Garden Route District Municipality

Garden Route District Municipality
Waste Minimisation Plan

DRAFT

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Garden Route District Municipality Waste Minimisation Plan - DRAFT

CONTENTS

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01	03/05/2020	77	Version 1. Status quo	B. Galego/ Z. Makapela	K. Flood	K. Flood
02	06/04/2020	90	Version 2. Gap and needs assessment	B. Galego/ Z. Makapela	K. Flood	K. Flood
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04	06/07/2021	105	Version 4. Draft WMP	I. Malloy	K. Flood	K. Flood
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Distribution List

Copies to:

Copy 1 of 2	Mr M. Hubbe (Garden Route District Municipality)
Copy 2 of 2	Mr J. Gie (Garden Route district Municipality)

Abbreviations / Acronyms / Definitions

BLM	Bitou Local Municpality
CCA	Chromated Copper Arsenate
CFL	Compact Fluorescent Lamp
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
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
SAWIS	South African Waste Information System
WCIWMP	Western Cape Integrated Waste Management Plan
WMP	Waste Minimisation Plan
WRAP	Waste and Resources Action Programme

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 (WMP) to address 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 to move municipalities towards achieving waste diversion targets set by National and Provincial Government.

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 GRDM.

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

There is no legislated requirement for the contents of municipal WMP. The diagram below, outlines the typical contents and themes of WMPs based on a review of national and international examples.

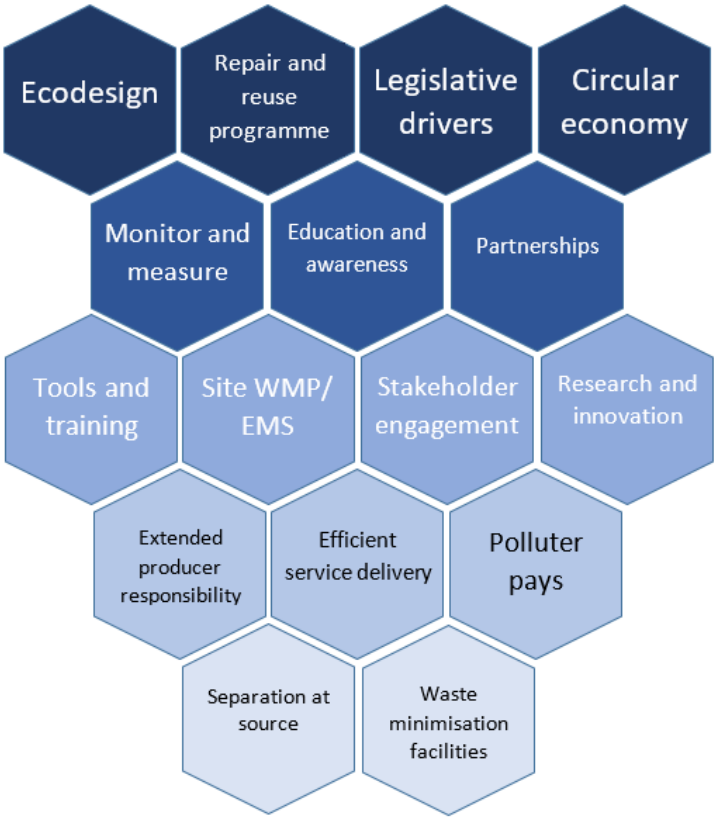


Figure 1: Common themes and contents of waste minimisation plans

1.3 History of Waste Minimisation Plans in the Garden Route District Municipality

The below table summarises waste minimisation plans developed for the GRDM and local municipalities. Further details of waste minimisation plans developed for the local municipalities are included in the individual local municipality WMPs.

Table 1: History of waste minimisation plans

Municipality	Comment
GRDM	The Eden District Municipality (now GRDM) commenced with the development of a strategic waste minimisation plan in 2015. The waste minimisation plan was not finalised.
Bitou	A waste minimisation strategy (WMS) was developed for the BLM in 2018.
George	A solid waste diversion plan was developed for GLM in 2017.
Hessequa	No WMP has been developed for the HLM. The 2021 WMP will be the first WMP developed for the municipality.
Kannaland	A WMS was developed in 2019 by DEA&DP. The WMS was not approved by Council. None of the projects have been implemented.
Knysna	A waste minimisation strategy developed for KLM in 2017.
Mossel Bay	A high level solid waste diversion plan was developed for MBLM in 2017. The plan was designed to give high level advice on possible waste diversion technologies and programmes. The plan was not approved by Council for implementation.
Oudtshoorn	No WMP has been developed for the OLM. The 2021 WMP will be the first WMP developed for the municipality.

1.4 Objectives of a Waste Minimisation Plan

The key objectives of this WMP are:

- To move the GRDM and the seven local municipalities 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 GRDM and the seven local municipalities towards legal compliance with national and provincial waste minimisation targets
- Streamline waste minimisation efforts across the GRDM

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 GRDM.

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.

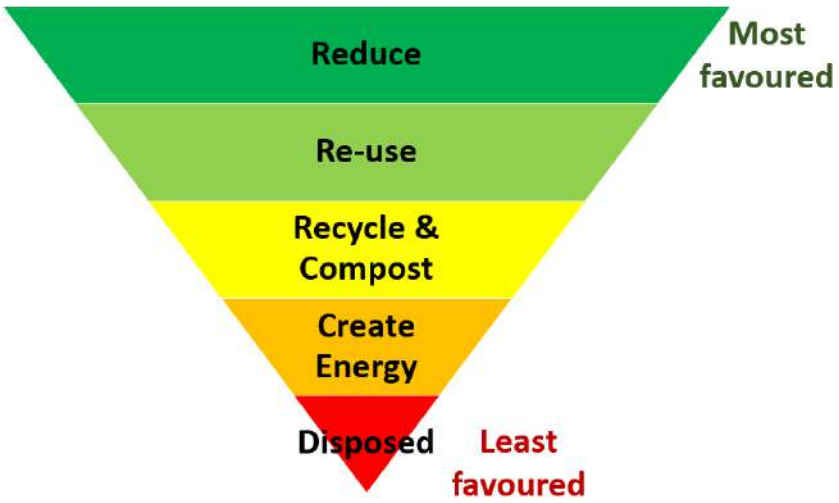


Figure 2: The waste hierarchy as per the National Waste Management Strategy (DEFF, 2020)

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 GRDM WMP will be aligned to meet the relevant goals and targets proposed in the 2020 NWMS.

1.5 Waste Minimisation Plan Development Process

The terms of reference for the WMP outlines six phases for the development of the WMPs.

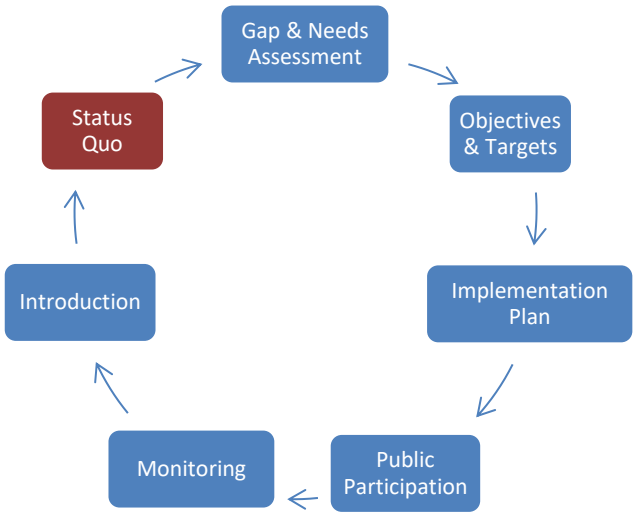


Figure 3: WMP planning phases

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 GRDM which covers an area of 22,331km^2 and is composed of seven local municipalities. The GRDM is one of the five district municipalities in the Western Cape and covers the third largest geographical area.

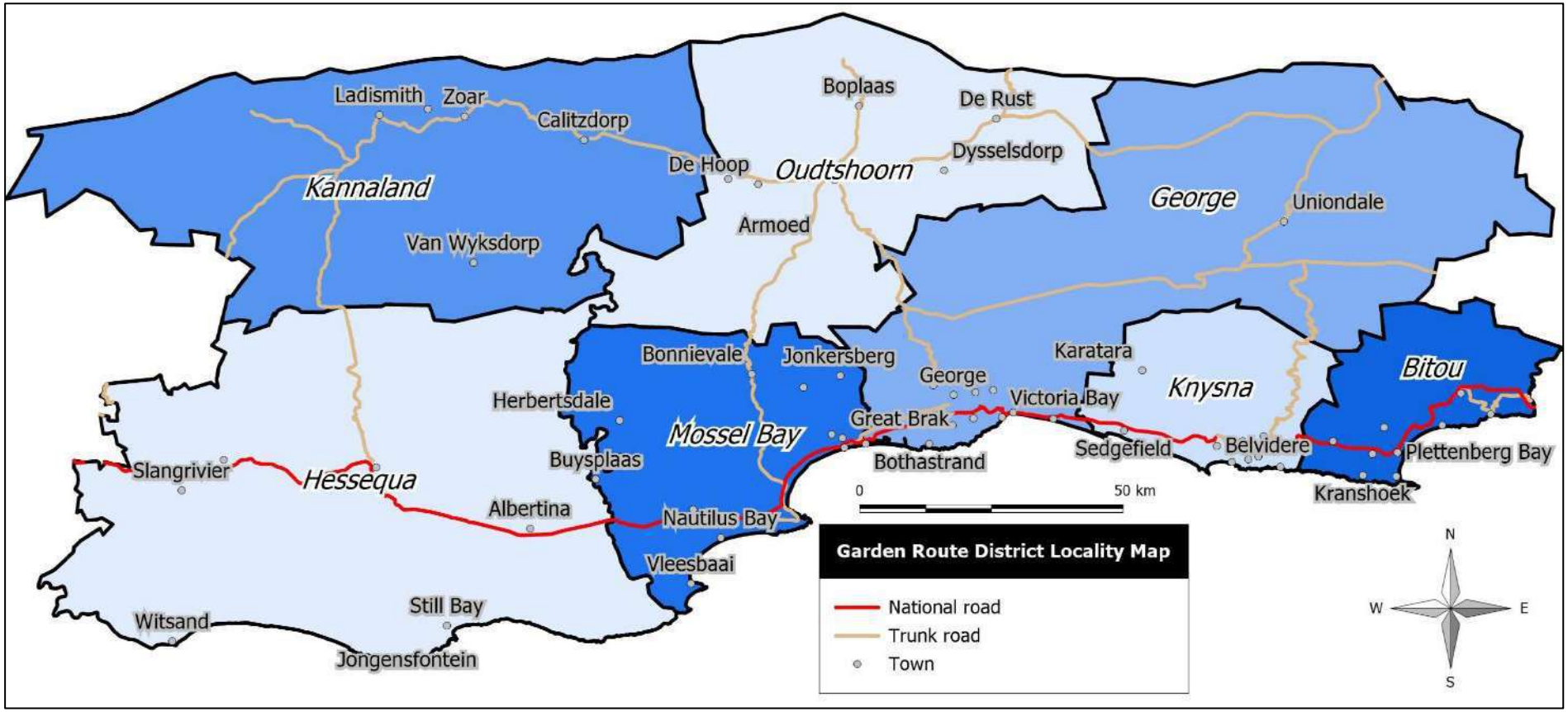


Figure 4: GRDM jurisdictional area

The focus of the WMP is on the minimisation, diversion and recycling of general waste (organic, construction and household hazardous portion included). The study will however exclude minimisation of industrial hazardous waste.

The scope will include the following but is not limited to;

- Validate current waste minimisation infrastructure and levels of services
- Through the development of the Waste Minimisation Plan identify waste minimisation gaps and prioritise actions and associated cost and timelines to substantially improve waste minimisation in the jurisdiction of the local municipalities covered by this plan.
- Align the Waste Minimisation Plan with applicable legislative requirements, the National Waste Management Strategy and applicable sector plans.
- Identify areas were minimisation actions on a district basis will be more sustainable to implement.
- Identifying possible partnerships with private businesses and industry and intergovernmental partnerships to promote waste minimisation in the Garden Route District Municipal area.
- To increase community awareness, appreciation and responsiveness to municipal waste minimisation related initiatives.
- Facilitate further education programmes across the community on waste minimisation.
- Define a performance monitoring and review schedule.

2 Approach and Methodology

2.1 Project Scope

The scope of the project is for the development of a WMP for each local municipality in the GRDM that will be incorporated in a district WMP to identify possible viable regional initiatives. The project will be undertaken in 6 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 2: GRDM 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 GRDM 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 GRDM and each of the seven local municipalities. 2.2 Meetings with waste management and recycling companies. 2.3 Stakeholder engagement – extended producer responsibility organisations, DEA&DP, non-governmental organisations (NGOs), business such as supermarkets. 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 local municipalities and the district municipality. 3.2 Review of potential alternative waste treatment technologies which can be applied in the GRDM.
Phase 4	***4.1 Objectives and Targets*** 4.1.1 Development of a set of objectives and targets for GRDM 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 GRDM which extends from immediate interventions to a 10 – 15 year period. 5.1.2 Develop a Financial Plan for the implementation of the Waste Minimisation Plan for the GRDM. **5.2 *Public Participation and Stakeholder Engagement*** 5.2.1 Present draft WMP to the municipal section 80 committee 5.2.2 Present draft WMP to the municipal council 5.2.3 Present the WMP at a public meeting 5.2.4 Update WMP based on comments received during public participation and the presentation to council
Phase 6	***6.1 Performance monitoring and review schedule*** 6.1.1 Develop 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 was 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)
- GRDM 3rd generation Integrated Waste Management Plan (2020 - 2025)
- Garden Route (Eden) Waste Management Information System (GRWMIS), Integrated Pollutant 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 in terms of their District Waste Management By-Laws PG 7818 of 01 September 2017.

2.2.2 Interviews 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 GRDM was developed based on:

- Companies identified in the project initiation meeting
- Recommendations from the GRDM and local municipalities

The questionnaire was also uploaded as an online survey (details provided below).

In total 101 stakeholders were engaged during the development of the GRDM WMP. This list excluded the municipal Waste Management Officers (WMOs)/ Waste Managers. A full list of stakeholders is available in Appendix A.

Table 3: Summary of stakeholders engaged

Municipality	No. stakeholders engaged
Bitou	13
George	10
Hessequa	11
Kannaland	11
Knysna	16
Mossel Bay	14
Oudtshoorn	25
All	1
Total	**101**

2.2.3 Presentations and Workshops

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

Table 4: Presentations/ workshops planned for the GRDM WMP

Date	Content of presentation/ workshop	No. attendees	Stakeholders in attendance
TBC	Technical workshop of WMP	TBC	TBC

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

2.2.4 Business and Public Surveys

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

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 GRDM official Facebook pages on 10 and 17 June 2020. Local municipalities were requested to share the invite on their social media platforms.

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.

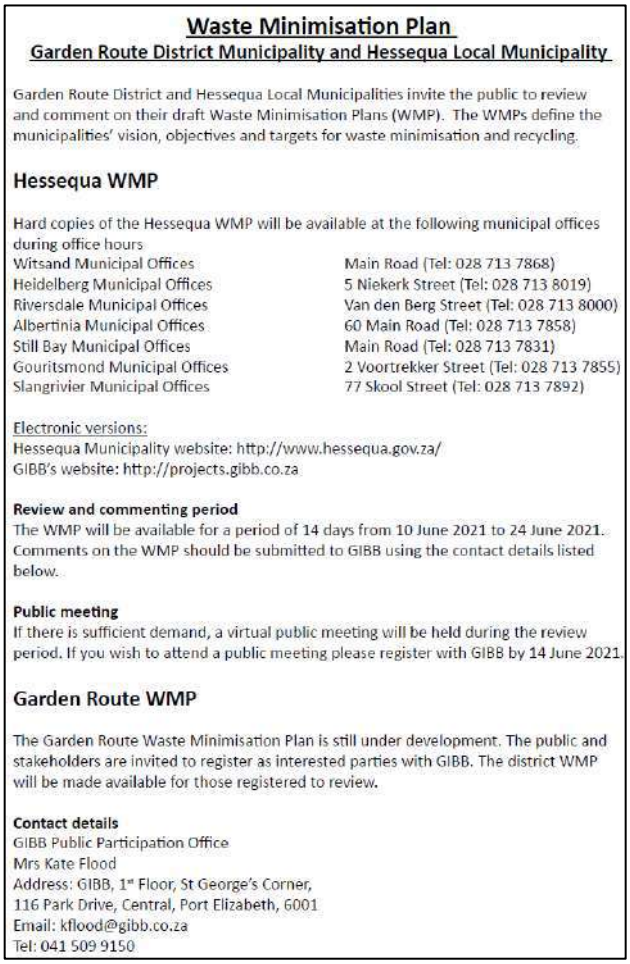
Business/ industry survey: https://surveys.gibb.co.za/index.php?r=survey/index&sid=338239&lang=en	**Public survey:** https://surveys.gibb.co.za/index.php?r=survey/index&sid=39065&lang=en
The business/ industry survey consists of 8 sections and the majority of questions are multiple choice or require 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

2.2.5 Public Participation Process (PPP)

The GRDM WMP will be made available for review by the public for a period of 14 days. Interested parties were offered the opportunity to register on the stakeholder database through advertisements placed for the individual local municipality WMPs. The WMP will also be circulated to relevant stakeholders for review and comment.

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



Waste Minimisation Plan
Garden Route District Municipality and Hessequa Local Municipality

Garden Route District and Hessequa Local Municipalities invite the public to review and comment on their draft Waste Minimisation Plans (WMP). The WMPs define the municipalities' vision, objectives and targets for waste minimisation and recycling.

Hessequa WMP

Hard copies of the Hessequa WMP will be available at the following municipal offices during office hours

Witsand Municipal Offices	Main Road (Tel: 028 713 7868)
Heidelberg Municipal Offices	5 Niekerk Street (Tel: 028 713 8019)
Riversdale Municipal Offices	Van den Berg Street (Tel: 028 713 8000)
Albertinia Municipal Offices	60 Main Road (Tel: 028 713 7858)
Still Bay Municipal Offices	Main Road (Tel: 028 713 7831)
Gouritsmond Municipal Offices	2 Voortrekker Street (Tel: 028 713 7855)
Slangrivier Municipal Offices	77 Skool Street (Tel: 028 713 7892)

Electronic versions:
Hessequa Municipality website: http://www.hessequa.gov.za/
GIBB's website: http://projects.gibb.co.za

Review and commenting period
The WMP will be available for a period of 14 days from 10 June 2021 to 24 June 2021. Comments on the WMP should be submitted to GIBB using the contact details listed below.

Public meeting
If there is sufficient demand, a virtual public meeting will be held during the review period. If you wish to attend a public meeting please register with GIBB by 14 June 2021.

Garden Route WMP

The Garden Route Waste Minimisation Plan is still under development. The public and stakeholders are invited to register as interested parties with GIBB. The district WMP will be made available for those registered to review.

Contact details
GIBB Public Participation Office
Mrs Kate Flood
Address: GIBB, 1st Floor, St George's Corner,
116 Park Drive, Central, Port Elizabeth, 6001
Email: kflood@gibb.co.za
Tel: 041 509 9150

Figure 6: Example of an advertisement placed for a local municipality WMP

Newspaper advertisements were placed as follows

Table 5: Newspaper adverts placed

Local municipality	Newspaper	Advert date
Bitou Local Municipality	Knysna-Plett Herald	03 June 2021
George Local Municipality	George Herald	10 June 2021
Hessequa Local Municipality	Suid-Kaap Forum	10 June 2021
Kannaland Local Municipality	Oudtshoorn Courant	19 August 2021
Knysna Local Municipality	Knysna-Plett Herald	20 May 2021
Oudtshoorn Local Municipality	Oudtshoorn Courant	24 June 2021

2.3 Assumptions and Limitations

This report has drawn information from a number of sources including interviews with municipalities and stakeholders, IWMPs, GRWMIS, IPWIS and SAWIS records, GRDM, local municipality 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 GRDM.

3 Legislative Overview

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

Table 6: 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 GRDM is required to comply with any national and provincial norms and standards related to waste minimisation.
	9 (3)	The Municipality 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	The GRDM by-law addresses these aspects.
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	Once the GRDM regional landfill site is operational the GRDM will be classified as a 'holder of waste' as the GRDM will manage a disposal site. Section 30 of the GRDM Waste Management By-Law allows the GRDM to dictate how different waste types can be disposed of. This would allow the GRDM to restrict acceptance of certain waste streams at the regional site.

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 7: 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 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 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.

When the GRDM regional site is operational the GRDM will need to screen the waste to ensure that none of the prohibited waste streams are disposed of.

Table 8: 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)

Waste type prohibited or restricted in terms of disposal	Compliance timeframe
Other batteries	8 years (August 2021)
Re-usuable, recoverable or recyclable used lubricating mineral oils and oil filters, but excluding other oil containing wastes.	4 years (August 2017)
Re-usuable, 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 60°C 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 9: 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 GRDM. The GRDM should however be aware of the indWMPs and the implications of these plans. All municipalities in the district are currently undertaking separation at source with the exception of OLM and KLLM
Service providers/ municipalities must provide clear guidelines to households on sorting of waste, appropriate waste containers and removal scheduled for different waste types	The type of waste awareness campaigns undertaken varies between municipalities. There is a need to standardise the message presented to the public and ensure the public are aware of how and what to recycle.
Community involvement in recycling must be encouraged	There are swop shops in operation in some municipalities. These facilities can be used to encourage community involvement in recycling.
Municipalities must provide an enabling environment for recycling through a kerbside	The KLLM and OLM currently do not have a kerbside collection service or municipal drop-off facilities for

Requirement	Comment
collection service for mainstream recyclable or provision of communal collection points.	recyclables. Intervention is required to ensure these municipalities are providing an enabling environment for recycling.
Non-mainstream recyclable (e-waste, scrap metals batteries etc.) must be routed to drop-off centres	The MBLM and KLM have facilities in place for the public to drop-off some non-mainstream recyclables.
Recyclable waste must be removed from drop-off centres at least once a fortnight	Municipalities 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 (GN 904 of 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. The National Pricing Strategy will be implemented by DEFF, however it is important that the GRDM is aware of this legislation.

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 GRDM will be required to report waste information for waste disposed of the regional site 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, Nov 2013) 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.

4 Context of Roles and Responsibilities for Waste Minimisation and Alignment with Strategic Plans

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 development of 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 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 NWMS is structured around three pillars:

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

Table 10: A review of 2020 National Waste Management Strategy Objectives related to waste minimisation which are applicable to the GRDM (NWMS, 2020)

Goal	Implementation mechanism
Pillar1: Waste Minimisation	
40% of waste diverted 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.	• Develop and implement a public procurement framework to support recycling, encompassing requirements for recycled content (GRDM to implement the framework) • All new and existing landfills with longer airspace/ years to include MRFs • Include and implement organic waste technologies in local government IWMPs, districts and local municipalities by 2025 • Construction and demolition waste (C&DW) only disposed of a cover material by 2021
Pillar 2: Effective and Sustainable Services	
All South Africans live in clean communities with waste services that are well managed and financially sustainable.	• Waste pickers to be integrated into municipal collection services by 2024 (secondary cities only) • 50% of households in municipalities to be separating at source by 2024 • 20 Good Green Deeds activities undertaken nationally from 2020 onwards • 10% reduction of hazardous waste at general waste landfill sites by 2024 • 10% reduction in absorbent hygiene waste (AHP) at landfill sites by 2024 • Municipalities to provide provisions for recycling drop-off/ buy-back/ storage centres in their IWMPs, supported by fiscal mechanisms/ EPR.

5.1.2 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

5.1.3 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 11: 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 GRDM. The GRDM WMP will be aligned with the WCIWMP and such projects will be incorporated into the implementation plan for the GRDM WMP.

5.2.2 Western Cape Waste Awareness Strategy

The Western Cape Waste Awareness Strategy was released by Department of Environmental Affairs and Development Planning (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 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. 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
- Determine additional infrastructure requirements to allow municipalities to remain compliant up to 2030

The report identified infrastructure needs for each local municipality to bring them toward compliances with waste minimisation targets by 2020.

The following infrastructure needs were identified for each of the local municipalities:

Table 12: Infrastructure needs for the local municipalities

Municipality	Composting	C&DW crushing facility	Chipping facility	MRF
Bitou	X	X		
George	X	X		
Hessequa			X	X
Kannaland			X	X
Knysna	X	X	X	
Mossel Bay	X	X		
Oudtshoorn	X	X		

5.3.2 Eden District Municipality Waste Management Policy

The Eden District Municipal (now GRDM) 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 management information system (GRWMIS).
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.

5.3.3 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 management 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.

5.3.4 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 the DEA&DP.

The plan identified seven goals to improve waste management in the district. Goal 6 specifically addresses waste minimisation and recycling. Goal 1 and 2 are also of importance to this study as effective waste reporting, waste information management and waste education and awareness are 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

The GRDM 3rd generation IWMP has been approved by the GRDM council and was endorsed by the DEA&DP. One of the objectives in the IWMP was 'increased waste minimisation and recycling' (GRDM, 2020). The table below presents projects identified in the IWMP which are related to waste minimisation, recycling and diversion from landfill.

