producer Repsonsibility
GLM	George Local Municipality
GN	Government Notice
GRDM	Garden Route District Municipality
GRWMIS	Garden Route District Waste Management Information System
HCRW	Health Care Risk Waste
HHW	Household Hazardous Waste
HLM	Hessequa Local Municipality
IDP	Integrated Development Plan
IPWIS	Integrated Pollutant and Waste Information System
IWMF	Integrated Waste Management Facility
IWMP	Integrated Waste Management Plan.
KLLM	Kannaland Local Municipality
KLM	Knysna Local Municipality
MBLM	Mossel Bay Local Municipality
MRF	Material Recovery Facility
NEMA	National Environmental Management Act
NEMWA	National Environmental Management: Waste Act (59 of 2008)
NGO	Non-Governmental Organisation
NDP	National Development Plan
NWMS	National Waste Management Strategy
OLM	Oudtshoorn Local Municipality
PET	Polyethylene Terephthalate

PPP	Public Private Partnership
RDF	Refuse Dervied Fuel
SAWIC	South African Waste Information Centre
SAWIC	South African Waste Information System
WCIWMP	Western Cape Integrated Waste Management Plan
WMP	Waste Minimisation Plan
WRAP	Waste and Resources Action Programme
WWTW	Waste Water Treatment Works

Appendices

To be added for later chapters of the report

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1 Introduction

The Garden Route District Municipality (GRDM) has identified the need to develop a waste minimisation plan to govern waste minimisation, recycling and diversion of waste from landfill across the district. There is also a need for each of the seven local municipalities in the district to have the own waste minimisation plans to drive waste minimisation efforts. The district is facilitating the development of WMPs for the seven local municipalities in the district to ensure uniformity in waste minimisation across the district. One of the key aims of the WMPs is to identify budgets required to implement waste minimisation projects.

The objective of a waste minimisation plan (WMP) is primarily to minimise waste generation and disposal.

GIBB Pty Ltd (hereafter referred to as GIBB) has been appointed for the development of WMPs for the GRDM and each of the seven local municipalities in the GRDM, namely:

- George Local Municipality (GLM)
- Mossel Bay Local Municipality (MBLM)
- Bitou Local Municipality (BLM)
- Hessequa Local Municipality (HLM)
- Kannaland Local Municipality (KLLM)
- Knysna Local Municipality (KLM)
- Oudtshoorn Local Municipality (OLM)

This WMP addresses waste minimisation, recycling and diversion of waste from landfill for the Bitou Local Municipality (BLM).

1.1 Definitions

The following definitions of waste are used in this report:

The following definitions are taken from the National Environmental Management: Waste Amendment Act (Act 26 of 2014)

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 wastes 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 a 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 not required, once a waste is, or has been re-used, recycled or recovered;

   iii. where the Minister has, in terms of section 74, exempted any waste or a 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 a portion of a waste stream from the definition of waste.

Recycling:
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'

Waste minimisation programmes:
A programme that is intended to promote the reduced generation and disposal of waste.

1.2 Contents of a WMP

The diagram below, outlines the typical contents and themes of WMPs based on a review of national and international examples.

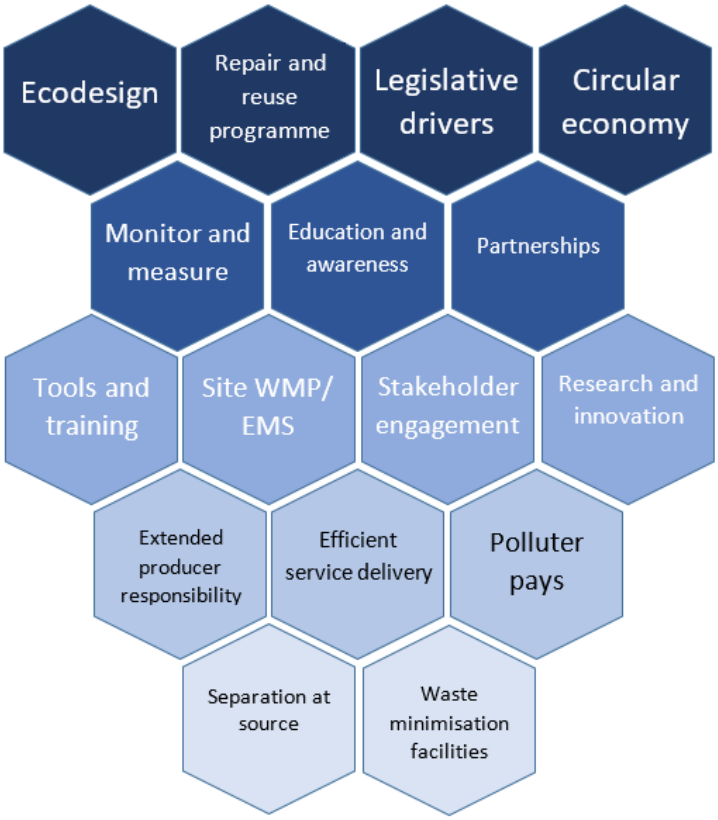


Figure 1: Common themes and contents of waste minimisation plans

1.3 History of Waste Minimisation Plans in the Bitou Local Municipality

This is the second waste minimisation plan to be developed for the Bitou Local Municipality. A waste minimisation strategy (WMS) was drafted for the BLM in 2018 (Aurecon, 2018). The strategy included a review of the status quo of waste diversion in the BLM and provided an action plan and recommendations for increasing waste diversion. Key tasks identified in the action plan and recommendations made to the BLM are presented below:

- Minimise waste sent to landfill and increase recycling and re-use rates by
    - Securing funding for recycling and re-use initiatives/projects
    - Promote separation at source in residential areas as well as in industry, businesses and institutions
    - Ensure separate collection of separated recyclable waste
    - Increase education and awareness for the separation at source programmes
    - Promote home composting of organic and green waste
    - Promote re-use and refurbishment of waste
    - Improve the participation of SMEs
    - Provision of public drop-off bins for recyclable waste such as glass, cardboard, newspapers, PET (plastics).
    - Separate the fruit and food solid waste for recovery and for use as animal feed
    - Separate and recovery of electronic equipment (e-waste)
- Develop a communication plan to improve engagement with the local community and key stakeholders and improve the understanding of waste minimisation and recycling. This plan was to include the planning and implementation of detailed and thorough awareness and education campaigns in schools, residential areas, businesses and industry.
- Weighbridge readings are needed at all waste disposal facilities to improve data capturing of waste disposal
- IPWIS and SAWIS to be updated regularly with waste generation and recycling tonnages
- Web-based registration systems could be linked to both Provincial and Municipal systems within the GRDM
- Proper implementation of law enforcement to ensure regulatory controls are effective
- Implement financial incentives or rebates for waste recycling and minimizing disposal of waste
- Monitor the implementation of the targets as set out in the action plan of the waste minimisation strategy
- Implement waste avoidance at industries
- Promote waste avoidance by leading by example (e.g. paperless meetings)
- Investigate the use of garden waste chippers at their waste disposal facilities
- Review and publish new by-laws to include recycling and waste minimisation action

A review of the content of the 2018 WMS was undertaken as part of the development of this WMP. A review of the progress of implementation of the WMS projects was conducted as well.

1.4 Objectives of a Waste Minimisation Plan

The key objectives of this WMP are:

- to move the BLM towards achieving the objectives of the Waste Act, namely:
    - Avoiding and minimising the generation of waste

- Reducing, re-using, recycling and recovering waste
- Move the BLM towards legal compliance with national and provincial waste minimisation targets
- Streamline waste minimisation efforts across the BLM

Furthermore, it aims to determine the status quo of waste minimisation, recycling and diversion from landfill and identify measures to improve waste minimisation in the BLM.

The theme of waste minimisation is highlighted strongly in The National Waste Management Strategy of 2020 (NWMS). The NWMS presents the waste management hierarchy which outlines the preferred methods for management of waste. The preferred option for waste management is located at the top of the hierarchy, as you work down the hierarchy you encounter less preferred management methods.

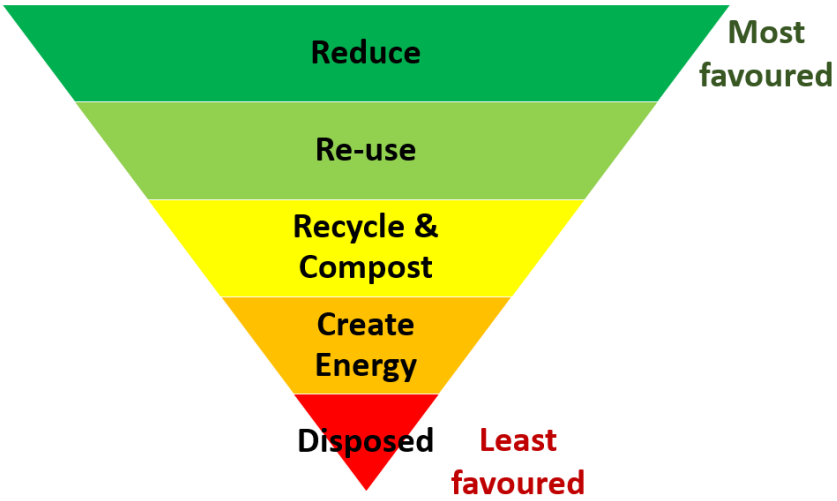


Figure 2: The waste hierarchy as per the National Waste Management Strategy (DEFF, 2020)

The goals and targets of the 2020 NWMS will be reviewed and incorporated into this WMP. The goals and targets as well as the implementation plan for the BLM WMP will be aligned to meet the goals and targets proposed in the 2020 NWMS for local municipalities.

1.5 Waste Minimisation Plan Development Process

The terms of reference for the WMP outlines seven phases for the development of the WMP.

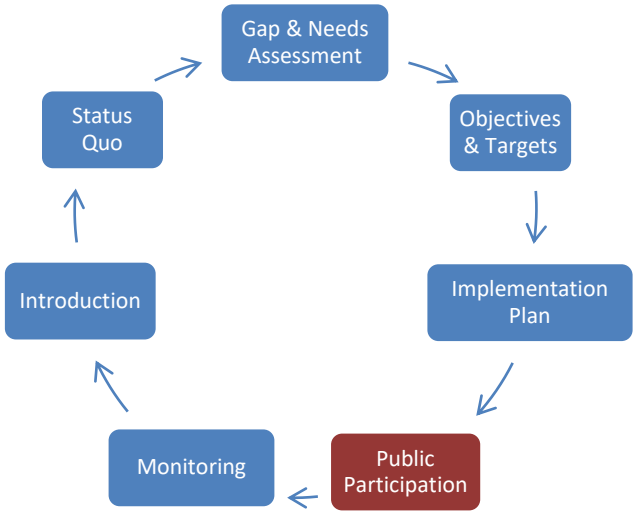


Figure 3: WMP planning phases

Each of these phases will be addressed as a chapter of this WMP.

1.6 Scope of the Waste Minimisation Plan

This WMP is limited to the jurisdictional area of the BLM which covers an area of 991.9km^2 and is composed of 7 wards, the largest being ward 1 which accounts for more than half the BLM area (556.5km^2). The BLM is one of seven local municipalities which fall under the GRDM, formerly the Eden District Municipality, in the Western Cape Province.

The focus of the WMP is on minimisation of general and domestic waste. Household hazardous waste is included in the study; however minimisation of industrial hazardous waste is excluded.

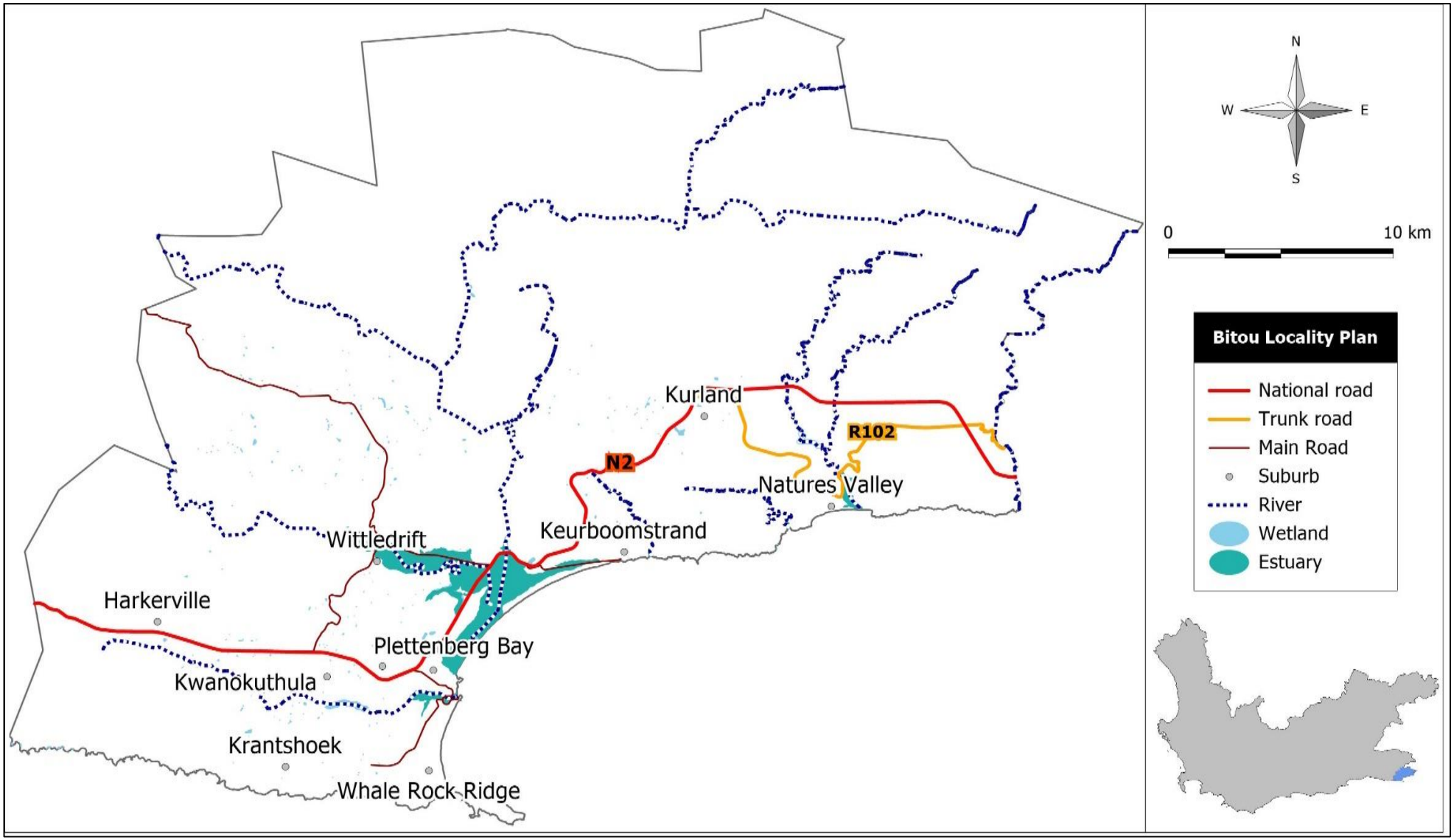


Figure 4: Bitou Local Municipality Jurisdictional Area

2 Approach and Methodology

2.1 Project Scope

The scope of the project is for the development of a WMP for the BLM that will be incorporated in a district WMP to identify possible viable regional initiatives. The project will be undertaken in seven phases. A brief description of each of the six phases is shown below. These phases are based on the scope of works as presented in the terms of reference for the project.

Table 1: BLM WMP Phases

Phase 1	***Initiation/ Introduction*** ***1.1 Project inception meeting*** 1.1.1 Project start-up meeting between GIBB and GRDM. 1.1.2 Information requests to the BLM. 1.1.3 Present an action plan for the WMPs based on national and international research. ***1.2 Introduction*** 1.2.1 Draft introductory section of WMP.
Phase 2	***Status Quo*** 2.1 Meetings with BLM. 2.2 Meetings with waste management and recycling companies. 2.3 Stakeholder engagement – extended producer responsibility organisations, GreenCape, DEA&DP, non-governmental organisations (NGOs), business. 2.4 Facility inspection and determining existing waste minimisation strategies and initiatives. 2.5 Review of waste management licenses/ permits conditions related to waste minimisation and local and district by-laws. 2.6 Review of information related to waste minimisation and diversion and systems in place to manage such information. 2.7 Literature review. • District and Municipal integrated waste management plans (IWMPs). • Waste quantities and characteristics. • DEA&DP position papers. • Policies, legislation and guidelines. • Demographics. • Economics and Financing of Waste Management. • National and international case studies. 2.8 Feasibility studies for waste minimisation projects.
Phase 3	***Gap and Needs Assessment*** 3.1 Identification of gaps in waste diversion and minimisation programme in the BLM. 3.2 Review of potential alternative waste treatment technologies which can be applied in the BLM.
Phase 4	***4.1 Objectives and Targets*** 4.1.1 Development of a set of objectives and targets for BLM to address waste diversion and minimisation needs over the short, medium and long term.
Phase 5	***5.1 Implementation Plan and Budget and Final Draft WMP*** 5.1.1 Develop an implementation plan for the BLM for a 10 – 15 year period. 5.1.2 Develop a Financial Plan for the implementation of the Waste Minimisation Plan for the BLM.

Phase 6	***Public Participation and Stakeholder Engagement*** 6.1 Present draft WMP to the municipal section 80 committee 6.2 Present draft WMP to the municipal council 6.3 Present the WMP at a public meeting 6.4 Update WMP based on comments received during public participation and the presentation to council
Phase 7	**Performance monitoring and review schedule** 7.1Develop a monitoring plan and reporting structure to allow waste manager to monitor the implementation of the plan

2.2 Methodology

A phased approach was used to develop the WMP, as detailed below.

2.2.1 Literature Review

A review of legislation, and previous waste management and minimisation plans were undertaken. This included the following key documents.

- Western Cape Provincial IWMP
- Western Cape Position Papers:
  - Position Paper on the Provision of Municipal Waste Management Services within the Context of Rapid Urbanisation (2017)
  - Position Paper on the Regionalisation of Waste Management Services (2017)
  - Position Paper on Organic Waste Management (2017)
  - Position Paper on Construction and Demolition Waste Management (2017)
- Western Cape DEA&DP Provincial Organic Waste Strategy (March 2020)
- GRDM 3rd generation Integrated Waste Management Plan (2020 - 2025)
- Assessment of the Municipal Integrated Waste Management Infrastructure: Eden District (2016)
- BLM 3rd generation Integrated Waste Management Plan (2020 – 2025)
- BLM 1st generation Waste Minimisation Strategy (February 2018)
- Garden Route (Eden) Waste Information System (GRWIS), Integrated Population and Waste Information System (IPWIS) and South African Waste Information System (SAWIS) statistics
- Statistics SA Census 2011 and Community Survey 2016 data
- National and international examples of WMPs or waste minimisation strategies
- National and international case studies

A full list of documentation reviewed is available as the reference list at the end of this report.

Waste information systems:
This report refers to a number of different waste information systems. A brief description of the different systems is provided below.

1. **South African Waste Information System** (SAWIS) – A national waste information system managed by DEFF. Information reported on the SAWIS is publically accessible through the South African Waste Information Centre (SAWIC)
2. **Integrated Pollutant and Waste Information System** (IPWIS) – A provincial waste information system managed by DEA&DP. Data reported on the IPWIS is uploaded to the SAWIS on a quarterly basis
3. **Garden Route Waste Management Information System** (GRWMIS)– a district waste information system managed by GRDM

2.2.2 Engagement with Stakeholders

A questionnaire was developed for use when engaging with stakeholders. The aim of the questionnaire was to capture information on the generation and management of general waste with a focus on waste minimisation. A database of stakeholders in BLM was developed based on:

- Companies identified in the project initiation meeting
- Recommendations from the GRDM and BLM
- Review of members of Plettenberg Bay Business Chamber

Details of the stakeholders, business and industries engaged and respondents to the online survey are provided below.

Table 2: Summary of stakeholders engaged

Stakeholder	Method of engagement	Date of engagement
Bitou waste management staff: Mr Douglas Baartman: Waste Manager Ms Anjé Taljaard: Environmental Management Officer Ms Fundiswa Diko-Mbanjwa: Administrator	Face-to-face interview	23 March 2020
Masiqhame Trading	Face-to-face interview	31 July 2020
Shoprite Plettenberg Bay	Face-to-face interview	31 July 2020
Superspar Plettenberg Bay	Face-to-face interview	31 July 2020
Checkers Plettenberg Bay Mall	Face-to-face interview	31 July 2020
Keep Plett Clean	Online survey	-
Mosdell Pama And Cox	Online survey	-
Ariano 91 CC	Online survey	-
Christiana Lodge	Online survey	-
Goose Valley Homeowners Association	Online survey	-
Reidwood	Online survey	-
Mosdell Pama And Cox Plettenberg Bay Inc	Online survey	-
Natures Valley Ratepayers Association	Online survey	-

2.2.3 Site Visits and Ground-Truthing

A site visit was undertaken to the BLM on 23 – 24 March 2020 and on 31 July 2020. Details of facilities visited and interviews undertaken are listed below.

Table 3: Facility inspections undertaken as part of this WMP

Facility	Date of visit
Old Nick drop-off facility	23 March 2020
Plettenberg Bay transfer station	23 March 2020
Nature's Valley drop-off facility	24 March 2020

2.2.4 Presentations and Workshops

Three presentations/ workshops of the BLM WMP are planned. Details and proposed dates are shown below.

Table 4: Presentations/ workshops planned for the BLM WMP

Date	Content of presentation/ workshop	No. attendees	Stakeholders in attendance
TBC	Draft WMP presentation to Council	TBC	TBC
TBC	Draft WMP presentation to the public	TBC	TBC
TBC	Final WMP presentation to Council	TBC	TBC

2.2.5 Business and Public Surveys

Online surveys were developed to gather information from business and industry and the public or waste minimisation in the BLM.

An invitation to complete the survey was distributed via email to identified stakeholders on 17 June 2020 and an invite to participate in the survey was posted on the BLM's official Facebook page on 15 June 2020.

GARDEN ROUTE DISTRICT MUNICIPALITY
WASTE RECYCLING AND MINIMISATION SURVEY INVITE

The Garden Route District Municipality (GRDM) has appointed GIBB Pty Ltd (GIBB) to develop a waste minimization strategy for the district municipality and the seven local municipalities in the district namely:

- Bitou Local Municipality
- George Local Municipality
- Kannaland Local Municipality
- Knysna Local Municipality
- Hessequa Local Municipality
- Mossel Bay Local Municipality
- Oudtshoorn Local Municipality

The aim of the waste minimization strategy is to identify mechanisms which can be used to minimize waste generation, increase waste recycling or treatment (including composting) and reduce waste disposal at landfill.

GIBB are engaging with local residents, business and industry, companies involved in waste management, non-governmental organizations, and environmental organisations to gather data and understand recycling and waste minimisation challenges as well as opportunities to increase waste minimization, recycling and diversion from landfill.

Business/ industry survey: https://surveys.gibb.co.za/index.php?r=survey/index&sid=338239&lang=en	**Public survey:** https://surveys.gibb.co.za/index.php?r=survey/index&sid=39065&lang=en
The business/ industry survey consists of 8 sections and the majority of questions are multiple choice or require a short answer. The survey should take no longer than 10 – 15 minutes to complete.	The public survey consists of 5 sections and the majority of questions are multiple choice or require a short answer. The survey should take no longer than 10 minutes to complete.
Questions/ queries can be directed to GIBB	**FAO: Mrs Kate Flood** Email: kflood@gibb.co.za all emails to be copied to wastesurvey@gibb.co.za Tel: 041 509 9160/ 084 631 1456
Deadline for responses:	**Both surveys will close on 10 July 2020**

Figure 5: Waste minimisation survey invite

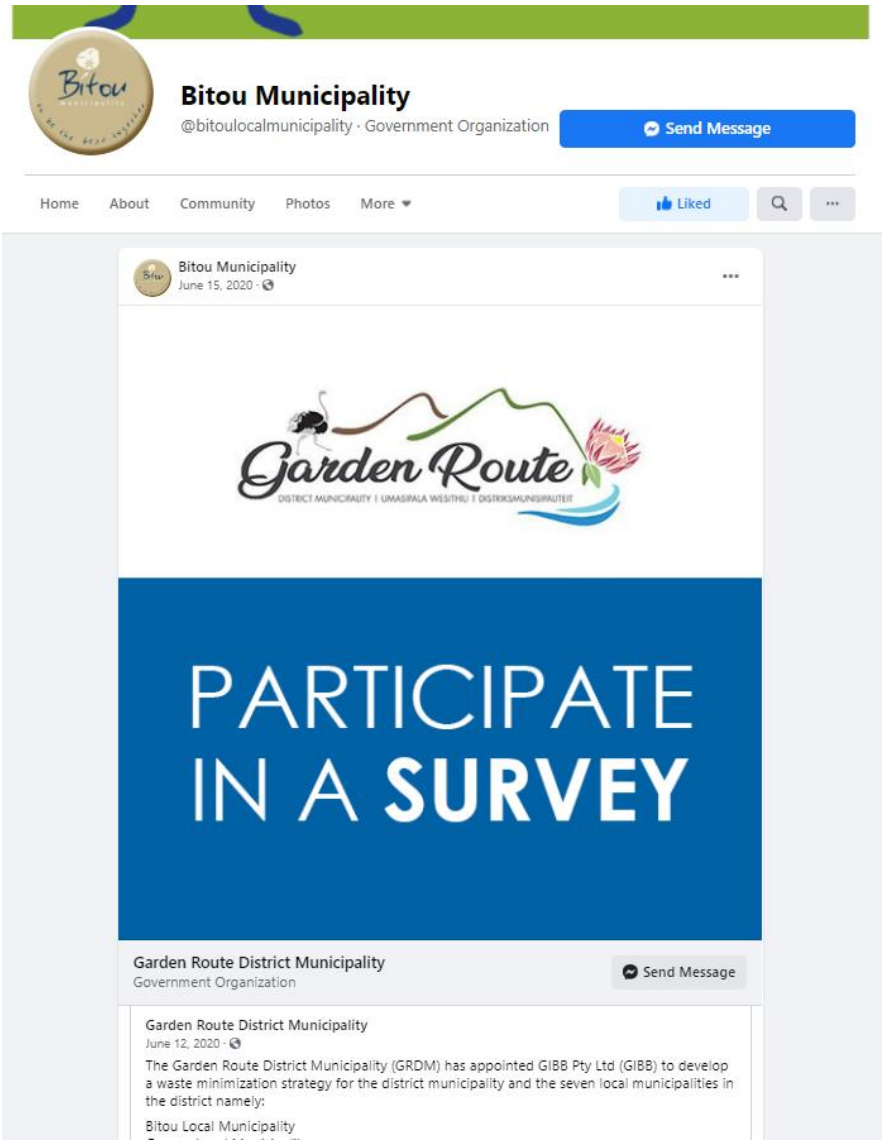


Figure 6: Facebook survey advertisement on the Bitou Local Municipality Facebook page

2.2.6 Public Participation Process (PPP)

The BLM WMP will be made available for review by the public for a period of 21 days. The review of the WMP and the period for which the WMP will be made available to the public will be advertised in a local newspaper.

One public meeting to present the WMP will be held in Plettenberg Bay. The date of the meeting is not yet confirmed. The public meeting will be scheduled to start after normal working hours.

The BLM's existing social media platforms will also be used to inform the public of the availability of the report for review and the public meeting.

2.3 Assumptions and Limitations

This report has drawn information from a number of sources including interviews with municipalities and stakeholders, IWMPs, GRWIS, IPWIS and SAWIS records, GRDM, BLM records and various literature sources. It is assumed that the information provided to GIBB verbally in interviews and documented information is accurate.

The waste generation and recycling data from 2019 was used to inform the status quo assessment of the WMP. Data from 2020 was not considered for the WMP due to the COVID-19 pandemic having a significant impact on waste generation and recycling rates and tonnages. Data from 2020 would have subsequently not provided a true reflection of the status of waste generation and recycling within the BLM.

3 Legislative Overview

A summary of key South Africa legislation governing waste minimisation and recycling is presented in the table below.