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

Table 13: GRDM IWMP projects related to waste minimisation and recycling (adapted from 2020 IWMP)

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	GRDM to register all large general and hazardous waste generators on GRWMIS	Medium	2020/21	To improve waste information management, knowledge of which companies are generating waste is required. Once the major waste generators are known, the GRDM can engage with them to ensure they are minimising waste as far as possible and where it is not possible to minimise the generation of waste, that waste is recycled or recovered.
1.1.2	GRDM to review waste categories used on the GRWMIS. The data capturing system must be designed so that rolled up data under the broad categories listed in the National Waste Information Regulations can be reported on the IPWIS.	Medium	2021/22	Increasing the number of categories available for companies to report data on will result in more accurate data being captured on the GRWMIS. As above there is a need to understand waste generation in the district in order to be able to minimise waste to landfill.
Objective 1.2 The GRWMIS fully interlinked with the IPWIS				
1.2.1	GRDM to strive to ensure the GRWMIS is linked to the SAWIS so that information uploaded to the GRWMIS is automatically uploaded to the IPWIS.	High	2020/2025	The GRDM waste management by-laws require companies to register and report on the GRWMIS. At the same time the National Waste Information Regulation (GN 625 of 2012) require waste information to be reported onto the IPWIS. To avoid companies having to double report it is essential that the GRWMIS is compatible with the IPWIS system.
Objective 1.3 The implementation status of the GRDM IWMP is regularly reviewed and the implementation status of projects is monitored.				
1.3.1	Undertake annual performance reviews of this IWMP, and send reports to DEA&DP	High	2020 - 2025	The GRDM should continually track the implementation of waste minimisation projects to ensure they are on track to achieve the targets.
1.3.2	GRDM to add an item to the agenda of the quarterly waste manager forum meeting on IWMP implementation progress.	Medium	2020 - 2025	The local municipality IWMPs contain projects related to waste minimisation. Feedback on progress towards these targets should be given at the GRDM quarterly meetings. If a municipality is struggling to implement a target the GRDM may be able to intervene and offer guidance or support.
Objective 1.4 Effective internal management of waste related data				
1.4.2	Develop systems for effectively capturing and storing waste data sets, such that they are readily available	Medium	2020/21	In order to measure waste minimisation in the GRDM it is essential to have data readily available and in suitable formats. The development of systems for data storage will standardise how information is stored and the type of information which is kept.
Goal 2: Improved education and awareness				
Objective 2.1 District wide 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 which is aligned with awareness campaigns planned by the local	High	2020 – 2025	This target refers to waste education and awareness as a whole. Waste minimisation and recycling awareness campaigns form a key part of waste

No.	Action	Priority	Timeframe	Applicability to waste minimisation
	municipalities *(to be developed at the beginning of each financial year)*			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 GRDM to co-ordinate district programmes with any provincial or national awareness programmes.
2.1.2	Waste awareness campaigns are to be undertaken by trained and experienced personnel	High	2020 - 2025	It is essential that waste minimisation and recycling programme are undertaken by personnel trained in waste management and in particular recycling and waste minimisation. This will ensure that the message provided to the public is appropriate and accurate.
2.1.3	The GRDM waste mascot is to be incorporated into future waste awareness materials	High	2020 - 2025	As a district it is important that materials used for waste minimisation and recycling projects are standardised across the district. One method of doing this is to incorporate the GRDM mascot "Rocky the Rooster" into materials used by the GRDM and all local municipalities.
Objective 2.3 Waste awareness campaigns are mainstreamed at schools and all learners and educated on good waste management practices				
2.3.1	Waste awareness campaigns to be undertaken at all schools in GRDM	High	2020 - 2025	It is essential that waste minimisation and recycling programmes are rolled out at all schools across the GRDM. Learners from a young age need to be informed on waste minimisation and recycling.
Objective 2.4 Waste awareness campaigns are audience specific and communicated using channels appropriate to the audience				
2.4.1	GRDM, in consultation with local municipalities to undertake a public perception survey on waste management to determine the public knowledge of waste management and preferred methods for engagement in terms of waste awareness (e.g. social media vs meetings vs flyers etc.)	Low	2022/23	In order to inform the public of waste minimisation and recycling the method of engagement needs to be appropriate to the audience.
Goal 3: Improved institutional functioning and capacity				
Objective 3.1 The GRDM has sufficient well capacitated employees to undertake the district waste management role and to manage the new regional landfill site and roll out the full implementation of the GRWMIS				
3.1.3	Implementation of the IWMP to be added as KPIs to the District Waste Manager or WMOs performance evaluation criteria.	High	2020/21	As above, the GRDM must ensure that all the projects in the IWMP are implemented. The WMO will be ultimately responsible for this.
Objective 3.2 Information sharing is maximised in the GRDM and regular meetings are held to build relationships between the district and local municipalities				
3.2	GRDM to continue with quarterly waste management officers 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	GRDM to finalise the district waste minimisation strategy	High	2020	This target is currently underway and will be achieved through the finalisation of

No.	Action	Priority	Timeframe	Applicability to waste minimisation
				this plan.
5.1.2	GRDM to assist KLLM and OLM with the roll out of pilot separation at source programmes	Medium	2020/21	The KLLM and OLM are the only municipalities which do not currently have some form of separation at source programme in place. These municipalities are faced by financial and institutional challenges. The GRDM will need to assist these municipalities to launch separation at source programmes.
Objective 5.2 The diversion of organic waste from landfill is increased				
5.2.1	Pilot home composting programme to be rolled out in all municipalities	Medium	OLM & BLM – 2020/21 KLLM – 2021/2022	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.
6.2 The GRDM waste management by-laws are enforced				
6.2.1	GRDM to ensure there are sufficient employees to enforce the district by-laws	Medium	2020 - 2025	The GRDM waste management by-laws require the registration and reporting of companies which generate and managed waste. The by-laws also enable the GRDM to call for industry waste management plans through publishing a notice in a provincial gazette. Enforcement of the by-laws is key to increasing waste minimisation in the district.
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 DEA&DP waste infrastructure plan for the district.	Medium	2020/21	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.

5.4 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.

5.4.1 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 EPWP has been used for the following programmes across the GRDM:

- Illegal dumping projects in Thembalethu and Pacaltsdorp in the GLM. EPWP employees were used for litter picking and education and awareness
- Waste minimisation awareness and education programmes at pre-schools in the MBLM and HLM
- Assistance with clean-up campaigns where a 2 bag system(recyclable and non-recyclable) is used and education and awareness in BLM
- Litter picking, landfill site management, recycling, street cleaning and waste data management in HLM
- Litter picking, removal of illegal dump and waste education and awareness in KLLM
- Waste collection services in the Northern Areas in KLM
- Cleansing projects in MBLM
- Street sweeping in OLM

5.4.2 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.

The CWP is used for the following activities:

- Clean up of open spaces and illegal dump sites in GLM
- Education and awareness programmes in KLLM
- Litter picking and street cleaning in KLM
- Recycling education and awareness, street cleaning and refuse collection in MBLM

5.4.3 Youth Community Outreach Programme

The Youth Community Outreach Programme (YCOP) is an environmental education and awareness programme. The aim of the programme is job creation and the provision of accredited training. The YCOP programme has not been fully rolled out across the GRDM. Most of the municipalities have a YCOP co-ordinator but no team have been appointed underneath the co-ordinator.

5.4.4 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.

5.4.5 Municipal Cleaning and Greening Programme

In November 2020 DEFF launched the Municipal Cleaning and Greening Programme, the 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 is planned to run for a period of five months.

The GRDM has been requested from DEA&DP to co-ordinate the implement of the programme in the district.

5.4.6 Source to Sea

The Source to Sea programme is a national programme managed by DEFF. The aim of the programme is to address marine litter through managing it in the catchments. Each district municipality is provided with 100 employees to assist with litter removal from watercourses. Teams will be provided with equipment such as rakes and bags, PPE and given a scale to weigh waste collected. The participants will collect litter from hotspots in and around watercourses.

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 e.g. oil in the case of plastic. Material such as construction and demolition waste 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.

The GRDM is in the planning process for a regional landfill site. Once the site is commissioned waste being sent to the site should be minimised as far as possible to ensure the maximum possible lifespan for the site. Preserving the landfill site airspace at the regional site would

ultimately decrease the demand for another new landfill site or additional cells at the regional site.

6.1.3 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.

(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 2). When organic waste is broken down organically, through composting it is broken down aerobically and the release of methane is avoided (web reference 3).

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

The WCIWMP sets targets of a 50% diversion of organic waste from landfill 2022 and 100% diversion by 2027. If the GRDM and local municipalities are able to achieve these targets then greenhouse gas emissions would be reduced significantly.

(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.

(c) Reduction of Fire Risk

On landfill sites where a large volume of dried green waste accumulates the material present a fire risk. The accidental burning of green waste can result in fires spreading to surrounding areas and greenhouse gas emissions.

Fires can also negatively impact on human health through the release of smoke and the potential for the fire to spread to other areas.

Fires can be avoided by controlling access to sites and covering and compacting waste on a daily basis.

6.1.4 Economic Opportunities

Organic waste can be composted. Compost, if a market exists 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.

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

Recycling of waste can also result in job creation. Recycling of waste is a more labour-intensive exercise than disposal of waste.

6.1.5 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 GRDM is available in the 2020 IWMP for the GRDM (GRDM, 2020).

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

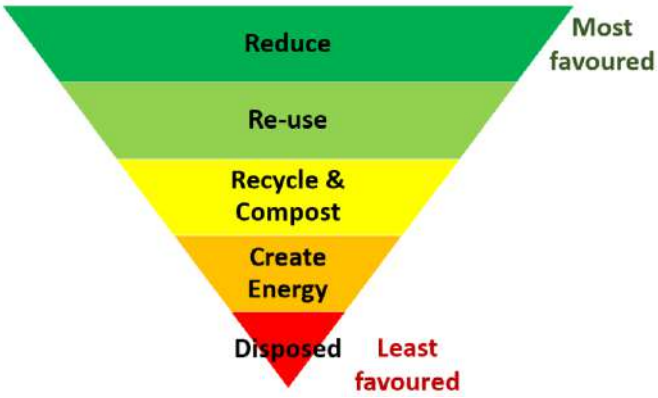


Figure 7: The waste hierarchy as per the National Waste Management Strategy (DEFF, 2020)

7.1 Waste Generation and Disposal

In order to understand the current status of the implementation of the waste management hierarchy, an understanding of the waste generation in the GRDM is needed.

The following sections discuss waste generation and disposal in the GRDM.

7.1.1 Waste Records

Six of the seven local municipalities report waste data to the IPWIS. The records below are a combination of IPWIS records and data from the local municipalities.

The source of data and any limitations are discussed below.

Table 14: Waste disposal records source and limitations

Local Municipality	Waste records	Source	Comments
Bitou	Domestic/ commercial and industrial	BLM	PetroSA disposal records.
	C&DW	BLM	KK Sands data. Based on visual estimates.
	Green waste	BLM	Waste records from the Plettenberg Bay transfer station
	Recycling	GLM	Records from recycling service provider.
George	Domestic/ commercial and industrial	GLM	PetroSA disposal records
	C&DW	DEADP	IPWIS records. Based on visual estimates.

Local Municipality	Waste records	Source	Comments
	Green waste	DEADP	IPWIS records
	Recycling	GLM	Records from recycling service provider
Hessequa	Domestic/ commercial and industrial	DEADP	IPWIS records. Based on visual estimates
	C&DW	DEADP	IPWIS records. Based on visual estimates
	Green waste	DEADP	IPWIS records. Based on visual estimates
	Recycling	HLM	Records from recycling service provider
Kannaland	Domestic/ commercial and industrial	DEADP	IPWIS records. Based on visual estimates
	C&DW	DEADP	IPWIS records. Based on visual estimates
	Green waste	DEADP	IPWIS records. Based on visual estimates
	Recycling	Private sector	Records from recycling company
Knysna	Domestic/ commercial and industrial	DEADP	IPWIS records. Based on visual estimates
	C&DW	KLM	Records from Simola facility. Based on visual estimates
	Green waste	DEADP	IPWIS records. Based on visual estimates
	Recycling	Private sector	Records from recycling company
Mossel Bay	Domestic/ commercial and industrial	DEADP	IPWIS records. Based on visual estimates
	C&DW	DEADP	IPWIS records. Based on visual estimates
	Green waste	DEADP	IPWIS records. Based on visual estimates
	Recycling	MBLM	Records from recycling company
Oudtshoorn	Domestic/ commercial and industrial	DEADP	OLM records – only for a 4 month period for Grootkop landfill site in 2019
	C&DW	DEADP	OLM records – only for a 4 month period for Grootkop landfill site in 2019
	Green waste	DEADP	OLM records – only for a 4 month period for Grootkop landfill site in 2019
	Recycling	MBLM	Records from recycling company

The following must be noted when reviewing waste data:

- None of the municipal landfill sites have weighbridges. Records of waste disposal at the municipal landfill sites are all based on visual estimates
- The landfill site disposal records for OLM are not captured electronically
- There are gaps in records for KLLM as not all landfill sites are manned at all time. Some waste entering these landfill sites is not recorded
- Waste tonnages for OLM, KLLM and GLM may be under represented due to a lack of recording of waste entering some landfill sites
- C&DW entering general waste landfill sites which is used as cover material is not recorded as re-use it is recorded under disposal
- The category municipal waste includes domestic waste and commercial and industrial waste in BLM, KLM, MBLM and OLM.

Table 15: 2019/ 2020 waste disposal records (source, DEA&DP, local municipalities)

Municipality	Waste stream (tonnes/ annum)				
	Green waste	Construction and demolition	Municipal waste	Commercial and Industrial	Total
Bitou	571.21	4,821.96*	8,635.9	-	**14,029.1**
George	9,353.4	4,868.1	39,888.18	4,983.6	**59,093.3**
Hessequa	4,312.1	6,841.5	9,901.3	948.8	**22,003.7**
Kannaland	304.8	136.8	698.4	451.2	**1,591.2**
Knysna	970.3	6,000.0*	11,420.8	-	**18,391.1**
Mossel Bay	7507.0	35,217.0	28,410	-	**71,134**
Oudtshoorn	928.0	3,329.0	16,621	-	**20,878**
Total	**23,946.8**	**61,214.4**	**115,575.58**	**6,383.6**	**207,120.4**

*C&DW is used for rehabilitation of a quarry in BLM and construction of a platform for composting in KLM. This is considered as re-use.

In excess of 207,120.4 tonnes of waste is recorded as being disposed of in the GRDM per annum. The majority of waste being disposed of is domestic/ commercial and industrial waste. The tonnage information per waste category was provided by the local municipalities and gaps or anomalies are noticeable from the information. This is mainly due to lack of waste information management and recording at municipalities.

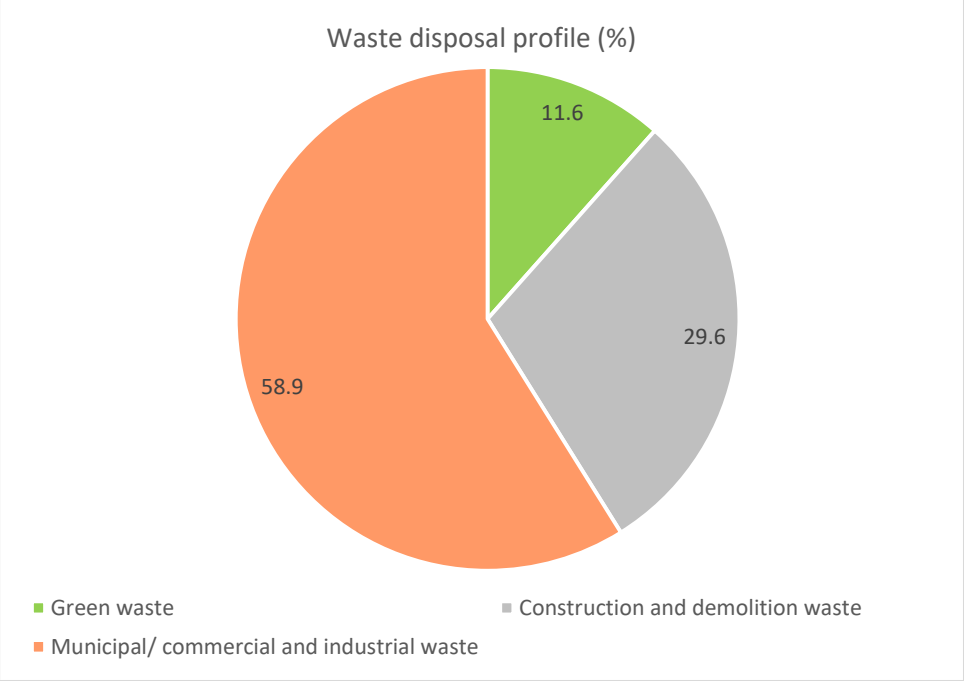


Figure 8: Waste disposal profile (%) by mass

7.1.2 Hypothetical Domestic Waste Generation

The table below provides the estimates of waste generation in the GRDM over a five and ten year period. The waste generation rates have been estimated based on historic and anticipated population growth. An estimated 110,858 tonnes of domestic waste was generated in the GRDM in 2019. As the population of the district increases so will waste generation. An estimated 132,289 tonnes will be generated in 2029 (GRDM, 2020).

Table 16: Future domestic waste generation rates within the GRDM (GRDM, 2020)

Year	Population	Population growth rate/ annum (based on 2001 – 2011 growth rate)	Projection of waste generation quantities based on population (tonnes/ annum)
Bitou Local Municipality			
2019	62,369	3.77%	11,106.57
2024	80,952		14,415.79
2029	105,071		18,710.43
George Local Municipality			
2019	217,054	1.38%	38,543.00
2024	236,409		39,793.00
2029	243,440		43,228.00
Hessequa Local Municipality			
2019	66,171	1.78%	12,243.20
2024	79,624		14,732.90
2029	79,624		14,7932.90
Kannaland Local Municipality			
2019	24,207	0.05%	4,013.00
2024	24,273		4,024.00
2029	24,340		4,035.00
Knysna Local Municipality			
2019	73,835	0.215%	13,723.36
2024	74,610		13,867.46
2029	75,400		14,014.30
Mossel Bay Local Municipality			
2019	96,120	0.70%	17,156.00
2024	99,560		17,770.00
2029	103,109		18,403.00
Oudtshoorn Local Municipality			
2019	101,991	1.25%	18,361.80
2024	107,806		19,541.80
2029	114,059		20,798.70
GRDM TOTAL			
2019	635,600	1.14%	110,858.00
2024	694,323		121,101.00
2029	758,472		132,289.00

7.1.3 Waste Profile

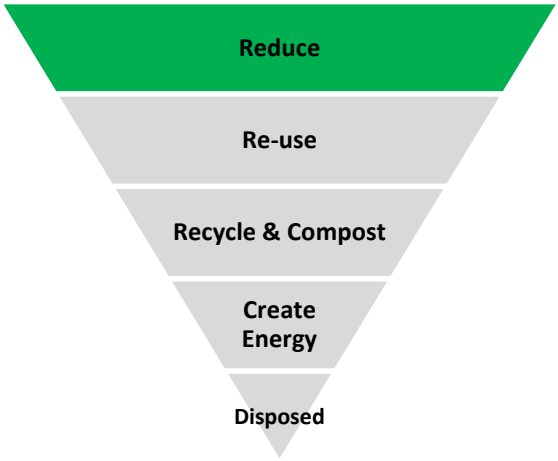
Domestic waste characterisations of the seven local municipalities were undertaken between 2015 and 2019. In total 20.5 tonnes of domestic and business waste were characterised. The waste characterisation exercise was conducted on waste going to landfill but excluded the recyclable waste portion that was separated at source through the two-bag system. The recyclable waste portion of the waste characterisation exercise is therefore slightly underrepresented. The results below are the average across the GRDM. Note, due to a lack of accurate waste disposal records for KLLM, OLM and HLM the hypothetical domestic waste generation rate (refer to Table 15) for 2019 is used.

Table 17: Waste profile for GRDM (source: GRDM, 2020)

Waste type	% of total	Tonnes of waste generated
Soft plastics	7.6%	11,825.7
Hard plastics	7.7%	11,981.3
Paper	7.1%	11,047.7
Cardboard	7.3%	11,358.9
Glass	8.0%	12,448.1
Metal	3.2%	4,979.2
Recyclables sub-total	***40.9%***	**63,641.0**
Food waste	25.0%	38,900.4
Garden waste	9.0%	14,004.1
Wood	0.9%	1,400.4
Organics sub-total	***34.9%***	**54,304.9**
E-waste	0.4%	622.4
Hazardous	0.5%	778.0
HHW sub-total	***0.9%***	**1,400.4**
Textiles	4.7%	7,313.3
Inert	1.1%	1,711.6
Nappies	7.8%	12,136.9
Rest	9.6%	14,937.7
Total	**100.0%**	**155,445.9**

On average 40.9% of the domestic and business waste stream in the GRDM is composed of mainstream recyclables (paper, plastic, cardboard, glass, metal), a further 34.9% is organic waste. It should be noted that the wood waste typically found in the domestic waste stream is treated, varnished or painted. As such, it is not suitable for composting.

7.2 Reduce

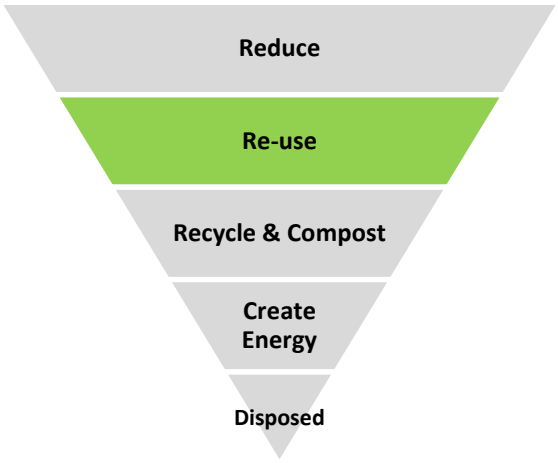


Waste reduction is the aspiration of the waste hierarchy, but is largely beyond the control of a local or district municipality.

Waste reduction can be practiced by industry through streamlining manufacturing processes to reduce wastage.

The public can reduce waste generation through steps such as sayings no to single use plastics such as drinking straws and minimising food waste in the home through meal planning. The GRDM can encourage waste reduction through targeted waste awareness campaigns and education.

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 construction and demolition waste (C&DW). Clean (uncontaminated) C&DW can be utilised as fill material for construction projects.

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

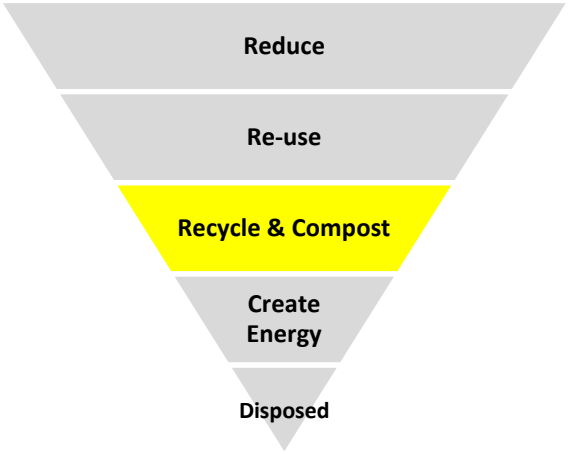
Table 18: Construction and demolition waste management methods

Municipality	Management method	Comments
Bitou	Disposal at KK Sands Small volumes received at the Plettenberg Bay transfer station	Construction and demolition waste is used to rehabilitate an old quarry. The C&DW is mixed C&DW such as builders' rubble, sand mixed with used cement and bricks, and inert waste from large construction projects. A small portion of plastic, paper and green waste may be mixed with the C&DW.
George	Disposal at the George and Uniondale landfill site	Clean C&DW was used to construct platforms for a composting facility adjacent to the landfill site. Clean C&DW is being stockpiled for use in phase 2 of the construction of the composting facility
Hessequa	Disposal at municipal landfill sites	C&DW used as cover material at Steynskloof and Droëkloof.
Kannaland	Stockpiled and used as cover material at landfill sites	Clean C&DW has been transported from Calitzdorp to Ladismith landfill site for use as cover material.
Knysna	Used as fill material at the Simola facility Received at the Sedgefield builder's rubble and green waste	C&DW is used to construct a platform at the Simola facility. C&DW received at the Sedgefield transfer station is removed by a service provider to the Simola facility and

Municipality	Management method	Comments
	transfer station.	used for the construction of a platform.
Mossel Bay	Disposal at Great Brak landfill site	-
Oudtshoorn	Disposal at Grootkop, De Rust and Dysselsdorp landfill sites	Clean C&DW used a cover material at all landfill sites Clean C&DW used to construct a berm at Grootkop Surplus C&DW stockpiled for rehabilitation at De Rust and Dysselsdorp landfill sites

All C&DW entering the municipal landfill sites in the GRDM is recorded as disposal. The volume of waste re-used as cover material, for rehabilitation or construction purposes is not recorded.

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 of 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 are 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. The items which waste is exchanged for generally exceed the value of the waste itself. As such, swop-shops typically need to be subsidised to remain operational. Swop-shops are more of a social development initiative than a mechanism to divert large volumes of waste from landfill.

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 – 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.

(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, 55% in 10 years and 70% within 15 years leading to zero waste going to landfill - NWMS, 2020 (DEFF, 2020)
- All local authorities to include provisions for recycling drop-off/ buy-back/ storage centres in 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 2020 GRDM IWMP identified the following projects related to waste minimisation:

- Finalise the district waste minimisation strategy
- Assist KLLM and OLM to roll out pilot separation at source programmes

(c) Domestic Waste Available for Recycling

Waste characterisation exercises were undertaken by the Eden District Municipality (now GRDM) and local municipalities between 2015 and 2019. The table below presents the results of the waste characterisation exercises. These results were used to determine the hypothetical availability of recyclable materials in the domestic waste stream. In the GRDM domestic waste stream approximately 56,076.4 tonnes of recyclable material is generated per annum.

Additional recyclable material will be generated through business and industry. A small portion of waste was taken from business and industry for the waste characterisation exercise, but majority of waste was taken from households. The profile of business and industry waste is therefore unknown. The tonnage of waste generated by business and industry is recorded inaccurately in the GRDM, therefore the tonnages of recyclables cannot be calculated as well.

Table 19: Recyclable waste profile for GRDM (source: GRDM, 2020)

Waste type	% of total	Tonnes of waste generated
Soft plastics	7.6%	11,825.7
Hard plastics	7.7%	11,981.3
Paper	7.1%	11,047.7
Cardboard	7.3%	11,358.9
Glass	8.0%	12,448.1
Metal	3.2%	4,979.2
Total	***40.9%***	**63,641.0**

On average 40.9% of the domestic and business waste stream in the GRDM is composed of mainstream recyclables (paper, plastic, cardboard, glass, metal), a further 34.9% is organic waste.

An estimated 63,641 tonnes of recyclable material is available in the domestic waste stream per annum.

(d) Recycling Records

The table below detail recycling records for the seven local municipalities. In excess of 20,551 tonnes of material was collected for recycling in 2018/19.

Table 20: Recycling records (tonnes per annum)

Municipality	Municipal recycling service provider	Other private companies	Total	% of total material recycled in GRDM	Comments
Bitou	603.16	-	603.16	2.9%	2019 records
George	6,884.8	4,808.4	11,693.2	56.9%	2019 records
Hessequa	1,361.2	137.9	1,499.1	7.3%	2019 records
Kannaland	-	52.8	52.8	0.3%	2019 records. No municipal recycling programmes
Knysna	804.6	-	804.6	3.9%	
Mossel Bay	2,831.0	473.9	3,304.9	16.1%	2019 records
Oudtshoorn	-	2,593.7	2,593.7	12.6%	2018 - 2019 records. No municipal recycling programmes
Total	**12,484.8**	**8,066.7**	**20,551.5**	**100.0%**	**-**

The different recycling programmes undertaken in the GRDM are detailed in the following sections.

(e) Diversion of Recyclable Material from Landfill

The diversion rate of mainstream recyclables (paper, cardboard, glass, metal and plastic) was calculated from the available data namely:

- Waste disposal records for domestic and commercial and industrial waste
- Hypothetical domestic waste generation rates

- Recycling data supplied by the local municipalities and private companies

The calculated diversion rate of available recyclable waste of the domestic waste stream ranges from 2.6% in the KLLM to 53.8% in the GLM. In the GRDM, 35.4% of available recyclable material is collected for recycling. The remaining 64.6% of recyclable waste in the domestic waste stream is disposed at landfill.

Table 21: Estimated diversion rates and percentage for recyclable material

Municipality	Domestic & commercial and industrial waste disposal (tonnes)	Recyclables collected (tonnes)	Total waste (tonnes)	Recyclable material in the waste stream (tonnes)	Diversion rate of available recyclable material (%)	Diversion rate of total waste stream (%)
Bitou	8,635.9	603.2	9,239.1	4,809.4	12.5	6.5
George	44,871.8	11,693.2	56,565.	21,721.0	53.8	20.7
Hessequa	12,243.2	1,499.1	13,742.	4,579.0	32.7	10.9
Kannaland	4,013.0	52.8	4,065.8	2,015.6	2.6	1.3
Knysna	11,420.8	804.6	12,225.	5,977.0	13.5	6.6
Mossel Bay	28,410.0	3,304.9	31,714.	12,131.1	27.2	10.4
Oudtshoornn	18,361.8	2,593.7	20,955.	6,757.1	38.4	12.4
Total	**127,956.5**	**20,551.5**	**148,507**	**57,990.2**	**35.4**	**13.8**

The DEADP has set a target of 20% diversion of recyclable waste that municipalities should achieve by 2019. Based on the data available the GLM, HLM, MBLM, OLM and the GRDM have achieved this target of diverting more than 20% of the recyclable waste generated in the municipality.

(f) Separation at source programmes

Five of the seven municipalities have separation at source programmes in place where source separated recyclables are collected using a kerbside collection programme

Table 22: Kerbside separation at source programmes

Municipality	Municipal separation at source programme	Description	Estimated participation rate
Bitou	**Yes**	Yellow bags for recyclable waste are made available at 3 central points in the municipality for residents to collect. These are at the Pletternberg Bay transfer station, the Community Services and the Environmental Management offices. Residents are allowed to collect 40 empty bags at a time and to use for the S@S until these are completed. Full bags are collected by the service provider, co-operatives and municipal trucks. Sorting occurs at the service providers facility. Yellow bags are collected weekly. The municipality plans to have the yellow bags distributed by the service provider and ensure that for each bag of recyclables that is collected, an empty yellow bag is given to the household.	High income areas – 80% Low income areas – 10%

Municipality	Municipal separation at source programme	Description	Estimated participation rate
George	**Yes**	The blue-bag system has been rolled out throughout George, in the high to medium income areas. The blue bag system was tested and subsequently ceased in the low-income areas due to low participation rates. Two empty blue bags for recyclable waste and two green bags for green waste are provided to each household on a quarterly basis. For each bag of recyclable or green waste collected, an empty blue or green bag is given to the household. The municipality is not able to quantify the participation rate in the separation at source program. Blue and green bags are collected weekly.	High income areas can reach 60% Middle income areas - can vary between 10 – 20%.
Hessequa	**Yes**	Residents are provided with clear bags by the appointed service provider, the clear bags can also be collected by the public from the municipal offices. For each bag of recyclable waste collected, an empty clear bag is given to the household. Clear bags are collected weekly.	High income areas – 73% Low income areas – 17%
Kannaland	**No**	A pilot programme was launched and ran for 1 month. The programme stopped due to the COVID-19 pandemic.	-
Knysna	**Yes**	The KLM's S@S programme is a hybrid programme involving both the KLM and a contracted service provider. The KLM undertakes the collection of source separated recyclables then transports the bags to the Knysna Recycling Depot. The clear bags can be collected by the public from the waste management department in Knysna or municipal offices in Sedgefield. Blue bags are used for green waste, however these needs to be purchased by the residents at the municipality's customer care department. Clear bags and blue bags are collected weekly. The municipality has readvertised the S&S programme tender and the collection of the recyclable waste will form part of the service provider's scope of works in the new contract.	Participation in high income area ranges from 50 – 80%. Low participation in low income areas. No collection from informal areas.
Mossel Bay	**Yes**	Residents are provided with thirteen blue, thirteen green and thirteen black bags on a quarterly basis by the service provider for recycling, green waste and domestic waste respectively.	50% of households in areas covered by the blue bag system participate in the programme
Oudtshoorn	**No**	-	-

Table 23: Bags used for separation at source

Municipality	Bag colour used for recycling	Bag colour used for green waste
Bitou	Yellow bags	None
George	Blue bags	Green bags
Hessequa	Clear bags	Red bags
Kannaland	None	None
Knysna	Clear bags	Blue bags
Mossel Bay	Blue bags	Green bags

Municipality	Bag colour used for recycling	Bag colour used for green waste
Oudtshoorn	None	None

The two most commonly used colour bags for recycling are blue and clear bags.

Figure 9: A & B The private recycling company's depot in Riversdale where recyclables collected are further separated and baled, C&D Sedgefield and Knysna Recycling depots where recyclables collected through the 2 bag programme are taken for sorting.

(g) Recycling Drop-Off Facilities

Recycling drop-off facilities are facilities where the public can drop-off source separated recyclables. They can be used in areas not covered by a kerbside separating at source programme. Recycling drop-off facilities can assist municipalities to provide an enabling environment for recycling which is required in terms of the National Domestic Waste Collection Standards (DEA, 2011).

Table 24: Details of municipal recycling drop-off facilities

Municipality	Recycling drop-off facilities	Details
Bitou	**Yes**	Nine (9) municipal recycling drop-off facilities. The facilities are provided by the municipality and recyclables are collected by the S@S service provider. The facilities consist of different coloured labelled igloos for mainstream recyclables.
George	**Yes**	Recycling drop-off facilities at the George MRF and Uniondale transfer station (not yet operational).
Hessequa	**No**	There are no formal municipal recycling drop-off facilities for general waste within the HLM. The public can however drop-off source separated recyclables at mini-drop off facilities in the towns

Municipality	Recycling drop-off facilities	Details
		and at the municipal landfill sites in Gouritsrivier, Witsand and Jongensfontein.
Kannaland	**No**	The KLLM has no municipal drop-off facilities for recycling.
Knysna	**Yes**	The public can drop-off recyclables at the Knysna and Sedgefield recycling depots. The KLM is planning on upgrading the two facilities.
Mossel Bay	**Yes**	The MBLM has drop-off facilities for recycling at the two existing transfer stations; the KwaNonqaba transfer station and the Sonskynvallei transfer station.
Oudtshoorn	**No**	There are no dedicated municipal recycling drop-off facilities in OLM. The public can drop-off recyclables with a private recycler, Retain, Recycle, Reuse in Oudtshoorn.

Figure 10: Recycling drop-off facilities. A. Plettenberg Bay transfer station in Bitou LM, B. Uniondale transfer station with recycling drop-off facilities in George LM

(h) Swop Shops and Buy Back Centres

Swop shops are facilities where the community can exchange recyclables for coupons or food items or groceries. At present only the MBLM and KLM have swop shops in operation. There are currently three operational swop shops in KLM and MBLM provides financial support to two swop shops which are operated privately. The tonnage of waste collected from swop-shops is not available as standalone data for KLM or MBLM. The data is reported as part of the municipal recycling programme. Without this data the success of swop shops cannot be determined.

Table 25: Details of municipal/ municipal supported swop-shops/ buy-back centres

Municipality	Recycling drop-off facilities	Details
Bitou	**No**	There are no municipal swop shops within the BLM. The BLM plans to establish swop shops in Crags-Kurland and Qolweni/Bossiesgif areas.
George	**No**	There are currently no municipal swop shops or buy back centres in the GLM. One of the projects set out in the 3rd Generation IWMP was to develop pilot swop shops/buy back centres. Low income area, Thembalethu, has been earmarked for the development of a pilot buy back centre.
Hessequa	**No**	There are currently no municipal swop shops and buy back centres in the HLM.
Kannaland	**No**	The KLLM has no municipal swop shops/ buy-back centres.

Municipality	Recycling drop-off facilities	Details
Knysna	**Yes**	The KLM currently supports three operational swop shops. Smuttsville swop shop is located at the Smuttsville Primary School, and the other two are located in Rheenendal and Khulani.
Mossel Bay	**Yes**	The MBLM provides support to two swop shops. The two swop-shops are operated privately with financial support from MLBM. One is located in Barcelona, KwaNonqaba and the second is located at the Great Brak River primary school. The swop shops were not operated since January 2020 due to lack of supplies from the MBLM and the COVID-19 pandemic and the national lockdown that commenced from March 2020.
Oudtshoorn	**No**	The OLM has no municipal swop shops or buy back centres in operation.

(i) In-house Recycling Programme

In-house recycling is underway in the GRDM offices and all local municipalities except for the OLM. The OLM office cleaner informally collects recyclables and sells them to a local recycling company. There are no records available for the KLLM. Data for recycling programme in the other five local municipalities is reported with the data from the municipal recycling programmes. The absence of a separate data set for waste collected through the in-house recycling programme make it impossible to determine the success of the in-house recycling programmes in the local municipalities.

The GRDM keeps monthly records of waste collected for recycling. Recycling bins are available at GRDM offices. Each GRDM office has a champion who is responsible for management of the programme and collection of data.

The following GRDM offices participate in the in-house recycling:

- Mossel Bay
- Riversdale
- Oudtshoorn
- Plettenberg Bay
- Knysna
- Community Services (George)
- Roads (George, Riversdale and Oudtshoorn report collectively)
- Stores (George, Riversdale and Oudtshoorn)
- Head Office (George)

Table 26: GRDM in-house recycling records January 2018 - 2021

Year	Waste collected (tonnes)	Average per month (tonnes)
2018	32.6	2.7
2019	23.0	1.9
2020	3.9	0.3
2021*	4.3	0.4

*only data for January – July 2021 is available.

The most recyclable waste was collected through the in-house recycling programme in 2018 and 2019. A smaller volume was collected in 2020, this is due to offices being closed or a reduced staff compliment due to the COVID-19 pandemic lockdown. The 2021 records are only available up until March.

The total waste collected for recycling decreased from April to August 2020. This is due to the COVID-19 lockdown and a reduced number of employees in the GRDM offices. The tonnages increase from September 2020 onwards.

Figure 11: Recycling bins at the GRDM offices

(j) Private Recycling and Waste Minimisation

Private recycling companies operate across the GRDM, in some cases recycling companies operate across several local municipalities and recyclables generated in a local municipality are collected by a company operating outside the municipal boundary.

Some large supermarket chains undertake waste recycling in-house. Packaging material is bailed and transported back to warehouses using empty delivery trucks. This waste is then sold onto the recycling industry.

Figure 12: Plastic, cardboard and baled scrap metal at a retail shop (left) and scrap metal business (right)

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

The 2020 NWMS requires a 10% reduction in hazardous waste to general waste landfill sites.

(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.

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 GRDM. An estimated 1,400.1 tonnes of HHW are generated per annum in the GRDM.

Table 27: Domestic waste characterisation – household hazardous waste results (GRDM, 2020)

Waste type	Examples	% of total domestic waste stream	Total in domestic waste stream (tonnes/ annum)
E-waste	Electrical or battery operated objects	0.4%	622.4
Hazardous	Paints, resins, glue, fluorescent tubes,	0.5%	778.0

Waste type	Examples	% of total domestic waste stream	Total in domestic waste stream (tonnes/ annum)
waste	batteries, pesticides, asbestos		
Total per annum (tonnes)-			**1,400.4**
Total per month (tonnes)-			**116.7**

Based on the results of the domestic waste characterisation a small portion (0.9%) of the domestic waste stream is composed of hazardous waste.

In 2019 an estimated 155,445.9 tonnes (GRDM, 2020) of domestic waste was generated in the GRDM. If, 0.9% of this waste was composed of HHW, then 1,400.4 tonnes of HHW was generated in the GRDM in 2019. A large portion of this HHW is most likely co-disposed of by the public in black bags and ends up at the municipal landfill sites.

(e) Household Hazardous Waste Drop-Off Facilities

Four of the seven local municipalities have HHW drop-off facilities. Only the MBLM facilities are well used. The MBLM also hosts regular HHW open days, HHW can the dropped off at select municipal offices during the open days.

Table 28: Municipal HHW drop-off facilities

Municipality	HHW drop-off facilities	Details
Bitou	**Yes**	A container for HHW at the Plettenberg Bay transfer station
George	**No**	A container for used oil recycling was provided to the municipality but is used for storage at the George transfer station rather than oil recycling.
Hessequa	**Yes**	Drop-off facilities for used oil at Steynskloof and Melkhoutfontein landfill sites. These are vandalised and not well used.
Kannaland	**No**	-
Knysna	**Yes**	A container for e-waste and a used oil container at the Knysna transfer station. The facilities are not well used.
Mossel Bay	**Yes**	KwaNonqaba and Sonskynvallei transfer stations –e-waste and used oil Great Brak landfill site – e-waste.
Oudtshoorn	**No**	The municipality was provided with a used oil recycling container, but it was used as a security office at the Grootkop landfill rather than oil recycling.

Figure 13: A drop-off facility for used oil at the Melkhoutfontein landfill site in HLM

7.4.3 Financial Costs Associated with Recycling

All the municipalities excluding the OLM and the KLLM use a service provider to assist with the municipal recycling programmes. The service providers are paid a fee to provide the various levels of service. The MBLM pays the service provider a fixed rate per tonne of material collected for recycling. The other municipalities pay a fixed monthly rate. The cost per tonne was calculated based on the average tonnes collected through the municipal recycling programme. The MBLM pays the lowest costs per tonne (R650.00/ tonne) which is significantly lower than the cost paid by the BLM (R1,523.75/ tonne).

Table 29: Financial costs of municipal recycling programmes

Municipality	Annual cost	Cost per tonne
Bitou	R1,450,000.00	R1,523.75
George	R5,220,000.00	R758.24
Hessequa	R1,124,161.80	R826.10
Kannaland	N/A	N/A
Knysna	R540,000.00	R671.14
Mossel Bay		R650
Oudtshoorn	N/A	N/A

7.4.4 Composting

(a) Definitions

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

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 of 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 targets related to organic waste minimisation need to be noted:

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

(c) Organic Waste Generation

In excess of 224,212.01 tonnes per annum of organic waste is generated in the GRDM. The data presented below is based on data provided by DEADP, an organic waste characterisation

study conducted by the USAID for the GRDM, local municipalities and data collected through the business waste survey.

Table 30: Organic waste profile for GRDM

Municipality	Waste type	Source	Percentage of total domestic waste stream by mass (%)	Amount of waste type (tonnes/annum)
All	Food waste (domestic waste stream, found in black bags)	Eden District Municipality, 2016 and GRDM 2020	25.0%	38,861.5
All	Garden waste (domestic waste stream, found in black bags)		9%	13,990.1
All	Wood waste (domestic waste stream, found in black bags)		0.9	1,399.0
Bitou	Organic waste (green waste, received at landfill sites in 2019)	BLM records	N/A	571.21
Bitou	Sawmills	USAID	N/A	736.00
George	Organic waste (green waste, received at landfill sites in 2019)	GLM records	N/A	12,210.4
George	Sawmills	USAID	N/A	59,023
George	Abattoir	USAID	N/A	1,559
Hessequa	Organic waste (green waste, wood mill waste, received at landfill sites in 2019)	HLM records	N/A	4,329.3
Hessequa	Sawmill wood waste	HLM Business waste survey	N/A	7,368
Hessequa	Abattoir	USAID	N/A	2,096
Kannaland	Organic waste (green waste, received at landfill sites in 2019)	KLLM records	N/A	254.0
Knysna	Organic waste (green waste, received at landfill site in 2019)	KLM records	N/A	842.0
Knysna	Sawmills	USAID	N/A	59,171
Knysna	Abattoir	USAID	N/A	68
Mossel Bay	Organic waste (green waste, received at landfill sites in 2019)	MBLM records	N/A	9,233.1
Mossel Bay	Abattoir	USAID	N/A	624.4
Oudtshoorn	Organic waste (green waste, received at landfill sites in 2019)	OLM records	N/A	--
Oudtshoorn	Sawmills	USAID	N/A	9,697
Oudtshoorn	Abattoir	USAID	N/A	2,179
	Total			**224,212.01**

It should be noted that the estimation is not considered a true reflection of the amount of organic waste generated due to the following:

- None of the municipal landfill sites have weighbridges, waste quantities are estimated.
- Not all landfill sites have gate controllers to record incoming waste
- Data from the business survey has been included, only a small number of businesses responded to the survey or were interviewed. The data used is therefore not an accurate representation of organic waste generated by business and industry in the GRDM
- Data from the USAID study regarding the organic waste characterisation for the GRDM is based on a business survey and only a small number of businesses from industry responded to the survey or were interviewed. The data used from this study is therefore not an accurate representation of organic waste types generated by business and industry in the GRDM
- Some organic waste is currently diverted from landfill for composting.

(d) Management of Organic Waste

None of the municipalities have bulk composting facilities in operation. Small scale composting occurs at the Sedgefield transfer station and at the Hartenbos WWTW in MBLM. The majority of green waste is transported to municipal landfill sites.

Table 31: Current management methods for municipal green waste

Municipality	Details
Bitou	There is a licensed composting facility located at the Plettenberg Bay 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 municipality indicated that not all green waste chipped at the transfer station is collected by farmers and the public and that chipped green waste is accumulating at the transfer station.
George	Disposal of organic waste in the GLM is undertaken at the George (Gwaing) and Uniondale landfill sites. The two landfill sites were issued with closure licences for closure to commence in the 2019/2020 financial year and 2024 respectively. Closure of the George landfill site is due to commence within August 2022. Green waste is currently stockpiled at the George landfill site and will be transferred to the composting facility that has been recently been constructed adjacent to the George landfill once the facility has been commissioned and starts to operate.
Hessequa	The HLM currently has no municipal composting facilities. Green waste is accepted at all the operational municipal landfill sites. There are two privately owned composting facilities located in Albertinia and Riversdale. The facility in Riversdale is however not yet operational. The operational facility in Albertinia mainly accepts waste from timber mills and abattoirs and not green waste.
Kannaland	There are no composting facilities in the KLLM. Green waste is accepted at all of the operational landfill sites. Organic waste (sewage sludge) from the Ladismith wastewater treatment works (WWTW) is dried and disposed at the Ladismith landfill. Organic waste from farms and distilleries in the KLLM (dried grape skins and wood) are reused by farmers in the region.
Knysna	The majority of green waste generated in the KLM is disposed of at the Old Place landfill site. The Old Place landfill site is licensed for closure, with the variation WML requiring closure to commence by 15 January 2025. Green waste is chipped at the Sedgefield transfer station and collected by the public and farmers. Small scale composting is also occurring at the Sedgefield transfer station. There are no records for the volume of green waste diverted from landfill.
Mossel Bay	Landfill disposal at municipal landfill sites – Louis Fourie and Great Brak A farmer collects chipped green waste from Louis Fourie landfill site. All green waste disposed at the municipal landfill sites is chipped and collected by a farmer. There is no formal agreement in place and should the farmer stop collecting the chipped green waste the municipality has no alternative for the diversion of this green waste from landfill. Pilot composting programme at Hartenbos WWTW – wood chips from sawmill and sewage sludge
Oudtshoorn	The majority of the organic waste disposed of at landfill in the OLM goes to the Grootkop landfill site.

Table 32: Composting in the GRDM

Site name/ location	Owner	Material composted	Comments
Bitou			
Bitou composting facility, Plettenberg Bay integrated waste management facility	BLM	None at present	Chipping of green waste occurs at the municipal composting site. No composting is occurring at present. The BLM is planning on outsourcing composting when budget is available.
Melton Farms composting facility	Private	Wood waste generated from his own sawmill i.e. wood chips, sawdust etc.	Composted for own agricultural use on farm.
George			
George	GLM	Garden waste	The GLM has constructed the first phase of the composting facility adjacent to the George transfer station. The facility is not yet operational.
Go Green Mushroom composting	Private	Wood chips and saw dust from sawmills	The facility is currently only licensed to accept waste from sawmills. An amendment to the license would be required to allow the facility to accept garden waste.
Norga Nursery on the airport road	Private	-	Windrow composting of organic waste. Organic waste source and details unknown.
Dairy farm on N2 close to airport	Private	-	Composting was earmarked to be conducted on the dairy farm.
Hessequa			
SS Transport Composting facility	Private	Abattoirs waste including blood, wood chips, bark and saw dust from sawmills and sewage sludge	
Riversdale Piggery Composting Facility	Private	N/A	The composting facility is not yet operational.
Knysna			
Sedgefield composting and builders rubble treatment and disposal facility	KLM	Green waste	Small scale composting of green waste occurs at the facility. The compost is collected by the public.
Simola composting facility	Private	None at present	Platforms for a composting facility are currently being constructed from C&DW at the Simola facility.
Mossel Bay			
Hartenbos pilot composting facility	MBLM	Sewage sludge and wood chips	The site is a pilot project. The MBLM is planning on developing a regional composting facility at the Hartenbos WWTW

7.4.5 Home Composting Programme

The GRDM in conjunction with the local municipalities has launched pilot home composting programmes. The programme is trialling the use of compost containers, worm farms and compost heaps to divert organic waste from landfill. A newspaper advert was placed in a local newspaper inviting households to register to take part in the programme. The GRDM provided participating households with composting containers, worm farms, worms, electronic hanging scales to weigh organic waste, datasheets to record quantities of organic waste composted and composting guidelines. The GRDM also provided the participating households with training before the commencement of the project. The composting programme was extended to schools in the MBLM and the GRDM provided training to these schools.

The LMs and the GRDM manage the data collection and capturing for the project. Households reported data to the LMs and the GRDM on a monthly basis over a 12-month period for the mass of organic waste diverted from black bags or landfill.

The KLLM programme was recently launched and no data is yet available. The average household monthly diversion rate of organic waste ranges from 13.3kg in Hessequa to 41.2kg in Bitou.

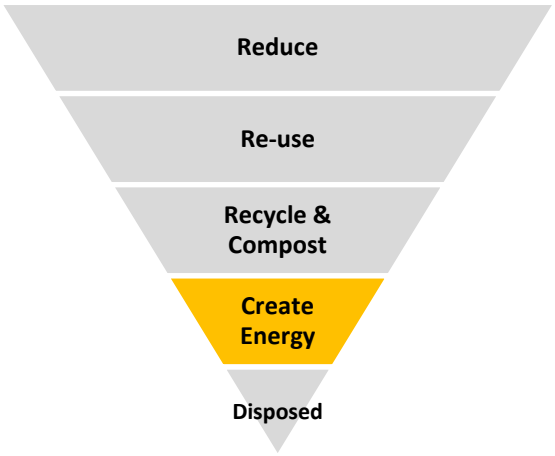
Table 33: Details of home composting programme

Municipality	No. households in programme	Average kg of waste diverted per household/ month
Bitou	25	46.1kg
George	45	18.8kg
Hessequa	22	13.3kg
Kannaland	No data was collected and is available fo the KLLM.	
Knysna	23	25.3kg
Mossel Bay	35	26.0kg
Oudtshoorn*	29	27.0kg

*OLM data based on 3 months of data as the pilot programme is not yet complete.

On 01 July 2021 the home composting programme was extended to thirteen GRDM offices. Thirteen employees received a compost bin and worm farm. These employees attended a training session on how to use the equipment and how to record data. The mass of organic waste diverted from these households were not available yet.

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.

7.5.1 Legislative Targets to Create Energy from Waste

The 2020 NWMS does not contain any targets for local municipalities related to creation of energy from organic waste. Under pillar 1, waste minimisation the NWMS has several actions related to recovery of energy from organic waste.