Table 5: Summary of recycling requirements as defined in the Waste Act

Topic	Section	Requirements	Comments
General duty	3	The state must put in place measures that seek to reduce the amount of waste generated, and where waste is generated, ensure that it is re-used, recycled and recovered in an environmentally sound manner.	DEFF has initiated the development of guidelines and strategies to increase recycling in the province including a study on waste separation at source, a review of the 2011 National Waste Management Strategy (NWMS) and a study on options for recycling and re-use of construction and demolition waste.
Waste service standards	9 (2)	Each municipality must perform its duty in terms of waste management services by adhering to all national and provincial norms and standards	The BLM is required to comply with any national and provincial norms and standards related to waste minimisation.
	9 (3)	The Municipal may furthermore set local standards: • For separating, compacting and storing waste • Management of solid waste, i.e.: Avoidance, Minimisation, Recycling • Coordination of waste to relevant treatment or disposal facilities	Municipalities are required to put in place standards to increase waste minimisation. By-laws can be used to drive waste minimisation.
General duty in respect of waste management	16 (1)	A holder of waste must: • Avoid the generation of waste and where waste cannot be avoided minimise the amounts of waste that are generated • Reduce, re-use, recycle and recover waste	The BLM is classified as a 'holder of waste' as the BLM transported waste. As such the BLM must put in place measures which seek to minimise waste.

3.1 National Waste Management Strategy (2020)

The goals and targets of the 2020 National Waste Management Strategy (NWMS) related to recycling and waste minimisation are provided below. The NWMS clearly shows the intention of DEFF to prioritise diversion of waste from landfill sites and increasing the beneficiation of waste through recycling, organic waste beneficiation (mainly composting).

The following table presents a summary of the 2020 NWMS goals and targets related to waste minimisation.

Table 6: A review of National Waste Management Strategy Objectives related to recycling (NWMS, 2020)

Goal	Targets for 2020
1. Prevent waste, and where waste cannot be prevented, divert 40% of	Waste Prevention: • Prevent waste through cleaner production, industrial symbiosis, and extended producer responsibility

Goal	Targets for 2020

waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years leading to Zero-Waste going to landfill through reuse, recycling, and recovery and alternative waste treatment.	• Prevent food waste by:
	  • working with agricultural producers, food producers and transporters, retailers, the hospitality sector and consumers,
	  • improving consumer awareness
	  • developing guidelines, norms and standards for redistributing surplus foods and composting of spoilt foods.
	Waste as a Resource:
	• Divert organic waste from landfill through composting and the recovery of energy
	• Divert construction and demolition waste from landfill through beneficiation
	• Increase re-use, recycling and recovery rates
	• Increase technical capacity and innovation for the beneficiation of waste

2. All South Africans live in clean communities with waste services that are well managed and financially sustainable.	Waste Collection: • Separation of waste at source by integrating waste pickers into municipal collection services, develop an online training tool for municipal managers and develop a national awareness campaign on recycling and waste management Effective Integrated Waste Management Planning: • All local authorities (municipalities) to include provisions for recycling drop-off/buy-back/storage centres in their IWMPs by 2023

3.2 National Norms and Standards for the Disposal of Waste to Landfill (GN 636 of 2013)

The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) identify a number of waste streams which will be banned from landfill. The following table summarises waste streams which are applicable to this WMP.

Waste from the BLM is disposed at the PetroSA landfill site in Mossel Bay and will be transported to the Garden Route regional site once it is operational. The BLM will need to screen waste at the IWMF to ensure that none of the prohibited waste streams are transported to the landfill site.

Table 7: Waste streams prohibited or restricted from disposal at landfill and compliance timeframes as defined in the National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013)

Waste type prohibited or restricted in terms of disposal	Compliance timeframe
Waste which in the conditions of a landfill site is explosive, corrosive, oxidizing (according to SANS 10234 or SANS 10228)	Immediate (August 2013)
Waste with a pH value of <6 or >12	Immediate (August 2013)
Flammable waste with a closed cap flashpoint lower than 61 deg Celsius	Immediate (August 2013)
Reactive waste which may react with water, air, acids or components of the waste, or that could generate unacceptable amounts of toxic gases within the landfill	Immediate (August 2013)
Waste compressed gases (according to SANS 10234 or SANS 10228)	Immediate (August 2018)
Untreated health care risk waste (HCRW)	Immediate (August 2018)
POPs pesticides listed under the Stockholm Convention	8 years (August 2021)
Other waste pesticides	4 years (August 2017)
Lead acid batteries	Immediate (August 2013)
Other batteries	8 years (August 2021)
Re-useable, recoverable or recyclable used lubricating mineral oils and oil filters, but excluding other oil containing wastes.	4 years (August 2017)

Waste type prohibited or restricted in terms of disposal	Compliance timeframe
Re-useable, recoverable or recyclable used or spent solvents	5 years (August 2018)
PCB containing waste (>50mg/kg or 50 ppm)	5 years (August 2018)
Hazardous waste electric and electronic equipment - lamps	3 years (August 2016)
Hazardous waste electric and electronic equipment - other	8 years (August 2021)
Tyres – whole	Immediate (August 2013)
Waste tyres – quartered	5 years (August 2019)
Liquid waste (i) Waste which has an angle repose of less than 5 degrees, or becomes free-flowing at or below 60ºC or when it is transported, or is not generally capable of being picked up by a spade or shovel; or (ii) Waste with a moisture content of >40% or that liberates moisture under pressure in landfill conditions, and which has not been stabilised by treatment	6 years (August 2019)
Hazardous waste with a calorific value of: (i) >25 MJ/kg (ii) >20 MJ/kg (iii) >10 MJ/kg (iv) >6% TOC	 4 years (August 2017) 6 years (August 2019) 12 years (August 2025) 15 years (August 2028)
Brine or waste with a high salt content (TDS >5%), and a leachable concentration for TDS of more than 100,000 mg/l	8 years (August 2021)
Disposal of garden waste (i) 25% diversion from the baseline at a particular landfill of separated garden waste (ii) 50% diversion from the baseline at a particular landfill or separated garden waste	 5 years (August 2018) 10 years (August 2023)
Infectious animal carcasses and animal waste	Immediate (August 2013)

3.3 National Domestic Waste Collection Standards (GN 21 of 2011)

This standard aims to provide a uniform framework within which domestic waste should be collected in South Africa in order to address the past imbalances in the provision of waste services. The standards aim to guide municipalities on how to provide acceptable, affordable and sustainable waste collection service to the human health and the environment.

Table 8: Recycling requirements of the National Domestic Waste Collection Standards (GN 21 of 2011)

Requirement	Comment
Separation at source must be encouraged in line with relevant industry waste management plans (indWMPs) and all households in metropolitan municipalities and secondary cities must be separating waste at source	The development of indWMPs is not the responsibility of the BLM. The BLM should however be aware of the indWMPs and the implications of these plans. The BLM is currently undertaking separation at source, however this programme needs to be expanded.
Service providers/ municipalities must provide clear guidelines to households on sorting of waste, appropriate waste containers and removal scheduled for different waste types	The BLM does not carry out routine waste awareness campaigns with households.
Community involvement in recycling must be encouraged	There are currently no swop shops in the BLM. Swop shops are planned for Kurland and Qolweni/Bossiesgif
Municipalities must provide an enabling environment for recycling through a kerbside collection service for mainstream recyclable or provision of communal collection points.	The BLM provides a kerbside collection service for recyclables. This service needs to be expanded.

Requirement	Comment
Non-mainstream recyclable (e-waste, scrap metals, batteries etc.) must be routed to drop-off centres	There are no municipal facilities available in the BLM for the public to drop-off non-mainstream recyclables.
Recyclable waste must be removed from drop-off centres at least once a fortnight	The BLM must note this requirement. Regular collections will prevent a backlog of recyclables and negative associated impacts such as overfilled bins, litter and visual impacts.

3.4 National Pricing Strategy for Waste Management (2016)

The aims of the National Pricing Strategy for Waste Management (hereafter referred to as the Pricing Strategy) are:

- Mainstream the polluter pays principal
- Reduce waste generation
- Increase waste diversion from landfill
- Support the growth of South Africa's waste economy
- Reduce the environmental impacts of waste

The Pricing Strategy identified downstream, upstream and subsidy based instruments which could be used to increase recycling rates in South Africa.

3.5 National Waste Information Regulations (GN 625 of 2012)

The National Waste Information Regulations (GN 625 of 2012) came into effect on 01 January 2013. The aim of these regulations is to improve waste information management for South Africa. Annexure 1 of the regulations lists activities including recovery and recycling, treatment and disposal of waste for which the person conducting the activity must register and report on the South African Waste Information System. Persons conducting the following activities or operating the following facilities in terms of recycling must comply with the National Waste Information Regulations.

- Recovery of waste at a facility that has the capacity to process in excess of 10 tons of general waste or in excess of 100kg of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises
- Recycling of general waste at a facility that has an operational area in excess of 500m^2
- Recycling of hazardous waste in excess of 100kg per day calculated as a monthly average.

Amendments to the National Waste Information Regulations were released for public comment in July 2018 (GN 701 of 2018). The major change in the regulations was the requirement for waste transporters to register. Other proposed changes to the regulations were a decrease in the allowable reporting timeframes from the closure of a reporting period from 60 days to 30 days and registration and reporting thresholds recovery of hazardous waste being decreased from 500kg to 100kg a day.

The BLM will be required to report waste information for waste disposed of at the municipal landfill sites on the IPWIS in line with these regulations.

3.6 National Norms and Standards for the Storage of Waste (GN 926 of 2013)

The National Norms and Standards for the Storage of Waste (GN 926 of 2013) (DEA, 2013a) specify the minimum requirements for waste storage facilities in the interest of protection of public health and the environment. The norms and standards are applicable to waste facilities that have the capacity to store in excess of 100m^3 of general or 80m^3 of hazardous waste.

At the time when these norms and standard were promulgated, GN 718 and 719, which present a list of waste management activities which require a waste management license, were amended to remove the storage of waste.

3.7 National Norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening and Bailing of General Waste (GN 926 of 2013)

These norms and standards have two different requirements depending on the size of a facility:

- All waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) **smaller than 100m^2 in size** must be registered with the competent authority and provide details including the location, types of waste processed, and civil design drawings of the facility as set out in Section 4 of the standard.
- All waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) **larger than 100m^2 in size** must register with the competent authority as set out in Section 4 of the standard, **as well as** comply with requirements for the location, design, construction, access control and signage.

Operational requirements in Section 8 of the standard address management of operational impacts such as control of hazardous substances, air emissions, discharging of wastewater, noise and odour emissions. The standard also covers training, emergency response, monitoring and reporting, general requirements, requirements during the decommissioning phase and transitional provisions.

3.8 Draft National Norms and Standards for the Treatment of Organic Waste (GN 275 of 2021)

The draft National Norms and Standards for the Treatment of Organic Waste (GN 275 of 2021) were released for public comment on 29 March 2021.

The draft norms and standards are applicable to the following activities:

- Recycling of organic waste at a facility that has an operational area in excess of 500m^2
- Recovery of organic waste including the refining, utilisation or co-processing of organic waste in excess of 10 tons but less than 100 tonnes per day

- Construction and operation of any organic waste facility that has the capacity to process in excess of 10 tonnes but less than 100 tonnes of organic waste material per day
- Construction of any organic waste facility where the capacity of the facility is able to process in excess of 10 tonnes but less than 100 tonnes per day
- Construction and operation of any organic waste facility processing animal matter not intended for human consumption for installations handling in excess of 1 ton of raw material per day
- Construction and operation of any organic waste facility used applied heat (thermal treatment) in the treatment of general waste exceeding 10kg per day.

The Norms and Standards provide guidance acceptable treatment options for different types of organic waste. An organic waste treatment facility needs to registered with the licensing authority 90 days before the commencement of construction. The design requirement for a facility are specified in the Norms and Standards. One of the key design requirements for an organic waste treatment facility is that storage of material must occur on an impermeable surface (concrete, clay or heavy duty plastic) with a run-off collection area. This requirement will need to be factored into the design of organic waste treatment facilities if the Norms and Standards are finalised.

4 Context of Roles and Responsibilities for Waste Minimisation

4.1 National Government

The state is legislated in terms of the Waste Act to put in place measures that aim to minimise waste generation and disposal and to increase re-use, recycling and recovery of waste.

The Waste Act also tasks National government with the establishment of a National Waste Management Strategy (NWMS), which includes objectives, plans, guidelines systems and procedures for the avoidance of waste, re-use, recycling and recovery of waste.

4.2 Provincial Government

In terms of the Waste Act, Provincial governments must ensure the implementation of the NWMS and national norms and standards. Provincial governments may also develop provincial norms and standards. These norms and standards must not contradict national norms and standards and can cover waste minimisation.

4.3 Local Government

Local municipalities are required to comply with the provision of the NWMS, national norms and standards and provincial norms and standards. Other legislated requirements related to waste minimisation, recycling and diversion from landfill are detailed in section 3 of this report.

5 Alignment with other Strategic Plans

There are a number of strategic plans on a national, provincial and local level which have been taken into consideration during the developing this WMP. A summary of these is provided in the section below.

5.1 Alignment with National Strategic Plans

5.1.1 National Waste Management Strategy (2020)

The National Waste Management Strategy (NWMS) is structured around a framework of three pillars each with their respective goals. The goals along with their respective targets are to be achieved by dates (year) indicated in the NWMS. These are indicated in the table below and will guide the implementation of target projects as detailed in the implementation plan for the WMP. The 2020 NWMS has three strategic pillars to improve the waste management in South Africa:

1. Waste minimisation
2. Effective and sustainable waste services
3. Compliance, enforcement and awareness.

These are unpacked further in the table below.

Table 9: Summary of 2020 NWMS Goals (goals related to waste minimisation shown in bold)

Goal	Implementation mechanism

1. Prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years leading to Zero-Waste going to landfill through reuse, recycling, and recovery and alternative waste treatment.	**Waste Prevention:**
	• **Prevent waste through cleaner production, industrial symbiosis, and extended producer responsibility**
	• **Prevent food waste by:**
	  • **working with agricultural producers, food producers and transporters, retailers, the hospitality sector and consumers,**
	  • **improving consumer awareness**
	  • **developing guidelines, norms and standards for redistributing surplus foods and composting of spoilt foods.**
	Waste as a Resource:
	• **Divert organic waste from landfill through composting and the recovery of energy**
	• **Divert construction and demolition waste from landfill through beneficiation**
	• **Increase re-use, recycling and recovery rates**
	• **Increase technical capacity and innovation for the beneficiation of waste**

2. All South Africans live in clean communities with waste services that are well managed and financially sustainable.	**Waste Collection:** • **Separation of waste at source by integrating waste pickers into municipal collection services, develop an online training tool for municipal managers and develop a national awareness campaign on recycling and waste management** • Safe and environmentally sustainable disposable of hazardous household wastes. **Effective Integrated Waste Management Planning:** • Development and implementation of 5-year provincial and municipal

Goal	Implementation mechanism
	IWMPs. • **Improve collection, reporting and dissemination of information on SAWIS** • Build capacity in IWMP planning and provide guidelines for revision of IWMP • **All local authorities (municipalities) to include provisions for recycling drop-off/buy-back/storage centres in their IWMPs by 2023**
3. Mainstreaming of waste and awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping.	• Reduction of pollution, littering and illegal dumping through a national awareness campaign and greater public awareness • Enhanced capacity to monitor compliance and enforce the Waste Act and International Agreements • Municipal landfill sites and waste management facilities comply with licensing standards

(a) Operation Phakisa: Chemicals and Waste Phakisa

Operation Phakisa, an initiative which looks to unlock South Africa's economic potential, sets a number of waste minimisation related national targets. These targets include:

- Reduce industrial waste to landfill by 75%
- Reduce municipal waste to landfill site 50%
- Move towards zero sewage sludge to landfill by 2023
- Move toward zero meat production waste to landfill by 2023
- Increase e-waste recycling from 7% to 30%
- Create 1,000 jobs through recycling and re-use of government computers
- 50% of households in metropolitan municipalities separating at source by 2023
- 8,000 direct and indirect jobs through plastic recycling
- Produce building aggregates and construction inputs from rubble and glass

(b) National Development Plan

South Africa National Development Plan (NDP) was published in 2012 and outlined the required steps to eliminate poverty and reduce inequality by 2030.

The NDP sets the following objectives related to waste management:

- An absolute reduction in the total volume of waste disposed to landfill site each year through a national recycling strategy
- Carbon price, building standards, vehicle emission standards and municipal regulations to achieve scale in stimulating renewable energy, waste recycling and retrofitting buildings
- Consumer awareness initiatives and sufficient recycling infrastructure should result in South Africa becoming a zero waste society
- Implement a waste management system through rapid expansion of recycling infrastructure and encouraging composting of organic domestic waste to bolster economic activity in poor urban communities

The NDP also recognises the opportunity for the manufacturing sector to reuse waste.

5.2 Alignment with Provincial Strategic Plans

5.2.1 Western Cape Integrated Waste Management Plan

The first generation Western Cape Provincial IWMP (WCIWMP) was revised in 2017. The WCIWMP is centred around 4 goals and 14 strategic objectives.

Table 10: Western Cape 2017 IWMP Goals and Objectives (goals related to waste minimisation shown in bold)

Goal	Strategic Objectives
Goal 1. Strengthen education, capacity and advocacy towards integrated waste management	**1. Facilitate consumer and industry responsibility in integrated waste management** **2.** Promote and ensure awareness and education of integrated waste management **3.** Build and strengthen waste management capacity
Goal 2. Improved integrated waste management planning and implementation for efficient waste services and infrastructure	1. Facilitate municipal waste management planning 2. Promote industry waste management planning 3. Promote the establishment of integrated waste management infrastructure and services; and 4. Ensure effective and efficient waste information management
Goal 3. Effective and efficient utilisation of resources	1. Minimise the consumption of natural resources 2. Stimulate job creation within the waste economy **3. Increase waste diversion through re-use, recovery and recycling**
Goal 4. Improved compliance with environmental regulatory framework	1. Strengthen compliance monitoring and enforcement 2. Remediate and rehabilitate contaminated land 3. Facilitate the development of waste policy instruments 4. Promote self/co-regulatory measures

As a local municipality within the Western Cape, the responsibility for the implementation of a number of projects in the WCIWMP falls to the BLM. The BLM WMP will be aligned with the WCIWMP and such projects will be incorporated into the implementation plan for the BLM WMP.

5.2.2 Western Cape Waste Awareness Strategy

The Western Cape Waste Awareness Strategy was released by DEA&DP in March 2018. The strategy is designed as a guideline to assist with the successful development and implementation of waste awareness initiatives. The plan identifies several mechanisms to increase waste management awareness and outlines the advantages and disadvantages of each initiative.

5.2.3 Western Cape Provincial Organic Waste Strategy

The Western Cape Waste Provincial Organic Waste Strategy was released by DEA&DP in March 2020. The strategy was developed as a guideline for the development of organic waste diversion from landfill and implementation of initiatives for the reuse or recovery of this organic waste. The focus of the Strategy is to comply with national legislation, limit greenhouse gas emissions and its negative impact on the climate and ensure organic waste diversion from landfills (Western Cape Government Department of Environmental Affairs and Development

Planning, 2020). The strategy also identifies the mechanisms to ensure the organic waste is available as a resource, the development of the infrastructure for the recovery of the organic waste and strategies to support the uptake and beneficiation of this resource.

The strategy emphasises that good information management and public awareness buy-in are two critical elements to ensure the success of the interventions detailed in the strategy as many of the identified initiatives require the separation, diversion or the reuse (e.g. composting) of organic waste at source. The strategy also emphasises the importance of collaborations between local governments, the private sector and other agencies to work towards a fully integrated system to ensure the diversion and recovery of organic waste generated in the Western Cape.

5.2.4 DEA&DP Guideline: Developing a Generic Organic Waste Diversion Plan

In order to assist local municipalities to meet national and provincial organic waste diversion targets DEA&DP has developed a guideline for the development of an organic waste diversion plan.

The guideline identifies five steps to the development and implementation of an organic waste diversion plan

1. Know the status of organic waste in your municipality
2. Review legislation and provincial strategic documents
3. Design your system and resource requirements
4. Get traction
5. Implementation

Organic waste diversion plans are a license conditions of the all the waste management licenses for landfill sites in the Western Cape.

5.3 Alignment with Regional Strategic Plans

5.3.1 Assessment of the Municipal Integrated Waste Management Infrastructure: Eden District

DEA&DP commissioned a study of waste management infrastructure of the seven local municipalities in the GRDM (formerly Eden District Municipality) in 2016 ((JPCE (Pty) Ltd, 2016)). The aims of the study were to:

- Improve compliance of waste facilities with existing waste management licenses (WML)
- Identify additional infrastructure which is needed to achieve a 20% diversion of waste from landfill by 2019/20
- Determine additional infrastructure requirements to allow municipalities to remain compliant with waste diversion and recycling targets up to 2030.

The report identified infrastructure needs for each local municipality to bring them toward compliances with waste minimisation targets by 2019/20. Infrastructure identified included drop-off facilities for recyclables, MRFs, chipping facilities and composting facilities.

The only waste minimisation infrastructure needs for the BLM noted in the Infrastructure Plan was the development of a composting facility to divert a portion of the green and organic waste (±10% diversion on mass of total waste stream) developed in the BLM from landfill. The other initiatives noted in the Plan was to increase the participation of households in the separation at source programme to increase the tonnage of recyclables diverted from landfill (±8% increased diversion on mass of total waste stream) and using the C&DW generated in the BLM as cover material at the Plettenberg landfill or as or fill material for construction projects (±19% diversion on mass of total waste stream). Based on these initiatives a total of 37% of waste could be diverted from landfill in the BLM.

5.3.2 Eden District Municipality Waste Management Policy

The Eden District Municipal Waste Management Policy was approved by council in 2017. The policy outlines the mechanisms through which the GRDM will exercise its responsibilities in terms of waste management. The policy covers the following key items:

1. **Waste information management** – the implementation of the Garden Route (Eden District) waste information system (GRWIS)
2. **Waste management plans** – requirements for industry waste management plans and municipal IWMPs
3. **Waste minimisation and recycling** – **encourage waste minimisation and recycling, introduce a system of accreditation for waste collectors, transporters and recyclers**
4. **Municipal service** – adoption of waste management tariffs for the regional landfill site, establishment of a district inter-municipal waste management forum
5. **Service provider**- makes provision for the GRDM to enter into a public private partnership (PPP) with a service provider who can be used to provide waste management services
6. **Categorisation of waste and the management of certain types of waste** – implementation of the National Norms and Standards for Assessment of Waste for Landfill
7. **Commercial services and the accreditation of service providers** – allows for the development of a permit system for hazardous waste management companies.
8. **Administrative enforcement** – enforcement of waste management by-laws, training of municipal officials.

As a local municipality within the GRDM this policy is also applicable to the BLM.

5.3.3 Garden Route District Municipality Integrated Waste Management Plan 2020 – 2025

The GRDM 2020 – 2025 IWMP was approved by council at the end of 2019 and was endorsed by DEA&DP in 2020.

The plan identified seven goals to improve waste management in the district. Goal 5 specifically addresses waste minimisation and recycling. Goal 1 and 2 are also of importance to this study as effective waste information management and waste education and awareness are both key to increasing waste minimisation. These seven goals are:

1. Effective waste information management and reporting
2. Improved institutional functioning and capacity
3. Improved waste education and awareness
4. Provision of efficient and financially viable waste management services
5. Increased waste minimisation and recycling
6. Improved compliance and enforcement
7. Improved future planning

5.3.4 Garden Route District Municipality By-Laws

The GRDM has by-laws which were promulgated in 2017 under the title Eden District Municipality: District Waste Management By-Law (Provincial Gazette 7818 of 2017). In terms of waste minimisation and recycling the by-laws require the following:

- The establishment of a district waste information system to gather waste information from waste generators, holders, service providers and permit holders.
- Provision of information to the GRDM on the source, type, quantity of waste as well as details of waste management facilities and current waste management methods.
- Request for the provision of waste management plans for specific waste streams through a notice in the provincial gazette
- Waste is avoided as far as possible, where it cannot be avoided it must be minimised, reused, recycled or recovered as far as possible.
- For waste to be separated at source for recycling following the publishing of a notice in a provincial gazette

5.4 Alignment with Local Strategic Plans

5.4.1 Bitou Local Municipality Fourth Generation Integrated Development Plan

The fourth generation Bitou Integrated Development Plan (IDP) covers the period 2017 – 2022. The IDP is centred around nine strategic objectives:

1. Create an inclusive, responsive and healthy environment conducive for living and sustainable growth;
2. To manage land-use and development in-line with the Strategic Development Framework;
3. To render efficient environmental health and disaster management services;
4. To provide efficient public safety and law enforcement services;
5. To provide recreational facilities and opportunities and programmes aimed to facilitate and promote community development and social cohesion;

6. To facilities economic and tourism development to the benefit of the town and all residents;
7. Embed good governance through sound administrative practices and improved stakeholder relations;
8. To maintain a skilled, capable and diverse workforce in a good working environment; and
9. Embed financial viability and sustainability through good financial management principles and practices.

The following IDP waste minimisation related projects are planned for the BLM before 2022:

- Expand and enhance swop shops; and
- Recycling (2-bag system) rolled out in all wards.

5.5 Bitou Local Municipality IWMP 2020 – 2025

The BLM 2020 – 2025 IWMP was approved by council and endorsed by DEA&DP in 2020.

The plan identified seven goals to improve waste management in the district. Goal 5 specifically addresses waste minimisation and recycling. Goal 1 and 2 are of importance to this study as effective waste information management and waste education and awareness are both key to increasing waste minimisation. These seven goals are:

1. Effective waste information management and reporting
2. Improved education and awareness
3. Improve institutional functioning and capacity
4. Provision of efficient and financially viable waste management services
5. Increased waste minimisation and waste diversion from landfill
6. Improved compliance and enforcement
7. Improved future infrastructure planning

The projects related to waste minimisation, recycling and waste diversion from landfill identified in the IWMP are listed in the table below.