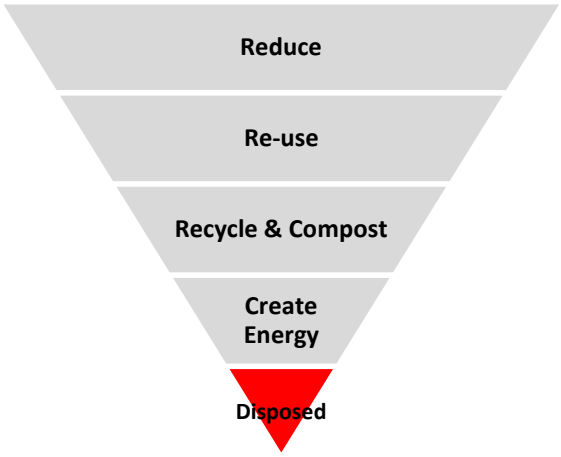
(a) Definitions

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

Waste to Energy – the process of generating energy in the form of electricity and/or heat from the primary treatment of waste, or the processing of waste into a fuel source (DEFF, 2020)

Refuse derived fuel –a fuel produced from various types of waste such as municipal solid waste, industrial waste or commercial waste

7.6 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 will continue to be one of the management methods used in the GRDM and across South Africa in the long term. While the disposal of waste to landfill at the GRDM regional landfill site is unavoidable, the local municipalities and GRDM 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.

The GRDM is in the planning stages of developing a regional landfill site which will accept waste from the MBLM, KLM, GLM, BLM and eventually the HLM.

Table 34: Operational landfill sites

Landfill site name	Waste accepted	Closure data (WML)
Bitou LM		
Harkerville disposal facility (KK Sands)	Uncontaminated C&DW	License valid until 20 March 2027
George LM		
George landfill site	Garden waste and C&DW	Decommissioning must commence by November 2024 and be complete by November 2029
Uniondale landfill site	Domestic, commercial and industrial waste, C&DW and green waste.	Closure due to commence by 2024.
Hessequa LM		
Albertina landfill site	C&DW and green waste. There is a drop-off facility in the site for domestic waste.	License is valid until airspace capacity is reached. At a medium compaction density airspace will be consumed by 2032.
Heidelberg landfill site	C&DW, green waste, domestic and commercial and industrial waste.	License is valid until airspace capacity is reached. At a medium compaction density airspace will be consumed by 2045.
Gouritzmond landfill site	C&DW and green waste. There is a drop-off facility in the site for domestic waste.	License is valid until airspace capacity is reached. At a medium compaction density airspace will be consumed by 2029.
Melkhoutfontein landfill site	C&DW and green waste. There is a drop-off facility in the site for domestic waste.	License is valid until airspace capacity is reached. At a medium compaction density airspace will be consumed by 2049.
Slangrivier landfill site	C&DW and green waste. There is a drop-off facility in the site for domestic waste.	License is valid until airspace capacity is reached. At a medium compaction density airspace will be consumed by 2028.
Steynskloof landfill site	C&DW, green waste, domestic and commercial and industrial waste.	License is valid until airspace capacity is reached. At a medium compaction density airspace will be consumed by 2048.
Witsand landfill site	C&DW and green waste. There is a drop-off facility in the site for domestic waste.	License is valid until airspace capacity is reached. At a medium compaction density airspace will be consumed by 2065.
Kannaland LM		
Ladismith landfill site	C&DW, green waste, domestic and commercial and industrial waste.	Unknown – the site has an operational license, no airspace surveys were available for review to determine the remaining lifespan
Calitzdorp landfill site	Green waste and C&DW	Closure to have commenced July 2020
Zoar landfill site	C&DW, green waste, domestic and commercial and industrial waste.	Unknown. The WML is valid until airspace has been reached. The lifespan of the site is dependent on the outcome of remaining airspace which has yet to be determined.
Van Wyksdorp landfill site	Green waste and C&DW	Closure to have commenced by 10 December 2019
Knysna LM		

Landfill site name	Waste accepted	Closure data (WML)
Old Place landfill site	Green waste	Closure to commence by 2025.
Mossel Bay LM		
Louis Fourie	Green waste	The MBLM has applied for an extension to closure timeframes
Great Brak	C&DW, green waste	The MBLM has applied for an extension to closure timeframes
Petro SA landfill site	Domestic and commercial and industrial waste.	-
Oudtshoorn LM		
Grootkop landfill site	C&DW, green waste, domestic and commercial and industrial waste.	Valid until airspace is reached. No recent airspace determination has been undertaken.
Dysselsdorp landfill site	The site officially only accepts garden waste and builder's rubble, however the OLM disposes of communal skips at this site, which often includes a mix of garden waste and domestic waste	Closure to commence by November 2024
De Rust landfill site	The site officially only accepts garden waste and builder's rubble. The OLM disposes of waste from the communal skips at this site, which often includes domestic waste. Due to its close proximity to settlements, people also dispose of their general domestic waste at the site	Closure to have commence by September 2024

7.7 Waste Education and Awareness

7.7.1 Municipal Waste Education and Awareness Programmes

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.
- Notice boards: Notice boards promoting waste minimisation were placed in Riversdale, Mossel Bay, George and Plettenberg Bay.
- Information banners: GRDM procured banners featuring Rocky the Rooster and contained recycling facts for different waste streams. The GRDM and local municipalities 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)

- The Expanded Public Works Programme Waste Awareness: EPWP beneficiaries were trained by GRDM and provided with the necessary educational material to conduct waste management / minimisation education and awareness sessions at preschools across the GRDM
- Home Composting Pilot Projects: Home composting programmes has been rolled out to all local municipalities in the GRDM.

- 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.
- 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.

Figure 15: Branding of the waste compactor trucks

Figure 16: Puppet shows at schools and awareness materials

(a) Planned Waste Education and Awareness Programmes

The GRDM is planning to expand the in-house recycling programme to include composting. Awareness of organic waste minimisation and diversion will also be undertaken for GRDM employees. Planned awareness campaigns are limited due to budget constraints.

7.7.2 Garden Route District Municipality Website

The GRDM's official website contains a link to page which is dedicated to waste management. The website (http://wastemanagement.edendm.co.za/) contains the 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.

7.7.3 Social Media

The GRDM has an active Facebook, Twitter and Linkedin page. Posts related to waste management, mainly illegal dumping are posted to the Facebook and Twitter pages. These posts were linked to an illegal dumping clean-up programme in GLM from September 2020 – March 2021. There are no regular posts of waste minimisation.

7.8 Waste Management By-Law

A brief review of the GRDM by-laws related to waste management was undertaken as part of the WMP development to identify the coverage of waste minimisation in the by-laws. This review does not constitute a full legal review.

One set of by-laws address waste management in the GRDM:

- The Waste Management By-Law (2017)

The following comments are noted:

- **Definitions** – a definition is given for waste minimisation, reuse, recycling and recyclable waste
- **Principles** – any person exercising a power in accordance with the waste by-laws should promote the waste hierarchy outlined in NEMWA and the NMWS which is in order of priority
    - Promote waste avoidance and minimisation
    - Waste reuse
    - Recycling and recovery
    - Waste treatment, and
    - disposal.
- **Waste Information System** –the GRDM may require any waste generator, accredited permit holder, service provider, waste recyclers, local municipalities or any person involved in or associated with provision of municipal waste services or commercial services within the jurisdiction of the GRDM, to provide information within a timeframe as determined by the GRDM.
- **Registration on and reporting to the waste management information system** –any person conducting an existing or new activity as set out in section 8(1) of the by-law, or a waste management activity as listed in Annexure 1 of the National Waste Management regulations, must apply to the GRDM to be registered on the WIS. There are specified dates to which existing and new activities should register on the GRDM WIS.
- **Objectives –**to promote the waste hierarchy and for the GRDM to promote reuse and recycling of waste

The waste minimisation and recycling chapter includes the following information and regulations that the public and private companies/ organisations need to comply with or that the GRDM can enforce:

- **Registering with the GRDM** - a person must be accredited in terms of Chapter 10 of the waste management by-law to collect, transport, sort, store, reuse, recycle or recover waste with the intention of making profit. This is applicable to scrap metal dealers, waste treatment facilities and formalised recycling groups.
- **Separation of waste** –the GRDM may prescribe, by notice of a provincial gazette that from a prescribed date that generators or holders of particular categories of waste must, for purpose of recycling, separate those categories of waste and must store, dispose of or treat the separated waste in the manner prescribed in the notice. Failure to comply with the notice published is regarded as an offence and is punishable.
- **Storage, collection, treatment, transportation, and recovery of recyclable waste** -
    - owners and occupiers of premises are required to separate waste and store is appropriately until it can be collected by an accredited service provider
    - only an accredited service provider must handle, treat or dispose of recycled waste at licenced waste handling treatment or disposal facilities.

7.8.1 Local Municipality By-Laws

All of the local municipalities have waste management by-laws in place. When the GRDM undertook an external review of their by-laws in 2017 they also prepared a generic by-law for the local municipalities to adopt. To date none of the local municipalities have adopted these generic by-laws.

7.8.2 Enforcement of By-Laws

Enforcement of waste management by-laws is lacking in all local municipalities. There are no dedicated waste rangers in any municipality. The municipalities can use municipal police or traffic officers to issue fines for illegal dumping but in practice enforcement of the Waste Management by-law is not prioritised.

The GRDM manages compliance with their by-laws through written notices to companies which do not comply with the by-laws. At present the GRDM has been focusing on enforcing registration of municipal and private waste generators on the GRWMIS. Companies which did not register within the specified timeframes were contacted in writing and requested to register. The GRDM indicated that this approach was very successful and issuing of fines was not required to date.

7.9 Waste Minimisation Information

The GRDM operates the Garden Waste Management Information System (GRWMIS). Waste generators and recyclers are required to report on the GRWMIS in terms of the GRDM waste management by-laws (2016). There are 12 recycling facilities registered on the GRWMIS at present.

Table 35: Recycling company registrations on the GRWMIS

Municipality	No. companies	Company names
Bitou	1	Masiqhame Trading 672cc
George	5	Hill & Levett cc Waste Solutions Garden Route (Pty) Ltd Wastecircle Western Cape (Pty) Ltd Henque Waste LG E Waste
Hessequa	1	Henque Waste
Kannaland	0	-
Knysna	0	
Mossel Bay	3	Green Scrap Recycling Baleng Redira Mogo Tyre Recyclers Southern Cape Waste & Recycling
Oudtshoorn	1	Retain Recycle Re-Use
TOTAL	**12**	**-**

7.10 Waste Management Budget for Waste Minimisation and Recycling

The GRDM has only received a budget of R40,000 for 2021/22 financial year. This budget is for all aspects of waste management and not specifically for waste minimisation.

8 Waste Minimisation Survey

8.1 Waste Survey Limitations

Waste minimisation perception surveys were undertaken of the public as well as business in the GRDM area, to determine attitudes towards waste minimisation. The business/ industry survey consisted of an online survey and telephonic/face-to-face interviews with larger business and industry. The focus on the business/ industry survey was on larger businesses and industry in the GRDM.

The public survey was actioned through an online survey only. It is acknowledged certain areas with limited access to the web may therefore be underrepresented in the results. The responses to open questions have been summarised for reporting purposes.

8.2 Participation Rates

A total of 110 responses from business in GRDM and 489 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 36: Waste minimisation survey results

Respondent group	George LM	Hessequa LM	Knysna LM	Kannaland LM	Mossel Bay LM	Oudtshoorn LM	Bitou LM	TOTAL
Business/ industry	11	11	12	4	7	12	8	67
Business/ industry face-to-face/ telephonic	4	8	4	8	6	13	4	43
Public	104	7	158	6	48	18	147	489
Total	**119**	**26**	**174**	**18**	**61**	**43**	**159**	**599**

8.3 Business/ Industry Survey Results

Responses from the following business/ industry groups were received:

- Waste management companies
- Retail stores and shopping centres
- Recycling companies
- Restaurants
- Hospitality industry (Tourism and accommodation)
- Environmental consulting company
- Pharmacy
- Composting companies
- Agricultural companies
- Sawmill
- Winery
- Car wash
- Tannery
- Real estate agents
- NPO's
- Petroleum businesses

8.3.1 Waste Minimisation Programmes

The participants were asked to provide insight into in-house waste minimisation and recycling programmes are undertaken by the municipalities. Respondents were asked to give their opinion of municipal waste recycling programmes and recommendations of how to increase waste minimisation. The responses received are summarised below.

- More support from municipality is required
- More facilities for drop off of recyclable materials are needed
- Involve the youth
- There is a lack of equipment
- Lack enforcement of tender conditions onto the service provider
- 2-bag collection service is interrupted or halted
- Lack information of municipal waste minimising programmes or anything related to waste minimisation/recycling

- Awareness campaigns are not promoted
- Lack separation at source of garden waste
- A lack of waste collection from farming or informal areas hinders recycling

8.3.2 Waste Education and Awareness

Respondents were asked to identify their preferred method for the municipality to contact them.

Table 37: Preferred method of communication

Preferred communication method	Yes (% of responses)	No (% of responses)
Social media platforms	42.9%	57.1%
Flyers/ printed materials	20.0%	80.0%
Radio advertising	25.7%	74.3%
Workshops/ roadshows	31.4%	68.6%
Recycling competitions	28.6%	71.4%
Events such as clean-up campaigns	25.7%	74.3%
Email communication	68.6%	31.4%
Other	5.7%	94.3%

8.3.3 Waste Minimisation and Recycling Challenges

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

- Municipal budgets are constrained
- Lack community involvement
- Slow/ late actions to address waste problems
- Unsure of what can be recycled and what cannot be recycled
- Assumptions that recyclers (and recycling) are self-sustainable and do not require external funds,
- Prices for recyclables is decreasing
- Waste management practices are not monitored
- A lack of awareness campaigns and communication to the general public and businesses
- Remove politics in the decision made by the municipality
- A lack of overall buy-in from tenants/residents to recycle.
- Lack of service delivery from municipalities

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

- Provide more information to businesses on waste management, diversion and recycling initiatives
- Advertise and encourage participation in the current recycling programme.
- Reduce the tariffs for waste removal to companies and the public for recycling efforts.
- Invest in education and training, and increase awareness.
- Invest in the installation of waste management products and technologies in businesses and homes.

8.3.4 Impact of COVID-19 on Waste Management

In light of the current COVID-19 pandemic business/ industry were requested to provide details of how the outbreak has affected waste minimisation, generation and recycling.

The following comments related to the impact of COVID-19 were raised:

- More HHW was generated and disposed of
- COVID has also decreased the willingness of people to recycle
- The demand for recycled material has declined drastically
- Businesses have opted to landfill their recyclables as transportation costs of the recyclables are higher than the revenue received
- Liquor stores closed down during lock down levels 4 and 5, consequently, less glass bottles were generated for recycling.
- Household waste decreased due to less expenditure by households.
- The demand for new products declined and so the demand also for recycled material.

8.3.5 Survey Conclusions and Recommendations

The following recommendations and conclusions are from the survey:

- There is a need for local municipalities and the GRDM to engage better and more frequently with business and industry to ensure that they are aware of waste minimisation and recycling initiatives, programmes and facilities
- There is a lack of municipal facilities and services that are available for business and industry to drop-off source separated recyclables or to collect these recyclables. The local municipalities should develop facilities.
- The municipality should engage with the community to change the mind-set of people to start recycling and to improve their waste management
- Assistance is needed from local municipalities to ensure the sustainability of recycling businesses

8.4 Public Survey Results

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. A high portion of respondents use reusable shopping bags (86.5%), use reusable water bottles (72.7%) and refuse single use plastic utensils (69.6%). Less respondents use reusable coffee cups (30.2%).

Table 38: Waste avoidance and minimisation efforts currently undertaken by respondents

Option	Yes (%) of responses	No (% of responses)
Use reusable shopping bags instead of plastic bags	86.5%	13.5%
Use reusable coffee cups for takeaway coffee and hot drinks	30.2%	69.8%
Use a reusable water bottle instead of buying bottled water/ cool drinks	72.7%	27.3%
Say no to plastic or single use utensils (e.g. plastic/ cardboard	69.6%	30.4%

Option	Yes (%) of responses	No (% of responses)
Choose products based on packaging (e.g. choose loose fruit and vegetables instead of ones with excessive packaging	58.1%	41.9%
None – my household does not participate in any waste avoidance or minimisation	4.2%	95.8%
Other (please specify)	13.1%	86.9%

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

- Home filter system for water
- Save reusable items e.g. coffee cups and bottles
- Fill plastic bottles with waste to make Biobricks
- Upcycle as much as possible.
- Buy second hand clothes and pass used clothes on to others
- Use reusable nets for fruit and vegetables where possible
- Recycling of polystyrene dishes to pack leftover food for the underprivileged
- Make use of baskets for shopping or making deliveries
- Reuse plastic bags as bin liners
- Donate glass bottles to a neighbour who does bottling and preserving
- Cardboard is donated to a neighbour for their compost heap

8.4.2 Waste Recycling

Respondents were asked to indicate which of the following methods they currently use for recycling. The majority (68.8%) of respondents use a doorstep separation at source programme. Only a small potion use a buy-back centre (1.3%) or swop shop (0.8%).

Table 39: 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	68.8%	31.3%
Separate waste at home (two or multi-bag system) for collection from my doorstep by a service provider I have appointed myself	5.4%	94.6%
Separate waste at home and drop-off at a municipal recycling facility	14.4%	85.6%
Separate waste at home and drop-off at a private recycling facility	5.8%	94.2%
Separate waste at home and sell the materials to a private company (buy-back centre)	1.3%	98.8%
Separate waste at home and exchange for products/ coupons at a swop-shop	0.8%	99.2%
Place recyclables in a separate bag for informal pickers to collect (no municipal or private multi-bag system in place)	4.4%	95.6%
None	12.1%	87.9%
Other	6.9%	93.1%

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

- Private recycling programmes
- Donations at Hospice

- Make Ecobricks from non-recyclable waste
- Use drop-off facilities for hazardous waste

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

Table 40: Opinions of municipal waste recycling programmes (% of respondents)

Question	Excellent	Very good	Good	Fair	Poor	Very poor	Total
Municipal recycling programmes	6.5%	13.5%	23.2%	25.2%	16.0%	15.7%	100%
Municipal recycling facilities	2.9%	9.2%	18.1%	22.5%	24.4%	22.9%	100%
Municipal waste minimisation campaigns	2.0%	3.4%	11.3%	20.8%	36.6%	25.9%	100%
Information available on waste minimisation/ recycling	1.5%	3.3%	8.0%	21.1%	38.2%	27.9%	100%
Knowledge of municipal staff in terms of waste minimisation needs	1.2%	2.9%	12.0%	26.4%	30.6%	26.9%	100%

- 68.4% rate municipal recycling programmes as excellent to fair
- 52.7% rate municipal recycling facilities as excellent to fair
- 62.5% rate municipal waste minimisation campaign as poor or very poor
- 66.1% rate information available on waste minimisation as poor or very poor
- 57.5% rate the waste minimisation knowledge of staff as poor or very poor

The responses for municipal recycling programme and facilities were positive. The responses around awareness campaigns and availability of information were both rated poorly. This highlights the need for the GRDM 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:

- No visible information provided
- Social media and leaflets are limited for public awareness on recycling
- Unsure of how the recyclable waste is processed after collection
- Lack of initiative by Municipality
- Current information confusing and inconsistent.
- Poor awareness campaigns
- Not communicated frequently enough
- Information on what is recyclable is not readily available.

Respondents were asked how the municipality could increase waste minimisation and recycling. The recommendations below were provided:

- Email information on recycling to residents including where we can take goods
- Offer recycling of a wider range of items
- Forbid shops from using plastic and Styrofoam packaging.
- Better education and communication through social media, billboards, and notices on rates accounts, SMS notifications, and household leaflet drop off.
- Campaigns aimed at residents and at retailers and manufacturers.
- Treat the recycling facility as an essential structure which receives adequate support and financing to enable it to operate smoothly throughout the year.
- Assist schools to teach school children about the need to recycle, what to recycle and how.
- Empower informal pickers to provide more effective services and to provide them with equipment (even if only rudimentary) to assist them with their task.
- Public to be able to pick up clear bags from the recycling depot/ distribute recycling bags again
- Incentivise a program for the public
- Upgrade recycling facilities with a can crusher, glass crusher and plastic pelletiser.
- Establish education programme to be distributed to schools, churches, civil organisations
- Private houses, guest houses and complex which are not recycling should be fined.
- Incineration of waste to produce energy
- Organize a waste fun day and bring on board business
- Stop billing residents for the recycling

8.4.3 Organic Waste Management

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

Table 41: Current management method for organic waste

Option	Yes (% of responses)	No (% of responses)
Worm farm	11.4%	88.6%
Home composting bin	22.3%	77.7%
Composting heap	36.3%	63.7%
Garden waste is placed into a bag provided by the municipality/ collected loose by the municipality	27.9%	72.1%
Garden waste is collected by a private service provider	22.1%	77.9%
I transport my garden waste to a municipal facility	19.5%	80.5%
I transport my garden waste to a private facility	2.4%	97.6%
Organic waste is disposed of with other household waste	17.8%	82.2%
Other	5.6%	94.4%

The majority of respondents (82.2%) co-dispose with domestic waste.

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

Table 42: 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	48.7%	51.3%
A separate bin or bag for food waste (to be collected by the municipality)	55.6%	44.4%
A separate bin or bag for garden waste (to be collected by the municipality)	51.5%	48.5%
Drop-off facilities for separated food waste	16.7%	83.3%
Drop-off facilities for separated garden waste	24.7%	75.3%
None, the municipality collects my organic waste mixed with my household waste, I am not interested in changing how I manage organic waste	2.6%	97.4%
Other	5.8%	94.2%

Where respondents selected 'other' as an option they were asked to provide details of organic waste management programmes which they would participate in. The following responses were received:

- Supply chipping facilities where the public can either chip their own garden waste for use as mulch or pay a small fee for the waste to be chipped.
- Provide chippers at landfill sites for the public to use to chip their garden waste.
- Drop-off facilities for garden waste. The chipped waste can be sold to the public for a small fee for use on their gardens.

Suggestions to increase organic waste diversion from landfill:

- A container that seals in odours during summer and fly-proof
- Provide separate bags.
- Employing unemployed people
- Establishing a non-profit organisation to make compost to re sell.
- Look into technology which can convert organic waste into biogas
- Create gardens from where food can be generated for the poor and soup kitchens
- All supermarkets to have separate bins in their car parks so customers can off load waste from their trolleys before they get home
- Involve the community
- Lower cost and regulate rate.
- Provide a home or neighbourhood communal compost heap where the public can pass their organic waste and also collect compost for their garden
- The municipality should start community food garden scheme where vegetables and fruit trees can be planted. These facilities should have compost bins
- Each household should be provided with a composting bin and a rainwater tank
- Provide drop-off facilities in walking distance for source separated organic waste
- Make composting courses available to residents free of charge
- Supply chipping facilities where the public can either chip their own garden waste for use as mulch or pay a small fee for the waste to be chipped
- Start municipal farms with unemployed people and teach them to plant and grow vegetables using compost

- Teach waste management at schools

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 43: 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	9.4%	90.6%
Private waste education and awareness programmes	13.8%	86.2%
I am not aware of any waste education and awareness programmes	66.4%	33.6%

A large portion of respondents (90.6%) were unaware of municipal waste education and awareness programmes.

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

Table 44: Preferred methods of communication for waste education and awareness programmes

Preferred communication method	Yes (% of responses)	No (% of responses)
Social media platforms	65.8%	34.2%
Flyers/ printed materials	21.5%	78.5%
Radio advertising	18.6%	81.4%
Workshops/ roadshows	18.6%	81.4%
Recycling competitions	25.7%	74.3%
Events such as clean-up campaigns	48.0%	52.0%
Email communication	61.0%	39.0%
Other	6.8%	93.2%

Social media was the preferred platform for the GRDM to contact the public. Social media is far reaching, low cost and can be updated quickly which will enable the GRDM to engage with residents regularly.

Table 45: 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	0.8%	2.0%	7.1%	13.8%	44.6%	31.6%

Municipal waste education and awareness programmes were rated as poor or very poor by 76.2% of respondent.

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

- Swop shops and vouchers
- Create more public awareness through advertising
- Clean up days
- Curriculum in the schools and enforced in the schools.
- Recycling competitions
- Assign an environmentalist to recycling
- Programmes need to target the youth so they can educate their parents
- Annual school projects/ competitions
- Monthly public workshops e.g. how to make use of old wooden pallets, father and son days, grandparents and grandchildren days. Get sponsorship from local hardware stores.
- Involve Churches and youth groups
- Clear signage to indicate the location of the closest recycling drop-off facilities
- Have a flea market when strictly on recycled products can be sold
- Appoint community contractors to assist in the value chain of waste minimisation
- Appoint more staff to conduct awareness campaigns

8.4.5 Survey Conclusions and Recommendations

The following recommendations from the survey should be implemented to increase waste minimisation.

- Better waste education and awareness programmes are needed, particularly in schools
- Social media platforms and email should be used to communicate regularly with residents
- Trust needs to be built between the public and local municipalities in order for the public to be comfortable that waste which his separated at source is diverted from landfill
- More recycling drop-off facilities are needed and recycling drop-off facilities are needed
- Free training sessions/ courses can be used to encourage home composting

The public survey was limited to an online survey, the responses received are therefore not representative of the GRDM population as a whole. It is recommended that the GRDM facilitates a full public survey to gain an understanding of the public perception of waste minimisation. A large component of the survey would be face-to-face surveys, particularly in low-income areas.

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 stream, 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 GRDM

- 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.
- DFFE 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 46: Data used in the DEA&DP AWT Tool

Item	Data used
Population	635,600 persons
Waste tonnes for 2019	233,669.20 (based on waste disposal, diversion and recycling records)
Organic waste diversion	Current year – 5% (based on records from local municipalities) 2024 target- 10% 2029 target – 15% 2034 target – 20% 2039 target – 30%
Garden/ greens diversion	Current year – 30% (based on records from local municipalities) 2024 target- 50% 2029 target – 60% 2034 target – 70% 2039 target – 80%
Builders' rubble (C&DW)	Current year – 20% (based on records from local municipalities) 2024 target- 25% 2029 target – 30% 2034 target – 35% 2039 target – 40%
Dry recyclables	Current year – 10% (based on records from local municipalities and recycling companies) 2024 target- 20% 2029 target – 35% 2034 target – 50% 2039 target – 65%
Waste profile	Builders' rubble (C&DW) – 26.2% Organics – 15.9% Green waste – 16.5% Paper – 9.2% Metal – 2.0%

Item	Data used
	Glass – 5.1% Plastic – 9.7% Residual waste – 15.4%

The waste tonnage for 2019 was calculated based on disposal, diversion and recycling figures. The calculation for the domestic, and commercial and industrial waste for the GRDM is presented in Table 21. The total of C&DW and green waste is provided in Table 15.

The waste stream composition has been based on the results of waste characterisation exercises and disposal records provided by the GRDM and the local municipalities.

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

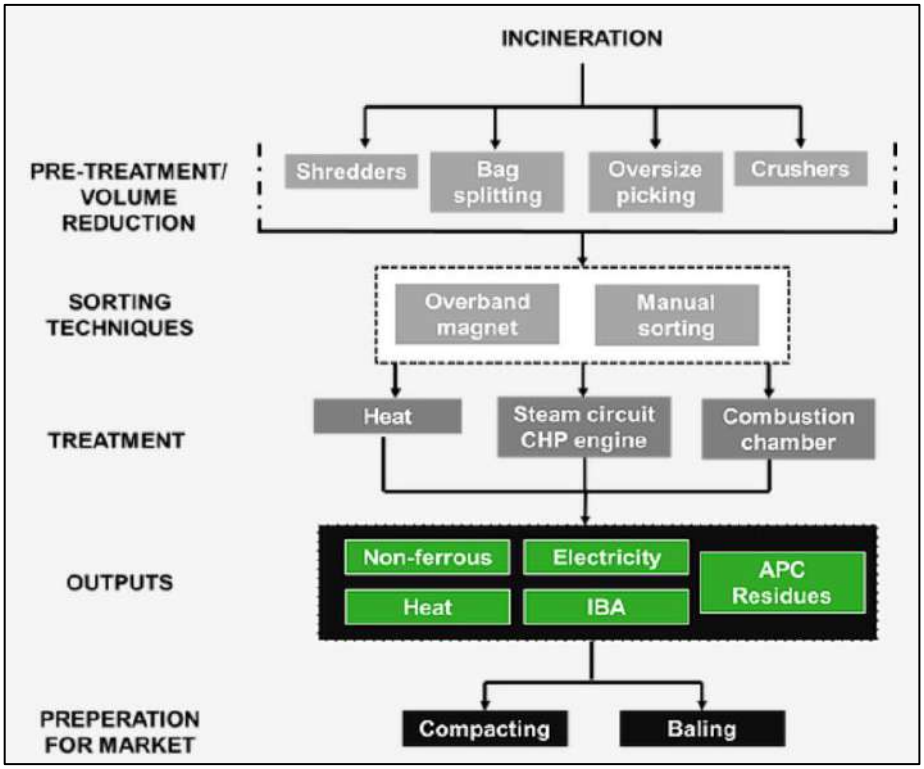


Figure 17: Incineration process flow (source, web reference 4)

Table 47: 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 its volume. 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, and air pollution control residue. Depending on the type of waste incinerated, 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 municipality needs to balance incineration of waste against adhering to 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.

Based on the DEA&DP model (see Table 48) there is sufficient feedstock to support an incinerator from 2019 waste generation rates across the GRDM. However, incineration is not recommended for the GRDM. The domestic waste stream is 40.9% recyclable material and 34.9% organic waste. The recyclables should be diverted for recycling and the organic waste should be composted. “Incineration (create energy)” is located below “recycle and compost” in the waste management hierarchy, and hence if there is scope to increase recycling and composting incineration should be avoided. The levelised cost for incineration is high, R17,841 per tonne in 2019, but decreases as waste tonnages increase annually.

Table 48: Results of assessment of incineration as a management option (source DEA&DP Alternative Waste Management Technologies Tool)

Year	2019	2024	2029	2034	2039
Incineration					
Waste tonnes per annum	17,841	33,910	50,136	68,343	91,112
Sufficient feedstock?	Yes	Yes	Yes	Yes	Yes
Actual levelised cost (R/ tonne)	R18,273	R14,134	R12,087	R10,678	R9,518

9.4 Anaerobic Digestion

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

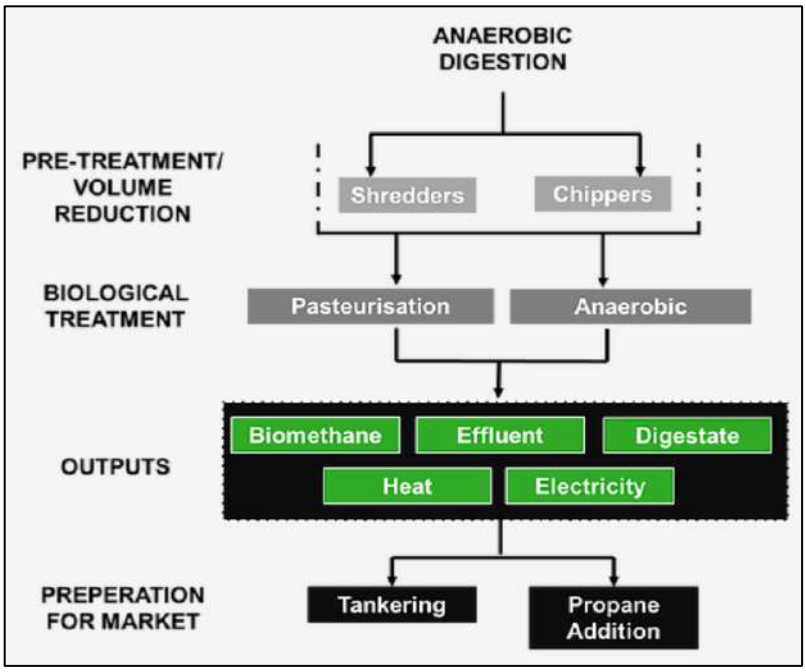


Figure 18: Anaerobic digestion process flow (source, web reference 7)

Table 49: 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.

Based on the DEA&DP model there is sufficient feedstock to support an anaerobic digester at 2019 generation rates. The levelised cost for anaerobic digestion is high, R5,806 per tonne in 2019, but decreases as waste tonnages increase annually.

Table 50: Results of assessment of anaerobic digestion as a management option (source DEA&DP Alternative Waste Management Technologies Tool)

Year	**2019**	**2024**	**2029**	**2034**	**2039**
Anaerobic digestion					
Waste tonnes per annum	13,424	24,499	32,589	41,633	54,116
Sufficient feedstock?	Yes	Yes	Yes	Yes	Yes
Actual levelised cost (R/ tonne)	R5,806	R4,565	R4,072	R3,692	R3,325

Due to the high costs associated with anaerobic digestion it is recommended that the GRDM investigates composting as a management option for green waste. The option for composting should be investigated within local municipalities or across municipalities within the GRDM depending on the feasibility of composting within the GRDM. The GRDM should also encourage home composting to manage domestic food waste.

9.5 Composting

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

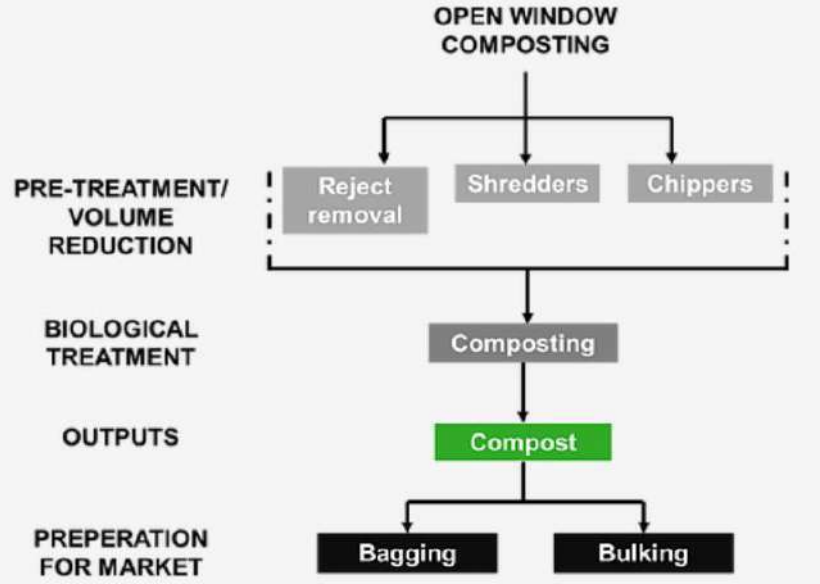


Figure 19: Composting process flow (source, web reference 9)

Table 51: 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 16 weeks. The process requires mechanical treatment to remove contaminations such as plastic. Turning of compost may result in odours and bio-aerosol issues, and hence a composting facility should not be in close proximity to settlements.

Table 52: Results of assessment of composting as a management option (source DEA&DP Alternative Waste Management Technologies Tool)

Year	**2019**	**2024**	**2029**	**2034**	**2039**
Anaerobic digestion					
Waste tonnes per annum	13,424	24,499	32,589	41,633	54,116
Sufficient feedstock?	Yes	Yes	Yes	Yes	Yes
Actual levelised cost (R/ tonne)	R582	R458	R408	R370	R333

Based on the DEA&DP model there is sufficient feedstock to support composting in the GRDM. The levelised cost for composting decreases as tonnages increase. The 2019 rate is R582 per tonne and this decreases to R333 per tonne by 2039. The levelised cost for composting is far less than anaerobic digestion. The levelised cost however does not include the transportation cost of organic waste to a central point for composting which the model assumes in its calculation of the costs. Should the GRDM want to manage organic waste across a District level,

it is recommended that the GRDM pursues composting as a management method for organic waste as opposed to anaerobic digestion.

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. Gasification is not included in the AWT technology options in the DEA&DP model and hence has not been assessed in terms of the model.

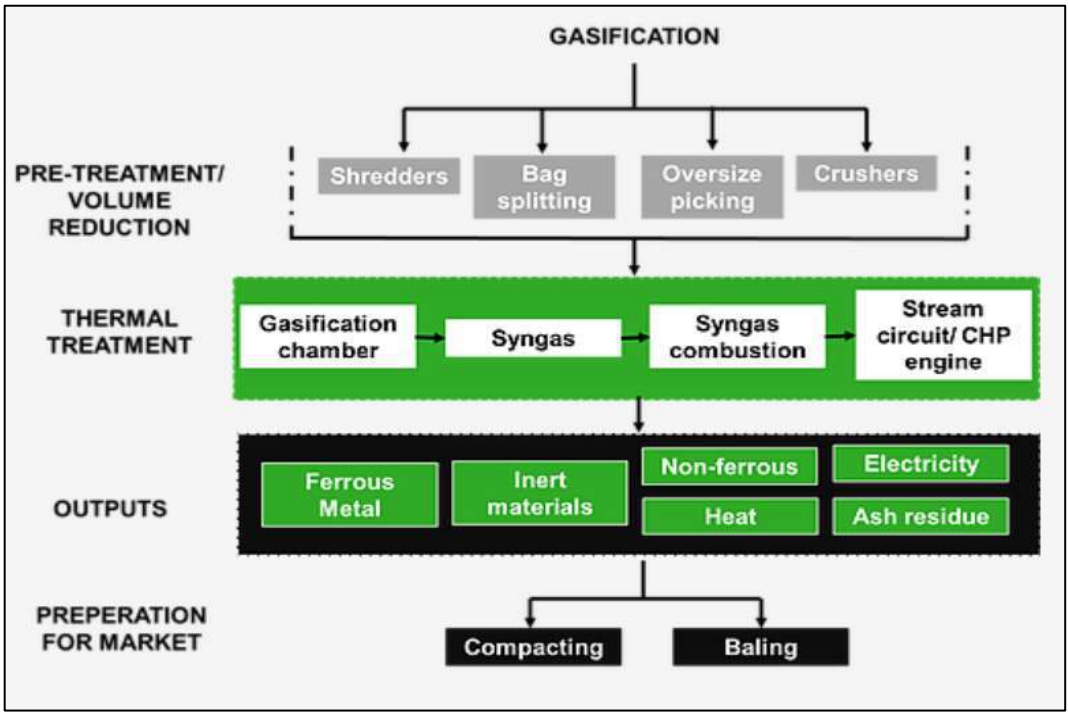


Figure 20: Gasification process flow (source, web reference 8)

Table 53: 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 GRDM. Gasification requires waste with a high calorific value such as plastic, paper and cardboard. The GRDM should focus on recycling of these waste streams.

9.7 Alternative Waste Treatment Technologies Conclusions

In 2019 the GRDM generated sufficient organic waste (food and green waste) to meet the minimum feedstock requirements for anaerobic digestion and composting. Alternative waste treatment technologies typically require high capital investment, a large volume of feedstock and a consistent feedstock. Technologies such as incineration and gasification require waste with a high calorific value such as plastic, paper and cardboard. These technologies would be in direct competition with recycling initiatives. Recycling and composting of waste are preferred to treatment of waste in terms of the waste management hierarchy.

It is therefore recommended that GRDM focuses on waste reduction, recycling and open-air composting to reduce waste volumes to landfill.

10 Gap and Needs Assessment

The aim of the gap and needs assessment is to identify shortcoming in current waste minimisation practices in the GRDM. 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 Stringent Legislated and Best Practice Targets

There are stringent targets for waste diversion from landfill in both the 2020 National Waste Management Strategy (DEFF, 2020) and the 2017 WCIWMP (DEA&DP, 2017). These waste diversion targets are included in Table 54 below. At present none of the municipalities in the GRDM are in the position to meet these targets. The main reasons for this are:

1. A lack of dedicated and sufficient staff for waste minimisation activities or initiatives
2. Budget constraints for the local municipalities,
3. A lack of waste minimisation infrastructure to promote waste diversion from landfill.

The GRDM is planning on opening a regional landfill site which will service the MBLM, KLM, BLM and GLM municipalities. As the operator of the landfill site the GRDM will be responsible for ensuring the legal compliance of the site and to comply with all legislative requirements to establish and operate the site.

10.1.2 Lack of Baseline Data

The availability of accuracy of waste generation and waste minimisation data varies across the local municipalities in the GRDM.

(a) Waste Disposal Data

The only municipalities with accurate records of domestic and commercial and industrial waste are MBLM, KLM and BLM. These municipalities use the PetroSA landfill site which has an operational weighbridge. In GLM no records are kept for waste entering the Uniondale landfill site and the KLLM, OLM and HLM all use municipal landfill sites without weighbridges. In some cases waste entering the site is manually recorded based on visual estimates but in other cases no records are kept.

In the short term, trained gate controllers should be stationed at all landfill sites to record incoming waste. In the longer term, weighbridges should be installed at all landfill sites which will continue to operate in the long term. There is a legal requirement, in terms of the National Waste Information Regulation (GN 625 of 2012) for landfill sites to report data based on actual quantities, not estimates on the IPWIS. Weighbridges are therefore needed at all landfill sites which will continue to operate in the long term.

The regional site will have a weighbridge and the GRDM will be responsible for ensuring all waste entering the site is recorded and reported to IPWIS.

In addition, in terms of the GRDM waste management by-law, all municipalities are to report on the GRWMIS.

(b) Waste Minimisation Data

The GRWMIS is designed to capture waste minimisation data. At present only 12 companies are registered on the system. These 12 companies represent the large recyclers in the GRDM. The GRDM is aware of three small recycling companies that were engaged with previously to register on the GRWMIS. The local municipalities monitor recycling tonnages collected through the municipal programmes, but with the exception of the MBLM as they do not record the tonnage of waste recycled by private companies.

The GRDM has enforced the registration of recycling companies and reporting of data through the by-laws. All of the registered recycling companies are reporting.

The GRDM have previously focussed on registering recycling on the GRDMWIS, but focus should be placed on composting facilities and scrap metal dealers to include figures for organic and metal waste diversion.

10.1.3 Low Participation Rates in the Separation at Source Programme

The participation rates in municipal separation at source programme vary between municipalities. A common trend is that participation rates are higher in high income areas than in low-income areas. This indicates the need for greater education and awareness and mechanism such a school recycling competitions, swop-shop and buy-back centres to encourage recycling in low-income areas. The participation rates in separation at source programmes are not well quantified. Estimated participation rates are 0% - 17% in low-income areas and 50 – 80% in high income areas.

One of the comments received from the public survey across several local municipalities is that residents are unsure of what happens to the source separated material and in some cases residents believe source separated waste (recyclables and green waste) end up at a landfill.

The following mechanism can be used to increase participation in the separation at source programme

- Education and awareness – residents should be informed of the areas in which the programme is operating, how to participate and what materials can be recycled and how e.g. rinsing of jars. The local municipality and their service provider should quantify participation in different suburbs and target suburbs with low participation rates with door-to-door engagements
- The GRDM and local municipalities should determine how to engage with various target groups (i.e. method of engagement or platform to be used) and determine the content of education material which will generally vary between high, medium and low income areas.
- Recycling statistics should be published monthly on the local municipality social media pages. The GRDM can publish amalgamated figures for the district
- The municipality or service provider should visit all the schools in the municipality and educate learners on the 2-bag system. Learners can be provided with bags for recycling to take home for use. The GRDM can assist with awareness programmes through provision of awareness materials, information banners and the mascot costume.

10.1.4 High Cost for Recycling Services

The cost for outsourced recycling services ranges from R650 – R1,523 per tonne. Most of the municipalities pay a fixed monthly fee to their recycling service provider. In order to increase the quantity of waste collected for recycling and decrease the cost per tonne municipalities need to ensure the contract with the recycling company has performance criteria. Performance criteria can include the minimum tonnage of material to be collected for recycling. Failure to meet these requirements should result in financial penalties.

10.1.5 Lack of Municipal Recycling Programmes

There are no municipal recycling programmes in the KLLM or OLM. At present recycling in these municipalities is managed by the private sector and the focus is on businesses or purchasing waste from reclaimers who collect recyclables from landfill sites or extract them from black bags.

The KLLM and OLM need to commence with recycling programmes such as a pilot separation at source programme and provision of recycling drop-off facilities. The GRDM should assist the municipalities with planning for these programmes.

10.1.6 Inconsistent Waste Minimisation Education and Awareness Campaigns

Waste minimisation education and awareness is undertaken across the GRDM. The awareness materials in use, type of programmes, frequency of programmes and records kept of awareness campaigns varies between local municipalities. The information available on the municipal websites also varies.

The following is recommended to make waste education and awareness campaigns more consistent:

- Rocky the Rooster to be incorporated into all new waste minimisation awareness materials
- The colour bags used for separation at source programmes to be standardised
- The GRDM to develop a template for waste education and awareness materials which can be edited by the local municipalities
- District wide awareness campaigns to be co-ordinated by the GRDM and to be branded with the district and local municipality logos.
- Waste minimisation posts to be shared on the local and district social media platform where appropriate
- Municipalities to use swop-shops as a waste minimisation education and awareness programme.

10.1.7 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.

Feedback from the recycling service providers operating in GRDM is that due to COVID-19 household expenditure has decreased and the demand for new products has decreased. The decrease in demand for new products has decreased the demand for recycled materials. Many recyclers are now working on quota systems due to an oversupply of materials.
There is very little the GRDM and the local municipalities can do to mitigate against poor markets. When recycling markets are poor private companies try to stockpile material and wait for markets to recover. One recommendation to manage poor market conditions would be to allow sufficient storage space at recycling drop-off centres and swop-shops/ buy-back centres so recyclable materials can be stockpiled until market conditions are more favourable. An alternative arrangement would be to have an agreement in place with a service provider which requires them to purchase/ remove a minimum volume of material per month.

10.1.8 Lack of Waste Minimisation Budget

The GRDM has only been allocated a budget of R40,000 for the 2021/22 financial year. This budget is for all aspects of waste management including waste minimisation and waste education and awareness, and the implementation of these projects. The lack of budget will

limit the GRDM's ability to provide meaningful assistance to the local municipalities on waste minimisation programmes.

10.1.9 Lack of Diversion of Organic Waste from Landfill

At present none of the local municipalities have large scale operation composting facilities. Landfill site disposal is the main management method used for green waste in all local municipalities except BLM. In BLM green waste is chipped at the Plettenberg Bay transfer station and removed by the private sector. In MBLM chipping of green waste occurs at both landfill sites but chipped waste is only removed from the Louis Fourie landfill site.

Municipalities need to put in place mechanisms to divert organic waste from landfill. This can be through encouraging home composting, developing green waste chipping facilities and composting facilities or co-operation with the private sector.

There are currently no plans to develop a regional composting facility. The GRDM had planned to develop a composting facility at the regional landfill site to be developed in Mossel Bay, but after consultation with the local municipalities a decision was made that the local municipalities would manage green waste locally to reduce transport costs. The GRDMs regional landfill site's WML includes a dirty MRF, C&DW recycling and composting facility.

10.1.10 Lack of Waste Minimisation Infrastructure

Municipal waste minimisation infrastructure varies between local municipalities. The following gaps are noted:

- No bulk composting facilities
- No municipal recycling drop-off facilities, or buy-back centres in KLLM or OLM
- No formal bins or containers or signage at recycling drop-off facilities in the HLM
- Recycling drop-off facilities in KLM are also used as sorting facilities for waste collected through the separation at source programme. There are no formal bins or signage at these facilities. The sites are too small to serve as a drop-off facility and sorting site.

Municipalities need to develop waste infrastructure masterplan to guide the development of infrastructure. Existing facilities should be reviewed to determine if the sites are suited for purpose. Recycling drop-off facilities and green waste chipping facilities should be added transfer stations where appropriate.

The table below summarises the gaps and needs in waste minimisation for the GRDM. The needs are presented from a district perspective and represent projects which the district can undertake to improve waste minimisation across the district.

Table 54: Waste management gaps and needs

Legislated Requirements/ Best Practice	Gaps	Needs
1. General Waste Recycling and Minimisation		
• 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). • All new and landfill sites with long remaining airspace/ lifespan to include a MRF by 2021 (2020 NWMS)	• Only 0-17% of low income households and 50 – 80% of high income households participate in the separation at source programme. • There are no municipal recycling programmes in OLM or KLLM • Only an estimated 35.8% of commercial and industrial/domestic waste is diverted from landfill sites for re-use, recycling or recovery. • Different colour bags used for separation at source programmes in different municipalities. • No MRF is planned for the regional landfill site.	• Increased education and awareness on the importance of recycling and how to recycle. • GRDM to support OLM and KLLM with planning for recycling programmes • Encourage recycling through a district wide competition (Green Route competition) which will have categories for schools, NPOs, community organisations and small, medium and large businesses. • GRDM to provide a motivation to DFFE why a MRF will not be constructed as part of the regional landfill site.
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 organic waste from landfill. • No large-scale municipal composting facilities. • Lack of diversion of domestic food waste • Lack of organic waste diversion plans in private sector (business and industry)	• Home composting to be included in GRDM office recycling programmes • Public education and awareness programmes on how to compost/ use worm farms at home. • Develop a template for organic waste diversion plans for private sector • Waste infrastructure masterplans to consider composting and chipping facilities
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)	• Lack of municipal HHW drop-off facilities • Poor usage of existing HHW drop-off facilities • Lack of awareness of what HHW waste is.	• HHW awareness campaigns for the public

Legislated Requirements/ Best Practice	Gaps	Needs
4. Construction and Demolition Waste Management		
• 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)	• Incorrect reporting of C&DW when it is used as cover material at landfill sites • Lack of recycling/ re-use of C&DW	• Engagement with local municipalities to ensure C&DW is recorded correctly • Develop a template for construction waste management plans
5. Waste Management Facilities		
	• A lack of waste minimisation infrastructure across the GRDM	• Develop a district wide waste infrastructure masterplan with a focus on waste minimisation infrastructure
6. Waste Information Management		
	• 12 out of the 15 known recycling companies in the GRDM are registered on the GRWMIS • Composting and scrap metal companies in the GRDM are not registered or reporting on the GRWMIS • The KLLM is not currently reporting on the GRWMIS • Lack of information on waste minimisation being undertaken by business/ industry	• Enforce the waste management by-law to ensure local municipalities, recyclers and waste generator register and report
7. Waste Education and Awareness, Training and Capacity Building		
• 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)	• Infrequent waste awareness campaigns. • 90.6% of survey respondents are unaware of municipal waste minimisation awareness campaigns • No follow up on waste awareness campaigns to determine the successes and challenges. • Waste awareness materials are not aligned with the GRDMs material and do not feature the GRDM waste mascot Rocky the Rooster. • The municipal website does not contain any waste awareness materials or statistics on waste recycling in the municipality. • Limited social media coverage to share waste	• Annual waste awareness calendar which identifies interventions per local municipality • District wide awareness campaigns are needed. • Undertake an in-depth public perception survey to determine current levels of knowledge with regard to waste management and to determine if awareness campaigns have been effective. • Engage with all local municipalities to ensure Rocky the Rooster is incorporated into new awareness materials. • Update information on district municipality website • Prepare a template to record details of awareness campaigns including a portfolio of evidence • Statistics on waste disposal and recycling should be loaded up onto the district website on a monthly basis to allow residents to track progress.

Legislated Requirements/ Best Practice	Gaps	Needs
	minimisation information.	• Increase use of social medial to share waste minimisation information.
8. By-Laws and Enforcement of By-Laws		
	• Local municipality by-laws are not aligned with GRDMs by-law • Not all local municipality by-laws make separation at source mandatory.	• The GRDM to resend generic local municipality waste by-law to the local municipalities. The local municipalities to amend the generic by-law as required to make it applicable to their waste management activities.
9. Waste Minimisation Budget		
	• Only R40,000 has been allocated for waste projects for the GRDM	• Investigate alternative funding sources for projects

10.2 Gap and Needs of the Local Municipalities within the Garden Route District Municipality

The table below summarises the gaps and needs in waste minimisation for the local municipalities within the GRDM.