Table 11: BLM IWMP projects related to waste minimisation and recycling

No.	Action	Priority	Timeframe	Applicability to waste minimisation
Goal 1: Effective waste information management and reporting				
Objective 1.1 Accurate waste information collected through GRWMIS				
1.1.1	Continue to report on the IPWIS system	High	2020 -2025	These actions are critical in improving waste information gathering and management. In order for the BLM to measure the success of waste minimisation initiatives accurate baseline data is required. The municipality installed a weigh bridge at the Plettenberg Bay transfer station and records tonnages for general waste and green waste entering the transfer station. The municipality does not record or maintain the disposal of construction and demolition waste (C&DW) disposed at the KK Sands landfill.
1.1.2	Gate controllers to be stationed at all municipal facilities to record incoming waste. The BLM has indicated that more gate controllers are required.	High	2020 – 2025	
1.1.3	All new gate controllers to undergo DEA&DP waste calculator training prior to commencing work, and all existing gate controllers to undergo refresher training	Medium	2020/21	
1.1.4	All municipal waste facilities are registered and reporting on the GRWMIS	High	2020 - 2025	
1.1.5	Domestic waste characterisations are undertaken once every 3 years. A representative sample is used from different suburbs across the municipality	Low	2020, 2023	Domestic waste characterisations can be used to measure the effectiveness of waste minimisation initiatives. If waste characterisations are undertaken before and after awareness initiatives or implementation of programmes such as home composting or swop shop the effectiveness of these programme can be measured through comparison of the domestic waste stream before and after implementation.
Objective 1.2 The 2020 IWMP is regularly reviewed and the implementation status of project is monitored				
1.2.1	Undertake annual performance reviews of this IWMP, and send reports to GRDM and DEA&DP	High	2020 – 2025	The BLM should continually track the implementation of waste minimisation projects to ensure they are on track to achieve the targets.
Objective 1.3 Effective internal management of waste related data				
1.3.1	Ensure appropriate systems are in place to capture waste information and data e.g. number of waste awareness campaigns, waste volumes and types, and ensure this information is uploaded to the collaborator system and IPWIS where applicable.	High	2020 – 2025	Recording all information regarding waste minimisation and recycling activities is key in measuring the success of these programmes. With this information the municipality can also determine if more effort is needed for specific waste minimisation projects or whether new projects need to be introduced and attempted to improve waste minimisation and recycling.
1.3.2	All waste entering the integrated waste management facility (IWMF) must be recorded using the weighbridge	High	2020 - 2025	The municipality records tonnages of all waste entering the IWMF and has improved maintaining waste tonnage records since 2020.
Goal 2: Improved education and awareness				
Objective 2.1 Waste awareness campaigns are well planned and executed. Sufficient awareness materials are available for the waste awareness campaigns				
2.1.1	Develop an annual waste awareness calendar *(to be developed at the beginning of each financial year)*	High	2020 – 2025	This targets refers to waste education and awareness as a whole. However, waste minimisation and recycling awareness campaigns form a key part of waste education and awareness campaigns. The need for an annual calendar is critical in ensuring programmes are planned and executed efficiently. Developing a calendar in advance will also allow the BLM to co-ordinate local programme with district, provincial and national awareness programmes.
2.1.2	Dedicated employees for waste education and awareness to be appointed,	High	2020 – 2025	A lack of awareness campaigns has been attributed to a lack of employees

No.	Action	Priority	Timeframe	Applicability to waste minimisation
	key performance indicators (KPIs) to be included in their formal job descriptions			to manage the programmes. The appointment of dedicated employees for waste awareness will increase the amount of awareness undertaken in the BLM.
2.1.3	The GRDM waste mascot is to be incorporated into future waste awareness materials. The BLM has indicated that they would like to procure a set of awareness banners.	High	2020 – 2025	In order to standardise the waste awareness message across the GRDM the BLM should incorporate the GRDM mascot, Rocky the Rooster into awareness materials.
2.1.4	Engage annually with GRDM to determine what support can be provided to BLM for waste awareness campaigns.	Medium	2020 - 2025	The GRDM has awareness materials available and undertakes district awareness programmes. The BLM should engage regularly with the GRDM to ensure they benefit from district programme and resources the GRDM has developed.
Goal 3: Improved institutional functioning and capacity				
Objective 3.1 The BLM to have sufficient well capacitated employees to undertake the waste management role				
3.1.1	The Solid Waste Department's organogram is to be reviewed to determine if sufficient positions are listed to allow implementation of this IWMP. All key positions to be filled	High	2020/21	The BLM needs to ensure the sufficient and appropriate staff are appointed to implement the waste minimisation, recycling and diversion projects listed in the IWMP.
3.1.2	Implementation of the IWMP to be added as KPIs of the WMOs performance evaluation criteria.	High	2020 - 2025	The BLM should ensure that all the waste minimisation projects in the IWMP are implemented. The WMO will ultimately be responsible for this. Implementation of the IWMP projects should be added to the WMO KPIs.
3.1.3	Training schedule developed with training needs for employees at different levels identified.	High	2020 – 2025 (annually)	All BLM employees should receive basic training of waste minimisation. More in-depth training would be required for management and employees responsible for waste education and awareness.
3.1.4	Implement the training needs of employees identified in 3.1.4	High	2020 - 2025	
3.1.5	BLM WMO to attend quarterly GRDM WMO forum meetings and provincial forum meetings	Medium	2020 – 2025	Quarterly meetings can be used for the local municipality and district WMO to share lessons learnt in terms of waste minimisation and recycling.
Goal 5. Increased waste minimisation and waste diversion from landfill				
Objective 5.5 The diversion of recyclables from waste destined for landfill is increased				
5.1.1	Implement their waste minimisation strategy (WMS)	High	2020	The BLM has a WMS in place and has implemented projects identified in this strategy since it was developed. A review of this WMS was undertaken as part of this WMP. This WMP, once finalised should be prioritised and implemented.
5.1.2	BLM local economic development division to develop waste management specification to include not using plastic, and making recycling facilities available to all.	Medium	2020	The provision of recycling facilities to the public is essential in increasing waste diversion from landfill. The BLM also has a legal mandate to provide an enabling environment for recycling.
5.1.3	Develop a MRF at the IWMF which will include formal drop-off facilities for the public	Medium	2022- 2024	A MRF is required to increase the diversion of waste from landfill. Drop-off facilities are required to provide the public with a location to drop-off recyclables. The MRF could serve as a facility to be used by the separation at source service provider or by the municipality to conduct additional separation of waste.

No.	Action	Priority	Timeframe	Applicability to waste minimisation
5.1.4	Develop drop-off facilities in Kurland and Old Nick. The drop-off facilities must include facilities for the public to drop-off recyclables.	Medium	2022 - 2025	The provision of recycling drop-off facilities to the public is essential in increasing waste diversion from landfill.
5.1.5	Develop swop shops in Kurland, Qolweni/Bossiesgif in partnership with NGOs and business.	Medium	2020/21	Swop shops can be used in low income areas to increase waste diversion for recycling. The swop shops are also used for education and awareness.
Objective 5.2 The diversion of organic waste from landfill is increased				
5.2.1	Pilot home composting programme to be rolled out within the BLM	Medium	2020/21	Home composting programmes can assist in reducing organic waste to landfill. These pilot programmes also generate data on the amount of organic waste generated by households. This programmes also provides awareness on the amount of food and green waste going to landfill. Furthermore the municipality can educate residents using the home composting bins on the negative impacts of anaerobic digestion of food and green waste (release of greenhouse gases, groundwater and soil contamination).
5.2.2	Ensure the composting facility at the transfer station becomes operational	Medium	2020	The composting facility at the landfill site was non-operational for a long period of time. This facility needs to be upgraded if required and used to divert green waste from landfill. An experienced service provider could be appointed to manage the facility and the composting of the green waste.
5.2.3	Secure a memorandum of understanding with a service provider to operate the composting facility.	High	2020	
5.2.4	Develop an organic waste diversion plan	Medium	2020	An organic waste diversion plan is required to guide the diversion of green waste from landfill. Diversion of organic waste from landfill will be covered by this WMP.
Goal 7. Improved future infrastructure planning				
7.1 Plans are in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets				
7.1.1	The GRDM to facilitate the update of the 2016 DEADP waste infrastructure plan for the district. The infrastructure masterplan should consider future management needs for organic waste and construction and demolition waste.	Medium	2021/22	The 2016 waste infrastructure report identified infrastructure needs of the municipalities in the GRDM. This report should be updated to take into cognisance changes to legislation and changes to the status quo in the district. The revised plan should also aim to identify sites for the development of infrastructure.

5.6 National Waste Management Interventions

On a national level there are a number of government programme which assist municipalities with waste management. These are discussed briefly below.

5.6.1 Expanded Public Works Programme

The Expanded Public Works Programme (EPWP) was initiated in 2009 as a mechanism to reduce unemployment and reduce poverty. The EPWP programme focuses on creation of labour intensive employment opportunities. The Department of Public Works provides an oversight role and EPWP beneficiaries assist municipalities usually with community services or service delivery (Department of Public Works, undated).

The staff of the EPWP have assisted the BLM with clean-up campaigns where recyclable waste is separated from general waste, and with education and awareness programmes such as the distribution of pamphlets for the separation at source recycling programmes. These are detailed in section 8.4.4 below.

5.6.2 Community Work Programme

The Community Work Programme (CWP) provides part time employment to underemployed or unemployed people. The CWP programme is involved with development of public assets, and community development. At present the CWP is not involved in any waste related projects or functions at the BLM.

5.6.3 Youth Community Outreach Programme

The Youth Community Outreach Programme (YCOP) is active in the BLM. A Youth Environmental Coordinator (YEC) was designated for the BLM and assists with the clean-up campaigns, education and awareness for waste diversion and recycling programmes, and coordinates the waste management and recycling education and awareness programmes in the BLM. Participants for the YCOP still need to be appointed and employed for the district to assist the YEC and BLM. Municipal or EPWP staff assist the YEC with clean-up campaigns and education and awareness training.

5.6.4 Good Green Deeds Programme

The Good Green Deeds Programme is a DEFF programme which aims to change people's perceptions of waste management and promote sustainable living practices. The objective of the programme is to move towards a clean, illegal dumping free South Africa. Participants for the Good Green Deeds Programme still need to be appointed and employed for the BLM. The BLM is therefore not yet involved in the Good Green Deeds Programme.

5.6.5 Municipal Cleaning and Greening Programme

In November 2020 DEFF launched the Municipal Cleaning and Greening Programme. This programme aims to address litter and illegal dumping across South Africa. Each municipality will receive 60 participants and equipment such as rakes, brooms, black bags and bags for recyclables. The project has not yet started in the BLM.

6 Benefits of Waste Minimisation

There are a number of benefits of waste minimisation. These are discussed briefly below.

6.1.1 Reduced Consumption of Resources

Waste minimisation and recycling can reduce the consumption of resources. Material which is collected and recycled can replace virgin content. In the case of plastic, recycled plastic can replace oil. Crushed construction and demolition waste (C&DW) can replace mined virgin material in some construction projects.

6.1.2 Preservation of Landfill Site Airspace

Due to stringent legislated requirements the development and operation of landfill sites is very expensive. Diversion of waste away from landfill site can increase the lifespan of landfill sites. Landfill sites require a large area of land to accommodate the site footprint as well as a buffer region. Once a landfill site is closed and rehabilitated development options for the site are very limited.
Preserving landfill site airspace will ultimately decrease the demand for new landfill sites.

6.1.3 Avoided Waste Transportation and Disposal Fees

At present the BLM transports domestic waste which includes an organic component to the PetroSA landfill site. Reducing the volume of organic waste being disposed of at the PetroSA landfill site will result in a financial saving from reduce transport cost and disposal fees.

6.1.4 Reduction in Negative Impact Associated with Landfilling of Waste

Landfill disposal of waste can result in a number of negative impacts. These can be minimised through good management of sites and design in line with legislated requirements.

(a) Greenhouse Gas Emissions

When organic waste is disposed of at a landfill site, compacted and covered it can breakdown anaerobically. The anaerobic breakdown of waste results in methane emissions. Methane is a greenhouse gas which is 25 times more potent that carbon dioxide (CO_2) over its lifespan (web

reference 4). When organic waste is broken through composting it is broken down aerobically and the release of methane is avoided (web reference 5).

Composting of organic waste instead of landfilling can reduce methane emissions which contribute to climate change.

(b) Reduction in Leachate Generation

Due to a high water content, organic waste can increase leachate generation in landfill sites. Leachate, if not managed correctly is a pollution risk to ground and surface water resources. Leachate management systems can be used to manage leachate, these systems can be expensive to install and maintain.

6.1.5 Economic Opportunities

Organic waste can be composted. If a market exists compost can be sold to the public, farmers, business or industry. The revenue generated from sale of compost can be used to manage a composting facility and provide sustainable employment opportunities. Compost generated from municipal organic waste can also be used in municipal parks and gardens instead of outsourcing supply. This can result in financial savings.

As composting of waste is typically more labour intensive than landfilling of waste. Composting of waste may result in job creation.

6.1.6 Improvement to Soil

The use of compost has benefits over fertilizers. Fertilizers release nutrients quickly whereas compost released nutrient more gradually over a longer period. Compost can also assist with the growth of beneficial microbes and assist with water retention in the soil.

7 Status Quo Assessment

The following chapter provides an overview of the status quo of waste management with a focus on waste minimisation, recycling and waste diversion from landfill. A comprehensive status quo assessment of the entire ambit of waste management in the BLM is available in the 2020 IWMP for the BLM (BLM, 2020).

This chapter has been structured around the processes identified in the waste management hierarchy.

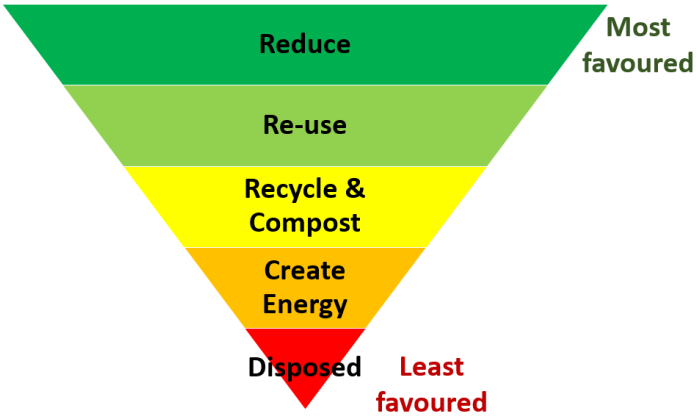


Figure 7: The waste hierarchy as per the National Waste Management Strategy (DEFF, 2020)

7.1 Waste Generation and Disposal

In order to understand the current status of the implementation of the waste management hierarchy, waste generation information is needed. The following sections discuss waste generation and disposal for the BLM.

7.1.1 Waste Records

The BLM disposes the general waste collected from households, businesses and industry at the PetroSA landfill site in Mossel Bay. The records of domestic and commercial, and industrial waste are for waste disposed of at the PetroSA landfill site and are based on records kept by PetroSA. PetroSA provides the BLM with monthly disposal tonnages for waste disposed at the landfill.

Green waste generated in the BLM is transported to the Plettenberg Bay transfer station where it is chipped and made available for the public and private composters to collect. Records of green waste disposed at the transfer station were only available from January 2020. Construction and demolition waste (C&DW) is disposed at the privately owned KK Sands facility. C&DW entering the facility is recorded. Waste disposal records for C&DW are made available to the BLM on request.

According to the waste records available for the BLM, an average of approximately 1,326.75 tonnes and 747.84 tonnes of waste (domestic waste and C&DW) was disposed of per month by the BLM in 2019 and 2020 respectively. There is a large difference in disposal tonnages between 2019 to 2020. It was assumed that this was caused by the onset of the covid 19 pandemic and the national lockdown that started from March 2020. In 2019 and 2020, municipal (domestic) waste was the largest waste stream disposed of by the BLM at an average monthly disposal rate of 924.92 and 572.09 tonnes respectively, followed by C&DW with a monthly disposal rate of 401.83 and 175.75 tonnes in 2019 and 2020 respectively. Domestic waste disposal varies throughout the year within the BLM and is highest between October and January which is when tourism is at its peak.

The data in the table below is from the following sources:

- Domestic waste – PetroSA data, provided by BLM and IPWIS
- Organic (green) waste – data provided by BLM
- C&DW – data provided by BLM and IPWIS
- Recyclables (S@S) – BLM and recycling company

Table 12: Waste disposal records (source PetroSA, BLM and IPWIS)

Month	Waste stream (tonnes/ month)					
	Municipal (Domestic) waste	C&DW	Green Waste	Recycled Waste (S@S)	Bulky Waste	Total
Jan 2019	1,465.12	387.00	-	69.90	-	1,922.02
Feb 2019	560.57	519.00	-	90.52	-	1,170.09
Mar 2019	715.33	422.00	-	60.86	-	1,198.19
Apr 2019	866.90	312.00	-	58.01	-	1,236.91
May 2019	872.92	562.00	-	45.30	-	1,480.22
Jun 2019	693.38	658.00	-	34.10	-	1,385.48
Jul 2019	658.05	661.00	-	36.77	-	1,355.82
Aug 2019	674.48	299.00	-	32.10	-	1,005.58
Sep 2019	700.18	136.00	-	15.24	-	851.42
Oct 2019	1,139.51	271.00	-	59.14	-	1,469.65
Nov 2019	1,469.94	396.00	-	80.00	--	1,945.94
Dec 2019	1,282.62	199.00	-	30.00	-	1,511.62
Total – 2019	**11,099.00**	**4,822.00**	-	**611.94**	**-**	**16,532.94**
Avg./month	**924.92**	**401.83**	-	**50.99**	**-**	**1,377.74**
Jan 2020	869.25	147.00	65.21	102.57	30.0	1,214.03
Feb 2020	539.23	181.75	49.9	89.21	27.0	887.09
Mar 2020	668.37	305.00	44.3	81.55	34.0	1,133.22
Apr 2020	624.94	-	-	-	-	624.94
May 2020	419.83	-	-	68.87	-	488.70
Jun 2020	430.66	170.75	-	105.31	-	706.72
Jul 2020	466.72	116.25	28.6	80.04	14.0	705.61
Aug 2020	479.45	123.75	33.5	57.72	18.0	712.42
Sep 2020	502.30	135.50	55.07	63.31	22.0	778.18
Oct 2020	541.90	226.00	47.35	95.35	26.0	936.60
Nov 2020	580.14	-	48.79	30.58	35.0	694.51
Dec 2020	742.34	-	55.69	97.68	16.0	911.71

Total – 2020	**6,865.13**	**1 406.00**	**428.41**	**872.18**	**222.0**	**9,793.72**
Avg./month	**572.09**	**175.75**	**47.60**	**79.29**	**24.7**	**899.40**
Estimated Total for 2020	**6,865.13**	**2,109.00**	**571.21**	**951.47**	**296.0**	**10,792.81**

7.1.2 Hypothetical Waste Generation

The table below provides the estimates of waste generation in the BLM over a five and ten-year period. The waste generation rates have been estimated based on historic and anticipated population growth. An estimated 11,771.6 tonnes of domestic waste was generated in the BLM in 2019 based on the BLM population. As the population of the BLM grows so too will domestic waste generation rates. Projected domestic waste generation rates for 2024 and 2029 are 14,164.28 and 17,043.30 tonnes respectively (BLM, 2020). A total of 11,099.00 tonnes of domestic waste, commercial and industrial waste from the BLM was disposed of in 2019 at the PetroSA landfill site. Projected waste disposal rates for domestic waste, commercial and industrial waste for 2024 and 2029 are 13,354.97 and 16,069.49 tonnes respectively.

Table 13: Future domestic waste generation rates based on projected population growth rate of 3.77% per annum

Year	Population	Projection of generation quantities based on population (domestic waste)	Projection based on weighbridge data (tonnes/annum) (domestic, commercial and industrial waste)
2019	62,369	11,771.60	11,099.00
2020	68,597	12,215.39	11,517.43
2024	79,544	14,164.28	13,354.97
2029	92,238	17,043.30	16,069.49

7.1 Domestic Waste Profile

A waste characterisation exercise was undertaken by the Eden District Municipality (now GRDM) in 2015. The aim of the study was to determine the profile of domestic waste which was being disposed of to landfill.

During the waste characterisation exercise 654 black bags (2.67 tonnes of waste) of waste were collected within the BLM. Waste was sorted into 15 categories. The results of the waste characterisation are presented below. The hypothetical mass generated per waste type is presented in the table as well. This provides an indication of tonnages of each waste type available in the domestic waste stream that can be diverted from landfill and reused, recycled, composted or treated.

Table 14: Waste profiles for BLM (source: Eden District Municipality, 2016)

Waste type	Percentage of total mass (%)	Hypothetical domestic mass generated per waste type in 2019 (tonnes)
Soft plastics	7.18	845.20
Hard plastics	7.01	825.19
Paper	9.16	1,078.28

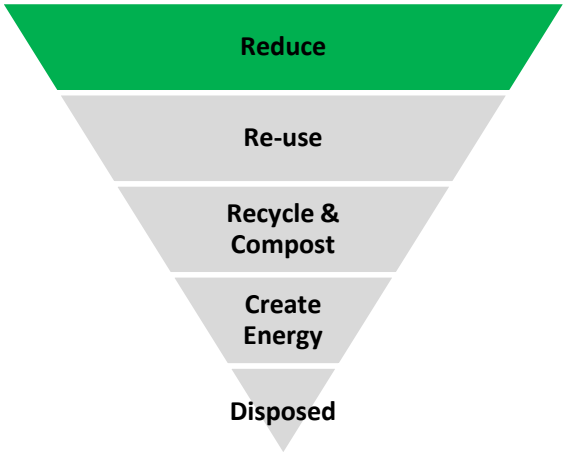
Waste type	Percentage of total mass (%)	Hypothetical domestic mass generated per waste type in 2019 (tonnes)
Cardboard	8.48	998.23
Glass	9.74	1,146.55
Metal	3.85	453.21
Recyclables sub-total	45.42	5,346.66
Food waste	29.94	3,524.42
Garden waste	4.91	577.99
Wood	0.36	42.38
Organic waste sub-total	35.21	4,144.78
E-waste	0.50	58.86
Hazardous	0.34	40.02
Household hazardous sub-total	0.84	98.88
Textiles	4.14	487.34
Inert	0.27	31.78
Nappies	4.69	552.09
Rest	9.43	1,110.06
Total	**100**	11,771.60

*The category rest refer to waste which cannot be sorted into one of the other categories and includes waste such as dust or hair.

The following were noted from the results of the 2015 waste characterisation:

- 45.4% of the waste stream by mass was composed of mainstream recyclables (paper, plastic, cardboard, glass and metal);
- 35.2% of the waste stream by mass was organics, the majority of which was food waste (30% of the total waste stream)

7.2 Reduce



Waste reduction is the aspirations of the waste hierarchy, but are typically beyond the control of a local municipality.

Waste reduction can be practiced by industry through streamlining manufacturing processes to reduce virgin materials used and reduce wastage.

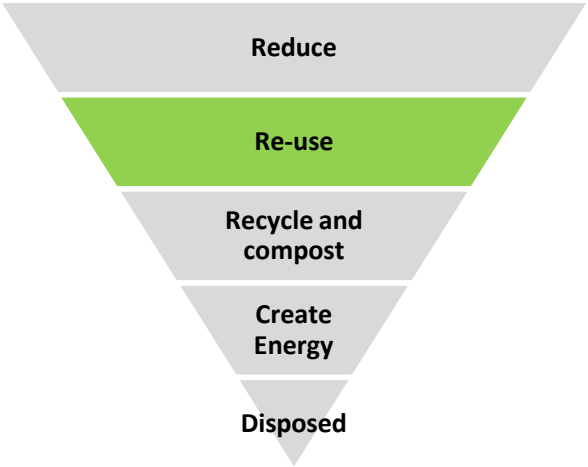
The public can avoid waste generation through steps such as saying no to single use plastics such as drinking straws and minimising food waste in the home through meal planning.

The BLM can encourage waste reduction through waste awareness campaigns and education.

Renew Able Plett is a non-profit organisation in BLM which promotes reduction in waste to landfill. One of the programmes which Renew Able Plett is actively undertaking is an awareness programme around single use plastics. Renew Able Plett has partnered with ambassador businesses for this programme. Details regarding the waste awareness campaigns conducted by Renew Able Plett is provided in section 7.8.

Figure 8: Image from Renew Able Plett social media account – accessed on 16/04/2020

7.3 Re-Use



The Waste Act defines re-use as *'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'.*

Options for a municipality to re-use waste are limited. One example of waste re-use which a municipality can participate in is re-use of C&DW. Clean (uncontaminated) C&DW can be utilised as fill material for construction projects or to rehabilitate quarries.

The public can participate in waste re-use through actions such as reusing plastic bags, shopping bags or using empty yoghurt containers for food storage, and reusing plastic water bottles.

7.3.1 Construction and Demolition Waste

(a) Targets for Construction and Demolition Waste

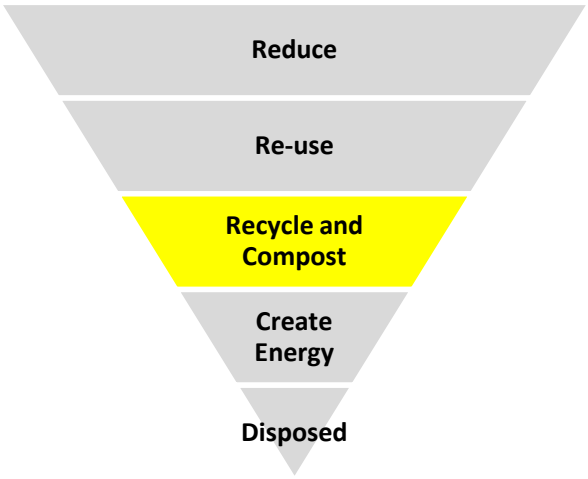
- Divert 40% of waste from landfill in 5 years, 55% in 10 years and 70% within 15 years leading to zero waste going to landfill - NWMS, 2020 (DEFF, 2020)

- Construction and demolition waste (C&DW) only disposed of as cover material by 2021 NWMS, 2020 (DEFF, 2020)

(b) Current Management of Construction and Demolition Waste

Clean (uncontaminated) C&DW generated in the BLM is disposed of at the Ukhana Disposal Facility (known as the KK Sands landfill site). This landfill site is an exhausted quarry and only accepts clean C&DW. The C&DW accepted at this facility is reused to rehabilitate the quarry. Waste disposed at the facility is recorded as waste reused or recovered on the IPWIS. There is no other known formal reuse or diversion of C&DW in the BLM. A detailed section of C&DW recycling potential is provided in section 7.4.7.

7.4 Recycling and Composting



The Waste Act defines recycling as *'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'*

Recycling refers to the entire process from collection and sorting of waste, through to converting a waste into a new product or raw material.
For the purposes of this study activities linked to one or more of the phases of recycling (e.g. separation of waste at source) are covered under the recycling section.

Composting is defined in the Draft National Norms and Standards for Organic Waste Composting (GN 1135 of 2019) as 'a biological process in which organic materials are broken down by micro-organisms by means of an aerobic process to produce compost or fertiliser'.

7.4.1 Recycling

(a) Definitions

The following definitions is used in the next sections of the report.

Separation at source – this refers to the practice of separating waste at the point of generation.

Mainstream recyclables – these are waste types which are commonly generated by households and businesses but excludes hazardous waste. Mainstream recyclables are paper, cardboard, plastic, glass, cartons and metal.

Recycling drop-off facilities- a facility where the public can drop-off source-separated recyclables free of charge. There is no financial or other incentive for the public to use these facilities

Swop shops – these are facilities where the public can exchange source-separated recyclables for items such as groceries, clothing or stationary. Swop-shops typically need to be subsidised to remain operational

Buy-back centre – these are facilities where the public can sell recyclable material. The value paid for recyclable material is generally below market value to allow the operator of the buy-back centre to make a profit.

Material recovery facility (MRFs) – this is a facility where sorting of waste occurs. MRFs can be broadly classified as 'clean' or 'dirty'. A clean MRF processes recyclable waste which has been separated at source. A dirty MRF processes an unsorted waste.

Two bag system –in this section the two bag system refers to the black bag for non-recyclable waste and the yellow bag used for recyclable materials.

(b) Legislative Targets for Waste Recycling

The following key legislated targets for recycling need to be noted:

- Divert 40% of waste from landfill in 5 years (by 2025), 55% in 10 years (by 2030) and at least 70% in 15 years (2035) - NWMS, 2020 (DEFF, 2020). Recyclable waste is included in the calculation of the total waste diverted from landfill
- All local authorities to include provisions for recycling drop-off/ buy-back/storage centres in their IWMPs by 2023 - NWMS, 2020 (DEFF, 2020)

In addition to the legislated requirements the 2017 Western Cape Provincial IWMP sets the following recycling targets:

- 20% diversion of recyclables by 2019

The table below details recycling records for the BLM for the period from January 2019 to December 2020. Waste recycling monthly averages are provided for 2019 and 2020. The records as outlined in the table below are recyclable waste tonnages:

- Collected through the municipal separation at source programme (2 bag system)
- Dropped off at municipal recycling drop-off facilities

Table 15: Recycling records January 2019 – September 2020 (tonnes) (source, IPWIS and service provider)

Month	2 bag system
January 2019	69.90
February 2019	90.52
March 2019	60.86
April 2019	58.01
May 2019	45.30
June 2019	34.10
July 2019	36.77

Month	2 bag system
August 2019	32.10
September 2019	15.24
October 2019	59.14
November 2019	80.00
December 2019	30.00
Total for 2019	**611.94**
Average/month for 2019	**50.99**
January 2020	102.57
February 2020	89.21
March 2020	81.55
April 2020	-
May 2020	68.87
June 2020	105.31
July 2020	80.04
August 2020	57.72
September 2020	63.31
October 2020	95.35
November 2020	30.58
December 2020	97.68
Total for 2020	**872.18**
Average/ month for 2020	**79.29**

In 2019 and 2020, an average of 50.99 tonnes and 79.29 tonnes per month respectively of general domestic waste was recovered for recycling through the 2-bag system and recycling drop-off facilities. An increase in the tonnages of waste recycled was achieved from 2019 to 2020 even though recycling and waste generation was largely influenced by the COVID-19 pandemic and the national lockdown experienced from March 2020. The only month that recyclables were not collected through the S@S programme in the BLM due to the national lockdown that commenced in March 2020 was in April 2020. The lockdown continued through to May 2020, however recyclables were still collected by the S@S service provider.