Table 55: Gap and Needs identified for Local Municipalities within the Garden Route District Municipality

Legislated Requirements/ Best Practice	Gaps	Needs
1. General Waste Recycling and Minimisation		
Bitou Local Municipality		
• 40% diversion of waste by 2025, 55% diversion by 2030 and 70% diversion by 2035 (2020 NWMS)	• Only 17.9% of domestic, commercial and industrial waste is recycled	The quantity of waste being recycled in BLM needs to be increased through:

Legislated Requirements/ Best Practice	Gaps	Needs
• 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). • All new and landfill sites with long remaining airspace/ lifespan to include a MRF by 2021 (2020 NWMS)	• 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	• 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
George Local Municipality		
	• Only 10 – 20% of households in the low income areas and approximately 60% of households in the high income areas participate in the separation at source programme. • There are no swop shops or buy-back centres • A MRF has been added to the George transfer station. Drop off facilities should be accessible to the public	The quantity of waste being recycled in GLM needs to be increased through: • Increasing participation of households in the separation at source programme – increased education and awareness. The percentage of households who participate in the Separation at Source programme needs to be quantified • Establish safe and accessible drop offs for businesses and the public who do not receive kerbside collection • Increasing education and awareness efforts related to waste minimisation. • Establish drop off facilities in the high incomes area and buy back centres in the low income areas starting with a pilot in two areas (Thembalethu and Pacaltsdorp)
Hessequa Local Municipality		
	• Only 18% - 21% of households participate in the	The quantity of waste being recycled in HLM needs to be increased

Legislated Requirements/ Best Practice	Gaps	Needs
	separation at source programme. • The towns of Jongensfontein, Gouritsmond and Witsand do not form part of the kerbside separation at source programme. • Only 11.1% of commercial and industrial/domestic waste is diverted from landfill sites for re-use, recycling or recovery. • There are no swop shops or buy-back centres. • There are no formal drop-off facilities for recyclables.	through: • Increasing participation of households in the separation at source programme – increased education and awareness. • The expansion and implementation of the kerbside separation at source programme in the towns of Jongensfontein, Gouritsmond and Witsand. • Formalise recycling drop-off facilities for households which do not receive a kerbside 2 bag system. • Increasing education an awareness effort related to waste minimisation. • Develop two buy-backs/ swop shops.
Kannaland Local Municipality		
	• No municipal recycling programmes or facilities • No records are available for in-house recycling occurring in KLLM offices • There is a lack of recycling facilities and programmes in the KLLM.	Commence with recycling programmes: ○ Establish a separation at source programme ○ Establish swop shops or buy-back centres ○ Provide recycling drop-off facilities ○ Increased awareness around the importance of recycling • Records of the in-house recycling programme to be requested from the private recycler • Appoint a champion per office to manage the in-house recycling programme. • Develop a MRF • Construct a recycling drop-off facility in Ladismith and Calitzdorp and thereafter in Van Wyksdorp and Zoar • Develop a buy-back centre or swop shop in low income areas
Knysna Local Municipality		
	• Not all households participate in separation programme • Limited recycling drop-off facilities • Only 12.9% of recyclables available in the domestic waste stream are collected for recycling through the 2-bag system • There is no contract with the recycling service provider • The Knysna and Sedgefield recycling depots are too small	The quantity of waste being recycled in KLM needs to be increased through: • Increasing participation of households in the separation at source programme – increased education and awareness. • Expand the coverage of the separation at source programme. • Develop more recycling drop-off facilities. • Increasing education an awareness effort related to waste

Legislated Requirements/ Best Practice	Gaps	Needs
	for the volume of waste received • 160 tonnes of glass has accumulated at the Knysna recycling depot due to a lack of demand	minimisation. • Expand the scope of services for the recycling service provider • Larger waste sorting facility to be used for the separation at source programme
Mossel Bay Local Municipality		

	• Only 8.9% of domestic, commercial and industrial waste is recycled
	• Only 50% of households are participating in the separation at source programme
	• The participation in the separation at source programme decreased in 2020
	• No records are available for in-house recycling occurring in MBLM offices
	• There is a lack of recycling facilities and programmes outside the coastal towns of MBLM with the exception of Herbertsdale
		• The quantity of waste being recycled in MBLM 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.
		  • Ensuring the existing swop shops continue to function and raising awareness with the public around the need for donations for the swop shops
		  • Increase the budget for the separation at source programme to allow the service provider to undertake the full scope of work
		• The service provider needs to provide volumes for waste collected from MBLM offices.
		• A champion per office is needed to manage the in-house recycling programme.
		• Construct a recycling drop-off facility in Freimersheim
		• Consider a mobile buyback centre which can travel between small settlements.

Oudtshoorn Local Municipality		
	• No municipal recycling programmes • No in-house recycling programmes • There are no swop shops or buy-back centres. • There are no formal drop-off facilities for recyclables.	The OLM needs to start waste recycling programmes: • Pilot a two-bag system. • Provide recycling drop-off facilities. • Develop a MRF at the Grootkop landfill site • Develop buy-backs/ swop shops.
2. Organic Waste Management		
Bitou Local Municipality		
• 25% diversion rate of garden waste from landfill by 2018 and 50% by 2023 (The National Norms and	• A lack of diversion of domestic organic waste from landfill • 35.2% of the domestic waste stream is organic waste. The	• The home composting project (bins) needs to be rolled out to additional houses

Legislated Requirements/ Best Practice	Gaps	Needs
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)	majority of this is disposed of in black bags and ends up at landfill.	• 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.
George Local Municipality		
	• A large percentage of the domestic organic waste stream (24.7%) is food waste, there is no large-scale diversion of food waste. • There are currently no municipal Drop off Centres for organic waste • The GLM has completed construction on the composting facility, however, the facility has not been commissioned	• Food waste diversion can be increased through rolling out the home composting project to additional households. Schools across GLM should be encouraged to start worm farms • In the short-term green waste should be chipped and made available for the public/ business to collect free of charge • In the medium to long term the municipality should commission the composting facility and all the garden waste should be diverted from the landfill to the composting facility • Develop easily accessible drop-off facilities for green waste
	• When the Uniondale and Gwaing landfill sites close there will be nowhere for the public to drop-off green waste	• Drop off facilities for green waste should be added at the George and Uniondale transfer stations. A small chipper may be necessary for the management of green waste at the Uniondale transfer station. • Provide awareness and information to the public as to where waste can be taken to upon the closure of the landfill sites.
	• Large volumes of unchipped green waste is stockpiled at the George landfill site, dry green waste on these sites poses a fire risk	• An additional chipper should be procured and should be rotated between the sites on a weekly or monthly basis to prevent a build-up of dry garden waste
Hessequa Local Municipality		
	• A lack of diversion of organic waste from landfill. • No municipal composting facilities. • Build-up of dry green waste at the landfill sites. The small chippers do not have capacity to chip the backlog. There is no organic waste diversion plan in place for the HLM.	• Develop drop-off facilities for organic waste. • Roll out the home composting project to additional houses. • Develop a composting facility or enter into an arrangement with an existing composting facility to accept all of HLM's green waste. • An additional chipper should be procured and should be rotated

Legislated Requirements/ Best Practice	Gaps	Needs
		between the sites to prevent a build-up of dry garden waste. • An organic waste diversion plan for each landfill site should be developed.
Kannaland Local Municipality		
	• No diversion of green waste from landfill sites in the KLLM • No large-scale organic waste diversion plan for the KLLM • No organic waste diversion infrastructure in the KLLM • Approximately 15.1% of the domestic waste stream is food waste. The majority of this is disposed of in black bags and ends up at landfill. • Approximately 21% of waste disposed at landfill in 2019 was green waste.	• Develop an organic waste diversion plan for the Ladismith and Zoar landfill sites • Develop chipping and composting facilities (prioritise Ladismith and Calitzdorp as the two largest towns) • Engage with farmers to determine if there is demand for chipped green waste for composting • Roll out home composting to additional households
Knysna Local Municipality		
	• At present, the majority of organic waste generated within the KLM is disposed of at landfill. • KLM does not have any large scale facilities for composting of organic waste at present – the site previously identified is no longer viable. • Once the Old Place garden refuse landfill site closes, there will be no disposal facilities for organic waste in Knysna town. The Sedgefield drop-off facility will continue to operate but this is located 21 km from Knysna town. • The KLM do not charge companies and contractors to dispose of organic waste at Old Place • Lack of available airspace at Old Place • There is no organic waste diversion plan for Old Place • Domestic garden waste (blue bags) are collected with black bags and taken to the Knysna transfer station. The green waste causes issues for the compactor bins.	• Long term plan for organic waste management, either a regional composting facility or an agreement with a private organisation to accept all of KLM's green waste for composting. • A drop-off and chipping facilities for green waste in Knysna. • Roll out home composting project to additional houses. • By-laws to be amended to ensure contractors and garden service companies only dispose of chipped organic waste at Old Place as a space saving measure. • An organic waste diversion plan needs to be developed for Old Place. • A service provider to be appointed to manage the blue bag system. Garden waste in the blue bags to be composted.
Mossel Bay Local Municipality		
	• No formal agreements in place with farmers to remove	• MBLM to formalise an agreement with the farmer to remove

Legislated Requirements/ Best Practice	Gaps	Needs
	chipped waste from Louis Fourie landfill site. • No diversion of green waste from Great Brak landfill site • No large-scale organic waste diversion infrastructure. • 22.4% of the domestic waste stream is food waste. The majority of this is disposed of in black bags and ends up at landfill.	chipped waste from Louis Fourie. • The home composting project needs to be rolled out to additional houses • 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 Great Brak landfill site. • Develop a regional composting facility. • Roll out home composting bins and worm farms to additional households • Pilot a 4-bag system with a fourth bag for kitchen waste. Biodegradable bags are available which can be composted themselves.
Oudtshoorn Local Municipality		
	• A lack of diversion of organic waste from landfill. • No municipal composting facilities. • There is no organic waste diversion plan in place for the OLM.	• Develop drop-off facilities for organic waste. • Expand the home composting programme to additional households. • Develop a composting facility or enter into an arrangement with an existing composting facility to accept all of OLM's green waste. • An organic waste diversion plan for each landfill site should be developed.
3. Hazardous Waste Recycling		
Bitou Local Municipality		
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
George Local Municipality		
	• Lack of drop-off facilities for HHW. No HHW open days since March 2020. • Lack of awareness of what HHW waste is.	• Provide drop-off facilities for HHW at transfer stations. • HHW awareness campaigns.

Legislated Requirements/ Best Practice	Gaps	Needs
	• Lack of information available on hazardous waste generated by business and industry.	
Hessequa Local Municipality		
	• There are only two drop-off facilities for used oil, at Steynskloof and Melkhoutfontein landfill sites. • Lack of awareness of what HHW waste is.	• Provide drop-off facilities for HHW at select mini-drops across HLM. These facilities can be igloos or small sealed bins. • LM to champion other waste awareness campaigns which cover all HHW types.
Kannaland Local Municipality		
	• There are no drop-off facilities for HHW in the KLLM • There are no open days where HHW drop-off facilities are made available for households	• Provide drop-off facilities for HHW in Ladismith and Calitzdorp • Discuss the importance of diversion of HHW from landfill at municipal events and during waste minimisation awareness campaigns • Once established, increase awareness of HHW drop-off facilities and open days • Host annual HHW open days in Ladismith, Calitzdorp, Zoar and Van Wyksdorp
Knysna Local Municipality		
	• Only 1 HHW drop-off facility. Poorly utilised • There is a lack of awareness of what constitutes HHW. • There is a lack of information available on hazardous waste generated by business and industry.	• HHW drop-off facilities need to be added to the Sedgefield recycling centre. • E-waste and HHW awareness days are needed. • The registration of hazardous waste generators on the GRWMIS needs to be encouraged.
Mossel Bay Local Municipality		
	• Only 240kg of HHW was collected in 2019 at the drop-off facilities and open days. • There are no drop-off facilities for HHW outside Mossel Bay and Great Brak	• Increase awareness of drop-off facilities and HHW open days. • Host annual HHW open days in Freimersheim and Herbertsdale
Oudtshoorn Local Municipality		
	There are no municipal drop-off facilities for HHW.	Provide drop-off facilities for HHW at municipal offices.
4. Construction and Demolition Waste Management		
Bitou Local Municipality		
• Divert 40% of waste from landfill in 5 years, 55% in	• C&DW received at the KK Sands landfill site is often	• Increase awareness of the disposal of clean uncontaminated

Legislated Requirements/ Best Practice	Gaps	Needs
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)	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	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.
George Local Municipality		
	• No long-term solution for stockpiling and disposal of C&DW once the Gwaing landfill closes. • Tonnages of C&DW used to construct the composting facility platform was not recorded	• The GLM to determine alternative methods for the reuse and diversion of C&DW from landfill. • Tonnages of C&DW reused by the GLM should be recorded as such (e.g. construction of the composting facility platform).
Hessequa Local Municipality		
	• C&DW is not clean and mixed with other general waste items and can therefore not be reused in construction e.g. as fill • There is a lack of cover material at Steynskloof landfill site.	• Regular waste education and awareness training should be undertaken with business in the construction industry which operate in the HLM regarding the need to appropriately separate general waste items and clean building rubble to prevent the contamination of building rubble. • Building rubble should be diverted to the Droëkloof and Steynskloof landfill sites to be used as cover material. • There is a need for a crusher for building rubble at the Melkhoutfontein landfill site.
Kannaland Local Municipality		
	• There is currently no diversion of C&DW from landfill • C&DW received at the landfill sites are often contaminated and not suitable for reuse • C&DW used as cover material is not recorded as such by	• Use C&DW as cover material at landfill sites • Record the volumes of C&DW reused on landfill sites for cover material • Engage with the KLLM engineering department to identify projects

Legislated Requirements/ Best Practice	Gaps	Needs
	the KLLM. • Generally, there are limited markets for crushed C&DW and resistance from industry to use crushed C&DW for construction projects	e.g. road construction or upgrades where crushed clean C&DW can be used • Engage with the KLLM engineering department to provide awareness training to contractors/developers on the reuse of C&DW at the landfill site and possible construction projects.
Knysna Local Municipality		
	• No municipal C&DW facility • Simola site is used by public for C&DW disposal • No data for C&DW is collected • Illegal dumping of C&DW in KLM • Unknown airspace for Simola site	• C&DW site to be allocated in Knysna or at regional level • Data to be collected for C&DW entering sites • Monitor and address illegal dumping by issuing fines and clean up • Crushing facility needed for Simola site • Remaining airspace at Simola to be determined
Mossel Bay Local Municipality		
	• C&DW received at the landfill site is often contaminated and not suitable for reuse • No market for crushed C&DW and resistance from existing crushers to crush municipal C&DW • C&DW will not be accepted at the GRDM regional site	• Implement a tariff system for contaminated C&DW at the Great Brak landfill site. Clean rubble to be accepted free of charge. • Engage with the MBLM engineering department to identify projects e.g. road construction or upgrades where crushed clean C&DW can be used • Engage with GRDM to determine if C&DW can be used as cover material.
Oudtshoorn Local Municipality		
	• There is no control of the dumping of C&DW at the Dysselsdorp and De Rust landfills	• Regular waste education and awareness with the construction industry regarding the need to separate general waste items and clean building rubble to prevent the contamination of building rubble.
5. Waste Management Facilities		
Bitou Local Municipality		
	• Large volumes of bulky waste stockpiled at the Plettenberg Bay transfer station and the Old Nick drop-off facility • Compost facility at the Plettenberg Bay transfer station is not operational	• 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 • The BLM to ensure that the composting facility is operational to increase the diversion of organic waste (green waste and food

Legislated Requirements/ Best Practice	Gaps	Needs
		waste) from landfill.
George Local Municipality		
	• Drop off facilities should be accessible to the public • The GLM has completed construction of the composting facility, however, the facility has not been commissioned • There is currently no municipal drop off centres for organic waste • When the Uniondale and Gwaing landfill sites close there will be nowhere for the public to drop-off green waste • Pickers and salvagers are collecting recyclables at the Gwaing landfill and no records are kept of waste diverted from the landfill	• Establish safe and accessible drop offs for businesses and the public who do not receive kerbside and S@S collection service • Establish drop off facilities in the high incomes area and buy back centres in the low-income areas starting with a pilot in two areas (Thembalethu and Pacaltsdorp) • The municipality should commission the composting facility and all the garden waste should be diverted from landfill to the composting facility • Develop easily accessible drop-off facilities for green waste • The GLM should monitor the volumes of waste removed from the Gwaing landfill site and the George transfer station.
Hessequa Local Municipality		
	• Informal reclaimers operate on the landfill sites. • A lack of formalised municipal recycling at the landfill sites results in informal salvaging. • Build-up of dry green waste at the landfill sites. The small chippers do not have capacity to chip the backlog. There is no organic waste diversion plan in place for the HLM. • There is a lack of cover material at Steynskloof landfill site.	• There is a need to formalise salvaging. This may involve registration of informal pickers to monitor the volumes of waste removed from the sites. • An additional chipper should be procured and should be rotated between the sites to prevent a build-up of dry garden waste. • Develop a composting facility or enter into an arrangement with an existing composting facility to accept all of HLM's green waste. • Building rubble should be diverted to the Droëkloof and Steynskloof landfill sites to be reused as cover material.
Kannaland Local Municipality		
	• No municipal recycling facilities • No organic waste diversion infrastructure in the KLLM • Pickers and salvagers have access to landfill sites due to no access control at these sites	• Construct a recycling drop-off facility in Ladismith and Calitzdorp and thereafter in Van Wyksdorp and Zoar • Develop a MRF • Develop a buy-back centre or swop shop in low-income areas • Develop chipping and composting facilities (prioritise Ladismith and Calitzdorp as the two largest towns) • Commence with landfill closure activities at the Calitzdorp and

Legislated Requirements/ Best Practice	Gaps	Needs
		Van Wyksdorp landfill sites and ensure Ladismith and Zoar landfill sites are upgraded to meet their WML conditions.
Knysna Local Municipality		
	• The landfill site's waste body is beyond the licensed footprint. • There are pickers and salvagers on the site (harvesting wood). • This waste body is prone to fires. • There is a lack of access control. • Closure is set to commence in 2020 and no alternate site has been identified. • No chipper on site • The Knysna transfer station is poorly located and has space constraints. • No alternate facility for garden waste has been identified for when Old Place closes. • When the Simola platform is complete, there will be no site of C&DW.	• The KLM need to either amend the license to extend the licensed footprint or move waste inside the licensed boundary. • Commence with closure activities • A chipper for the site, allow the public to collect chipped green waste • Undertake a waste masterplan to identify sites for new waste facilities. • KLM is to consider an IWMF.
Mossel Bay Local Municipality		
	• There is a lack of recycling facilities outside the coastal towns of MBLM with the exception of Herbertsdale • No large-scale organic waste diversion infrastructure. • There is no accurate record keeping of green waste that is collected from the Louis Fourie landfill site	• Construct a recycling drop-off facility in Freimersheim • Consider a mobile buyback centre which can travel between small settlements. • Develop a regional composting facility. • Record keeping of green waste diverted from landfill and used for composting should be maintained by the municipality
Oudtshoorn Local Municipality		
	• Informal reclaimers operate on the landfill sites. They are left to self-organise. • A lack of formalised municipal recycling at the landfill sites results in informal salvaging. • No comprehensive plan which addresses waste minimisation infrastructure • Lack of waste minimisation infrastructure	• There is a need to formalise salvaging. This may involve registration of informal pickers to monitor the volumes of waste removed from the sites. • Develop a plan a master plan which identifies waste minimisation infrastructure • Develop recycling drop-off facilities and chipping facilities

Legislated Requirements/ Best Practice	Gaps	Needs
6. Waste Information Management		
Bitou Local Municipality		
	• 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.
George Local Municipality		
	• No accurate waste disposal records for the Uniondale landfill site. • Only one private recycler reports data to the municipality • No records are available for in-house recycling occurring in GLM offices	• A gate controller should be stationed at the Uniondale landfill site to record incoming waste • All private recyclers operating in the municipality should report their tonnages to the municipality monthly • The service provider collecting recyclables from the municipality should report tonnages to the municipality.
Hessequa Local Municipality		
	• No records are available for in-house recycling occurring in HLM offices • There are no records for e-waste that the public drop off at municipal offices and depot workshops. • Lack of information available on hazardous waste generated by business and industry.	• Appoint a champion per office to manage the in-house recycling programme. • The service provider must provide volumes for waste collected from HLM offices. • Record of the volume of e-waste that is dropped off at the municipality. • Support the implementation of the GRWMIS. This will allow the GRDM to collect data on hazardous waste generated by business and industry.
Kannaland Local Municipality		
	• Lack of accurate records of waste entering landfill sites • Lack of records for in-house recycling programme • Lack of records of waste generated and recycled by business and industry • No WIS maintained by the municipality to determine the diversion of waste from landfill.	• Ladismith and Zoar landfill sites to be manned during operational hours to record tonnages of waste disposed • Install access control to prevent access to landfill sites after operating hours • Designate an individual per office to manage the in-house recycling programme • Obtain records for in-house recycling programme • Encourage registration of private waste recyclers on the GRWMIS • Develop a WIS to record waste disposal, diversion, reuse and

Legislated Requirements/ Best Practice	Gaps	Needs
		recycling tonnages.
Knysna Local Municipality		
	• No records are available for in-house recycling occurring in KLM offices • There are no records for e-waste that the public drop off at Knysna Transfer Station • No records for waste collected from the swop-shops, this data is combined with the monthly total • Lack of information available on hazardous waste generated by business and industry • Manual capturing of waste tonnages at facilities • No records of chipped waste removed from Sedgefield transfer station	• Appoint a champion per office to manage the in-house recycling programme. • The service provider must provide volumes for waste collected from KLM offices. • Records of waste collected from swop shops to be kept • Record of the volume of e-waste that is dropped off at the municipality. • Support the implementation of the GRWMIS. This will allow the GRDM to collect data on hazardous waste generated by business and industry. • Need to modernise and digitise capturing of data and tonnages at waste facilities by means of an app. • Keep records of chipped waste leaving Sedgefield transfer station.
Mossel Bay Local Municipality		
	• Waste records are captured manually at the landfill sites • Lack of records for in-house recycling programme • Lack of records of waste generated and recycled by business and industry	• Consider using an electronic application on a cell phone and tablet to capture waste tonnages. This would eliminate the need to manually capture data and reduce the risk of data capture errors. • Obtain records for in-house recycling programme. • Encourage registration of private waste generators on the GRWMIS.
Oudtshoorn Local Municipality		
	• No procedures exist for the capturing, collating and storage of waste data in the OLM. • No electronic records for waste disposal at the three municipal landfill sites. • No weighbridge at Grootkop landfill site. • Lack of information available on waste generation and recycling for business and industry. • Waste disposal records are not reported on IPWIS or GRWMIS	• A waste information procedure should be compiled which details all waste data that will be captured and how it will be collated, and stored. • Records (even if visual estimations) need to be kept for waste disposed of at the Dysselsdorp and De Rust landfills. • Manually captured records to be captured electronically and analysed. • A mobile application which can be run from a tablet or cell should be used to capture waste loads entering the landfill sites. • Weighbridge to be installed at Grootkop.

Legislated Requirements/ Best Practice	Gaps	Needs
		• Support the implementation of the GRWMIS. • Report disposal tonnages to IPWIS and GRWMIS.
7. Waste Education and Awareness, Training and Capacity Building		
Bitou Local Municipality		
• 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 waste awareness materials or statistics on waste recycling in the municipality.	• 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 • 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.
George Local Municipality		
	• Only 7 awareness events in the 2019/20 financial year. No follow up surveys to determine the effectiveness of waste awareness campaigns • Waste awareness materials are not aligned with the GRDMs material and do not feature the GRDM waste mascot Rocky the Rooster. • The majority of businesses and the public who responded to the survey indicated that they are unaware of any awareness campaigns undertaken by the municipality • Businesses and the public indicated that there are no clear guidelines provided on what can and cannot be recycled	• Increase the number of awareness campaigns undertaken. All schools should be visited at least twice per annum • Full public perception survey to determine current levels of knowledge with regard to waste management and to determine if awareness campaigns have been effective. • Details of all awareness campaigns to be re being recorded • Incorporate the GRDM waste awareness mascot on materials going forward • Align waste awareness campaigns with national/ international environmental days • Brand the compactor trucks with waste minimisation messages and use the GRDM mascot

Legislated Requirements/ Best Practice	Gaps	Needs
		• Information on waste minimisation and recycling should be made available on the monthly municipal bill (instead of providing links)
Hessequa Local Municipality		
	• Infrequent waste awareness campaigns. • No follow up on waste awareness campaigns to determine the successes and challenges. • Waste awareness materials are not aligned with the GRDMs material and do not feature the GRDM waste mascot Rocky the Rooster. • The municipal website does not contain any waste awareness materials or statistics on waste recycling in the municipality. • Limited social media coverage to share waste minimisation information.	• Undertake more awareness campaigns with a specific focus to waste and waste minimisation. All schools should be visited at least annually. • Undertake an in-depth public perception survey to determine current levels of knowledge with regard to waste management and to determine if awareness campaigns have been effective. • Use waste awareness materials prepared by the GRDM and incorporate Rocky the Rooster into existing materials. • Upload waste awareness materials on their website. • Statistics on waste disposal and recycling should be loaded up onto the website on a monthly basis to allow residents to track progress. • Increase use of social medial to share waste minimisation information.
Kannaland Local Municipality		
	• Infrequent waste awareness campaigns • No follow up on waste awareness campaigns to determine the successes and challenges • The municipal website does not contain any waste awareness materials or information on waste recycling and minimisation • Lack of presence on social media Lack of waste awareness materials available for the public.	• Additional waste awareness campaigns are needed • An annual awareness calendar needs to be developed at the beginning of each year to guide awareness activities • Record keeping of awareness campaigns needs to be standardized and maintained by the municipality. A standard template should be used to record information including the date of the event, topics covered, audience engaged, lessons learnt, attendance registers and photos • Increase social media presence with weekly or fortnightly posts regarding waste minimisation and recycling • Upload waste awareness materials to the municipality's website.
Knysna Local Municipality		
	• Lack of records of awareness events • No follow up to determine the effectiveness of waste awareness campaigns. • Lack of employees dedicated to waste education and	• Waste awareness campaigns need to be documented. • Appoint staff as waste awareness educators. • Reports to be produced for all awareness events including a portfolio of evidence

Legislated Requirements/ Best Practice	Gaps	Needs
	awareness. • Lack of coverage on social media	• Increased coverage of waste minimisation on social media.
Mossel Bay Local Municipality		
	• Only 28 waste awareness campaigns were undertaken between March 2018 and February 2019. • There are a lack of records available to provide details of the type of awareness campaign undertaken, topics covered and number of people engaged. • Lack of presence on social media • Lack of waste awareness materials available for the public	• Additional waste awareness campaigns are needed • An annual awareness calendar needs to be developed at the beginning of each year to guide awareness activities • 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 • Increase social media presence with weekly or fortnightly posts • Upload waste awareness materials to
Oudtshoorn Local Municipality		
	• No calendar or plan for awareness campaigns • No follow up on waste awareness campaigns to determine the successes and challenges. • Infrequent waste awareness campaigns. • No records of awareness campaigns • Waste awareness materials are not aligned with the GRDMs material and do not feature the GRDM waste mascot Rocky the Rooster. • The municipal website does not contain information on waste minimisation or recycling. • Limited social media coverage to share waste minimisation information.	• Develop a calendar for waste minimisation campaigns. • Undertake more awareness campaigns with a specific focus to waste and waste minimisation. All schools should be visited at least annually. • Prepare a report on each awareness campaign undertaken including a portfolio of evidence. • Use waste awareness materials prepared by the GRDM and incorporate Rocky the Rooster into existing materials. • Upload waste awareness materials on their website. • Statistics on waste disposal and recycling should be loaded up onto the website on a monthly basis to allow residents to track progress. • Increase use of social medial to share waste minimisation information.
8. By-Laws and Enforcement of By-Laws		
Bitou Local Municipality		
	• 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

Legislated Requirements/ Best Practice	Gaps	Needs
		to submit data to the GRWMIS on waste generation and recycling volumes.
George Local Municipality		
	• There GLM 2014 Integrated Waste Management by-laws are not aligned with the GRDM waste management by-laws • There is no fine schedule in the by-laws • There is no requirement for households to separate waste at source in the by-laws • There are no dedicated waste rangers to enforce waste management by-laws • There is no requirement for private recycling businesses to report recycling data to the municipality • Businesses should be required to recycle.	• Develop a comprehensive set of by-laws. The by-laws should be aligned with the GRDMs waste management by-laws and include a schedule of fines • Waste rangers should be appointed to enforce the by-laws, particularly around litter, illegal dumping and waste minimisation • Enforce waste by-laws, by identifying peace officers • Private recycling companies should be required to report recycling records to the municipality • Businesses should be required to recycle.
Hessequa Local Municipality		
	• HLM 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 HLM on waste generation and recycling rates.	• Align the HLM 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 directly to the HLM or onto the GRWMIS on waste generation and recycling volumes.
Kannaland Local Municipality		
	• The waste management by-law does not make separation at source mandatory. This is required once a separation at source programme is introduced • The waste management by-law is not aligned with GRDMs waste by-law • The by-law does not require business and industry to submit data to the KLLM or GRDM on waste generation and recycling rates.	• Align the waste management by-laws with the GRDMs waste management by-laws • Amend the waste management by-law to make it mandatory for large waste generators to separate waste and make use of a private recycler or a recycling 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.
Knysna Local Municipality		

Legislated Requirements/ Best Practice	Gaps	Needs
	-	-
Mossel Bay Local Municipality		
	• By-law does not make separation at source mandatory. • By-law does not require business and industry to submit data to the MBLM or GRDM on waste generation and recycling rates.	• 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.
Oudtshoorn Local Municipality		
	• OLM by-laws are not aligned with GRDMs by-law • There is no enforcement of the by-laws.	• Align the OLM by-laws with GRDMs waste management by-laws. • Enforce the by-laws to ensure business and industry separate at source
9. Waste Minimisation Budget and Institutional functioning and capacity		
Bitou Local Municipality		
	• 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.
George Local Municipality		
	-	-
Hessequa Local Municipality		
	• There is no capital budget for the construction of waste minimisation infrastructure. • Provision is not made in the operational waste management budget for other waste minimisation initiatives apart from the separation at source programme.	• Undertake a full cost accounting exercise to understand the true cost of waste management including waste minimisation. • Undertake a specific costing exercise to determine the cost of waste minimisation programmes and projects. • Ensure that the waste minimisation projects in the IWMP are funded.
	• The solid waste manager is responsible for a large portfolio which also include the management of all public	• The roles and responsibilities of the appointed waste management officer need to be reviewed in order to determine if there is a need

Legislated Requirements/ Best Practice	Gaps	Needs
	facilities. This creates a lack of capacity which affects the ability of the appointed waste manager to adequately manage the solid waste department • Lack of sufficient staff in order to adequately manage the functions of the solid waste department and the existing waste management facilities	to remove some of officer's responsibilities to create capacity. • The organogram of the cleansing and solid waste management department needs to be reviewed to determine if sufficient staff are appointed to allow the implementation of the WMP.
Kannaland Local Municipality		
	• There is no capital budget for the construction of waste minimisation infrastructure • Provision is not made in the operational waste management budget for any waste minimisation initiatives	• Undertake a full cost accounting exercise to understand the true cost of the current waste management service provided by the KLLM • Undertake a costing exercise of all waste diversion programmes proposed in the WMP to determine the cost of these • Ensure that the waste minimisation and diversion projects in the WMP are funded and implemented.
Knysna Local Municipality		
	• The budget for waste minimisation programmes was not available	• The KLM should maintain a record of budget allocated and spent for waste minimisation programmes
	• Additional staff are needed – waste awareness, admin and support staff. • Current tariffs are low and not cost reflective.	• The KLM need to review the organogram and prioritise positions which need to be filled. • The KLM is in the process of undertaking a full cost accounting exercise. Once the exercise is complete, the KLM must ensure that cost reflective tariffs are implemented.
Mossel Bay Local Municipality		
	The budget allocated for the separation at source programme is not sufficient for the service provider to undertaken the full scope of services.	Increase budgets for the separation at source programme
Oudtshoorn Local Municipality		
	• There is no capital budget for the construction of waste minimisation infrastructure. • No provision is made in the operational waste management budget for waste minimisation programmes or waste minimisation education and	• Update the full cost accounting exercise to make provision of waste minimisation programmes. Ensure that the waste minimisation projects in the IWMP are funded.

Legislated Requirements/ Best Practice	Gaps	Needs
	awareness programmes.	

11 Objectives, Targets and Action

The following set of objectives and targets will guide the GRDM 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 GRDM.

Table 56: Objectives and targets for the GRDM

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 local municipalities to register and report on the GRWMIS by end 2022 1.1.2 All recycling companies to be registered and report on GRWMIS by 2022 1.1.3 All large waste producers to be registered and report on GRWMIS by 2025 1.1.4 All scrap metal dealers and composting facilities registered and reporting of GRWMIS by end 2022 1.1.5 Appoint and designate an additional official to enforce by-law related to GRWMIS 1.1.6 Regional landfill site to report on GRWMIS and IPWIS
2. Improved waste minimisation education and awareness	2.1 Waste minimisation education and awareness programmes to be well planned and executed	2.1.1 Calendar of events to be planned at the beginning of each year
	2.2 The public and business to be informed of the importance of waste minimisation, how they can participate in waste minimisation and facilities available for waste minimisation and diversion	2.2.1 Regional coordination of waste awareness campaigns and reporting of awareness campaigns
		2.3.1 Monthly waste minimisation messages/information published via social media 2.3.2 Update waste minimisation information available on the district municipality website 2.3.3 District wide public perception survey
3. Increase the diversion	3.1 Meet the following targets:	**3.1 Recyclables**

Objective	Target	Actions
of waste from landfill	WCIWMP targets: • 20% diversion rate of recyclables by 2019 (WCIWMP) 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	3.1.1 Develop a set of minimum performance criteria for recycling service providers to assist local municipalities with procurement 3.1.2 Develop a template for events waste minimisation plans, assist with the review of events waste minimisation plans for large events 3.1.3 Develop and implement a sustainable public procurement procedure 3.1.4 Develop a district wide waste minimisation infrastructure plan 3.1.5 Green Route recycling competition 3.1.6 Undertake a contamination study on source separated waste
	3.2 Meet the following targets from the WCIWMP Organic waste targets • 50% diversion of organic waste by 2022 • 100% diversion of organic waste by 2027	**3.2 Organic waste** 3.2.1 Roll out the home composting programme to all GRDM offices 3.2.2 Develop a template for organic waste diversion plans for large producers of organic waste 3.2.3 District wide awareness campaigns focused on minimising food waste at home and home composting
	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 Construction and demolition waste** 3.3.1 Develop a template for construction site waste minimisation plans
	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 Household hazardous waste** 3.4.1 Awareness programmes for HHW

11.1 Objectives, Targets and Action identified for the Local Municipalities within the Garden Route District Municipality

The table below summarises the objectives, targets and actions identified in each local municipality's waste minimisation plan within the GRDM.

Table 57: Objectives and targets identified for local municipalities within the GRDM

Objective	Target	Actions
1. Improved waste	1.1 Accurate baseline data for	**Bitou Local Municipality** 1.1.1 All recycling companies to be registered and report on GRWMIS

Objective	Target	Actions
minimisation data management	waste generation and diversion from landfill to be determined by 2025	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
		George Local Municipality 1.1.1 All recycling companies to be registered and report on GRWMIS by 2022 1.1.2 Encourage registration and reporting of private waste generators (companies from industry) on the GRWMIS 1.1.3 Quantify waste collected through the in-house recycling programme
		Hessequa Local Municipality 1.1.1 All recycling companies to be registered and report on GRWMIS 1.1.2 Weighbridges to be installed at all new transfer stations 1.1.3 Weighbridges to be installed at all general waste landfill sites 1.1.4 Records of waste collected through the in-house recycling programme to be quantified 1.1.5 Capturing of the tonnage of C&DW used as cover material 1.1.6 Electronic system (cell phone or tablet) to capture waste tonnages entering landfill sites
		Kannaland Local Municipality 1.1.1 All recycling companies to be registered and report on GRWMIS 1.1.2 Weighbridge to be installed at Ladismith landfill site which will operate past 2025 1.1.3 Records of waste collected through the in-house recycling programme to be quantified 1.1.4 Capture volumes of C&DW used as cover material. Convert the volumes to tonnages and record this as reuse of C&DW
		Knysna Local Municipality 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 Records for waste collected through swop-shops to be captured 1.1.4 Electronic system (cell phone or tablet) to capture waste tonnages entering Old Place and Sedgefield garden waste site 1.1.5 Keep records of chipped waste leaving the Sedgefield transfer station
		Mossel Bay Local Municipality 1.1.1 All recycling companies to be registered and report on GRWMIS 1.1.2 Encourage registration and reporting of private waste generators (companies from industry) on the GRWMIS 1.1.3 Records of waste collected through the in-house recycling programme to be quantified 1.1.4 Develop a WIS (excel spreadsheet) to capture waste minimisation data. This should be updated monthly

Objective	Target	Actions
		Oudtshoorn Local Municipality 1.1.1 All recycling companies to be registered and report on GRWMIS 1.1.2 Capture waste disposal records for Dysselsdorp, De Rust and Grootkop landfill sites electronically 1.1.3 Weighbridge to be installed at Grootkop landfill site 1.1.4 Report waste disposal data on IPWIS and GRWMIS
1 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	**Bitou Local Municipality** 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
		George Local Municipality 2.1 Calendar of events to be planned at the beginning of each year 2.2 Bi-annual engagement at all schools 2.3 Fortnightly waste minimisation messages/ information published via social media and communicated on a local radio station 2.4 Update waste minimisation message/ information on the municipal website 2.5 Door-to-door visits to households not participating in the S@S programme 2.6 Include home composting and diversion of organic waste in education and awareness campaigns 2.7 A standard template to record information from waste education and awareness campaigns should be developed. Information to be recorded includes date of event, topics covered or discussed, audience engaged, lessons learnt and maintaining an attendance register for all awareness campaigns where applicable
		Hessequa Local Municipality 2.1 Calendar of events to be planned at the beginning of each year 2.2 Bi-annual engagement at all schools 2.3 Monthly waste minimisation messages/ information published via social media 2.4 Update waste minimisation information available on the municipal website 2.5 Notice boards at all existing and future waste drop-off facilities (refer also to action 3.1.6) 2.6 Door-to-door visits to households not participating in two bag system. Determine participation rates before

Objective	Target	Actions
		and after engagement to determine if it was successful
		Kannaland Local Municipality 2.1 Calendar of events to be planned at the beginning of each year 2.2 Bi-annual engagement at all schools 2.3 Monthly waste minimisation messages/ information published via social media 2.4 Update waste minimisation information available on the municipal website 2.5 Notice boards at future recycling drop-off facilities
		Knysna Local Municipality 2.1 Calendar of events to be planned at the beginning of each year 2.2 Bi-annual engagement at all schools 2.3 Monthly waste minimisation messages/ information published via social media 2.4 Update waste minimisation information available on the municipal website 2.5 Notice boards at waste drop-off facilities
		Mossel Bay Local Municipality 2.1 Calendar of events to be planned at the beginning of each year 2.2 Bi-annual engagement at all schools 2.3 Fortnightly waste minimisation messages/ information published via social media 2.4 Update waste minimisation information on the municipal website 2.5 Door-to-door visits to households not participating in the S@S programme 2.6 Include home composting and diversion of organic waste in education and awareness campaigns 2.7 A standard template to record information from waste education and awareness campaigns should be developed. Information to be recorded includes date of event, topics covered or discussed, audience engaged, lessons learnt and maintaining an attendance register for all awareness campaigns where applicable.
		Oudtshoorn Local Municipality 2.1 Calendar of events to be planned at the beginning of each year 2.2 Bi-annual engagement at all schools. 2.3 Monthly waste minimisation messages/ information published via social media 2.4 Add waste minimisation information to the municipal website 2.5 Notice boards at future recycling drop-off facilities
3 Increase the diversion of waste from landfill	**Recyclables** 3.1 Meet the following targets: WCIWMP targets:	**Bitou Local Municipality** 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
	• 20% diversion rate of recyclables by 2019 (WCIWMP) 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
		George Local Municipality 3.1.1 The separation at source programme contract should set performance targets for participation, tonnage of waste collected and education and awareness 3.1.2 Quantify participation rates in the 2-bag system per suburb 3.1.3 Develop a plan to increase participation rates in the S@S programme with annual targets 3.1.4 Assess the feasibility of establishing safe and accessible drop offs starting with one in the most preferred high-income area and buy back centres in the low income areas starting with a pilot in two areas (Thembalethu and Pacaltsdorp) 3.1.5 All events to have a waste minimisation plan and submit to the relevant municipal officers for approval prior to the event 3.1.6 Develop a sustainable public procurement procedure for the municipality 3.1.7 Revise waste management by-laws to: • Align GLM by-laws to GRDM by-laws • Make participation in S@S programme compulsory • Require business and industry to report waste data to GRWMIS • Require malls and shopping complexes to have an approved waste management plan in place and monitor compliance • Require all events to be conducted according to a waste minimisation plan • Large producers of organic waste to prepare organic waste diversion plans • All construction projects to have an approved waste minimisation plan in place prior to commencement • Fining schedule for non-compliance and peace officers or waste rangers for enforcement of by-laws
		Hessequa Local Municipality 3.1.1 Revise the contract for the separation at source service provider to set performance targets for

Objective	Target	Actions
		participation, tonnage of waste collected and education and awareness 3.1.2 Quantify participation rates in the 2-bag system per suburb 3.1.3 Develop a plan to increase participation rates in the separation at source programme with targets per annum 3.1.4 Establish two swop shops/buy back centres in Riversdale and Melkhoutfontein 5 3.1.5 Add recycling facilities to the new transfer stations in Albertinia and Gouritsmond 3.1.6 Formalise existing waste drop-off facilities to include a bin for source separated waste and an information board 3.1.7 All events to have a waste minimisation plan 3.1.8 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 3.1.9 Develop a sustainable public procurement procedure
		Kannaland Local Municipality 3.1.1 Appoint a recycling service provider for the S@S programme 3.1.2 Establish a buy back centre 3.1.3 Add recycling facilities to in Calitzdorp, Zoar and Van Wyksdorp 3.1.4 Construct a MRF at the Ladismith landfill site 3.1.5 All significant public events to have a waste minimisation plan 3.1.6 Develop a sustainable public procurement procedure for the municipality 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
		Knysna Local Municipality 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 3.1.2 Quantify participation rates in the 2 bag system per suburb 3.1.3 Develop a plan to increase participation rates in the separation at source programme with targets per

Objective	Target	Actions
		annum 3.1.4 Undertake door-to-door engagements without households not participating in separation at source programme to understand the reasons. 3.1.5 Formalise recycling drop-off facilities in Knysna and Sedgefield 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 swop shops to report data on a monthly basis • 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 3.1.9 Waste minimisation infrastructure planning
		Mossel Bay Local Municipality 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 Increase the budget for the S@S programme to extend the programme and increase recyclable collection tonnages 3.1.3 Quantify participation rates in the S@S programme per suburb 3.1.4 Develop a plan to increase participation rates in the S@S programme with annual targets 3.1.5 Ensure existing swop shops continue to function and raise awareness to public for donations to swop shops 3.1.6 Construct a recycling drop-off facility in Freimersheim 3.1.7 Determine the feasibility of a mobile buy-back that can travel between small settlements 3.1.8 All events to have a waste minimisation plan 3.1.9 Develop a sustainable public procurement procedure for the municipality 3.1.10 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
		Oudtshoorn Local Municipality 3.1.1 Pilot a separation at source programme

Objective	Target	Actions
		3.1.2 Establish a buy back centre 3.1.3 Develop recycling drop-off facilities 3.1.4 Construct a MRF at the Grootkop landfill site 3.1.5 All significant public events to have a waste minimisation plan 3.1.6 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 3.1.7 Develop a sustainable public procurement procedure for the municipality
	Organic Waste 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	**Bitou Local Municipality** 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
		George Local Municipality 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 Home composting workshops to encourage the use of compost heaps 3.2.3 Roll out on-site composting or worm farms to all schools before 2028 3.2.4 Short-term, chip green waste at the landfill sites and chips to be made available for farmers or the public to collect 3.2.5 Medium to long term, the municipality should commission the George composting facility 3.2.6 Pilot a 4-bag system with a fourth bag for kitchen waste and make use of biodegradable bags which can also be composted 3.2.7 Large producers of organic waste to prepare organic waste diversion plans which adhere to national targets.
		Hessequa Local Municipality 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

Objective	Target	Actions
		3.2.3 Add chipping facilities to all landfill sites and allow the public to collect compost 3.2.4 Facilitate engagements between wood mills and composting facilities to determine if there is a demand for wood waste 3.2.5 Large producers of organic waste to prepare organic waste diversion plans
		Kannaland Local Municipality 3.2.1 Roll out home composting bins to an additional 100 households per annum 3.2.2 Develop a green waste chipping facility at the Ladismith landfill site 3.2.3 Roll out on-site composting or worm farms to all schools before 2028 3.2.4 Develop a composting facility
		Knysna Local Municipality 3.2.1 Roll out home composting to an additional 100 households per annum 3.2.2 Roll out on-site composting or worm farms to all schools before 2026 3.2.3 Provide a green waste drop-off and chipping facility in Knysna 3.2.4 Develop a composting facility/ enter into a PPP for a composting facility 3.2.5 Appoint a service provider to manage blue bags 3.2.6 Large producers of organic waste to prepare organic waste diversion plans
		Mossel Bay Local Municipality 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 Home composting workshops to encourage the use of compost heaps 3.2.3 Roll out on-site composting or worm farms to all schools before 2028 3.2.4 Develop small green waste drop-off and chipping facilities in the municipality. A roaming chipper could be used to chip green waste 3.2.5 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 Great Brak landfill site 3.2.6 Develop a regional composting facility 3.2.7 Pilot a 4-bag system with a fourth bag for kitchen waste. 3.2.8 Large producers of organic waste to prepare organic waste diversion plans
		Oudtshoorn Local Municipality 3.2.1 Pilot a home composting programme in conjunction with the GRDM 3.2.2 Roll out home composting bins to an additional 100 households per annum 3.2.3 Develop a green waste chipping facility at the Grootkop landfill site 3.2.4 Roll out on-site composting or wormfarms to all schools before 2028

Objective	Target	Actions
		3.2.5 Add composting facilities to Grootkop landfill site 3.2.6 All large producers of organic waste to develop and implement organic waste diversion plans
	Construction and Demolition Waste 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	**Bitou Local Municipality** 3.3.1 All municipal or large-scale construction projects to have an approved waste minimisation plan in place prior to commencement
		George Local Municipality 3.3.1 All municipal or large-scale construction projects to have an approved waste minimisation plan in place prior to commencement 3.3.2 Engage with the GLM engineering department to identify projects e.g. road construction or upgrades where crushed clean C&DW can be used 3.3.3 Engage with GRDM to determine if C&DW can be used as cover material at landfills
		Hessequa Local Municipality 3.3.1 Feasibility study for C&DW management 3.3.2 All municipal or large scale construction projects to have an approved waste minimisation plan in place prior to commencement
		Kannaland Local Municipality 3.3.1 Use C&DW as cover material at the Ladismith landfill sites 3.3.2 All municipal or large-scale construction projects to have an approved waste minimisation plan in place prior to commencement
		Knysna Local Municipality 3.3.1 Feasibility study for C&DW management 3.3.2 All municipal or large scale construction projects to have an approved waste minimisation plan in place prior to commencement
		Mossel Bay Local Municipality 3.3.1 All municipal or large scale construction projects to have an approved waste minimisation plan in place prior to commencement 3.3.2 Implement a tariff system for contaminated C&DW at the Great Brak landfill site. Clean rubble to be accepted free of charge 3.3.3 Engage with the MBLM engineering department to identify projects e.g. road construction or upgrades where crushed clean C&DW can be used 3.3.4 Engage with GRDM to determine if C&DW can be used as cover material.
		Oudtshoorn Local Municipality 3.3.1 Use C&DW as cover material at landfill sites 3.3.2 All municipal or large scale construction projects to have an approved waste minimisation plan in place prior to commencement

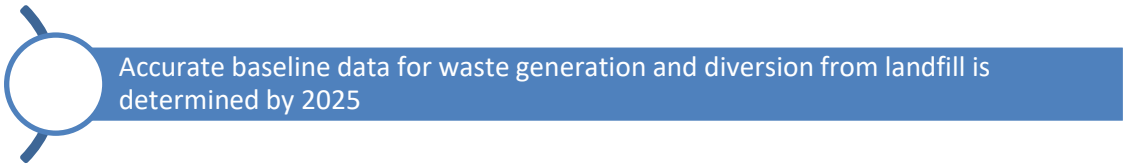
Objective	Target	Actions
	Household Hazardous Waste 3.4 Meet the following targets from the NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035	**Bitou Local Municipality** 3.4.1 Provide HHW drop-off facilities in Natures Valley and Keurboomstrand 3.4.2 Host HHW open days where the community can dispose their HHW
		George Local Municipality 3.4.1 Establish drop off facilities for HHW at the George transfer station and accessible municipal offices 3.4.2 Host annual HHW open days.
		Hessequa Local Municipality 3.4.1 Drop-off facilities for HHW 3.4.2 Open days 3.4.3 HLM internal policy for e-waste
		Kannaland Local Municipality 3.4.1 Provide drop-off facilities for HHW in Ladimisth and Calitzdorp 3.4.2 Host bi-annual HHW open days in Ladismith, Calitzdorp, Zoar and Van Wyksdorp
		Knysna Local Municipality 3.4.1 Drop-off facilities for HHW 3.4.4 Open days
		Mossel Bay Local Municipality 3.4.1 Increase awareness of drop-off facilities and HHW open days 3.4.2 Host annual HHW open days in Freimersheim and Herbertsdale
		Oudtshoorn Local Municipality 3.4.1 Provide drop-off facilities for HHW. 3.4.2 HHW open days

Objective	Target	Actions
	Bulky Waste 3.5 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	**Bitou Local Municipality** 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 GRDM to implement projects identified in the WMP.

12.1 Objective 1. Improved Waste Minimisation Data Management



Action 1.1.1. All LMs to register and report on the GRWMIS by end 2022
Action 1.1.2. All recycling companies to be registered and report on GRWMIS by 2022
Action 1.1.3 All large waste generators to register and report on GRWMIS by 2025
Action 1.1.4 All scrap metal dealers and composting facilities registered and reporting of GRWMIS by end 2022

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	Action 1.1.1. All LMs to register and report on the GRWMIS by end 2023 Action 1.1.2. All recycling companies to be registered and report on GRWMIS by 2022 Action 1.1.3 All large waste generators to register and report on GRWMIS by 2025 Action 1.1.4 All scrap metal dealers and composting facilities registered and reporting of GRWMIS by end 2022
Priority	Medium
Prior projects	None
Timeframe	2022 – ongoing
Budget required	Nil
Responsibility	GRDM and local municipalities
Implementation guide	**Local Municipalities** 1. Local municipalities to register and report disposal and diversion tonnages on the GRWMIS 2. GRDM to monitor reporting of the local municipalities on the GRWMIS, follow up with LMs when information is not provided timeously and discuss any anomalies of the data submitted. **Recycling companies, scrap metal dealers and composting facilities** 1. GRDM to add a list of recycling companies, scrap metal dealers and composting facilities registered on the GRWMIS onto their website 2. Local municipalities to provide details of other known recycling companies, scrap metal dealers and composting facilities operating in their municipal area to the GRDM 3. GRDM and local municipalities to post a notice on social media requesting recycling companies, scrap metal dealers and composting facilities to register on the GRWMIS 4. GRDM to monitor reporting of data by recycling companies and organisations 5. Where there are anomalies in the data GRDM/ local municipality to visit or contact the recycler, scrap metal dealer and composting facility to verify the data **Large waste generators** 1. GRDM to define what a large waste generator is, either by industry type or the volume of waste generated per month 2. GRDM to develop a list of large waste generators 3. Letters to be sent to large waste generators with instructions on how to register and report 4. Follow up after 3 months of issue of letter on the status of identified large waste generators.
Key performance indicator	Number of recycling companies, scrap metal dealers, composting facilities and large waste generators registered and reporting on the GRWMIS.