The different recycling programmes used in the BLM are detailed in the following sections that follow.

(c) Separation at Source / Multi-Bag System

The BLM has a multi-bag waste collection system in operation. The bags are colour-coded as follows:

- **Black bags**: for non-recyclable general waste, and these are collected by a combination of municipal trucks, service providers and co-operatives
- **Yellow bags**: source-separated recyclables that are collected by a service provider

The BLM has reappointed the S@S service provider for a three (3) year period (until March 2024) to implement and manage the two bag system and service recycling drop-off facilities.

The scope of work and responsibilities of the service provider as outlined in the tender documentation (Ref: SCM/2021/09/COMM) includes:

- Collection of recyclable waste (collection of recycled waste from the S@S programme, from municipal offices and drop-off points for recyclables)
- Sorting and baling of collected recycled waste
- Provision of an operational premises
- Provision of machinery and equipment
- Communication (including education and awareness)

The remuneration to the service provider is based on a monthly rate and is not based on a tonne basis of recyclables that are collected by the service provider through the S@S programme.

In 2020, an average 79.29 tonnes per month of recyclable waste was collected within the BLM through the S@S programmes. This represented the highest annual and monthly tonnages for waste recycled through the S@S programme since 2017. This is a positive observation for recycling in the BLM.

The yellow-bag system is in operation in all urban and high-density residential areas in the BLM. Yellow bags are collected weekly from all residential areas listed in the table below. The recyclable materials are collected the day after the black bag collection rounds. Where black bags are collected on a Friday the yellow bags are collected on a Monday.

Table 16: Areas serviced by the yellow bag system

Day	Area serviced
Monday	Airport/ Jakkalskraal; Harkeville/ Sasol; Bossiesgif Pinetrees Gaatjie; Twin Rivers; Natures Valley; Goose Valley; Covie;
Tuesday	North of Piesang Valley & Poortjies, River Club, Kranshoek, Businesses, Hotels and Flats, Keurbooms, Forever Resort
Wednesday	South of Piesang Valley; Crags (farming Areas) Kurland Club; Forest Hall Road; Whale Rock; Businesses; Hotels and Flats; Goose Valley; Industrial Area, Askop Road
Thursday	Kwanokuthula Phase 3;4 &5: Businesses; Castleton; Hotels & Flats; Kurland Village; Ladywood; Plett Primary; Harkeville; New Horizon
Friday	Wittedrift; Keurbooms ; Businesses; Hotels & Flats; Industrial Area; KWanokuthula Phase 1 &2; Greenvalley

The participation rate in the S@S programme ranges with an estimated 10% - 80% of households participating from suburb to suburb. For example, an estimated 80% of households in ward 2, Plettenberg South and North participate in the S@S programme. Participation rates of businesses in the central business district is also estimated at 80% participation rate. However, only 10% of households in low income areas participate in the programme. On average, a total of 50-60% of all households participate in the S@S programme.

The service provider noted there is considerable mixing and contamination of recyclables within the yellow bags. Stating that this is an awareness issue and that no information/ awareness flyers had been issued during 2018 and 2019. The BLM has conducted more awareness campaigns since 2020 which is a possible explanation for the noticeable increase in tonnages of recycled waste from the S@S programme. The service provider indicated that a

need to conduct awareness regarding the S@S programme (yellow bag system) should continue to increase participation rates, avoid contamination of recyclables and minimise salvaging by the informal sector.

The service provider further noted “recycling poachers”, individuals who are not the service provider, that are collecting recyclables. This was noted as a safety and business concern to the service provider appointed to do the recyclable waste collection. The poached recyclables would be sold to the service provider at their depot and that the service provider would need to pay for recyclables that they were appointed to collect and generate an income from.

The table below provides a detailed breakdown of the recycle streams and tonnages collected through the separation at source programme within the BLM.

Table 17: Breakdown of the quantities per type of recyclable collected through the separation at source programme within the BLM from September 2019 – September 2020

Month	Glass (tonnage)	Paper (tonnage)	Plastic (tonnage)	Metal (tonnage)	Total (tonnage)
January 2019	43.22	21.52	4.16	1.000	69.90
February 2019	55.60	23.54	9.20	2.180	90.52
March 2019	31.92	20.95	5.93	2.060	60.86
April 2019	24.02	21.89	10.44	1.660	58.01
May 2019	29.84	9.32	4.96	1.183	45.30
June 2019	16.46	12.84	4.80	-	34.10
July 2019	14.56	15.89	5.23	1.091	36.77
August 2019	14.88	12.38	4.84	-	32.10
September 2019	8.44	5.38	1.42	-	15.24
October 2019	33.02	34.80	9.36	1.239	80.35
November 2019	35.20	10.13	4.64	-	49.97
December 2019	17.42	7.52	3.70	1.400	30.04
Total 2019	**324.58**	**196.16**	**68.68**	**11.81**	**603.16**
Average 2019	**27.05**	**16.35**	**5.72**	**0.98**	**50.26**
January 2020	70.40	22.52	8.51	1.150	102.57
February 2020	48.50	21.01	15.13	4.575	89.21
March 2020	50.42	20.63	10.50	-	81.55
April 2020		-	-	-	-
May 2020		37.48	31.39	-	68.87
June 2020	20.15	58.28	26.27	0.606	86.07
July 2020	16.16	38.27	25.19	0.414	70.38
August 2020	12.45	30.32	11.83	3.117	45.83
September 2020	13.26	38.16	11.89	-	36.89
October 2020	59.78	25.47	8.90	1.198	95.35
November 2020		23.22	7.37	-	30.58
December 2020	2.72	77.34	17.62	-	97.68
Total for 2020	**322.29**	**392.69**	**174.60**	**11.06**	**872.18**
Average for 2020	**26.86**	**35.70**	**15.87**	**1.01**	**79.29**

(d) Recycling Drop-Off Facilities

The BLM has nine recycling drop-off facilities. The facilities are provided by the municipality and recyclables are collected by the S@S service provider. Tonnages of recyclables collected from the drop-off facilities are included in the monthly S@S programme tonnages. Details of the facilities are presented below. Recyclables collected from the drop-off facilities are recorded with the tonnages for the two bag system.

Table 18: Recycling drop-off facilities in the BLM

Facility name	Area	Facilities available	Waste types accepted	Comments
Nature's Valley drop-off facility	Natures Valley	Igloos for mainstream recyclables.	Mainstream recyclables	
Plettenberg Bay transfer station		Igloos for mainstream recyclables E-waste container Used oil container	Mainstream recyclables, e-waste, used mechanical oil	
Municipal facility – Engineering Services depot	Off Marine Drive	Igloos for mainstream recyclables	Mainstream recyclables	These two facilities are located in close proximity to each other (200m apart). It may not be necessary to have both facilities operating and one set of bins could be moved to an alternative location.
NG Kerk Plettenbergbaai Church	Off Marine Drive	Igloos for mainstream recyclables	Mainstream recyclables	
Keurbooms drop-off facility	Keurbooms, next to the beach	Igloos for mainstream recyclables		
Crags-Kurland drop-off facility	Crags-Kurland community hall	Igloos for mainstream recyclables	Mainstream recyclables	
Karnshoek drop-off facility	Karnshoek	Igloos for mainstream recyclables		
Wittedrift drop-off facility	Wittedrift small shopping complex	Igloos for mainstream recyclables	Mainstream recyclables	
Old Nick drop-off facility	Behind Old Nick village	None at present.	None at present – will accept all mainstream recyclables once it is in operation.	Not currently operational. Operations to commence by May 2021.

Figure 9: Recycling drop-off facilities. A. Municipal offices off Marine Drive, B. NG Kerk Plettenbergbaai Church, C. Plettenberg Bay transfer station, D. Nature's Valley drop-off facility

(e) Material Recovery Facility

There are currently no municipal material recovery facilities (MRFs) within the BLM. The municipality has allocated a R35 million budget for the development and construction a MRF at the Plettenberg Bay transfer station. The MRF would be constructed in phases between 2021 and 2023. Once developed, the MRF will be used by the S@S service provider as a base for the S@S programme. In addition, the municipality will be able to provide an oversight role to the programme.

(f) Swop Shops

There are no municipal swop shops within the BLM. The BLM plans to establish swop shops in Crags-Kurland and Qolweni/Bossiesgif areas. The day-to-day operations of the swop shops will be managed by the S@S service provider. Private organisations based in the BLM will assist with donations to operate the swop shop. Items that could be exchanged at the swop shop for recyclables include food, second hand clothes (still wearable), and stationary. Generally, the volumes of waste collected by the swop-shops are small, but they form a valuable education and awareness tool.

(g) In-house Recycling Programme

Recycling bins are available outside the municipal offices to encourage employees to recycle at work. The recyclables are removed by the S@S service provider. Tonnages for waste collected from the municipal offices are not recorded by the S@S service provider but are added to the S@S tonnages provided to the municipality on a monthly basis.

(h) Planned Recycling Facilities

The planned recycling facilities to be established in the BLM include:

- Construction of a MRF at the Plettenberg Bay transfer station. R 35 million has been allocated for the development and construction of the MRF. Construction will commence in 2021.
- Drop-off facility to be commissioned at Old Nick Village. Operation of the drop-off facility is scheduled to commence by May 2021.
- Establishment of swop-shops in Crags-Kurland and Qolweni/Bossiesgif. The swop-shops will be run through the BLM Local Economic Development (LED) department with support from a local business.

(i) Private Recycling and Waste Minimisation

The S@S service provider also provides recycling services to business and major shopping centres in the BLM. Several large shopping complexes are serviced by the S@S service provider. Retail store or shopping complex managers indicated that they do not record tonnages of recyclables separated for the collection as they do not have equipment to weigh the recycled waste and that this is not a requirement for their core services.

Several smaller private recycling companies that operated in the BLM have closed due to the crash in the recycling industry that started in 2019. These recycling companies could not sustain their recycling operations

(j) Private Sector Involvement - Renewable Plett

Renew Able Plett is a non-profit organisation which aims to encourage the reduction in use of single use plastics.

(k) Domestic Waste Available for Recycling

A waste characterisation exercise was undertaken by the Eden District Municipality (now GRDM) in 2015 (Eden District Municipality, 2016). The aim of the study was to determine the profile of domestic waste which was being disposed of to landfill. The table below presents the results of the waste characterisation exercise. These results were used to determine the hypothetical availability of recyclable materials in the domestic waste stream in 2019 and 2020.

According to the result of the 2015 waste characterisation and the 2019 and 2020 hypothetical waste generation tonnages, approximately 5,356.1 tonnes and 5,558.0 tonnes of recyclable material was generated in the domestic waste stream in 2019 and 2020 respectively. Additional recyclable material will be generated through business and industry. The profile of business and industry waste is unknown so the volumes of materials cannot be calculated.

Table 19: Waste profiles, including the mass and volume of each recyclable waste type, for BLM (source: Eden District Municipality, 2016)

Waste type	Percentage of total mass (%)	Amount of waste type in 2019 (tonnes/annum)	Amount of waste type in 2020 (tonnes/annum)
Soft plastics	7.2%	847.6	879.5
Hard plastics	7.0%	824.0	855.1
Paper	9.2%	1,083.0	1,123.8
Cardboard	8.5%	1,000.6	1,038.3
Glass	9.7%	1,141.8	1,184.9
Metal	3.9%	459.1	476.4
Total per annum	**45.5%**	**5,356.1**	**5,558.0**
Total per month		**446.3**	**463.2**

Based on the available tonnage data for waste disposal and recycling, the BLM diverted 10.8% of the recyclable material in the domestic waste stream from landfill waste in 2019.

Year	Total domestic waste stream (tonnes)	Recyclable content %	Total recyclables in domestic waste stream (tonnes)	Waste collected for recycling (tonnes)	Total recyclables available (tonnes)	% recycled
2019	11,099.00	45.5%	5,050.8	611.94	5,661.9	10.8%

The BLM should focus on education and awareness campaigns and increasing the participation rates in the S@S programmes to increase the diversion of recycled waste material of being disposed of at landfill.

7.4.2 Household Hazardous Waste Recycling

(a) Definitions

The following definitions is used in the next sections of the report.

Hazardous waste -
Schedule 3 of the Waste Act defines hazardous waste act:

Any waste that contains organic or inorganic elements or components that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and environment and includes hazardous substances, materials or objects within business waste, residue, deposits and residue stockpiles

(b) Targets for Households Hazardous Waste Management

Goal 2 of the WCIWMP identified the need for adequate management of hazardous waste. The plan also set a target for DEA&DP to develop a guideline for hazardous waste management. The plan also goes onto identify the need to set diversion targets for household hazardous waste (HHW) through stakeholder engagement.

(c) Description of Household Hazardous Waste

Common types of HHW are:

- Used batteries
- Used motor oil
- Thinners, resins and certain paints
- Cleaning chemicals
- Health care risk waste (HCRW) used needles (sharps), medication, used bandages
- Fluorescent light bulbs – tubes and compact fluorescent light bulbs (CFLs)
- E-waste, due to the hazardous nature of some component of e-waste
- Asbestos products generated through home renovations
- Pesticides

These waste streams should be managed separately to general domestic waste. Certain portions of HHW are recyclable, including used motor oil, e-waste and fluorescent light bulbs and CFLs.

The National Domestic Waste Collection Standards (GN 21 of 2011) require municipalities to provide clearly marked drop-off centres for recyclable HHW. The HHW collected at these drop-off centres should be collected by the private sector.

(d) Household Hazardous Waste Generation

There are no records available for the generation of HHW in the BLM. A 2015 waste characterisation survey was undertaken in the BLM by the BLM, GRDM and DEA&DP. Domestic waste was sorted into 15 categories including e-waste and hazardous waste.

The table below summarises the results of the waste characterisation for e-waste and hazardous waste.

Table 20: Domestic waste characterisation – household hazardous waste results (GRDM, 2016)

Waste type	Examples	Mass % of total domestic waste stream	Total in domestic waste stream: 2019 (tonnes)
E-waste	Electrical or battery operated objects	0.5%	58.9
Hazardous waste	Paints, resins, glue, fluorescent tubes, batteries, pesticides, asbestos	0.34%	40.0
Total per annum (tonnes)-		**0.84%**	**98.9**
Total per month (tonnes)-			**8.2**

Based on the results of the domestic waste characterisation a small portion (0.84%) of the domestic waste stream is composed of hazardous waste.

In 2019, an estimated 11,099.0 tonnes of domestic waste was generated in the BLM (BLM, 2020). If 0.84% of this waste was composed of HHW, then 98.9 tonnes of domestic hazardous waste was generated in the BLM in 2019.

(e) Households Hazardous Waste Drop-Off Facilities

A drop-off facility for HHW is provided at the Plettenberg Bay transfer station. The municipality does not record tonnages of HHW disposed at the drop-off facility, but the municipality indicated that very small volumes (tonnages) of HHW is collected at the drop-off facility.

Minimal education and awareness conducted in the BLM is focussed on the generation and correct disposal of HHW.

7.4.3 Financial Savings from Diversion of Recyclable Waste from Landfill

The BLM currently pays a rate per tonne for disposal at the PetroSA landfill site. Once the GRDM regional site is operational, the BLM will be disposing of waste at this site at a fixed cost per tonne. There is an opportunity for the BLM to make a financial saving on transport and disposal costs by diverting recyclables from landfill.

Table 21: Potential cost savings from diversion of recyclable materials from landfill

Year	Tonnes recyclables	Cost per tonne for disposal*	Cost per tonne for transport*	Combined transport and disposal cost	Total cost for transport and disposal/ annum
2019	5,050.0	-	-	-	-
2020	5,240.4	R 450.00	R 200.00	R 650.00	R 3,406,279.92
2024	6,076.5	R 568.11	R 252.50	R 820.61	R 4,986,445.98
2029	7,311.6	R 760.27	R 337.90	R 1,098.17	R 8,029,399.48

*a 6% increase has been added to the disposal and transportation costs per annum to take into account escalation.

Based on the above calculations, the BLM could save up to R3.4 million in 2020 increasing to R8.0 million in 2029 through diversion of recyclable materials from landfill. The same cost saving analysis applies to organic waste diversion. These calculations exclude the cost for implementation of diversion mechanisms such as a two bag system, construction and operation of a MRF. In addition to potential financial savings from recycling, new jobs can also be created.

7.4.4 Financial Costs Associated with Recycling

Separation at source is one of the mechanisms which can be used by municipalities to create an enabling environment for recycling and to obtain high quality, uncontaminated recyclables. There can, however, be high costs associated with separation at source which can range between R350 – R500 per tonne of waste on top of the standard cost to collect domestic waste. Waste which is separated at source requires further sorting which requires a sorting facility (a

clean MRF) and labour. The cost of a separation at source programme, including transport and sorting costs, is estimated at R840 per tonne (Smith, F.H and Trois C 2018).

The BLM has a budget of R 944,316.00 (excl. VAT) for the diversion of waste from landfill through the S@S programme in the 2021/22 financial year. Using the average recycled waste collected in 2020 (951.6 tonnes) and assuming this would continue for 2021, the S@S programme costs R992.35 per tonne of recycled waste. This cost will decrease should more recyclables be collected through this programme.

7.4.5 Composting

(a) Definitions

The following definitions is used in the next sections of the report.

Treatment - - any method, technique or process that is designed to:

a) Change the physical, biological or chemical character or composition of a waste; or
b) Remove, separate, concentrate or recover a hazardous or toxic component of a waste; or
c) Destroy or reduce the toxicity of a waste (National Environmental Management Waste Amendment Act, Act 26 of 2014)

Compost – is the product of controlled aerobic, biological decomposition of biodegradable materials. The organic waste undergoes mesophilic and thermophilic temperatures, which significantly reduces the viability of pathogens and weed seeds, and stabilises the carbon such that is beneficial to plant growth (Draft National Norms and Standards for Organic Waste Composting, GN 1135 of 2019).

Composting – a controlled biological process in which organic materials are broken down by micro-organisms by means of an aerobic process to produce compost or fertiliser (Draft National Norms and Standards for Organic Waste Composting, GN 1135 of 2019).

(b) Legislative Drivers for Organic Waste Diversion from Landfill

The following key legislated targets for recycling need to be noted:

- Divert 40% of waste from landfill in 5 years (by 2025), 55% in 10 years (by 2030) and at least 70% in 15 years (2035) - NWMS, 2020 (DEFF, 2020). Organic waste is included in the calculation of the total waste diverted from landfill
- 25% reduction of garden waste to landfill by 2018 and a 50% reduction by 2023 – National Norms and Standards for Disposal of Waste to Landfill (DEA, 2013)

In addition to the legislated requirements the following targets are set in the 2017 Western Cape Provincial IWMP.

- 50% diversion of organic waste by 2022
- 100% diversion of organic waste by 2027 (DEA&DP, 2017).

(c) Organic Waste Generation

An estimated 4,335.25 tonnes of organic waste was generated in the BLM in 2019. The majority of organic waste generated was food waste, 3,318.6 tonnes, 543.85 tonnes of garden waste in

the domestic waste stream and 428.4 tonnes of garden waste was received at the Plettenberg transfer station.

Table 22: Waste profile of organic waste for BLM (source: Eden District Municipality, 2016 and BLM records)

Waste type	Percentage of total domestic waste stream by mass (%)	Amount of waste type generated in 2019
Food waste (domestic waste stream)	29.9%	3,318.60
Garden waste (domestic waste stream)	4.9%	543.85
Wood waste (domestic waste stream)	0.4%	44.40
Garden waste (received at transfer station in 2020)	-	428.40
Total		4,335.25

(d) Landfill Site Disposal of Organic Waste

The majority of organic waste generated in the BLM is disposed of in the domestic waste stream at the PetroSA landfill site in Mossel Bay. An estimated total of 3,906.9 tonnes of organic waste in the domestic waste stream was disposed of in 2019. This represents 90.1% of the organic waste generated in the BLM. Once the GRDM regional landfill is established and operational, organic waste generated in the domestic waste stream will be disposed of at this facility. The BLM is currently diverting some green waste from landfill at the composting facility and some domestic organic waste is diverted from landfill through the GRDM pilot home composting programme (refer to section (g)7.4.5(g)). No other programmes are currently in place for the diversion of food waste from landfill.

(e) Composting Facility

There is a licensed composting facility located at the Plettenberg transfer station within the BLM however, this facility is currently not used for composting. The BLM is currently chipping organic waste at this site, which is collected by local farmers and the public, and used for mulching or composting on farms. The BLM intends to continue with this initiative to divert green waste from landfill. At present no budget has been allocated to manage the composting of green waste. In the long term, the BLM plans to manage the composting facility in-house. At present the skills are not available to manage the facility in-house. The current approach of chipping waste is however successfully diverting waste from landfill. The tonnes of green waste disposed and diverted from the Plettenberg Bay transfer station is provided below.

Table 23: Records of green waste received at the Plettenberg Bay transfer station composting facility per month

Month	Tonnes of green waste
January 2020	65.2
February 2020	49.9
March 2020	44.3
April 2020	0.0
May 2020	0.0
June 2020	0.0
July 2020	28.6

Month	Tonnes of green waste
August 2020	33.5
September 2020	55.1
October 2020	47.4
November 2020	48.8
December 2020	55.7
Total for 2020	**428.4**

Figure 10: Green waste at the composting facility

(f) Private Composting Facilities

Melton Farms composting located in Plettenberg Bay conducts composting at their facility.

(g) Home Composting Programme

A pilot home composting programme started in the BLM in November 2020 in conjunction with the GRDM. The programme is trialling the use of compost containers, worm farms and compost heaps to divert organic waste from landfill. The GRDM provided training, training materials, worms for the worm farms and manages the data collection and capturing for the project. The GRDM also provided the worm farms and compost containers. A newspaper advert was placed in a local newspaper inviting households to register to take part in the programme.

Thirty (30) households were selected to participate in the programme:

- 27 worm farms were issued
- 29 compost containers were issued
- 9 households used compost heaps (some were used intermittently)
- Two households failed to report any data, one household only reported data for 1 month (November 2020) and one household did not report data for April 2021.

Over the first 6 months of the programme, 6.9 tonnes of organic waste has been diverted from landfill.

The table below gives a breakdown of the results over the six-month period. The pilot programme will run for a 12-month period. After the 12-month period households will keep their worm farm and compost containers but data collection will stop.

Table 24: Home composting programme results November 2020 – January 2021

Month	Worm farm (kgs)	Compost bin (kgs)	Compost heap (kgs)	Total
November 2020	149.1	891.9	851.9	1892.9
December 2020	117.2	478.9	228.0	824.1
January 2021	118.3	431.6	441.0	990.9
February 2021	141.7	487.2	517.5	1,146.4
March 2021	136.1	461.2	198.8	796.1
April 2021	147.0	430.1	681.0	1,258.0
Total	809.4	3,180.9	2,918.2	6,908.5
Average per month	134.9	530.1	486.4	1,151.4

The BLM plans to procure an extra 100 home composting bins and roll out the home composting programme to interested households in the municipality. Households that are interested in the home composting programme will be invited to register their interest and are added to a waiting list maintained by the BLM.

(h) Wood Waste Management

Wood waste contributes 0.36% of the domestic waste stream in the BLM (GRDM, 2016) and also contributes to C&DW generated in the BLM (old window frames, wooden beams etc.). Wood waste can further be broken down into the following categories:

- Wood pallets
- Chipboard – e.g. old furniture
- Poles – treated and untreated
- Mixed wood off-cuts
- Painted/coated wood – old broken furniture
- Natural wood – branches

The table below summarises the results of the waste characterisation for wood waste and possible mass of wood waste generated in 2020 in the BLM. In 2020 an estimated 34.6 tonnes of domestic waste will be generated in the BLM (BLM, 2020). It must be noted that the below calculations are based on the results of the waste characterisation which assessed waste contained in black bags. The domestic waste stream would contain more wood waste which would be generated by home DIY projects. This waste would be transported to the transfer station.

Table 25: Domestic waste characterisation – household hazardous waste results (GRDM, 2016)

Waste type	Examples	% of total domestic waste stream	Total in domestic waste stream (tonnes/ annum)
Wood waste	Wood pallets, chipboard, mixed wood off-cuts, etc.	0.36%	34.6
Total per month (tonnes)-			**2.9**

(a) Sewage Sludge Generation

The Status Quo Report for Sewage Sludge in the Western Cape indicates that 17 tonnes of sewage sludge was generated per month in 2019 in the BLM (204 tonnes per annum) and is contained in sludge ponds (Department of Environmental Affairs and Development Planning, 2021). Due to accumulation of sludge in these ponds, the sludge will be removed when required. The sludge can be disposed at landfill or reused for composting. The municipality plans to use the sludge for composting.

7.4.6 Financial Savings from Diversion of Organic Waste from Landfill

The BLM currently pays a rate per tonne for waste disposal at the PetroSA landfill site. Once the GRDM regional site is operational, the BLM will be disposing of waste at this site at a fixed cost per tonne. Similar to recyclables, there is an opportunity for the BLM to make a financial saving on transport and disposal costs by diverting domestic organic waste from landfill. Green waste chipped at the composting facility is excluded from the below calculation as this waste is not landfilled.

Table 26: Potential cost savings from diversion of domestic organic waste from landfill

Year	Tonnes domestic organic waste	Cost per tonne for disposal*	Cost per tonne for transport*	Total cost for transport and disposal	Total cost for transport and disposal
2019	4,335.25	-	-	-	-
2020	4,498.69	R 450.00	R 200.00	R 650.00	R 2,924,146.45
2024	5,216.43	R 568.11	R 252.50	R 820.61	R 4,280,651.14
2029	6,276.71	R 760.27	R 337.90	R 1 098.17	R 6,892,895.42

*a 6% increase has been added to the disposal and transportation costs per annum to take into account escalation.

Based on the above calculations, the BLM could save up to R2.9 million in 2020 increasing to R6.9 million in 2029 through diversion of domestic organic waste from landfill. These calculations exclude the cost for implementation of diversion mechanisms such as a separate bag/ bin for organic waste, provision of home composting bins etc.

7.4.7 Construction and Demolition Waste

Construction and demolition waste (C&DW) is waste which is generated through construction or demolition projects. Construction and demolition waste is a diverse waste stream and can include bricks, concrete, wood, asphalt, ceramic, metal, soil and stones amongst others. Portions of the C&DW can be reused or recycled. This section of the report only addresses reuse of C&DW. Reuse, as defined in the waste act is the reuse of waste without changing the form of properties of the waste.

(a) Definitions

The following definitions are used in the next sections of the report.

The Waste Act uses the following definition:
Building and demolition (the term construction and demolition waste is used in this report) *waste, excluding hazardous waste, produced during the construction, alternation, repair or demolition of any structure and includes rubble, earth, rock and wood displaced during that construction alteration, repair or demolition, which include:*

(a) discarded concrete, bricks, tiles and ceramics
(b) discarded wood, glass, and plastic
(c) discarded metals
(d) discarded soil, stones and dredging spoil
(e) other discarded building and demolition wastes

(b) Legislative Drivers for Construction and Demolition Waste Diversion from Landfill

The following key legislated targets for diversion of C&DW waste from landfill need to be noted:

- Divert 40% of waste from landfill in 5 years (by 2025), 55% in 10 years (by 2030) and at least 70% in 15 years (2035) - NWMS, 2020 (DEFF, 2020). C&DW for beneficiation is included in the calculation of the total waste diverted from landfill
- C&DW to only be disposed of as cover material at landfill by 2021

In addition to the legislated requirements the following targets are set in the 2017 Western Cape Provincial IWMP.

- 20% diversion of recyclable waste, including C&DW by 2019

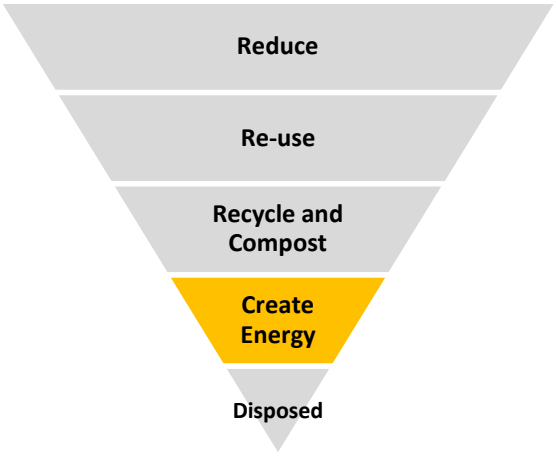
(c) Construction and Demolition Waste Generation and Disposal

In 2019, on a monthly basis an average of 401.83 tonnes of C&DW was disposed at the privately owned KK Sands landfill site and in 2020 a monthly average of 175.75 tonnes of C&DW was disposed at this facility. The KK sands landfill site is an exhausted quarry and all uncontaminated C&DW disposed at the landfill is used to rehabilitate the quarry. This landfill site has airspace for approximately 30 years for the disposal of C&DW generated in the BLM.

Table 27: C&DW disposal records for January 2019 – January 2020 (provided by DEA&DP on 22/05/2020)

Month	Construction and demolition waste (tonnes)
January 2019	387.0
February 2019	519.0
March 2019	422.0
April 2019	312.0
May 2019	562.0
June 2019	658.0
July 2019	661.0
August 2019	299.0
September 2019	136.0
October 2019	271.0
November 2019	396.0
December 2019	199.0
Total	**4,821.96**
Average/ month	**401.83**

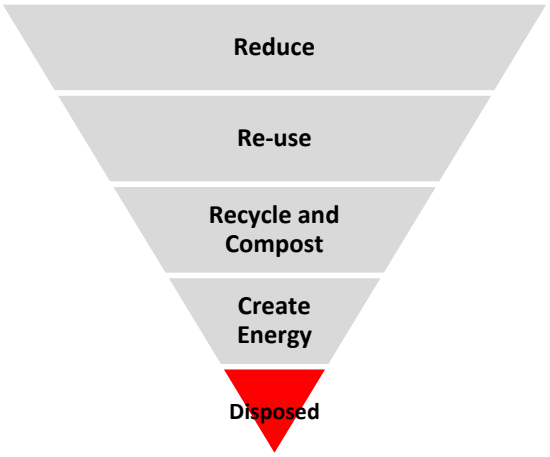
7.5 Create Energy



The Waste Act defines recovery as *'the controlled extraction or retrieval of any substance, material or object from waste'*

Waste recovery is largely limited to recovery of waste as part of manufacturing processes. As such it is excluded from this WMP which focuses on waste minimisation from a municipal perspective.

7.6 Treatment and Disposal



The Waste Act defines disposal as *'the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto land'*

Disposal of waste should be used as a last option in the management of waste. Disposal of waste will continue to be one of the management methods used in the BLM and across South Africa in the long term. While the disposal of waste to landfill by the BLM is unavoidable, the BLM must in line with aims of this plan seek to reduce the volume of waste disposed of at landfill sites and also ensure that landfill sites are operated correctly to minimise negative impacts thereof.

7.7 Bulky Waste Management

The BLM has historically had, and continues to have, a challenge with the management of bulky waste. At present bulky waste is stock-piled at the composting facility at the transfer station and at the Old Nick drop-off facility. When a large stockpile builds up bulky waste is transported to PetroSA for disposal.

In May 2021, the BLM advertised a request for quotation (RFQ) (RFQ reference number SCM/RFQ/2021/00/COMM) for the sorting and removal of all waste (including bulky waste) from the Plettenberg Bay transfer station. The scope of works includes the diversion of reusable or recyclable bulky waste. Bulky waste that cannot be reused or recycled should be disposed of at a licenced landfill site. It is envisaged that the BLM would appoint a service provider to manage the bulky waste at the transfer station and divert as much of the bulky waste away from landfill for reuse or recycling purposes.

Figure 11: Mixed bulky waste at the composting facility

The bulky waste at the composting facility is a mixed stockpile. At Old Nick the waste has been separated into different streams.

Figure 12: Separation of waste at the Old Nick drop-off facility. A. Bulky plastic waste, B. Wood waste, B. Mixed waste

The main streams of bulky waste noted at the facilities are:

- Wood waste – old pallets and planks, furniture
- E-waste – fridges, old computers etc.
- Plastic waste – large drums and containers
- Textiles – old floor tiles and insulation

The table below provides a detailed breakdown of the bulky waste stream and tonnages of bulky waste collected at the Plettenberg Bay transfer station in the BLM for 2020.

Table 28: Bulky Waste disposal records for January 2020 – April 2021 (provided by BLM on 27/05/2021)

Month	Bulky waste (tonnes)
January 2020	30.0
February 2020	27.0

Month	Bulky waste (tonnes)
March 2020	34.0
April 2020	
May 2020	
June 2020	
July 2020	14.0
August 2020	18.0
September 2020	22.0
October 2020	26.0
November 2020	35.0
December 2020	16.0
Total for 2020	**222.0**
Average for 2020	**24.7**
Estimated total for 2020	**296.0**
January 2021	17.0
February 2021	29.0
March 2021	21.0
April 2021	19.0

7.8 Waste Education and Awareness

7.8.1 Bitou LM Waste Education and Awareness

The BLM conducts various education and awareness campaigns, activities and initiatives to raise awareness regarding waste management and recycling. The campaigns, activities and initiatives include the following:

- Development of waste education and awareness materials
- Incorporation of the GRDM mascot Rocky the Rooster onto waste education and awareness materials, and on bins for recycling in the municipal offices
- Distribution of flyers to residents and business, and visits to schools to raise awareness regarding recycling and the separation at source programme
- Branding of the waste management fleet in 2016. Vehicles were not branded subsequent to 2016
- Placement of information regarding recycling programmes (S@S programme, converting illegal dumpsites to food gardens), facilities for recycling, the pilot home composting programme and e-waste management on the municipal website and on social media platforms (Facebook)
- Participated in the Wise up on Waste campaign run by the GRDM which ran in 2019.

Clean-up campaign with Murray High School and recycling awareness

Clean-up campaign with Murray High School and recycling awareness

Recycling awareness material placed within a Spaza shop in New Horizon (Sep 2020)

Awareness conducted during planting of trees at food garden site (Oct 2020).

Converting an illegal dumpsite into a food garden (Oct 2020)

Recycle bins placed in municipal offices. GRDM recycling mascot placed on bin.

Recycled waste separated from general waste and placed in yellow bags during a clean-up campaign in New Horizon (Dec 2020)

Figure 13: Education and awareness campaigns conducted in the BLM

The following waste education and awareness campaigns were hosted by the BLM in 2019 and 2020. The BLM undertook a range of waste education and awareness campaigns including clean-ups, provision of worm farms and composting bins to households, door-to-door campaigns with households and local shops.

Table 29: 2019 and 2020 waste education and awareness campaigns (campaigns specific to waste minimisation and recycling and shown in bold)

Month	Awareness campaigns
April 2019	Education and awareness conducted with municipal employees on World Earth Day. Poster created by waste management department and sent to municipal employees.
May 2019	Municipal waste management staff attended a community forum in Plettenberg Bay to understand different environmental and waste challenges in municipal wards.
June 2019	• Education and awareness conducted with municipal employees on World Environmental Day and World Oceans Day. Poster created by waste management department and sent to municipal employees and placed on municipality's Facebook page • Clean-up campaign with Kwanokuthula Primary school and community in area surrounding school on World Environment Day
November 2019	• **Recycling awareness and waste clean-up campaign conducted with the Murray High School and EPWP workers** • Marine educational tour conducted with Kwanokuthula Primary and Phakamisani Primary School
December 2019	**Education and awareness conducted with local (spaza) shops in Kwanokuthula and New Horizon about littering and recycling of waste**
January 2020	Meeting with schools in Plettenberg Bay to develop an annual awareness campaign schedule
February 2020	• **Waste recycling awareness campaign – Phakamisani community, Kwanokuthula Primary and Plett Secondary School** • Beach clean-up campaign with Natures Valley Trust, Kwanokuthula Primary, Phakamisani community and Murray High School • Engage with Formosa Primary School to commence with awareness and education
March 2020	• Clean-up campaign with Plett Secondary School • **Waste recycling awareness campaign – South Cape College**

Month	Awareness campaigns
	• Wetland clean-up campaign and awareness campaign Kwanokuthula primary school- cancelled due to national lockdown
June 2020	Illegal dumpsites identified in Kurland to convert dumpsites into community food gardens
August 2020	Municipality developed an implementation plan to convert dumpsites into community food gardens
September 2020	• **Recycling awareness campaigns conducted at local (spaza) shops in Kwanokuthula, New Horizon and Plettenberg Bay. Awareness conducted on 5 days. Numbers of shops reached is unknown.** • **International coastal clean-up campaign with Natures Valley Trust, Keep Plett Clean and Toyota (nurdles collected along beaches).** • Environmental awareness and planting of trees conducted at the Plettenberg transfer station.
October 2020	• **Beach clean-up campaign (nurdles collected along beaches).** • **Recycling door-to-door awareness campaigns and surveys conducted in Wittedrift, New Horizons and Bossiegif. Campaigns conducted on 4 days** • **Bins for recycling placed in municipal offices and provided to businesses that are interested in recycling** • Environmental awareness and converting illegal dump sites into community food gardens
November 2020	• **Recycling door-to-door awareness campaigns and surveys conducted in Kwanokuthula Phase 4** • **Recycling awareness campaigns conducted in New Horizon. Brochures provided to community members at the New Horizon Usave** • Information boards erected at the Lookout Beach Point to protect birds breeding in the surrounding environment • **Recycling awareness campaigns conducted in new housing development in Crags and Bossiegif. Yellow recycling bags provided to new home owners to participate in the S@S programme**
December 2020	**Illegal dump site clean-up campaign and collection of recyclable in New Horizon**

7.8.2 District Waste Awareness Campaigns

The GRDM IWMP (2020) identified the need for a regional approach to the implemented for waste awareness campaigns. This will be achieved through:

- Each municipality developing a waste awareness calendar and aligning it with district programmes
- GRDM waste mascot, Rocky the Rooster to be incorporated into the local municipalities waste awareness materials
- Waste awareness campaigns at schools to be undertaken in consultation with the municipalities
- GRDM to undertake a public perception survey to determine the public preferred method of engagement.

District waste awareness campaigns have largely been put on hold due to the COVID-19 pandemic. Prior to the pandemic the GRDM had a number of programmes in place, including:

- Waste Minimisation Public Awareness and Education Campaign: The campaign aims to encourage residents to reduce waste generation and divert waste from landfill.

- Wise Up on Waste: Development of waste educational materials including videos as well as teacher guides have been developed under the programme.
- Waste Management in Education (WAME) programme materials which were developed by DEA&DP are available on the GRDM website. The GRDM previously coordinated WAME workshops for all schools in the GRDM.
- Mascot: The GRDM has developed a mascot called Rocky, the mascot is used for the recycling campaign and to spread the message of reduce, reuse recycle. The mascot features on the waste information banners and Rocky also visits schools and part of the school waste awareness programmes and events such as the HHW open days at local municipalities.
- Information banners: GRDM procured banners featuring Rocky the Rooster and contained recycling facts for different waste streams. The BLM can make use of the banner at public meetings and awareness events.

Figure 14: Examples of waste information banners featuring the GRDM waste mascot Rocky (image provided by GRDM)

- Home Composting Pilot Projects: The home composting programme was rolled out to 30 households in November 2020 in the BLM.

- Waste management webpage: The GRDM's website contains a link to page which is dedicated to waste management. The website (http://wastemanagement.edendm.co.za/) contains information on the GRWMIS, information on the home composting project, Wise Up on Waste educational materials and useful links to the website of extended producer responsibility (EPR) organisations and non-government organisations involved in waste management.

7.8.3 Bitou Local Municipality Website

There is a page dedicated to waste management of the BLM official website (https://www.bitou.gov.za/waste-management#Awareness). The webpage provides information on the separation at source programme (two bag system), the disposal of waste the PetroSA landfill site, the disposal of uncontaminated (clean) C&DW at the KK Sands landfill, the development of the Plettenberg transfer station and the generation and correct disposal of different types of HHW. Information regarding certain aspects of the municipal waste management system and information is however outdated and requires an update. Information to be updated includes the details of the S@S service provider, new drop-off facilities for recyclables and organic (garden) waste and the closure of the Robberg landfill site. The website still refers to disposal of green waste at the Plettenberg Bay landfill site which is now closed.

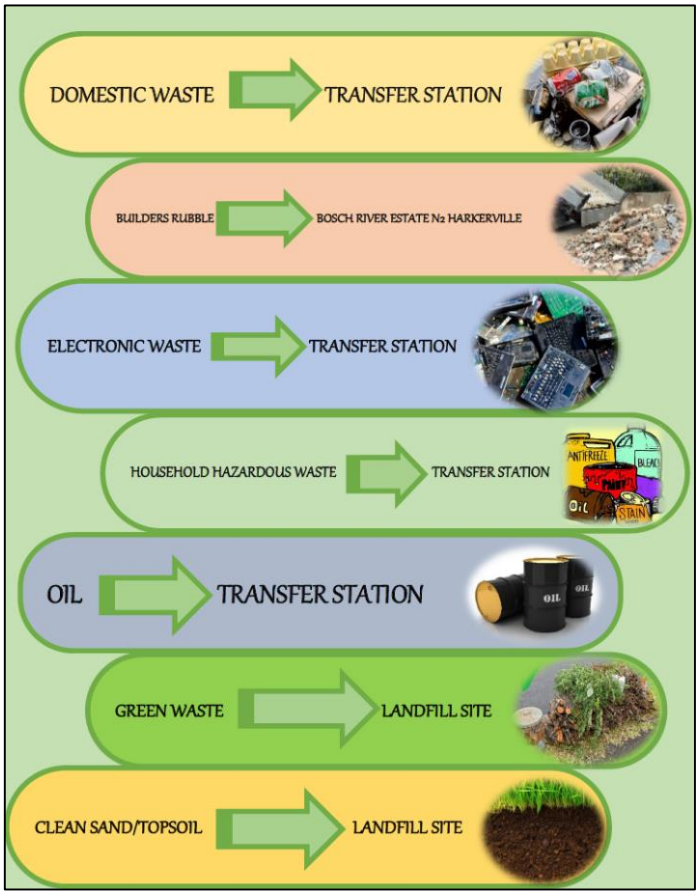


Figure 15: Waste awareness materials on the BLM website (web reference 1, accessed on 25/02/2021)

7.9 Waste Management By-Laws

7.9.1 Bitou Local Municipality

A brief review of the BLM Solid Waste Disposal By-Laws (undated) was undertaken to determine the level of coverage of waste minimisation and to identify shortcomings in terms of driving waste minimisation.

The following comments are noted:

- **Definitions** – no definition is given in the by-laws for waste minimisation or recycling
- **Legislation** – the by-laws list the applicable legislation as the Environment Conservation Act (Act 73 of 1989) and not the Waste Act.
- **Separation of waste –** the by-laws state that the municipality may require for waste to be separated into different categories

The following shortcomings and recommendations were noted:

- The by-laws do not require business or industry to provide data to the municipality on waste generation or recycling rates.
- There is no need or requirement in the by-laws for business or industry to prepare waste management plans
- The by-laws do not address green waste management. Considering that chipping is underway at the composting facility at the Plettenberg Bay transfer station, the by-laws should require residents and business to either compost their own green waste or transport it to the composting facility
- As the BLM is running a separation at source programme it should be mandatory for households in areas covered by the programme to participate.

7.10 Waste Management Budget for Waste Minimisation and Recycling

The BLM made provision for an amount of R 3,571,499.00 (excl. VAT) in their waste management budget (2021/22 financial year) for the waste minimisation projects.

Table 30: BLM budget for waste minimisation project for the 2021/22 financial year

Item	Budget
Separation at source programme	R 944,316.00 (excl. VAT)
Outsourced Services: Organic and Building Refuse Removal	R 270,889.00 (excl. VAT)
Contractors: Chipping	R 300,000.00 (excl. VAT)
Contractors: Removal of Hazardous Waste	R 250,000.00 (excl. VAT)
Advertising, Publicity and Marketing	R 6,294.00 (excl. VAT)
Operational Cost: Signage	R 100,000.00 (excl. VAT)
Management of Bulky Waste	R 250,000.00 (excl. VAT)
Rental of wheelie bins (home composting programme)	R 950,000.00 (excl. VAT)
Waste Minimisation	R 500,000.00 (excl. VAT)
Total	**R 3,571,499.00 (excl. VAT)**

8 Waste Minimisation Survey Results

8.1 Waste Survey Limitations

The public waste minimisation survey was limited to an online survey. No door-to-door or face-to-face surveys were undertaken. It is therefore anticipated that responses from residents in low income areas are underrepresented.

The business/ industry survey consisted of an online survey and telephonic/face-to-face surveys with larger business and industry. The focus on the business/ industry survey was on larger businesses and industry in the municipality.

The responses to open questions have been summarised for reporting purposes.

8.2 Participation Rates

A total of 12 responses from business in the BLM and 147 responses from the public were received on the survey. Due to the low response rate to the business survey a quantitative analysis of results has not been undertaken. Comments and suggestions related to waste minimisation communicated through the survey have been summarised and included.

Table 31: Waste minimisation survey results

Respondent group	Completed surveys
Business/ industry (online survey)	8
Business/ industry face-to-face interviews	4
Public	147
Total	**159**

8.3 Business/ Industry Survey Results

Responses from the following business/ industry groups were received:

- Non-government organisations
- Tourism and accommodation
- Waste management companies
- Supermarkets
- Wood production company

8.3.1 Waste Generation and Management

The following table summarised waste generated per waste category and management measures used by respondents.

Table 32: Waste generated per month and management methods

Waste stream	Tonnes/ month generated	Management method
Cardboard	0.16	Recycled and disposed

Waste stream	Tonnes/ month generated	Management method
Plastic	0.12	Recycled and disposed
Wood	1.5	Recycled/reused and disposed
Paper	0.05	Recycled
General waste	2.4	Disposed at landfill
Green waste	48	Disposed at Plettenberg Bay transfer station
Total	**52.23**	

8.3.2 Waste Management Facilities

The following recommendations to increase waste recycling at municipal facilities were raised by respondents:

- Develop facilities to provide a long term sustainable solution to avoid wasting money. At times facilities were constructed but are no longer in use
- Develop sites that are practical and where access is not a problem or concern
- Make provision for the compositing or wood chipping facility at the Natures Valley drop-off
- More staff at Natures Valley drop-facility to ensure waste types are disposed of correctly

8.3.3 Waste Minimisation Programmes

Respondents undertake separation at source at their facilities.

The recycling companies and supermarkets that were visited during the fieldwork conduct in-house waste minimisation and recycling programmes. Recycling companies collect recyclables as a service they provide and resell these to larger recycling companies. Some supermarkets retain all packaging material (mainly plastic, cardboard, wood, and paper) and send this back to their distribution centres that recycle or reuse the packaging material while other supermarkets give their recyclables to the local recycling businesses. Food that has reached its expiry date (or sell by date) and cannot be sold such as dairy and canned products are sent back to the supplier for safety reasons. All supermarkets provide old food products such as vegetables and fruit to local farmers that collect the food products when informed by the supermarket.

8.3.4 Waste Minimisation and Recycling Challenges

The following challenges are experienced by business and industry in terms of waste minimisation and recycling:

- People and residents do not see the importance to recycle
- Lack of education and awareness
- Municipal budgets to assist with the S@S programme and recycling need to increase to increase the diversion of waste from landfill and recycling

- Due to the current low market price of recyclables, recycling is not as profitable as it was before 2019 and recycling businesses are generating less income for the same volume / tonnage of recyclables that are sold and are therefore struggling to continue with their recycling operations as they did before.

The following mechanisms were identified by businesses and companies which the municipality can use to assist business and industry to increase waste minimisation and recycling:

- Provide businesses with alternative methods/systems to the disposal of waste
- More awareness campaigns are needed to educate residents and businesses on recycling and the importance of the recycling.

8.3.5 Survey Conclusions and Recommendations

Although a low number of responses (8) were received to the business/industry survey, the results indicate that there is a need for the BLM to engage more frequently with business and industry to ensure that they are aware of waste minimisation and recycling initiatives, programmes and facilities. The survey further highlighted the lack of municipality facilities that are available to business, industry and the hospitality industry to drop-off source separated recyclables.

8.4 Public Survey Results

Responses were received from residents in the following suburbs/ areas of the municipality:

Table 33: Suburbs represented in the survey

Areas/ suburb	No. of	% of responses
Ailsa Craig	1	0.6%
Baron's View	1	0.6%
Beachyhead	1	0.6%
Beacon Isle Estate	1	0.6%
Bossiesgif	1	0.6%
Bowtie	5	3.0%
Brackenridge	10	6.1%
Brenton on Sea	1	0.6%
Central	17	10.4%
Cutty Sark area	2	1.2%
EXt 5	1	0.6%
Formosa Garden Village	2	1.2%
Goose Valley Golf Estate	2	1.2%
Harkerville	2	1.2%
Keurboomstrand	21	12.8%
Kranshoek	1	0.6%
Longships	8	5.5%
Lookout	1	0.6%

Areas/ suburb	No. of	% of responses
Robberg	17	10.4%
Marine Way	1	0.6%
Natures Valley	1	0.6%
New horizon	2	1.2%
Piesang valley	1	0.6%
Plettenberg Bay	26	19.5%
Poortjies	3	1.8%
Qolweni	2	1.2%
Red Jacket Place	1	0.6%
River Club	2	1.2%
Roodefontein	1	0.6%
Sanctuary	2	1.2%
Schoongezicht Estate	1	0.6%
Signal Hill	2	1.2%
The Crags	2	1.2%
The Dunes	1	0.6%
Whale Rock	10	6.1%
Wittedrift	4	2.4%
Total	**167**	**100.0**

8.4.1 Waste Minimisation and Recycling Programmes

The first section of the survey aimed to determine how residents currently participate in waste minimisation and recycling initiatives and what can be done to encourage further involvement.

Table 34: Waste avoidance and minimisation efforts currently undertaken by respondents

Option	Yes (%) of responses	No (% of responses)
Use reusable shopping bags instead of plastic bags	88%	12%
Use reusable coffee cups for takeaway coffee and hot drinks	31%	69%
Use a reusable water bottle instead of buying bottled water/ cool drinks	68%	32%
Say no to plastic or single use utensils (e.g. plastic/ cardboard	78%	22%
Choose products based on packaging (e.g. choose loose fruit and vegetables instead of ones with excessive packaging	57%	43%
None – my household does not participate in any waste avoidance or minimisation	5%	95%
Other (please specify)	11%	82%

Where respondents selected 'other' as an option they were asked to provide details. The following details were provided:

- Minimize the use shopping bags and reuse shopping bags
- Purchase products with minimal packaging
- Save reusable items e.g. coffee cups and bottles

8.4.2 Waste Recycling

Respondents were asked to indicate which of the following methods they currently use for recycling.

Table 35: Methods which households currently use for recycling

Option	Yes (% of responses)	No (% of responses)
Separate waste at home (two or multi-bag system) for collection from my doorstep by the municipality or the municipalities service provider	63%	37%
Separate waste at home (two or multi-bag system) for collection from my doorstep by a service provider I have appointed myself	11%	89%
Separate waste at home and drop-off at a municipal recycling facility	23%	77%
Separate waste at home and drop-off at a private recycling facility	3%	97%
Separate waste at home and sell the materials to a private company (buy-back centre)	0%	100%
Separate waste at home and exchange for products/ coupons at a swop-shop	0%	100%
Place recyclables in a separate bag for informal pickers to collect (no municipal or private multi-bag system in place)	3%	97%
None	9%	91%
Other	6%	94%

Where respondents selected 'other' as an option they were asked to provide details. The following details were provided:

- Produce ecobricks
- Used engine oil and hydrocarbons are recycled

Respondents were asked to give their opinion of municipal waste recycling programmes. The responses are summarised below.

Table 36: Opinions of municipal waste recycling programmes (% of respondents)

Question	Excellent	Very good	Good	Fair	Poor	Very poor	Total
Municipal recycling programmes	4%	19%	19%	29%	12%	16%	100%
Municipal recycling facilities	1%	13%	18%	30%	23%	15%	100.%
Municipal waste minimisation campaigns	0%	0%	8%	16%	45%	31%	100%
Information available on waste minimisation/ recycling	0%	1%	3%	14%	48%	34%	100%
Knowledge of municipal staff in terms of waste minimisation needs	0%	3%	8%	18%	39%	32%	100%

Positive responses were received for municipal recycling programmes (71% rated as excellent to fair) and municipal recycling facilities (62% rated as excellent to fair).

Municipal waste minimisation campaigns, information available on waste minimisation and recycling and knowledge of municipal staff all received negative responses. This highlights the need for the BLM to review awareness materials and investigate mechanisms to improve information sharing with residents.

The reasons for the negative responses are listed below. The responses have been listed under the most appropriate heading. Where a response given in this section was classified as a suggestion to increase waste minimisation and recycling it has been included in the next section:

Municipal waste minimisation campaigns/ information available on waste minimisation/ recycling:

- More effort is needed to create a culture of recycling and waste diversion
- Information not readily available or easily found. Not enough information provided
- Unsure of how the recyclable waste is processed after collection
- No awareness campaigns in low income areas
- Communication is not frequent enough
- No visible information or signage provided
- Lack of initiative by Municipality

Municipal recycling programmes:

- Recycling programmes in low income areas are not consistent
- Unsure that waste in yellow bags is recycled. I have seen my recycling bag being collected in the same truck as my black bag on several occasions
- Not enough drop-off facilities and not enough bins for all waste types such as metal and glass
- Containers at drop-off facilities are not usable for their purpose/use
- The municipality does not collect recycling bags from my property. Green bags are also not collected.

Knowledge of municipal staff in terms of waste minimisation needs:

- At times information is not provided or staff are not aware of all information regarding waste minimisation and recycling

Mechanisms to increase waste minimisation and recycling:

- More education and awareness programmes in the municipality. This includes households, schools, businesses and large supermarkets that sell products with a lot of packaging
- Provide more facilities where residents can drop off waste
- Create partnerships with stakeholders to improve education and awareness
- Ban single use plastics
- Make separation of waste mandatory. Private houses, guest houses and complex which are not recycling should be fined
- Employ retired engineers who are competent
- Households should be provided with wheelie bins for recyclables but due to lack of discipline people will discard general waste into these bins
- Provide different colour bags/containers for different waste stream e.g. glass, plastic, paper.

8.4.3 Organic Waste Management

This section of the survey aimed to determine how organic waste is currently managed by residents.

Table 37: Current management method for organic waste

Option	Yes (% of responses)	No (% of responses)
Worm farm	4%	96%
Home composting bin	15%	85%
Composting heap	30%	60%
Garden waste is placed into a bag provided by the municipality/ collected loose by the municipality	4%	96%
Garden waste is collected by a private service provider	39%	61%
I transport my garden waste to a municipal facility	22%	78%
I transport my garden waste to a private facility	4%	96%
Organic waste is disposed of with other household waste	24%	76%
Other	6%	94%

Where respondents selected 'other' as an option they were asked to provide details of how they avoid and minimise waste generation. The following responses were received:

- Bury organic waste in the garden
- Separate food waste into a third bag and it is collected to feed pigs

The next question aimed to determine respondent's willingness to participate in organic waste management programmes.

Table 38: Methods which households would use to manage organic waste if they were available

Option	Yes (%) of responses	No (% of responses)
A home composting bin or worm farm	35%	65%
A separate bin or bag for food waste (to be collected by the municipality)	57%	43%
A separate bin or bag for garden waste (to be collected by the municipality)	43%	57%
Drop-off facilities for separated food waste	16%	84%
Drop-off facilities for separated garden waste	26%	74%
None, the municipality collects my organic waste mixed with my household waste, I am not interested in changing how I manage organic waste	4%	96%
Other	6%	94%

The preferred mechanisms for households to manage organic waste was use of a separate bags for food waste or garden waste. Only 4% of respondents indicated they would prefer to continue to co-dipose of organic waste with general waste in black bags.

The following suggestions to decrease organic waste disposal to landfill were raised:

- Provide a home or neighbourhood communal compost heap where the public can drop-off their organic waste and also collect or buy compost for their garden
- Supply chipping facilities where the public can chip their own garden waste for use as mulch

- Each household should be provided with a composting facility or bin
- People should learn to buy what they need – generate too much food waste when food expires
- Provide a district incinerator which could generate electricity
- Use pig farming as a method to divert food waste
- Publish more articles/ information on the importance and need for composting

8.4.4 Waste Education and Awareness

Respondents were asked if they were familiar with any waste education and awareness programmes undertaken by the municipality or private organisation and asked to provide details.

Table 39: Waste education and awareness programmes which respondents are aware of

Type of programme	Yes (% of responses)	No (% of responses)
Municipal waste education and awareness programmes	4%	96%
Private waste education and awareness programmes	13%	87%
I am not aware of any waste education and awareness programmes	71%	29%

Respondents are aware of the following awareness campaigns:

- Ratepayers Association
- Renew Able Plett

Respondents were asked to identify their preferred method for the municipality to contact them. Respondents were requested to select all applicable responses from a pre-defined list.

Table 40: Preferred methods of communication for waste education and awareness programmes

Preferred communication method	Yes (% of responses)	No (% of responses)
Social media platforms	49%	51%
Flyers/ printed materials	25%	75%
Radio advertising	14%	86%
Workshops/ roadshows	13%	87%
Recycling competitions	20%	80%
Events such as clean-up campaigns	42%	58%
Email communication	67%	33%
Other	4%	96%

Social media and email communication were the preferred methods of communication.

Table 41: Respondents opinion of municipal waste education and awareness programmes

Question	Excellent	Very good	Good	Fair	Poor	Very poor
Opinion of municipal waste education and awareness programme	0%	1%	2%	6%	55%	37%

92% of respondents rated municipal waste education and awareness programmes as poor or very poor.

The following suggestions on how municipalities can improve waste education and awareness programmes were raised:

- Regular educational emails
- Social media campaigns
- Radio advertising, education and awareness campaigns
- Execute programmes at schools
- Annual school projects/ competitions
- Publish awareness campaign information on website or on social media platform
- Provide information on statistics relating to waste minimisation and recycling, e.g. how good or bad is the programme and disposal activities
- Educational days/ roadshows
- Clear signage to indicate the location of the closest recycling drop-off facilities
- All recyclables must be collected for recycling
- Provide home compost bins, encourage food gardens, beach clean-ups, share tips on recycling

8.4.5 Survey Conclusions and Recommendations

The results indicate that there is a need for the BLM to engage better and more frequently with residents in the municipality to ensure that they are aware of waste minimisation and recycling initiatives, programmes and facilities. The survey further highlighted

- A lack of municipality facilities that are available to residents to drop-off source separated recyclables
- More education and awareness is required in the municipality
- Information on what is recyclable and what is not, is not readily available
- Some residents believe that the separated waste is not recycled as it is collected by the same truck
- Respondents want to recycle but do not always have or are aware of the location of facilities to do so.

9 *Alternative Waste Treatment Technology*

There are various alternative waste technologies available for implementation in South Africa. The viability of such technologies is typically determined by the composition of the available waste stream and tonnages available. The 2020 NWMS acknowledges that while there are several alternative waste treatment technologies which can be used to manage plastics and other waste streams, recycling is the preferred method and this is reflected in the waste management hierarchy (DEFF, 2020).

9.1 Assessment Tools

Two tools were used to assess alternative waste technology options for the BLM

- DEA&DP Alternative Waste Management Technologies (DEA&DP AWT tool). An Excel based tool has been developed by DEA&DP to assist municipalities in planning for waste minimisation. The tool assesses various alternative waste treatment technologies based on the waste stream and volumes generated in a municipality.
- DEFF Alternative Waste Treatment Guide. An online guide to alterative waste treatment technologies (http://awtguide.environment.gov.za/)

NOTE: The levelised costs calculated by the DEA&DP model are based on capital and operational costs, including the cost for transport of waste for the development and operation of the alternative waste treatment technology. Revenue which could be generated e.g. from the sale of compost is also factored into the model. These are high level costs and based on a set of pre-determined generic costs.

9.2 Assumptions and Limitations

The following inputs were used in the model to determine potentially suitable alternative waste treatment technologies:

Table 42: Data used in the DEA&DP AWT Tool

Item	Data used
Population	62,369 persons
Waste tonnes for 2019	13,284.4 (based on waste disposal and recycling records)
Organic waste diversion	Current year – 5% 2024 target- 10% 2029 target – 15% 2034 target – 20% 2039 target – 25%
Garden/ greens diversion	Current year – 60% (estimate) 2024 target- 65% 2029 target – 70% 2034 target – 75% 2039 target – 80%
Builders rubble (C&DW)	Current year – 60% (estimate) 2024 target- 60% 2029 target – 60% 2034 target – 60% 2039 target – 60%
Dry recyclables	Current year – 20% (based on records from recycling companies) 2024 target- 30% 2029 target – 40% 2034 target – 50% 2039 target – 60%
Waste profile	Builders rubble (C&DW) – 38.7% Organics – 17.1% Green waste – 7.3% Paper – 10.1% Metal – 2.2% Glass – 5.6% Plastic – 8.1%

Item	Data used
	Other – 10.9%

The waste tonnage for 2019 was calculated based on 2019 disposal and recycling figures
The waste stream composition has been based on the results of a waste characterisation exercise and disposal records provided by BLM.

The following section provides high level guidance to the BLM when considering different alternative waste treatment technologies. A full feasibility assessment would be required prior to the BLM implementing any of the technologies.

9.3 Incineration

Incineration is the process of burning waste to reduce waste volumes. Incineration can be used to create energy.

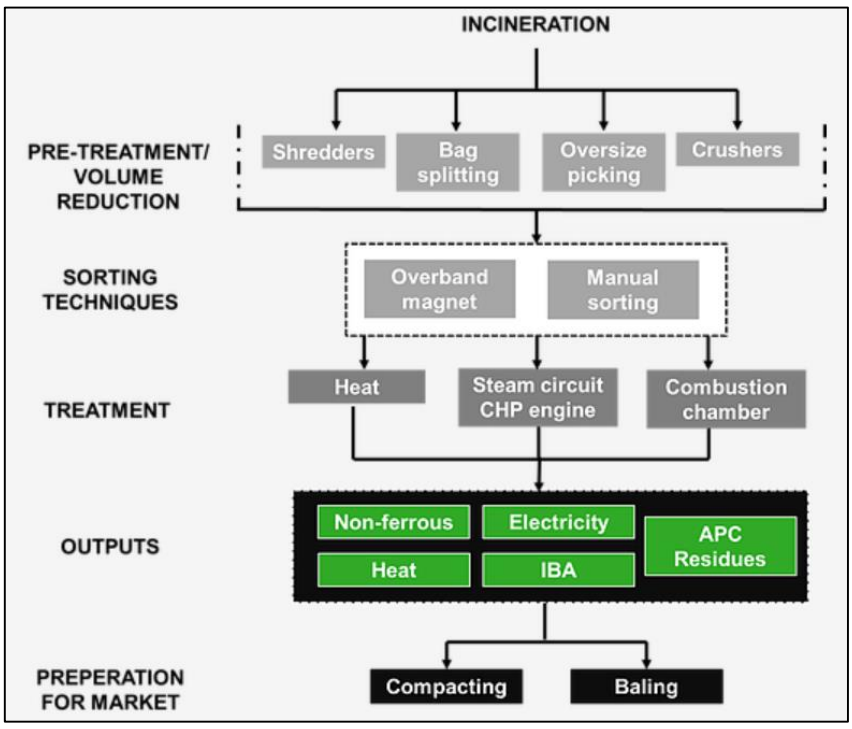


Figure 16: Incineration process flow (source, web reference 4)

Table 43: Overview of incineration (source, web reference 4, web reference 5)

Type of technology	Incineration
Brief description	Incineration is the process of burning waste to reduce the volume of waste. Incineration can be also be used to generate energy. Waste is typically burnt at above 850˚C. Incineration can also be used to treated hazardous and HCRW.
Waste accepted	Municipal waste, commercial and industrial waste, certain components of construction and demolition waste, refuse derived fuel (RDF), hazardous waste, health care risk waste (HCRW).
Waste volumes required	Incinerators can operate on a feedstock of more than 10,000 tonnes per annum, however it is recommended that feedstock in excess of 50,000 tonnes per annum is available.

	Feedstock availability is key to ensure an incinerator is sustainable. During the feasibility assessment for an incinerator feedstock security need to be determined
Outputs	Electricity, heat, bottom ash, air pollution control residue Bottom ash, depending on the type of waste incinerated the bottom ash may be classified as general or hazardous. To avoid the generation of large volumes of hazardous ash, hazardous waste streams should be incinerated independently of general waste streams.
Job creation	Low compared to other type of waste management e.g. recycling.
Benefits	Incineration can be used as treatment method for hazardous and health care risk waste (HCRW). Revenue can be generated from an incinerator through gate fees and sale of energy/ heat generated.
Challenges	Incinerators function best when waste with a high calorific value is incinerated, these are typically waste steams (plastics, cardboard, paper, dry organic waste) which could be recycled or composted. A municipal needs to balance incineration of waste against adhering with national and provincial targets for waste recycling.
Supporting infrastructure requirements	Heat users – heat from an incinerator can be sold off to industry for use in manufacturing processes. Access to a substation or connection to the grid for energy produced

Table 44: Incineration results (source DEA&DP Alternative Waste Management Technologies Tool)

Year	2019	2024	2029	2034	2039
Incineration					
Waste tonnes per annum	1,179	1,807	2,588	3,554	4,742
Sufficient feedstock?	No	No	No	No	No
Actual levelised cost (R/ tonne)	-	-	-	-	-

Based on the DEA&DP model there is insufficient feedstock to support an incinerator. The DEA model identifies that an incinerator requires a minimum of 10,000 tonnes per annum of feedstock, although more than 10,000 tonne per annum of waste is generated in the BLM a significant portion is C&DW (38.7%). A large portion of C&DW is not suitable for incineration. There is insufficient suitable feedstock for incineration.

9.4 Anaerobic Digestion

Anaerobic digestion is the process of breaking down organic waste in the absence of oxygen in controlled conditions.

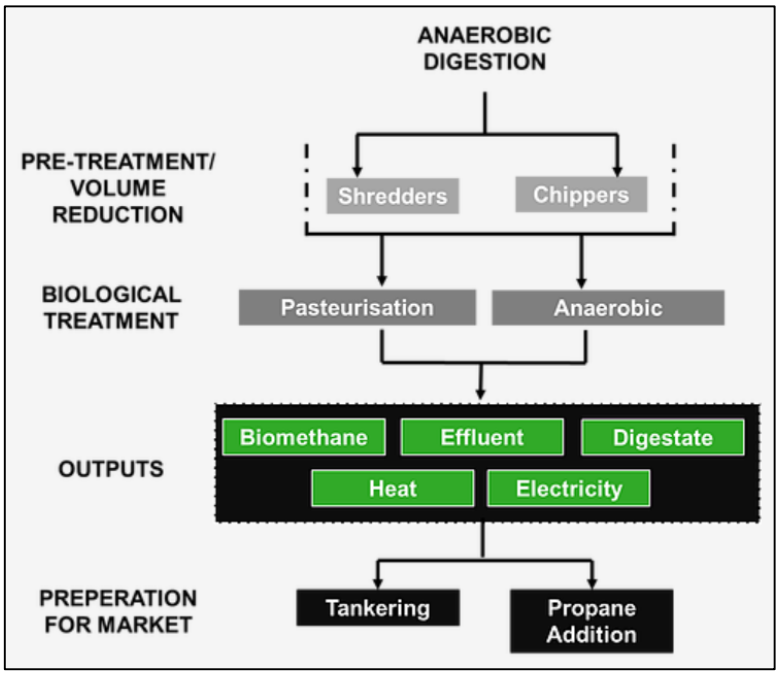


Figure 17: Anaerobic digestion process flow (source, web reference 7)

Table 45: Overview of anaerobic digestion (source, web reference 6 and web reference 7)

Type of technology	Anaerobic digestion
Brief description	Anaerobic digestion is the process of breaking down organic waste under controlled conditions to generate biogas or heat and electricity.
Waste accepted	Organic waste – food waste, garden waste, sewage sludge, energy crops
Waste volumes required	5,000 – 150,000 tonnes per annum
Outputs	Biomethane, heat, electric, digestate
Job creation	Low
Benefits	Anaerobic digestion produces energy either in the form of gas or heat and electricity.
Challenges	The digestate produced may be low quality and not suitable as a soil enhancer. Digestate can be put through a composting process in order to improve its quality.

Table 46: Anaerobic digestion results (source DEA&DP Alternative Waste Management Technologies Tool)

Year	**2019**	**2024**	**2029**	**2034**	**2039**
Anaerobic digestion					
Waste tonnes per annum	695	979	1,328	1,757	2,280
Sufficient feedstock?	No	No	No	No	No
Actual levelised cost (R/ tonne)	-	-	-	-	-

Based on the DEA&DP model there is insufficient feedstock to support an anaerobic digester. Only 3,239.1 tonnes of organic waste is produced per annum.

9.5 Composting

There are various methods of composting, open windrow composting which occurs in an open environment is the recommended option for the BLM. In vessel composting which occurs in a closed environmental requires higher capital investment.

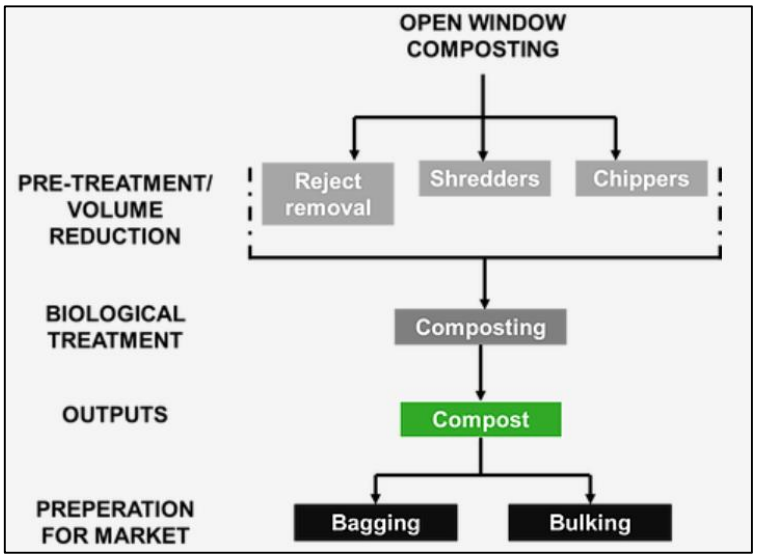


Figure 18: Composting process flow (source, web reference 9)

Table 47: Overview of open windrow composting (source, web reference 9)

Type of technology	Open windrow composting
Brief description	Placement of shredded or chipped organic waste in large windrows (piles), water may be added if the moisture content of the waste is low. Windrows are turned regularly to aerate the waste. The composting process can take 12 – 16 weeks.
Waste accepted	Organic waste – food waste, green waste
Waste volumes required	5,000 – 500,000 tonnes per annum
Outputs	Compost which can be used to improve soil condition
Job creation	High
Challenges	The composting process can take up to 12 weeks. The process requires mechanical treatment to remove contaminations such as plastic Turning of compost may result in odour and bio aerosol issues, a composting facility should not be located in close proximity to settlements.

Table 48: Composting results (source DEA&DP Alternative Waste Management Technologies Tool)

Year	2019	2024	2029	2034	2039
Composting					
Waste tonnes per annum	695	979	1,328	1,757	2,280
Sufficient feedstock?	No	No	No	No	No
Actual levelised cost (R/ tonne)	-	-	-	-	-

There is insufficient feedstock available to make composting a sustain option. The BLM should continue with the current practice of chipping green waste and allowing the public and business to collect the chipped waste for reuse.

9.6 Gasification

Gasification is the process of reacting waste materials at high temperatures, (>700˚C) without combustion in a controlled environment. Gasification produces synthetic gas (syngas) which is typically a mixture of carbon monoxide, hydrogen and methane. Syngas can be burnt to produce steam or used to power a gas engine or turbine to create electricity.

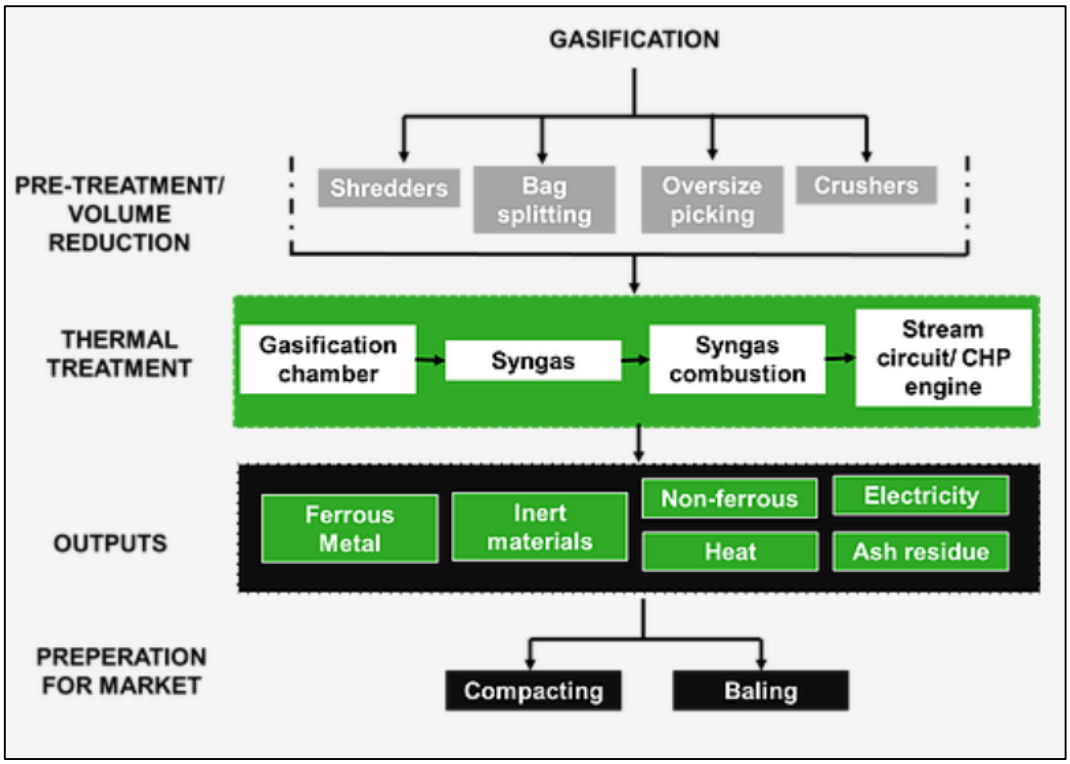


Figure 19: Gasification process flow (source, web reference 8)

Table 49: Overview of gasification (source, web reference 8)

Type of technology	Gasification
Brief description	The process of reacting waste at high temperatures without combustion.
Waste accepted	Municipal waste, commercial and industrial waste, portions of construction and demolition waste, RDF.
Waste volumes required	5,000 – 150,000 tonnes per annum
Outputs	Electricity, heat, ash
Job creation	Low
Benefits	Generation of electricity and heat. Gasification plants are modular so they can be developed to match the available volume of feedstock.
Challenges	High capital costs Destroys all non-metal recyclables. Gasification plants are sensitive to changes in the composition of feedstock. Pre-treatment of feedstock may be required.

Gasification is not recommended for the BLM. Gasification requires waste with a high calorific value such as plastic, paper and cardboard. The BLM should focus on recycling of these waste streams.

9.7 Alternative Waste Treatment Technologies Conclusions

Over the next 20-year period the BLM does not generate sufficient waste to meet the minimum feedstock requirements of any of the common alternative waste treatment technologies. To reduce waste to landfill the BLM should focus on increasing participation rates in the recycling

separation at source programmes and reducing the disposal of food waste in the domestic waste stream.

10 Gap and Needs Assessment

The aim of the gap and needs assessment is to identify shortcoming in current waste minimisation practices in the BLM. The identified needs are the first step in the identification of actions to address the gaps.

A description of waste minimisation challenges has been included to provide context to the gap and needs assessment.

10.1 Waste Minimisation Challenges and Recommendations

10.1.1 Low Participation Rates in the Separation at Source Programme

The recycling service provider estimates that 50-60% of households in the BLM participate in the kerbside S@S programme. This figure is an estimate and has not been quantified.

The tonnes of waste collected through the two-bag system increased from 50.3 tonnes per month in 2019 to 79.3 tonnes per month in 2020. Even though an increase in monthly tonnages occurred from 2019 to 2020, only approximately 17.9% of recyclable material in the domestic waste stream was collected through the S@S programme in 2020.

The following mechanisms can be used to increase participation in the S@S programme:

- Education and awareness – residents should be informed of how to participate, what materials can be recycled and how (e.g. rinsing of jars), and the importance of recycling. The BLM and their service provider should quantify participation in different suburbs and target suburbs with low participation rates with door-to-door engagements
- Recycling statistics should be published monthly on the BLM's social media pages to encourage residents to participate or increase recycling rates in the S@S programme
- The municipality or service provider should visit all the schools and educate learners on the two-bag system. Learners can be provided with yellow bags to take home for use.

The contract for the recycling service provider should include performance criteria including:

- A minimum tonnage to be collected on a monthly basis
- Increasing participation rates with a focus on low income areas
- Minimum requirements for education and awareness for the two bag system

A long term intervention to encourage participation in a two-bag system would be limiting the number of black bags of waste which the municipality collects from houses. This intervention would force household to recycle. The Waste Management by-laws would need to be amended to allow this to be enforced. This intervention is not recommended in the short term as uncollected black bags of waste may be illegally dumped by residents.

10.1.2 Lack of Recycling Facilities and Waste Minimisation Infrastructure to Encourage Community Involvement in Low-Income Areas

The municipality provides a kerbside S@S programme, recycling and green waste drop-off facilities at the Plettenberg transfer station, and several mini-drop-off facilities in the Plettenberg Bay area. There are no recycling or waste diversion facilities such as municipal swop shops, buy-back centres or recycling drop-off facilities in operation in low income areas to encourage residents to recycle. The BLM should pilot swop-shops/ buy-back centres and provide recycle drop-off facilities in low income areas. The municipality indicated that the scope of works for the S@S service provider includes the development and management of swop shops/buy back centres in low income areas. The BLM is encouraged to provide the infrastructure and facilities required for the swop-shops/buy-back centres and drop-off facilities as the operation of the swop shops and buy-backs centres generally do not generate large tonnages of recyclables or provide an income for the service provider or municipality.

10.1.3 Lack of Waste Recycling Outside Urban Areas

There are no recycling drop-off facilities or separation at source programmes in the small inland towns and villages in the BLM. The BLM should develop recycling drop-off facilities or pilot a two bag system starting in one area at a time. If refuse compactor trucks are used for collection in these areas, a trailer may need to be added for the collection of yellow bags.

The BLM has included the establishment and operation of a swop-shop and buy back centres in the low-income areas to the scope of works for the S@S programme. The appointment was on a 3-year term. The appointed service provider therefore has 3 years to implement a swop-shop or buy-back centre in the low income areas in the municipality to promote waste diversion and recycling. The municipality should provide an oversight role and prioritise recycling in the low income areas.

10.1.4 Lack of Waste Minimisation Education and Awareness Campaigns and Information

Several of the respondents to the public survey indicated there is a lack of information available on waste minimisation and awareness.

The following can be implemented to improve waste education and awareness in the BLM:

- The BLM has commenced with S@S by using two bags during litter picks and clean-up campaigns. Participants in the programmes were given black and yellow coloured bags to allow litter be sorted into recyclable and non-recyclable streams. The BLM should try to include S@S in all clean-up campaigns
- Assess the type of events used for waste education and awareness. Practical events such as visits to recycling facilities and composting sites and source separation demonstrations to be added to the awareness programme
- Encourage green events in the municipality. Recycling bins should be available at markets and sporting events. Event organisers should be required to submit waste minimisation plans to the BLM well in advance of events

- Composting workshops – a large volume of domestic food and garden waste can be diverted using a compost heap. The BLM does not need to provide any equipment to households for composting. The BLM should hold a practical training event for households on how to develop and manage a compost heap. An advert inviting attendees should be placed on social media and a composting 'how to' guide to be sent out via email, made available via social media and posted on the municipal website.
- Brief press releases on waste minimisation campaigns can be published via social media to keep residents updated on awareness campaigns. Topics which could be covered on social media could be:
    - Monthly recycling progress reports – a brief report back on recycling tonnages for the month. This should be presented visually using graphs. The progress report should compare results month by month.
    - What happens to your recyclables? A step by step explanation of the recycling process from collection at the door to final processing.
    - Get to know your recycling service provider – an interview with the recycling (S@S) service provider to explain how the programme works, do's and don'ts of recycling and the importance of recycling
    - Invitation for farmers or residents to collect chipped green waste from landfill sites when it is available
    - Did you know segments. Weekly facts related to waste minimisation and recycling e.g. *"did you know, recycling paper saves water and electricity as well as trees. Less water and electricity is needed to make products from recycled paper then to make products from trees".*

These information leaflets and posters that the BLM has developed regarding waste minimisation, recycling, composting and diversion of waste from landfill should be available on the BLM website and posted regularly on social media.

10.1.5 Volatile Markets for Recyclable Materials

The markets for recyclable materials are heavily influenced by national and international conditions. At present there is an oversupply of polyethylene terephthalate (PET), plastic and paper in the local market. Recycling companies may struggle to sell these materials or to get the desired price for the materials.

There is very little the BLM can do to mitigate against poor markets. The BLM currently pays a service provider a set amount per tonne for recycling.

10.1.6 Perceived Low Waste Disposal Costs Compared to Recycling

The BLM pays a service provider to manage the two-bag system. On a monthly basis the service provider is paid R 120,833.33 (R 1,450,00.00 per annum). An average of 79.3 tonnes per month of recyclable material was collected in 2020 through the two bag system. This equates to a cost of R 1,523.75 per tonne for the separation at source programme.

An estimated 6,822.36 tonnes of waste was disposed of at the landfill site in 2020 and the BLM pays R295.56 per tonnes for waste disposed at the PetroSA landfill site. The municipality pays for the transport of the waste to the PetroSA landfill site, but this cost was not available by the time the report was developed and this cost is therefore excluded. Based on this high level comparison waste disposal to landfill appears to be a more economically attractive option for the BLM.

The BLM is planning on using the GRDM regional landfill site once it is operational. The estimated cost per tonne for the BLM to dispose of general waste at the regional site will be in excess of R450.00 per tonne which is considerably higher than the disposal costs paid at the PetroSA landfill. This cost excludes travel costs.

10.1.7 Lack of Long Terms Management Practices in Place for Organic Waste

Green waste is transported to the Plettenberg Bay transfer station. This waste is chipped at the composting facility and the public, small businesses and farmers are allowed to collect the chipped green waste. The municipality commenced with the chipping of the green waste in 2020 and intends to purchase an additional chipper to chip more green waste at the composting facility. The municipality plans to continue to chip green waste at the transfer station and make it available for collection instead of commencing with composting at the facility. The BLM does not have the knowledge or capacity in-house to conduct composting at a large scale. Additional budget would be required to bring in a service provider to manage composting facility. The municipality intends to continue with the diversion of green waste at the transfer station through chipping.

The GRDM have commenced with a pilot project with 30 households in the BLM for the diversion of domestic organic waste from landfill with the provision of compost bins. All forms of domestic organic waste can be placed in these bins and will be composted. The compost can then be used for gardening. The BLM intends to purchase an additional 100 bins and make these available to an additional 100 households. An estimated 2,876.9 tonnes of food waste is generated by residents. This excludes food waste generated by business and industry. The home composting programme has only been rolled out to a small number of households so the majority of food waste is disposed of at the landfill sites. The diversion of organic waste tonnages are low when only a total of 130 households in the BLM are participating in this programme, but this provides a good education and awareness campaign for the municipality and the interested households. There is no formal plan in place to guide the roll out. It is recommended that the BLM develops a plan to guide the roll out of the home composting programme.

Other than the chipping of green waste at the transfer station and the home compost bins, there are no other additional municipal organic waste diversion programmes in the municipality. According to the waste characterisation study conducted in 2016, approximately 35.2% of the domestic waste stream is organic waste (food, green and wood waste) which could be diverted from landfill sites. The municipality could experience 35% saving on waste

disposal and transport costs by diverting all organic waste in the domestic stream, and minimise the negative impact of the disposal of organic waste to landfill.

As previously mentioned public workshops should be held and a how to guide for use of composting heaps developed.

10.1.8 Bulky Waste Management

Bulky waste is accepted at the Plettenberg Bay transfer station and Old Nick drop-off facility. The bulky waste received is a mix of recyclable waste, C&DW and hazardous waste. Some sorting of bulky waste occurs at the Old Nick drop-off facility but unsorted waste is received at the transfer station.

The following is recommended:

- Place labelled skips/ bins at the transfer station for different categories of bulky waste
- Staff to assist vehicles to offload waste into the correct skips
- Recycling service provider to collect recyclable waste
- Service provider to be appointed to remove e-waste
- Items which are suitable for reuse in their current state of with repair to be kept aside and donated to schools (e.g. furniture) or charities or made available for residents to collect free of charge

Table 50: Waste management gaps and needs

Legislated Requirements/ Best Practice	Gaps	Needs
1. General Waste Minimisation and Recycling		
• 40% diversion of waste by 2025, 55% diversion by 2030 and 70% diversion by 2035 (2020 NWMS) • 50% diversion of municipal waste from landfill by 2023 (Operation Phakisa) • 20% diversion rate of recyclables by 2019 (WCIWMP) • All municipalities to include provisions for drop-off/ buy back centres/ storage centres in their IWMPs by 2023 (2020 NWMS) • Municipalities to put in place measures that seek to reduce the amount of waste generated, and where generated, measures to ensure that it is re-used, recycled and recovered, treated and disposed of (Waste Act). • Provide an enabling environment for recycling (NDWCS).	• Only 17.9% of domestic, commercial and industrial waste is recycled • Only 50 – 60% of households are participating in the separation at source programme • There are no swop shops, buy-back centres or recycling facilities in low-income areas • No records are available for in-house recycling occurring in BLM offices • There is a lack of recycling facilities and programmes in the low income areas and inland areas of the BLM. • Recyclable/ reusable bulky waste is stockpiled and landfilled	The quantity of waste being recycled in BLM needs to be increased through: • Increasing participation of households in the separation at source programme – increased education and awareness • Increased awareness around the importance of recycling • Establish swop shops and buy-back centres in low income areas and raise awareness with the public around the need for donations for the swop shops • The service provider needs to provide volumes for waste collected from BLM offices • A champion per office is needed to manage the in-house recycling programme • Provide recycling drop-off facilities in low income and inland areas. • Provide skips to all separation of bulky waste at the transfer station and Old Nick drop-off facility
2. Organic Waste Management		
• 25% diversion rate of garden waste from landfill by 2018 and 50% by 2023 (The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) • 50% diversion of organic waste by 2022 and 100% diversion rate by 2027 (WCIWMP)	• A lack of diversion of domestic organic waste from landfill • 35.2% of the domestic waste stream is organic waste. The majority of this is disposed of in black bags and ends up at landfill.	• The home composting project (bins) needs to be rolled out to additional houses • Increase awareness around the disposal of green waste at the Plettenberg Bay transfer station • Engage with farmers to determine if there is demand for chipped green waste for composting. If so, put in place agreements for farmers to collect green waste from the Plettenberg Bay transfer station • An organic waste diversion plan for the municipality should be developed.
3. Hazardous Waste Recycling		
• Municipalities to provide communal collection points for non-mainstream recyclables such as batteries and fluorescent tubes for collection by a private service provider (NDWCS)	• There are no drop-off facilities for HHW other than the HHW drop-off at the Plettenberg Bay transfer station	• Increase awareness of the HHW drop-off facility at the Plettenberg Bay transfer station and the importance of the diversion of HHW from landfill • Provide drop-off facilities for HHW at select mini-drops across BLM. These facilities can be igloos or small sealed bins. • Host annual HHW open days in Plettenberg Bay area and roll this out to more towns in the BLM
4. Construction and Demolition Waste Management		

Legislated Requirements/ Best Practice	Gaps	Needs
• Divert 40% of waste from landfill in 5 years, 55% in 10 years and 70% within 15 years leading to zero waste going to landfill (2020 NWMS) • Construction and demolition waste (C&DW) only disposed of as cover material by 2021 (2020 NWMS)	• C&DW received at the KK Sands landfill site is often contaminated and not suitable for disposal at the landfill • No market for crushed and reuse of C&DW • C&DW will not be accepted at the GRDM regional site	• Increase awareness of the disposal of clean uncontaminated C&DW at the KK sands landfill site and the importance of the diversion of HHW from landfill • Engage with the BLM engineering department to identify projects e.g. road construction or upgrades where crushed clean C&DW can be used • Regular waste education and awareness training should be undertaken with business in the construction industry which operate in the BLM regarding the need to appropriately separate general waste items and clean building rubble to prevent the contamination of C&DW. • Awareness training provided to contractors on the potential reuse options of clean uncontaminated C&CW.
5. Bulk Waste Management		
	• Large volumes of bulky waste stockpiled at the Plettenberg Bay transfer station and the Old Nick drop-off facility	• Determine the feasibility of a reuse shop at the Plettenberg Bay transfer station. A shipping container could be used for the reuse shop • Items suitable for reuse can be donated to schools or charities
6. Waste Information Management		
	• Lack of records for in-house recycling programme • Lack of records of waste generated and recycled by business and industry • Lack of records of C&DW and green waste disposal.	• Obtain records for in-house recycling programme • Encourage registration of private waste generators on the GRWMIS.
7. Waste Education and Awareness		
• The service provider/ municipality must provide guidelines to households on how to separate waste • Municipalities must implement education and awareness training regarding the basic refuse removal in relevant areas (National Domestic Waste Collection Standards, 2011)	• There are a lack of detailed records available to provide details of the type of awareness campaign undertaken, topics covered and number of people engaged. • Lack of waste awareness materials available for the public • Infrequent waste awareness campaigns • No follow up on waste awareness campaigns to determine the successes and challenges. • The municipal website does not contain any	• An annual awareness calendar needs to be developed at the beginning of each year to guide awareness activities • Additional waste awareness campaigns are needed with a specific focus to waste minimisation. All schools should be visited at least annually • Record keeping needs to be improved. A standard template should be developed to capture information including the date of the event, topics covered, audience engaged, lessons learnt and allow for attendance registers and photos to be uploaded • Upload waste awareness materials to the municipality's website and Facebook page

Legislated Requirements/ Best Practice	Gaps	Needs
	waste awareness materials or statistics on waste recycling in the municipality.	• Increase social media presence with weekly or fortnightly posts • Statistics on waste disposal and recycling should be loaded up onto the website on a monthly basis to allow residents to track progress.
8. By-Laws		
-	• BLM by-law is are not aligned with GRDMs by-law • By-law does not make separation at source mandatory. • By-law does not require business and industry to submit data to the BLM or GRDM on waste generation and recycling rates.	• Align the BLM by-law with GRDMs waste management by-law • Amend the by-law to make it mandatory for generators to make use of the separation at source programme in areas where the programme is in place. • Amend the by-law to make it compulsory for business and industry to submit data to the GRWMIS on waste generation and recycling volumes.
9. Waste Minimisation Budget		
	• The municipality has budgeted R 3,571,499.00 (excl VAT) for waste minimisation projects for the 2021/22 financial year.	• The BLM should ensure that there is sufficient budget available or sourced for the implementation of the projects identified in this WMP and the projects identified in the IWMP that promote waste reduction and increase waste reuse, recycling and diversion. A budget plan is required for the waste minimisation projects over the next five to ten years and for when these projects are proposed to commence.

11 Objectives, Targets and Action

The following set of objectives and targets will guide the BLM in waste minimisation efforts. The objectives and targets translate into implementable action plans.

Three objectives, each with a target of targets have been identified for the BLM.

Table 51: Objectives and targets

Objective	Target	Actions
1. Improved waste minimisation data management	1.1 Accurate baseline data for waste generation and diversion from landfill to be determined by 2025	1.1.1 All recycling companies to be registered and report on GRWMIS 1.1.2 Records of waste collected through the in-house recycling programme to be quantified 1.1.3 Collate and maintain the tonnage of C&DW disposed at the KK Sands landfill 1.1.4 Develop a WIS to capture waste minimisation data. This should be updated monthly 1.1.5 Capture tonnages for green waste diverted from the Plettenberg Bay transfer station
2. Improved waste minimisation education and awareness	2.1 Waste minimisation education and awareness programmes to be well planned and executed 2.2 All school learners to be educated on waste minimisation 2.3 The public and business to be informed of the importance of waste minimisation and how they can participate in waste minimisation	2.1.1 Calendar of events to be planned at the beginning of each year 2.2.1 Bi-annual engagement at all schools 2.3.1 Monthly waste minimisation messages/ information published via social media or sent via email 2.3.2 Update waste minimisation information on the municipal website 2.3.3 Notice board installed at waste drop-off facilities 2.3.4 Door-to-door visits to households not participating in the S@S programme and follow-up to determine success of door-to-door visits 2.3.5 Include home composting and diversion of organic waste in education and awareness campaigns 2.3.6 A standard template to record information from waste education and awareness campaigns
3. Increase the diversion of waste from landfill	3.1 Meet the following targets: WCIWMP targets: • 20% diversion rate of recyclables by 2019 (WCIWMP)	**3.1 <u>Recyclables</u>** 3.1.1 Ensure the contract for the S@S service provider sets performance targets for participation, tonnage of waste collected and education and awareness 3.1.2 Quantify participation rates in the S@S programme per suburb

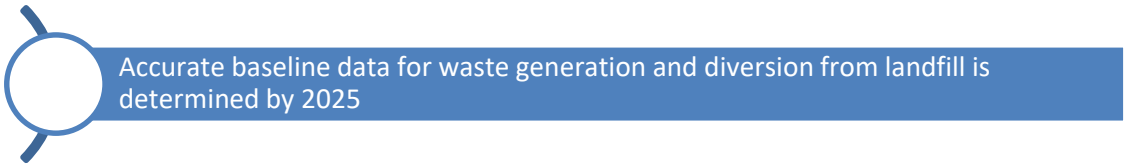
Objective	Target	Actions
	NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035	3.1.3 Develop a plan to increase participation rates in the S@S programme with annual targets 3.1.4 Establish two swop shops/buy back centres in Crags- Kurland and Qolweni/ Bossiesgif 3.1.5 Construct a MRF at the Plettenberg Bay transfer station 3.1.6 All events to have a waste minimisation plan 3.1.7 Revise by-laws to: • Make participation in S@S programme compulsory • Require business and industry to report waste data to GRWMIS • Require all events to be conducted according to a waste minimisation plan • All construction projects to have an approved waste minimisation plan in place prior to commencement • Fining schedule for non-compliance 3.1.8 Develop a sustainable public procurement procedure for the municipality
	3.2 Meet the following targets from the WCIWMP Organic waste diversion targets • 50% diversion of organic waste by 2022 • 100% diversion of organic waste by 2027	**3.2 <u>Organic waste</u>** 3.2.1 Roll out home composting bins to an additional 100 households per annum. Households to apply to participate in the programme 3.2.2 Roll out on-site composting or worm farms to all schools before 2026 3.2.3 Add composting facilities to community food gardens 3.2.4 Home composting workshops to encourage the use of compost heaps 3.2.5 Develop small green waste drop-off and chipping facilities in Nature's Valley and Keurboomstrand 3.2.6 Large producers of organic waste to prepare organic waste diversion plans which adhere to national targets
	3.3 Meet the following targets from the NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035 • C&DW to only be disposed as cover material by 2021	**3.3 <u>Construction and demolition waste</u>** 3.3.2 All municipal or large scale construction projects to have an approved waste minimisation plan in place prior to commencement
	3.4 Meet the following targets from the NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035	**3.4 <u>Household hazardous waste</u>** 3.4.1 Provide HHW drop-off facilities in Natures Valley and Keurboomstrand 3.4.2 Host HHW open days where the community can dispose their HHW

Objective	Target	Actions
	3.4 Meet the following targets from the NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035	**3.5 <u>Bulky waste</u>** 3.5.1 Develop a bulky waste management guide 3.5.2 Provide skips for bulky waste at the transfer station and Old Nick drop-off facility 3.5.3 Identify schools or NPOs to donate usable furniture and items to

12 Implementation Plan

Action plans have been developed to assist the BLM to implement projects identified in the WMP.

12.1 Objective 1. Improved Waste Minimisation Data Management



Action 1.1.1. All recycling companies to be registered and reporting on GRWMIS by 2022

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.1 All recycling companies to be registered and reporting on GRWMIS by 2022
Priority	High
Dependencies	None. A requirement for companies to register and report can be added to the waste management by-laws. Note: this is already covered by the GRDM by-law.
Timeframe	Existing recycling companies registered and reporting by 2022. New recycling companies should resister to GRDMWIS once established and operating in the BLM. Reporting of recyclers to be an ongoing task.
Budget required	Nil
Responsibility	BLM and GRDM
Implementation guide	**Registration** 1. GRDM to export a list of recycling companies registered in the BLM from the GRWMIS 2. BLM to provide details of other known recycling companies operating in the BLM 3. BLM to engage with existing recycling companies to determine if they are aware of any other recyclers operating in the BLM 4. BLM to post a notice on social media requesting recycling companies to register on the GRWMIS **Reporting** 1. GRDM to monitor reporting of data by recycling companies on a monthly basis 2. Where there are anomalies in the data BLM to visit or contact the recycler to verify the data 3. Service provider to report directly to BLM
Key performance indicator	Number of recycling companies registered and reporting on the GRWMIS.

Action 1.1.2 Quantify waste collected through the in-house recycling programme

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.2 Quantify waste collected through the in-house recycling programme
Priority	Low
Dependencies	Amend the contract for the S@S service provider
Timeframe	2021 – ongoing
Budget required	Nil, collection of recyclable waste already forms part of the SOW for the service provider. Service provider to provide separate records.
Responsibility	BLM
Implementation guide	1. Ensure all municipal offices have recycling bins 2. Ensure the service provider's contract extends to all municipal offices 3. Appoint a recycling champion per office and a recycling co-ordinator 4. Train employees on how to recycle and why recycling is important

	5. Obtain records of waste collected for recycling per office from the service provider. Note: when waste is collected from municipal offices it would need to be kept separate from waste collected from households, business etc. and labels would be needed to distinguish between different offices 6. Records of waste recycled per office to be sent to the recycling co-ordinator on a monthly basis
Key performance indicator	Records of in-house recycling available on a monthly basis.

Action 1.1.3. Collate and maintain tonnages of C&DW disposed at the KK Sands landfill site

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.3 Collate and maintain tonnages of C&DW disposed at the KK Sands landfill site
Priority	Medium
Dependencies	None
Timeframe	2021 - ongoing
Budget required	Nil
Responsibility	BLM
Implementation guide	1. Engage with KK Sands landfill site to obtain monthly tonnages of C&DW disposed at the landfill site 2. Collate this data into the WIS developed under Action 1.1.4 3. The tonnages of C&DW disposed at the KK Sands landfill to be recorded as C&DW diverted from landfill and as this C&DW is used to rehabilitate an exhausted quarry 4. Determine the quality and tonnages of different types of C&DW disposed at the KK Sands landfill and the possible reuse options for the C&DW disposed at the KK Sands landfill site.
Key performance indicator	Tonnages of C&DW disposed at the KK Sands landfill site Determine C&DW reuse options based on the quality and tonnages of C&DW types disposed at the KK Sands landfill site.

Action 1.1.4 Develop a WIS to capture waste minimisation and diversion tonnages

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.4 Develop a WIS (excel spreadsheet) to capture waste minimisation and diversion data
Priority	High
Dependencies	Action 1.1.1, 1.1.2 and 1.1.3
Timeframe	2022 - ongoing
Budget required	Nil. Data capture system to be developed and maintained in-house
Responsibility	BLM
Implementation guide	1. Determine sources and pathways of all waste types generated in the municipality. Waste types to be included are: a. General waste b. Recyclable waste c. Green waste d. C&DW e. HHW Sources of waste generation, diversion and recycling information include: a. Domestic b. Business/ commercial c. Industry d. S@S service provider and recycling companies 2. Train an individual to manage the WIS to capture waste generation, diversion and recycling records into the WIS 3. Collate waste generation tonnages of each waste source into a database (e.g. excel spreadsheet). Waste generation to be determined for each waste type 4. Determine the waste diverted from landfill through recycling, composting or chipping of green waste, reuse of C&DW as cover material or in construction projects on a monthly basis 5. Determine the percentage of waste diverted from landfill to waste generated in the BLM on a

	monthly basis
Key performance indicator	Electronic records of waste generated and diverted from landfill sites, and the percentage of waste diverted from landfill to waste generated in the BLM.

Action 1.1.5 Capture tonnes for green waste diverted from the Plettenberg Bay transfer station

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.5 Capture tonnage of green waste diverted from Plettenberg Bay transfer station
Priority	High
Dependencies	Action 1.1.4
Timeframe	2022 - ongoing
Budget required	Nil. Data capture system to be undertaken using staff at the transfer station and weighbridge
Responsibility	BLM, composting service provider (once appointed)
Implementation guide	1. Develop a data capture procedure for green waste. A different approach will be required for vehicles collecting small volumes of green waste vs vehicles collecting large volumes. Vehicles arriving empty to collect green waste would need to be managed differently to vehicles arriving with unchipped green waste and removing chipped green waste 2. Use the weighbridge to record bulk loads of green waste leaving the transfer stations 3. Manually record small volumes of chipped green waste being removed from the composting facility.
Key performance indicator	Electronic records of green waste generated from landfill site

12.2 Objective 2. Improved Waste Minimisation Education and Awareness

Action 2.1.1 Calendar of events to be planned at the beginning of each year

Target	2.1 Waste education and awareness programmes are well planned and executed
Action	2.1.1 Calendar of events to be planned at the beginning of each year
Priority	High
Dependencies	District waste management survey
Timeframe	2021 – ongoing
Budget required	Nil
Responsibility	BLM
Implementation guide	1. Develop a template for the awareness calendar, as a minimum the following would be needed • Event date • Venue/ location • Event title/ theme • Audience to be engaged • Budget required • Equipment/ resources required e.g. GRDM recycling banners, flyers, projector and screen

	for presentations, a microphone with speakers • Responsible person/ department/ organisation 2. Type of event/ method of engagement will be determined by the outcomes of the district waste management survey (refer to GRDM district WMP) which will determine the preferred method of engagement for different communities and society groups e.g. schools, taxi ranks, high income areas, low income areas. 3. Engage with GRDM, DEA&DP, DEFF and the recycling service provider to determine what events they have planned and incorporate these into the calendar where relevant 4. Events to be included in the calendar: • Social media posts, newsletters, e-mail notifications • Schools visits • Launch of new programmes e.g. expansion of home composting programme • Clean-up campaigns, using a 2-bag system • Monthly updates on the progress of the separation at source programme • Visits to waste minimisation facilities, composting sites or recycling depots • HHW open days • Community engagements e.g. roadshows 5. Events to be planned at the beginning of each calendar year, all stakeholders involved to sign off on the calendar as a commitment to undertake the events 6. A close out report should be developed for all events including a portfolio of evidence such as photographs and attendance registers
Key performance indicator	Development of a waste awareness calendar.

Action 2.2.1 Bi-annual engagement at all schools

Target	2.2 All school learners to be educated on waste minimisation
Action	2.2.1 Bi-annual engagement at all schools
Priority	High
Dependencies	Action 2.1.1
Timeframe	2022 – ongoing
Budget required	TBC (dependent on number of schools to be visited, staff requirements, etc)
Responsibility	BLM, GRDM
Implementation guide	The same methodology should be used to plan school events as to develop the waste awareness calendar (action 2.1.1). In addition the following are needed: 1. Compile a database of all the schools in BLM. Included in the database should be school name, location, age range of learners, home language of the majority of students 2. Develop a calendar for engagement with schools – refer to action 2.1.1. 3. Ensure the event planned is appropriate for the age of learners 4. Ensure the awareness teams are fluent in the home or preferred language of the learners 5. Arrange with GRDM to use the GRDM mascot costume and banners when needed to ensure they are available 6. Ideas for school visits: a) Puppet shows b) Delivery of recycling bins and an interactive presentation on how they work c) Delivery of worm farms and an interactive presentation on how to care for the worms d) Schools recycling competitions – competition between classes to collect material e.g. bottle caps, arts and crafts from waste e) Presentations to environmental clubs f) Clean up events using a two bag system g) Visits to recycling facilities or composting sites 7. Events to be planned at the beginning of each calendar year, all stakeholder involved to sign off on the calendar as a commitment to undertake the events
Key performance indicator	Number of schools visited per quarter, to be measured through documented records.

Action 2.3.1 Monthly waste minimisation messages/ information published via social media

Target	2.3 The public and business to be informed of the importance of waste minimisation and how they can participate in waste minimisation
Action	2.3.1 Monthly waste minimisation messages/ information published via social media or sent via email
Priority	High
Dependencies	Action 2.1.1
Timeframe	2021 – onwards
Budget required	Nil, internal project
Responsibility	BLM Waste Management and Communications Department
Implementation guide	1. Engage with Communications Department to confirm the procedure for posting information on social media 2. Develop a template for the waste minimisation posts. The template should include the GRDM waste mascot, Rocky the Rooster. Template to be approved by communications department 3. Plan a calendar of social media posts e.g. 1st week of month update on tonnages collected through S@S programme and ranking of suburbs in terms of participation rate (use a star rating system from 1 to 5), 3rd week of month information of waste recycling and diversion programmes, initiatives and events in the municipality (S@S programmes, chipping facilities, composting programmes, private initiatives from Renew Able Plett, Nature's Valley Trust, green restaurant ratings, etc.), once a quarter a recycling fact, once a quarter an article on municipal waste minimisation programmes or events. Recommended topics for posts 1. How to recycle? 2. What happens to my recycled waste? 3. Interview with the service provider 4. Performance of different suburbs in the S@S programme (star rating system) 5. Video/ photo tour of municipal/ service provider waste facilities 6. Do you know where to take your recycled waste? Details of recycling drop-off facilities per area. 7. Invitations to attend waste minimisation events e.g. HHW drop-off days 8. Home composting programmes and initiatives, and diversion of domestic organic waste from landfill 9. Invitation to collect chipped green waste from Plettenberg Bay transfer station 10. Notification of the requirement for event waste minimisation plans and construction project waste minimisation plans
Key performance indicator	Number of waste minimisation messages posted or emailed per annum.

2.3.2 Update waste minimisation information published on the municipal website

Target	2.3 The public and business to be informed of the importance of waste minimisation and how they can participate and waste minimisation
Action	2.3.2 Update waste minimisation messages/ information published on the municipal website
Priority	High
Dependencies	2.1.1
Timeframe	2022
Budget required	Nil, internal project
Responsibility	BLM Waste Management and Communications Department
Implementation guide	1. BLM to compile information to be added to the website, including: a) Calendar or planned waste awareness events b) Information on why waste minimisation is important c) Hints and tips on waste minimisation d) How to guide for recycling e.g. materials which are accepted, rinsing of food containers etc. e) A home composting guide f) A list of areas covered by the kerbside separation at source programme g) A map showing the location of recycling drop-off facilities

	h) Contact details for BLM waste managers and supervisors i) A library of articles, posts or video released on social media or via email j) A copy of this waste minimisation plan (once finalised) k) The template for event waste minimisation plan l) The template for construction project waste minimisation plan m) Educational resources for schools to use
Key performance indicator	Amount of updated information available on BLM website.

2.3.3. Notice boards at all waste facilities

Target	2.3 The public and business to be informed of the importance of waste minimisation and how they can participate and waste minimisation
Action	2.3.3. Notice boards at all (existing and future) recycling and diversion drop-off facilities
Priority	Medium
Dependencies	Nil
Timeframe	2025
Budget required	R20,000 per notice board
Responsibility	BLM
Implementation guide	1. Design the content and layout of the notice board. The notice board should contain: • Rocky the Recycling Rooster mascot • A list of material which can/ cannot be recycled or material that is/is not allowed at a drop off facility (e.g. general waste and rubble not allowed at a green waste drop off facility) • Tips on how to recycle e.g. rinse containers • A section to display monthly recycling tonnages. This section can be updated by filling in figures using a whiteboard marker or an alternative method
Key performance indicator	Number of notice boards installed at recycling drop-off facilities

2.3.4 Door-to-door visits to households not participating in separation at source programme and follow-up to determine success

Target	2.3 The public and business to be informed of the importance of waste minimisation and how they can participate and waste minimisation
Action	2.3.4 Door-to-door visits to households not participating in separation at source programme and follow up to determine success of door-to-door visits
Priority	Medium
Dependencies	Revise contract for recycling service provider to include this task
Timeframe	2024
Budget required	Part of scope of works for recycling service provider
Responsibility	BLM, S@S service provider
Implementation guide	1. Revise the scope of works for the recycling service provider to require door-to-door engagement with households not participating in the S@S programme 2. Service provider to provide a plan of how households would be engaged and how follow up will be done
Key performance indicator	1. Increase in participation rates of households in separation at source. 2. Lessons learnt – understanding of factors which prevent households from recycling.

Action 2.3.5 Include home composting and diversion of organic waste in education and awareness campaigns

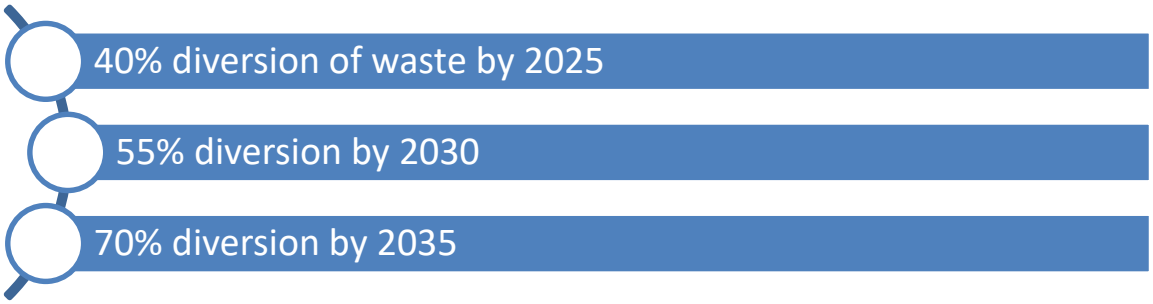
Target	2.3 The public and business to be informed of the importance of waste minimisation and how they can participate and waste minimisation
Action	2.3.5 Include home composting and diversion of organic waste in education and awareness campaigns

Priority	Medium
Dependencies	2.1.1, 3.2.1
Timeframe	2022 – ongoing
Budget required	Nil
Responsibility	BLM
Implementation guide	1. Develop a how to guide for home composting. The training manual should cover: • Why home composting is important • What food/ garden waste is suitable for home composting/ worm farms and what should be avoided • How to set up home composting or a worm farm • Maintenance • Timeframes 2. Launch a social media campaign on the importance of home composting and how to manage organic waste at home 3. Upload the how to guide to the municipal website and make it available through a link on social media 4. Arrange home composting workshops/ demonstration sessions. To be advertised via social media, emails and loud hailing. 5. Workshops to be held with households who are provided with home composting bins/ worm farms (action 3.2.1)
Key performance indicator	1. Home composting how to guide developed 2. Number of households attending workshops 3. Number of households home composting

Action 2.3.6 A standard template to record information from waste education and awareness campaigns

Target	2.3 The public and business to be informed of the importance of waste minimisation and how they can participate and waste minimisation
Action	2.3.6 A standard template to record information from waste education and awareness campaigns
Priority	High
Dependencies	None
Timeframe	2021 – ongoing
Budget required	Nil
Responsibility	BLM
Implementation guide	1. Develop a template to record information from the waste education and awareness campaigns, as a minimum the following should be recorded and included in the template: • Event date • Venue/ location • Event title/ theme • Audience engaged • Responsible person/ department/ organisation • Topics discussed • Details and record of audience. For example use an attendance register for smaller, older audiences (municipal staff, businesses, organisations) and provide a description of audience engaged for larger, younger audiences (e.g. grade 7 classes, approximately 80 learners of Kwanokuthula primary school) 2. A report should be developed for all events including a portfolio of evidence such as photographs and attendance registers
Key performance indicator	1. Development of a waste awareness and education standard template. 2. Using the waste awareness and education standard template to record information of all awareness and education campaigns/events.

12.3 Objective 3.1 Increase the Diversion of Recyclable Waste from Landfill



12.3.1 Recyclables

Action 3.1.1 Revise the contract for the separation at source service provider to set performance targets for participation, tonnage of waste collected and education and awareness

Objective	Increase the Diversion of Waste from Landfill
Target	NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.1.1 Revise the contract for the separation at source service provider to set performance targets for participation, tonnage of waste collected and education and awareness
Priority	High
Dependencies	None
Timeframe	TBC
Budget required	Nil, internal project
Responsibility	BLM Waste Management, Supply Chain Management
Implementation guide	1. Request lessons learnt from other local municipalities in terms of recycling service providers and implementing the S@S programme 2. Revise the contract to include the following: • Quantifiable performance criteria for tonnages collected, number of awareness events, reporting, etc. • A requirement to increase participation in low income area. This can be achieved through swop shops or buy-back centres or directly involving the community e.g. government programmes and/or organisations already involved in local recycling programmes • Service provider to quantify participation rates across at BLM at a suburb level • Local residents, organisations or community groups and SMME's to be utilised • Prepare and implement a plan to increase participation rates • Prepare and implement a recycling waste education and awareness programme • Extend the S@S kerbside collection service to unserviced areas • Compliance of service provider facility with legislation – cleanliness, litter, registrations
Key performance indicator	Contract revised and service provider is fulfilling the requirements of the contract

3.1.2 Quantify participation rates in the two bag system per suburb

3.1.3 Develop a plan to increase participation rates in the two bag system with targets per annum

3.1.4 Establish two swop shops/buy back centres in Crags- Kurland and Qolweni/ Bossiesgif

Objective	Increase the Diversion of Waste from Landfill
Target	NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.1.2 Quantify participation rates in the two bag system per suburb

	3.1.3 Develop a plan to increase participation rates in the two bag system with targets per annum 3.1.4 Establish two swop shops/buy back centres in Crags- Kurland and Qolweni/ Bossiesgif
Priority	High
Dependencies	3.1.1
Timeframe	3.1.2 2021 – 2023 determine the participation rates of the two-bag system per suburb 3.1.3 2021 – 2023 develop the plan to increase participation rates in the S@S programme. 2023 onwards - implement the plan and revise plan and targets annually 3.1.4 2022 onwards – BLM and service provider to establish two swop shops/buy back centres in Crags- Kurland and Qolweni/ Bossiesgif. The BLM and service provider to raise awareness of donations for two swop shops/buy back centres and ensure these facilities continue to operate
Budget required	3.1.2 No additional budget, covered by the scope of work for the appointed S@S service provider 3.1.3 No additional budget, covered by the scope of work for the appointed S@S service provider 3.1.4 Cost to develop and operate swop shop to be determined by BLM. Cost depends on: 3.1.4.1 whether a facility is available, will be rented or developed 3.1.4.2 staff requirements 3.1.4.3 operating hours of the swop shops (affects staff remuneration, facility and operational costs) 3.1.4.4 type of goods to be supplied to the swop shop and how many goods will be swopped for recycled waste
Responsibility	BLM, recycling service provider
Implementation guide	• 3.1.2 - 3.1.4 to form part of the scope of works for the recycling service provider. The recycling service provider should submit a plan to BLM on how each of these actions will be implemented. • The BLM to create awareness on website, social media and emails regarding the implementation of actions 3.1.2 – 3.1.4.
Key performance indicator	1. S@S participation rates per suburb determined 2. A plan to increase participation rates is developed by the service provider and approved by BLM 3. S@S participation rates increase in line with the plan 4. Two swop-shops/buy-back centres established in Crags-Kurland and Qolweni/Bossiesgif and BLM to ensure that these facilities continue to operate.

Action 3.1.5 Construct a MRF at the Plettenberg Bay transfer station

Objective	Increase the Diversion of Waste from Landfill
Target	• 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.1.5 Construct a MRF at the Plettenberg Bay transfer station
Priority	Medium
Dependencies	Nil
Timeframe	2021 – Engineer to be appointed and commences with design of MRF 2023 – construction of the MRF 2025 – operation of the MRF
Budget required	Estimated costs provided are based on the BLM budget for the development of the MRF over a 5-year period. The costs to construct and operate the MRF will depend on the design of the MRF which will be completed by an appointed Engineer. These costs depend on the size and the design of the MRF (levels of mechanisation). 2021 – 2022: R10 million 2023 – 2024: R20 million 2025 onwards: R5 million per annum for operational costs
Responsibility	BLM
Implementation guide	1. Finalise funding for the MRF 2. Appoint an engineer for the design of the MRF 3. Engineer to appoint and manage a contractor for the construction of the MRF 4. Appoint a service provider to manage and operate from the MRF 5. Ensure records of waste processed at the MRF are captured
Key performance indicator	A MRF is established and operated

3.1.6 All events to have a waste minimisation plan

Objective	Increase the Diversion of Waste from Landfill
Target	NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.1.6 All events to have an events management plan
Priority	High
Dependencies	3.1.8 Revise the waste management by-law
Timeframe	2022 – events on municipal property, 2024 – events on private property
Budget required	Nil
Responsibility	BLM, GRDM
Implementation guide	1. Develop a template for the event waste minimisation plan in consultation with the GRDM. Template to include the following information • Event time, date and location • Type of event • Methods used to advertise the event • How waste minimisation will be advertised by the event • Expected types and volumes of waste which would be generated by the event • Waste service provider to be used or planned method of management of waste • Details of how waste will be minimised, recycled or reused • Details of how single use items e.g. plastic bottles, take away boxes, plastic cutlery will be avoided • Details of the number of type of bins to be provided for the event as well as the location of the bins • A reporting format, to be completed once the event is concluded to detail how much waste was generated, how much was recycled and how much was disposed of • A declaration which the event organiser as well as businesses/ individuals who are participating in the event e.g. exhibitors or caterers, have to sign which binds them to the event waste minimisation plan 2. Designate an existing employee to review event waste minimisation plans 3. Train the designated employee on what an event waste minimisation plan should cover 4. Undertake spot checks of events to ensure the waste minimisation plans are being implemented
Key performance indicator	All public events to have a waste minimisation plan in place

Action 3.1.7 Revise waste management by-law

Objective	Increase the Diversion of Waste from Landfill
Target	NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.1.7 Revise the waste management by-law
Priority	High
Dependencies	None
Timeframe	2022 to draft by-laws 2023, PPP required for by-laws gazetting 2023, Review of bylaws by a legal team 2024, Gazetting by-laws
Budget required	Nil to draft by-laws, if undertaken internally PPP required for by-laws gazetting – TBC Review of bylaws by a legal team – TBC Gazetting by-laws - TBC
Responsibility	BLM
Implementation guide	1. Source GRDM generic waste management by-law 2. Review gaps between GRDM generic waste by-law and existing BLM by-law

	3. Revise the waste management by-law, can be undertaken in-house or outsourced 4. Revise by-law to ensure it: a) Makes participation in the kerbside separation at source programme mandatory for households b) Makes separation at source mandatory for all businesses c) Requires all public events to have an event waste minimisation plan d) All large or municipal construction projects to have an approved waste minimisation plan in place e) A fining schedule for non-compliance f) Ban certain waste streams for collection and from landfill e.g. HHW and wood waste g) Specify which landfill sites, transfer station, drop-off facilities accept which waste types e.g. C&DW, bulky waste, green waste, recycled waste, HHW
Key performance indicator	Revised waste management by-law

Action 3.1.8 Develop a sustainable public procurement guideline

Objective	Increase the Diversion of Waste from Landfill
Target	NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.1.9 Develop a sustainable public procurement procedure for the municipality
Priority	Low
Dependencies	None
Timeframe	2024
Budget required	Nil, if undertaken internally
Responsibility	BLM
Implementation guide	1. Undertake a literature review of national and internal green procurement guidelines 2. Develop a green procurement guideline which considers the following: • Procurement of products/ services which use recycled materials e.g. furniture made from recycled wood or plastic • Procurement from companies which practice separation at source and recycling or reuse of waste • Use of companies or suppliers which participate in waste minimisation
Key performance indicator	Green procurement guidelines which focus on waste minimisation and recycling is developed.

12.4 Objective 3.2 Increase the Diversion of Organic Waste from Landfill

50% diversion of organic waste by 2022

100% diversion of organic waste by 2027

Action 3.2.1 Roll out home composting bins to an additional 100 households per annum for a period of 10 years

Objective	Increase the Diversion of Waste from Landfill
Target	• 50% diversion of organic waste by 2022 • 100% diversion of organic waste by 2027
Action	3.2.1 Roll out home composting bins to an additional 100 households per annum for a period of 10 years
Priority	Medium
Dependencies	Monthly waste minimisation messages/ information published via social media

	Update waste minimisation information on the municipal website Include home composting and diversion of organic waste in education and awareness campaigns Develop a green procurement guideline for the municipality
Timeframe	2022 – 2032
Budget required	R850/ bins (2022), Y1 – R85,000
Responsibility	BLM Waste Management, Supply Chain Management
Implementation guide	1. Source funding for home composting bins 2. Issue a request for quotation for the supply of home composting bins. Home composting bins to be procured in line with the green procurement guideline 3. Place an advert inviting the public to register for a home composting bin. Note in the advert that spot checks will be done to ensure households are using the bin. If they are not using the bin the BLM reserves the right to remove the bin. Bins to remain the property of BLM 4. Develop a database of households who registered for the home composting bins. First 100 households to be given bins 5. Develop a training course and training materials on how to use a home composting bin 6. Hold a workshop with the households who registered for the bins to explain how to use the bins correctly 7. Undertake spot checks of 30% of the households each year to ensure bins are being used 8. If bins are not being used correctly, bin to be collected by the BLM and given to another household who requested a bin
Key performance indicator	1. 100 home composting bins issued per year 2. Spot checks on 30 households which bins were issued to per annum

Action 3.2.2 Roll out on-site composting or worm farms to all schools before 2028

Objective	Increase the Diversion of Waste from Landfill
Target	50% diversion of organic waste by 2022 100% diversion of organic waste by 2027
Action	3.2.2 Roll out on-site composting or worm farms to all schools before 2028
Priority	Medium
Dependencies	None
Timeframe	2028
Budget required	R1,600/school for equipment
Responsibility	BLM
Implementation guide	1. Develop a database of all schools in BLM. Information to be captured to include: • School name • Location • Contact details • Grades • Number of pupils 2. Prioritise schools for the provision of bins starting with the largest 3. Determine whether the school should be provided with a worm farm or compost bin. Worm farms are better suited for food waste and compost bin can be used for green waste e.g. grass cuttings from sports fields 4. Visit the school to deliver the worm farm or home compost bin 5. Appoint a project co-ordinator from the school to manage the project 6. On-site practical training with the project co-ordinator 7. Provide educational materials to the project co-ordinator 8. Undertake an interactive session with pupils on how to use the compost bins or worm farms 9. Undertake a follow up visit after 6 weeks to ensure the worm farm or compost bin is being used correctly 10. Document successes and challenges and use these to update guidelines used for subsequent schools
Key performance indicator	The number of schools that worm farms or compost bins are rolled out to and are being used correctly.

Action 3.2.3 Add composting facilities to community food gardens

Objective	Increase the Diversion of Waste from Landfill
Target	50% diversion of organic waste by 2022 100% diversion of organic waste by 2027
Action	3.2.2 Add composting facilities to community food gardens
Priority	Medium
Dependencies	3.2.4 Home composting workshops to encourage the use of compost heaps
Timeframe	2021 - 2022 determine number of municipal and community food gardens in municipality wards 2022 onwards: engage with staff or community members operating food garden to utilise compost heaps that the community can have access to at their foody gardens.
Budget required	Nil, community food gardens were established and awareness to de done by the BLM Costs for equipment such as wheelie bins to be used at the food gardens – R8,000/ food garden (estimate)
Responsibility	BLM
Implementation guide	1. Inform the responsible person at the community food garden that the community/residents will be allowed to drop-off food waste at the garden 2. Create a space large enough in the food garden for the compost heap. Ensure that it is easily accessible to the public for the drop off of food waste 3. Ensure that the compost heap is within the community garden or is fenced to ensure animals and vermin do not eat the food waste 4. The BLM to create awareness to residents and restaurants that food waste can be disposed at the community food gardens for composting. Awareness can be done with door-to-door visits, the use of the municipality's social media page and website, and emails 5. Awareness should emphasise food wastes that are allowed at the compost heap and that are best for composting, and food waste or organic waste types that are not allowed at the compost heap, e.g. wood waste, meat and fish, coal ash, animal waste, cooked food, treated wood, etc. 6. The BLM to monitor the success of the communal drop-off for food waste at the community food gardens and determine if this can be rolled out to more communities as a project to divert food waste from landfill. 7. The BLM to train the responsible person of the community garden to determine the volume of food waste disposed at the communal compost heap.
Key performance indicator	The number of community food gardens where compost heaps are being used to divert domestic organic food waste.

Action 3.2.4 Home composting workshops to encourage the use of compost heaps

Objective	Increase the Diversion of Waste from Landfill
Target	• 50% diversion of organic waste by 2022 • 100% diversion of organic waste by 2027
Action	3.2.2 Home composting workshops to encourage the use of compost heaps
Priority	Medium
Dependencies	2.1.1Calendar of education and awareness events to be planned at the beginning of each year 2.1.4Update waste minimisation information on the municipal website 2.1.7 Include home composting and diversion of organic waste in education and awareness campaigns
Timeframe	2022 ongoing
Budget required	Nil
Responsibility	BLM Waste Management, Supply Chain Management
Implementation guide	1. Information to the public regarding the diversion of organic waste and the use of home compost heaps can be provided to the public by: • Developing organic waste education and awareness material that can be uploaded onto the municipality's website and Facebook page • Include home composting as a topic during education and awareness campaigns in the community, with businesses and at schools • Align the home compost heap programme with the home compost bin programme and have households keep record of waste diverted from landfill. The success of each programme can be provided on the municipality's website and Facebook page.

	• Education and awareness 2. Develop a database of households who participate in the home composting heap programme. 3. Develop a training course and training materials on how to use a home composting heap. This can be provided on the municipality's website and Facebook page 4. Visit 10% of households who participate in the home compost heap programme and determine the lessons learnt of using the household compost heap to divert organic waste from landfill. The BLM can do short write-up of households using the home compost heaps and upload this onto their website and their Facebook to create awareness on the use of the home compost heaps.
Key performance indicator	1. Number of home compost workshops or times that home composting was included in education and awareness campaigns 2. Develop a database of households that participate in home composting and record tonnages of organic waste diverted from landfill through home compost heaps 3. Information uploaded onto municipality's website or made available on the municipality's Facebook page.

Action 3.2.5 Develop small green waste drop-off facilities and chipping facilities in Kurland, Wittedrift, Nature's Valley and Keurboomstrand

Objective	Increase the Diversion of Waste from Landfill
Target	50% diversion of organic waste by 2022 100% diversion of organic waste by 2027
Action	3.2.4 Develop small green waste drop-off facilities and chipping facilities in Kurland, Wittedrift, Nature's Valley and Keurboomstrand
Priority	Medium
Dependencies	None
Timeframe	2023: Kurland 2024: Wittedraft 2025: Nature's Valley 2026: Keurboomstrand
Budget required	R3.5 million per facility including equipment (estimate, to be confirmed based on designs)
Responsibility	BLM
Implementation guide	1. Identify locations in areas identified that could be used as green waste drop-off facilities for garden waste. These could be at existing transfer stations or waste drop-off points 2. Inform the public via social media, the BLM website and through ward councillors that green waste can be dropped at identified green waste drop-off points 3. Ensure budget for a chipper is included in the waste management budget 4. Prepare a specification for chippers 5. Publish a request for quotation (RFQ) for the provision of a chipper. The RFQ should cover supply of chippers, training of BLM employees on use and maintenance of the chipper 6. Issue communication with the public via social media, the BLM website and through ward councillors to inform them that chipped green waste will be available for collection from identified green waste drop-off points 7. Identify a location at the drop-off points to chip waste. Chipping should preferably occur away from the waste handling areas and close to the entrance of the site so it is easily accessible 8. Staff at transfer station or green waste drop-off facilities to be trained to direct vehicles carrying clean green waste to the chipping site 9. Gate controllers or staff on site to estimate and record the volume of green waste entering and chipped green waste leaving the site. Training will be required.
Key performance indicator	• Chippers rotated to transfer stations and green waste drop-off points • Volume of green waste diverted from the landfill sites

Action 3.2.6 Operate the Plettenberg Bay composting facility

Objective	Increase the Diversion of Organic Waste from Landfill
Target	50% diversion of organic waste by 2022 100% diversion of organic waste by 2027

Action	3.2.6 Operate the Plettenberg Bay composting facility
Priority	Medium
Dependencies	None
Timeframe	2023
Budget required	R3 million required to make the facility operational (increase height of berm and clean the composting facility). Operational costs TBC. Dependent on whether composting is managed by BLM or outsourced.
Responsibility	BLM
Implementation guide	1. Conduct composting at the Plettenberg Bay transfer station. To be managed by the municipality or outsourced 2. Municipality or service provider to develop operating procedure for compositing. The operating procedure to determine the source of organic material for the compost, e.g. chipped green waste, food waste, wood waste, sewage sludge, 3. Municipality to purchase compost turner and utilise for composting 4. Municipality to determine how compost will be distributed or sold once produced 5. BLM to create awareness that composting facility is operational and that public should dispose of green waste at the transfer station 6. BLM to keep tonnage records of organic waste diverted from landfill through composting.
Key performance indicator	Operation of the Plettenberg Bay composting facility

Action 3.2.7 Large producers of organic waste to prepare organic waste diversion plans

Objective	Increase the Diversion of Organic Waste from Landfill
Target	50% diversion of organic waste by 2022 100% diversion of organic waste by 2027
Action	3.2.7 Large producers of organic waste to prepare organic waste diversion plans
Priority	Medium
Dependencies	None
Timeframe	2023
Budget required	Nil, if manged in-house
Responsibility	BLM with support for GRDM
Implementation guide	1. Review companies registered with GRWMIS 2. Develop a list of large producers of organic waste in the municipality including sawmills, farmers, supermarkets, restaurants 3. Develop a template for the organic waste diversion plans in conjunction with GRDM 4. Amend by-law to require large waste generators to prepare organic waste diversion plans 5. Notify business and industry of the requirement to prepare plans – emails, posts of social media, direct engagement 6. Set a deadline for business/ industry to submit plans 7. Review plans internally 8. Request annual reports from business/ industry on the implementation of plan 9. Spot checks on compliance with plans
Key performance indicator	Number of organic waste diversion plans prepared Level of compliance with diversion plans

12.5 Objective 3.3 Increase the Diversion of Construction and Demolition Waste from Landfill

Action 3.3.1 All municipal or large scale construction projects to have an approved waste minimisation plan in place prior to commencement

Objective	Increase the Diversion of Waste from Landfill
Target	• 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035

	• C&DW to only be disposed of or used as cover material by 2021
Action	All municipal or large scale construction projects to have an approved waste minimisation plan in place prior to commencement
Priority	High
Dependencies	3.1.8 Revise waste management by-law 3.1.9 Green procurement guideline
Timeframe	2024
Budget required	Nil
Responsibility	BLM, GRDM
Implementation guide	1. Develop a template for the construction waste minimisation plans in consultation with the GRDM. Template to include the following information • Project type • Project location • Project duration • Expected types and volumes of waste which would be generated by the project • Waste service provider/planned method of management of waste • Details of how waste will be stored on site – e.g. kept free on contamination • Transfer station or landfill site to be used for disposal of waste (C&DW to the KK Sands landfill, and general, green, recycled and hazardous waste to Plettenberg Bay transfer station) • Details of how waste will be minimised, recycled or reused • Details of the person responsible for waste management • A declaration for the engineer and contractor to sign which binds them to the construction project waste minimisation plan 2. Designate an existing employee to review the construction waste minimisation plans 3. Train the designated employee on what the construction waste minimisation plan should cover 4. Undertake spot checks of construction projects to ensure the waste minimisation plans are being implemented
Key performance indicator	• All municipal and large construction projects to have a construction waste minimisation plan • Volume of construction and demolition waste disposed at landfill sites is reduced

Action 3.3.2 Engage with Engineering Department and identify projects for the use of crushed C&DW

Objective	Increase the Diversion of Waste from Landfill
Target	40% diversion of waste from landfill by 2025 55% diversion of waste from landfill by 2030 70% diversion of waste from landfill by 2035 C&DW to only be disposed of or used as cover material by 2021
Action	Action 3.3.2 Engage with Engineering Department and identify projects for the use of crushed C&DW
Priority	Medium
Dependencies	None
Timeframe	2022-onwards: Implement once projects are identified and appropriate C&DW type and volumes are available to be used
Budget required	Nil
Responsibility	BLM
Implementation guide	1. Engage with municipal Engineering Department and identify projects for the use of crushed uncontaminated C&DW 2. Once projects are identified determine how this will be implemented. The municipality will need to consider: a. engineering standards and quality control of the crushed C&DW i. which types of C&DW will be accepted at crushing facility for reuse b. different classes (sizes) of crushed C&DW and their respective uses for each C&DW type c. a location for the stockpiling and crushing of uncontaminated C&DW for reuse d. appointing a service provider to crush the C&DW or purchasing a crusher and crushing the C&DW
Key performance indicator	• Engineers at the BLM are engaged in meetings and a possible workshop • C&DW is diverted from landfill and reused.

12.6 Objective 3.4 Increase the Diversion of Household Hazardous Waste from Landfill

Action 3.4.1 Provide drop-off facilities for HHW in Natures Valley and Keurboomstrand and increase awareness of HHW drop-off facilities

Objective	Increase the Diversion of Waste from Landfill
Target	• 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.4.1 Provide drop-off facilities for HHW in Natures Valley and Keurboomstrand
Priority	Medium
Dependencies	None
Timeframe	2025 - 2028
Budget required	R40,000 per drop-off facility
Responsibility	BLM
Implementation guide	1. Identify a location in Natures Valley and Keurboomstrand for HHW drop-off facilities. This can be at the existing drop-off facilities or municipal office/ buildings. The site should preferably be secure/fenced and manned/ supervised. 2. Release a request for quotation for supply and servicing of containers for HHW. Shipping containers can be adapted for use as HHW drop-off facilities. 3. Appoint a service provider to manage the recycling or safe disposal of HHW. Monthly tonnage or volume reports to be provided. 4. Train staff at the drop-off facility on what types of HHW are accepted, how to store HHW and how to report HHW dropped off. 5. Inform the public of HHW drop-off facilities through municipal website, social media posts and email correspondence.
Key performance indicator	• HHW drop-off facilities set up in Natures Valley and Keurboomstrand • Volume of HHW collected and recycled

Action 3.4.2 Host HHW open days where the community can dispose their HHW

Objective	Increase the Diversion of Waste from Landfill
Target	• 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.4.2 Host HHW open days where the community can dispose their HHW
Priority	Medium
Dependencies	Calendar of events to be planned at the beginning of each year Provide HHW drop-off facilities in Natures Valley and Keurboomstrand
Timeframe	2021 onwards
Budget required	Nil, advertise HHW facilities and open days using municipal website, social media, email communication, newsletter and through existing communication platforms e.g. councillors and the S@S service provider
Responsibility	BLM
Implementation guide	1. Municipality to update website on the HHW drop off facilities available in the municipality 2. Inform the public of HHW drop-off facilities through social media posts and email correspondence 3. Inform the public of HHW open days through social media posts and email correspondence. The HHW open days can be included in the annual education and awareness calendar that should be available at the beginning of the year on the municipality's website.
Key performance indicator	• Increased (e.g. monthly) awareness of drop-off HHW facilities • Host quarterly HHW open days throughout the municipality

12.7 Objective 3.5 Increase the Diversion of Bulky Waste from Landfill

Action 3.5.1 Develop a bulky waste management guide
Action 3.5.2 Provide skips for bulky waste at the transfer station and Old Nick drop-off facility
Action 3.5.3 Identify schools or NPOs to donate usable furniture and items to

Objective	Increase the Diversion of Waste from Landfill
Target	• 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	Action 3.5.1 Develop a bulky waste management guide Action 3.5.2 Provide skips for bulky waste at the transfer station and Old Nick drop-off facility Action 3.5.3 Identify schools or NPOs to donate usable furniture and items to
Priority	Medium
Dependencies	3.1.8 Revise waste management by-law 3.1.9 Green procurement guideline
Timeframe	Action 3.5.1: 2021 Action 3.5.2: 2022 and 2023 Action 3.5.3: 2021 and 2022
Budget required	Action 3.5.1: Nil Action 3.5.2: Price per large skip bin, TBC Action 3.5.3: Nil
Responsibility	BLM
Implementation guide	1. Develop a bulky waste management guide. The guide to include the following information • Expected types and volumes of bulky waste that will be received at the bulky waste drop off locations • Planned management method bulky waste and details of how waste will be recycled or reused (e.g. wood will be donated to, old furniture will be donated to, e-waste will be donated to or taken to e-waste drop-off, etc.) • Location of skip bins to collect bulky waste (Plettenberg Bay transfer station and Old-Nick drop off facility) • Details of how bulky waste will be stored on site • Details of the person responsible for bulky waste management • Develop a register to record bulky waste disposed at the Plettenberg Bay transfer station and Old-Nick drop off facility 2. Purchase and provide skip bins for bulky waste at the transfer station and Old Nick drop-off facility • The number of skip bins should depend on the type and volume of bulky waste to be received and how often the bulky waste will be removed from the skip bins and will be reused or recycled 3. Identify schools or NPOs to donate usable furniture and items to • The schools or NPOs should be engaged with to determine which bulky waste types and volumes they would be interested in to receive • The municipality to record all bulky waste diverted to schools or NPOs
Key performance indicator	• Development of a bulky waste management guide • Provision of skips for bulky waste at the Plettenberg Bay transfer station and Old Nick drop-off facility • Schools or NPOs to donate usable furniture and items to were identified and receive usable bulky waste items

13 Monitoring and Review

The WMP planning cycle includes a monitoring and review phase.

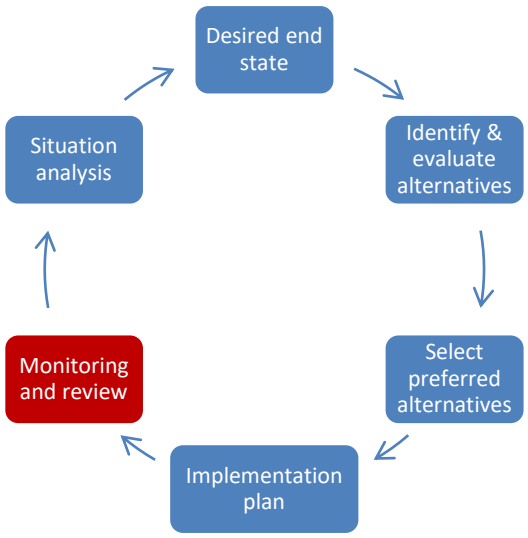


Figure 20: WMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA)

The WMP should be treated as a live document and updated to reflect changes in the status quo as well as changes in legislation. The WCIWMP covers the period 2017 – 2022 and will shortly be revised. The WMP targets may need to be revised to be aligned with the targets of the new WCIWMP.

A bi-annual review of the WMP should be undertaken to determine the implementation of the plan. Where projects have not been implemented within the given timeframes reasons must given. The bi-annual progress report should be submitted to GRDM.

14 References

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https://www.wrap.org.uk/sites/files/wrap/O_And_EFW_Guidance_FULL.pdf

Web reference 4. Department of Environmental Affairs – Anaerobic digestion (accessed on 20/04/2020)
http://awtguide.environment.gov.za/content/technologies-overview-anaerobic-digestion

Web reference 5. WRAP Anaerobic Digestion Guidance (accessed on 20/04/2020)
https://www.wrap.org.uk/collections-and-reprocessing/organics/anaerboic-digestion/guidance/ad-the-process

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http://awtguide.environment.gov.za/content/technologies-overview-gasification

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