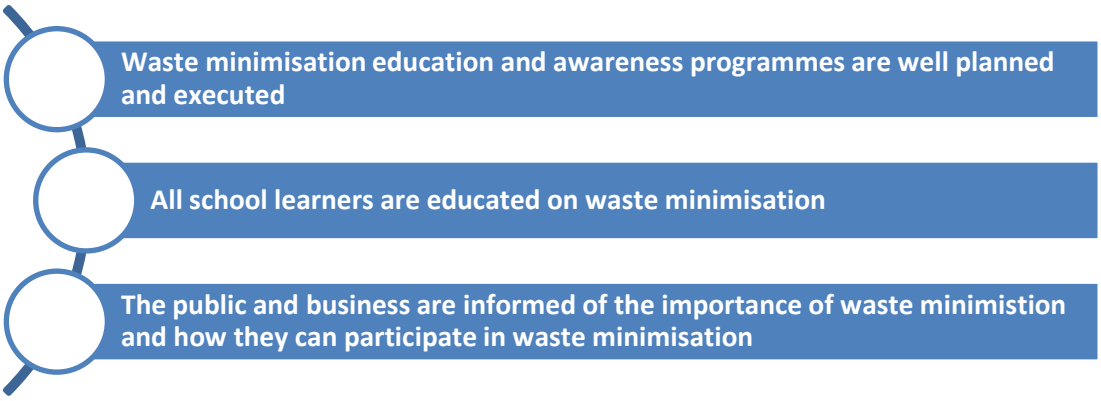
Action 1.1.5. Appoint and designate an official to enforce by-law related to GRWMIS

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.5 Appoint and designate an official to enforce by-law related to GRWMIS
Priority	Medium
Prior projects	1.1.1 All LMs to register and report on the GRWMIS by end 2023 1.1.2 All recycling companies to be registered and reporting on GRWMIS by 2022 1.1.3 All large waste generators to register and report on GRWMIS by 2025 1.1.4 All scrap metal dealers and composting facilities registered and reporting of GRWMIS by end 2022.
Timeframe	2023 – on-going
Budget required	R 250,000/annum per employee
Responsibility	GRDM
Implementation guide	1. GRDM to appoint or identify existing employees who meet the requirements of section 49 of the 2017 District Waste Management By-Law 2. Employees to be designated as an authorised official 3. Authorised officials to receive training on the contents of the by-law and how to enforce them
Key performance indicator	Number of authorised officials in terms of the District Waste Management By-Law

Action 1.1.6. Regional landfill site to report on IPWIS and GRWMIS

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.4. Regional landfill site to report on IPWIS and GRWMIS
Priority	Medium
Prior projects/ actions	GRDM regional landfill site to be commissioned and a weighbridge to be installed
Timeframe	2023
Budget required	Will form part of the tender specification of the Regional Waste Management Facility construction and operational tender.
Responsibility	GRDM
Implementation guide	1. GRDM to procure weighbridge software which has waste categories which are aligned with the waste categories in annexure 3 and 4 of the National Waste Information Regulations (GN 625 of 2012). Note: the waste categories can be more detailed than those in the regulations e.g. GW 30 construction and demolition waste could be sub-divided into the different components of C&DW. It is important that data can be rolled up into categories to match the IPWIS and GRWMIS categories. 2. GRDM to ensure that point 1 above is included in the specifications of the tender and for the service provider to install the desired IT system for the weighbridge. 3. Weighbridge operator to be trained on identifying different waste streams 4. Every waste load entering the regional site to be recorded and records uploaded to GRWMIS and IPWIS.
Key performance indicator	Reporting status on GRWMIS and IPWIS

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
Prior projects	None
Timeframe	2022 – ongoing
Budget required	Nil
Responsibility	GRDM
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 • Responsible person/ department/ organisation 2. Engage with local municipalities, DEA&DP and DFFE to determine what events they have planned and incorporate these into the calendar where relevant 3. 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-ups, 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 4. 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 5. Develop a close out report 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 Regional co-ordination of waste awareness campaigns and reporting of awareness campaigns

Target	2.1 Waste education and awareness programmes are well planned and executed

Action	Action 2.2.1 Regional co-ordination of waste awareness campaigns and reporting of awareness campaigns Action 2.2.2 Appoint Specialist Service Provider to assist GRDM
Priority	High
Prior projects	Action 2.1.1 Calendar of events to be planned at the beginning of each year
Timeframe	2022 – ongoing
Budget required	R 800 000.00
Responsibility	GRDM/ Municipalities
Implementation guide	1. GRDM to monitor the progress of the local municipalities in conducting awareness campaigns as identified in the annual awareness calendar 2. GRDM to provide assistance in the planning execution of awareness campaigns 3. GRDM to prepare a close out report for awareness campaigns. The report should cover: • Event details, date, time, location, number of people engaged with, topics covered • Feedback from attendees • Successes/ lessons learnt • Required date for follow up actions if necessary • Photographs • Attendance registers
Key performance indicator	Number of education awareness campaigns c completed, to be verified through close out reports.

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
Prior projects	Action 2.1.1 Calendar of events to be planned at the beginning of each year
Timeframe	August 2022 – onwards
Budget required	R 600 000.00
Responsibility	GRDM Waste Management and Communications Department
Implementation guide	1. Engage with Communications Department to confirm the procedure for posting on social media 2. Develop a template for the waste minimisation posts. The template should include waste mascot, Rocky the Rooster. Template to be approved by communications department 3. Plan a calendar of social media posts. 4. GRDM to repost posts by the local municipalities in addition to the monthly messages 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 (star rating system) (to be estaimated from service provider) 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. Invitation to collect chipped green waste from landfill sites 9. Notification of the requirement for event waste minimisation plans and construction project waste minimisation plans
Key performance indicator	Number of waste minimisation messages posted per annum.

2.3.2 Update waste minimisation messages/ information published on the district municipality 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

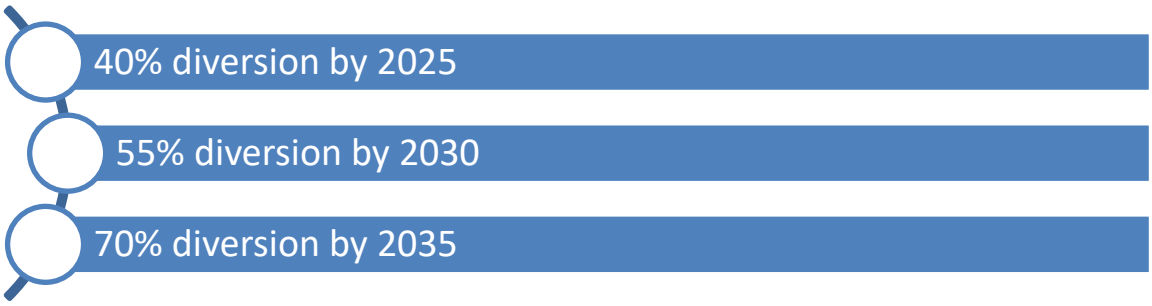
Action	2.3.2 Update waste minimisation messages/ information published on the municipal website
Priority	High
Prior projects	2.1.1 Calendar of events to be planned at the beginning of each year
Timeframe	2022
Budget required	Nil, internal project
Responsibility	GRDM Waste Management and Communications Department
Implementation guide	1. Compile information to be added to the website, including: • Calendar of planned waste awareness events • Information on why waste minimisation is important • Hints and tips on waste minimisation • How to guide for recycling e.g. materials which are accepted, rinsing of food containers etc. • A home composting guide • A district wide map showing the location of recycling drop-off facilities • Contact details for GRDM and local municipality waste managers and supervisors • A library of articles, posts or video released on social media or via email • A copy of this waste minimisation plan (once finalised) • The template for event waste minimisation plan • The template for construction project waste minimisation plan • Educational resources for schools to use • A list of recycling companies with contact details which are registered on the GRWMIS 2. Ensure all information is up to date and correct 3. Submit information to the Communications Department to upload to the website.
Key performance indicator	Amount of information available on GRDM website.

2.3.3 District wide public perception survey

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 District wide public perception survey
Priority	Low
Prior projects	None
Timeframe	2026 - 2028
Budget required	TBC based on survey method
Responsibility	GRDM and Local Municipalities
Implementation guide	1. Review the questionnaire used for the 2020 survey and update if required 2. Develop an online survey 3. Develop a mobile application which can be used on a cell phone or tablet 4. Appoint/ identify field surveyors who will do the face-to-face surveys. Field surveyors should as far as possible be appointed from the local municipality and be fluent the predominant local language. 5. Identify/ appoint a supervisor who will manage the field surveyors from day to day. This will include ensuring the field surveyors equipment is working, surveys are uploaded daily, field surveyors are aware of the area they are working in each day and that transport arrangements are in place 6. Print t-shirts and identity cards for field surveyors 7. Train field surveyors on basic terms e.g. what is meant by recycling, composting etc. and how to input data into the application. Field surveyors should also be provided with a background on why the survey is being undertaken and what the results will be used for. It is important that respondents are informed that the results will be anonymous so they respond honestly to questions. 8. Undertake trial runs of the survey in a practical training session 9. Develop a survey plan per local municipality, to cover: • Determine a target number of survey per local municipality from high, medium and low

	income areas • How the online survey will be advertised – social media, emails, notice with rates etc. • Classification of suburbs as high income (good access to internet), medium income (fair access to internet) and low income (poor to no access to internet) • Identify suburbs to be visited by fieldwork team, low and medium income suburbs to be targeted. Where there is a low response rate to the online survey face-to-face interviews would also be needed in high income areas • Identify shopping centres, customer care centres, clinics etc. where the surveyors can spend time completing surveys 10. Launch the field surveys in one municipality at a time. Feedback received from the surveyors and supervisors to be used to amend the survey plan and develop a list of lessons learnt. 11. A report per local municipality to be prepared outlining the methodology used and results.
Key performance indicator	Number of surveys received per local municipality

12.3 Objective 3.1 Increase the Diversion of Recyclable Waste from Landfill



Action 3.1.1 Develop a set of minimum performance criteria for recycling service providers to assist local municipalities with procurement

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	3.1.1 Develop a set of minimum performance criteria for recycling service providers to assist local municipalities with procurement
Priority	High
Prior projects	None
Timeframe	2022
Budget required	Nil, internal project
Responsibility	GRDM Waste Management, Supply Chain Management
Implementation guide	1. Engage with other local municipalities to source current contracts with recycling companies 2. Request lessons learnt from the local municipalities in terms of recycling service providers 3. Develop a set of guidelines for the procurement of service providers including: • Quantifiable performance criteria for tonnages collected, number of awareness events, reporting etc. • A requirement to increase participation in low income areas, this can be achieved through swop shops or buy-back centres or directly involving the community e.g. recycling ambassadors • Service provider to quantify participation rates at a suburb level • Local residents 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 kerbside collection service to unserviced areas • Compliance of facility with legislation –cleanliness, litter, registrations
Key performance	Contract revised and contractor is fulfilling the requirements of the contract

indicator	

3.1.2 Develop a template for events waste minimisations plans

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	3.1.2 Develop a template for events waste minimisations plans
Priority	Low
Prior projects/ task	None
Timeframe	2022
Budget required	Nil
Responsibility	GRDM and local municipalities
Implementation guide	1. Develop a template for the event waste minimisation plan in consultation with the local municipalities. Template to include the following information • Event time, date and location • Type of event • Methods used to advertise the event • Expected types and volumes of waste which would be generated by the event • Waste service provider/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 • How waste minimisation will be advertised by the event • 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. Provide a review role for events waste minimisation plans when requested by the local municipalities
Key performance indicator	A template is developed for events waste minimisation plans

Action 3.1.3 Develop and implement a sustainable public procurement procedure

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	3.1.3 Develop a sustainable public procurement procedure
Priority	Low
Prior projects/ task	None
Timeframe	2024 - ongoing
Budget required	Nil, if undertaken internally
Responsibility	GRDM in collaboration with the SCM
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 • Waste avoidance policies in the municipality e.g. accepting electronic tenders instead of hardcopies, no bottled water at meetings.
Key performance indicator	Green procurement guidelines which focus on waste minimisation and recycling is developed.

Section 3.1.4 Develop a district wide waste minimisation infrastructure plan

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	3.1.4 Develop a district wide waste minimisation infrastructure plan
Priority	High
Prior projects/ task	None
Timeframe	2022
Budget required	R1,600,000
Responsibility	GRDM
Implementation guide	1. Develop a scope of works for a waste minimisation infrastructure plan. The plan should for each of the local municipalities: • Review existing waste infrastructure plans • Identify sites for the development of a new transfer station, green waste drop-off and chipping facilities and recycling drop-off facilities • Identify long term solutions for C&DW • Include concept designs for facilities • An environmental screening for facilities to determine registration/ licensing requirements • Include a costing estimate for facilities • Assess the viability of facilities
Key performance indicator	Waste minimisation infrastructure plan

Section 3.1.5 Green Route competition

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	3.1.6 Green Route competition
Priority	Low
Prior projects/ task	None
Timeframe	2026
Budget required	Budget to be determined and dependent on In-house funding or sponsorship
Responsibility	GRDM
Implementation guide	1. Green Route competition criteria to be outlined. 2. Define categories for entry – schools, NPOs, small, medium and large business 3. Define scoring criteria e.g. awareness being undertaken, recycling programmes, participation rates, most innovative programs etc. 4. Advertise the competition and invite schools, NGOs and business to enter 5. Parties interested in registering to complete an application form 6. GRDM to review entries and narrow it down to 4 contenders per category. 7. Visits to be undertaken to the top 4 participants per category 8. Based on the outcome of visits a winner and runner up to be identified per category. Certificates and prize money to be divided between the winners and runners up. 9. Press release to be posted in the media and social media with details of the competition
Key performance	Number of entrants to the competition

indicator	Number of social media posts/ articles resulting from the competition.

Section 3.1.6 Undertake a contamination study on source separated waste

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	3.1.7 Undertake a contamination study on source separated waste
Priority	Low
Prior projects/ task	None
Timeframe	2028
Budget required	Nil – in-house
Responsibility	GRDM, local municipalities
Implementation guide	1. Define a study plan – start with one local municipality and identify two suburbs in high, medium and low income areas. 2. Collect clear or coloured recycling bags from a sample of households in the identified suburbs 3. Sort the waste into different categories to develop a profile of waste in the bags with separate categories for contaminated waste and non-recyclable waste. 4. Undertake door-to-door engagement in one of the income areas, reissue leaflets on what is and what is not recyclable and how to recycle e.g. rinsing containers. 5. No awareness to be undertaken in the control suburbs 6. Repeat the sampling of waste in both suburbs to determine if the level of contamination and presence of non-recyclable waste has improved with door-to-door engagement. 7. Determine the success of the awareness campaigns in the different income areas suburbs 8. Publish the results on social media as part of awareness raising on recycling. 9. Use the results of the study to develop awareness programmes e.g. are door-to-door visits effective in all income areas.
Key performance indicator	Number of households surveyed Decrease in contamination of recyclable waste.

12.4 Objective 3.2 Increase the Diversion of Organic Waste from Landfill

Action 3.2.1 Roll out the home composting programme to all GRDM offices

Objective	Increase the Diversion of Waste from Landfill
Target	• 50% diversion of organic waste from landfill by 2022 • 100% diversion of organic waste from landfill by 2027
Action	3.2.1 Roll out the home composting programme to all GRDM offices
Priority	Medium
Prior projects	None
Timeframe	2022
Budget required	R2,500/ office for equipment
Responsibility	GRDM
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. Undertake in-house awareness and issue bins to each office 4. Add monitoring of the home composting bins to the responsibilities of the recycling champion

	5. Each office to report monthly on the mass of organic waste diverted from landfill 6. Results to be published on GRDM website and social media, the GRDM drive towards zero waste.
Key performance indicator	1. Number of offices participating in the home composting programme 2. Amount of organic waste (kg) diverted from landfill

Action 3.2.2 Develop a template for organic waste diversion plans for large producers of organic waste

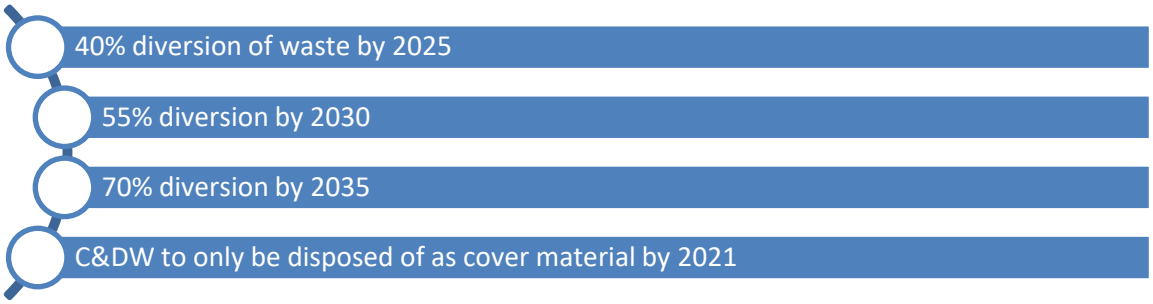
Objective	Increase the Diversion of Waste from Landfill
Target	50% diversion of organic waste from landfill by 2022 100% diversion of organic waste from landfill by 2027
Action	3.2.2 Develop a template for organic waste diversion plans for large producers of organic waste
Priority	Medium
Prior projects/ task	None
Timeframe	2023
Budget required	Nil, if developed in-house
Responsibility	GRDM
Implementation guide	1. Engage with DEA&DP to see if they have a template/ guideline for business/ industry to develop organic waste diversion plans. 2. Develop a list of contents for the organic waste diversion plans. This would include: • Company details, type of industry, size, number of employees, address, contact details for manager/ environmental officer • A description of the businesses process e.g. manufacturing process and identification of waste type and quantity generated at each stage of the process. • Type and quantity of waste generated • Current waste management processes • Information management • GRWMIS registration status • Targets for waste minimisation and diversion • Methods to measure and monitor waste minimisation • An awareness plan 3. Workshop the plan contents with the local municipalities and DEA&DP 4. Develop a template and 'how to guide' 5. Identify five businesses to pilot the organic waste diversion plan with and issue them with the template and an instruction letter 6. Review submitted plans and identify shortcomings in the template 7. Revise the template and issue to all identified large producers of organic waste.
Key performance indicator	• A template for organic waste diversion plans is developed

Action 3.2.3 District wide awareness campaigns focused on minimising food waste at home and home composting

Objective	Increase the Diversion of Waste from Landfill
Target	50% diversion of organic waste from landfill by 2022 100% diversion of organic waste from landfill by 2027
Action	3.2.3 District wide awareness campaigns focused on minimising food waste at home and home composting
Priority	High
Prior projects/ task	2.1.1 Calendar of events to be planned at the beginning of each year 2.1.2 Regional co-ordination of waste awareness campaigns and reporting of awareness campaigns
Timeframe	2022
Budget required	R800,000 – service provider R600,000 – newspaper adverts
Responsibility	GRDM
Implementation	1. Develop awareness materials focused on highlighting the issue of food waste. Have a food waste

guide	awareness month – weekly posts of social media, local municipalities to focus on food waste awareness during this month 2. Social media posts to include: • Food waste facts e.g. did you know the average households wastes XXkg of food waste monthly. • Helpful hints and tips - e.g. check your fridge temperature, meal plan to avoid wastage, compost fruit and vegetable peels, portion control to avoid wastage. • How to guide for home composting
Key performance indicator	• Volume of green waste diverted from the landfill sites

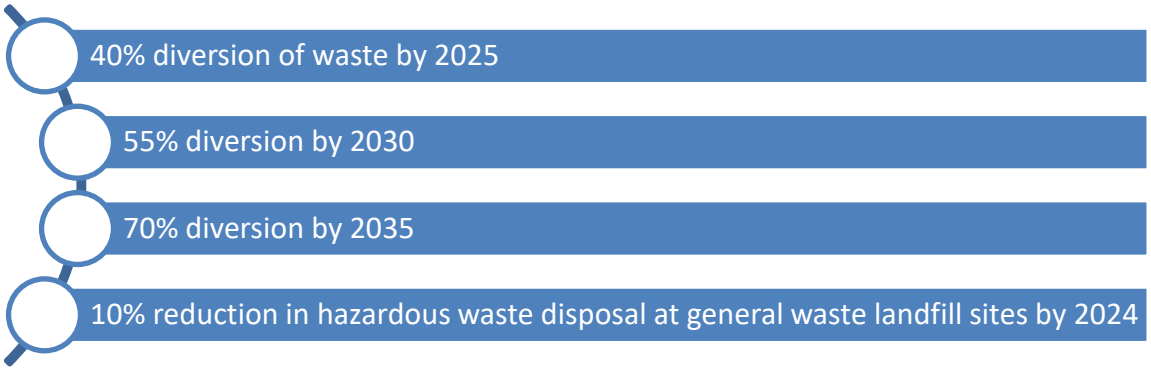
12.5 Objective 3.3 Diversion of C&DW



Action 3.3.1 Develop a template for construction site waste minimisation plans

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	3.3.1 Develop a template for construction site waste minimisation plans
Priority	Medium
Prior projects/ task	3.1.3 Develop and implement a sustainable public procurement procedure
Timeframe	2024
Budget required	Nil
Responsibility	GRDM and Local Municipality to enforce
Implementation guide	1. Develop a template for the construction waste minimisation plans. 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 • Facility to be used for disposal of waste • 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. Train local municipalities what the construction waste minimisation plan should cover
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

12.6 Objective 3.4 Diversion of Household Hazardous Waste



Action 3.4.1 Awareness programmes for 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 • 10% reduction in hazardous waste disposal at general waste landfill sites by 2024
Action	3.4.2. Open days for HHW
Priority	Medium
Prior projects/ task	2.2.1 Regional co-ordination of waste awareness campaigns and reporting of awareness campaigns 2.3.1 Monthly waste minimisation messages/ information published via social media or sent via email
Timeframe	2025 - ongoing
Budget required	Budget for Action 3.4.1 to be included in budget from 2.2.1 (R800,000) and Action 2.3.1 (R600,000)
Responsibility	GRDM/ municipalities
Implementation guide	1. Develop awareness materials focused on HHW identification and management. Have a HHW awareness month – weekly posts of social media, local municipalities to focus on HHW awareness during this month 2. Social media posts to include: • Identification of HHW • Management of HHW • Locations of municipal HHW drop-off facilities • Details of HHW open days
Key performance indicator	• Volume of green waste diverted from the landfill sites

13 Monitoring and Review

The WMP planning cycle includes a monitoring and review phase.

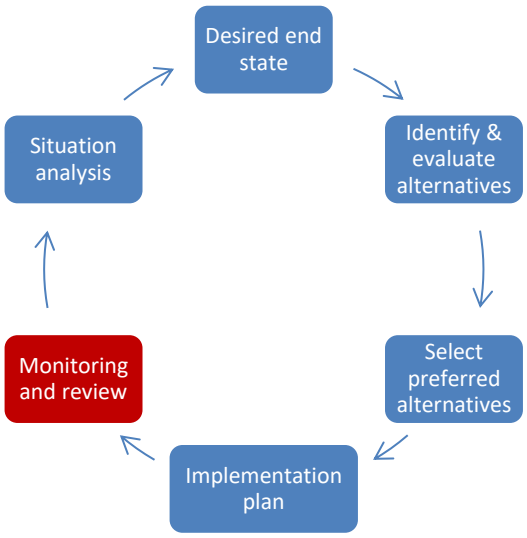


Figure 21: WMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA)

The WMP should be treated as a live document and updated as and when required. Updated which may be needed include but are not limited to:

- Significant change to the status quo –e.g. construction of new waste minimisation infrastructure
- Changes to legislation
- New guideline documents
- Changes to municipal budgets
- Update to align the plan with the new version of the WCIWMP. The current WCIWMP covers the period 2017 – 2022 and will shortly be revised.

A bi-annual progress 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 be provided. Successes and lessons learnt from the implementation of action must also be recorded in the bi-annual review. Sharing of this information with local municipalities should be encouraged.

14 References

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Web reference 8. Department of Environmental Affairs – Gasification (accessed on 20/04/2020)
http://awtguide.environment.gov.za/content/technologies-overview-gasification

Web reference 9. Department of Environmental Affairs – Open windrow composting (accessed on 15/12/2020) http://awtguide.environment.gov.za/content/technologies-overview-open-windrow-composting

Appendix A.

Stakeholder	Method of engagement	Date of engagement	Municipality
Masiqhame Trading	Face-to-face interview	31-Jul-20	Bitou
Shoprite Plettenberg Bay	Face-to-face interview	31-Jul-20	Bitou
Superspar Plettenberg Bay	Face-to-face interview	31-Jul-20	Bitou
Checkers Plettenberg Bay Mall	Face-to-face interview	31-Jul-20	Bitou
Keep Plett Clean	Online survey	-	Bitou
Mosdell Pama And Cox	Online survey	-	Bitou
Ariano 91 CC	Online survey	-	Bitou
Christiana Lodge	Online survey	-	Bitou
Goose Valley Homeowners Association	Online survey	-	Bitou
Reidwood	Online survey	-	Bitou
Mosdell Pama And Cox Plettenberg Bay Inc	Online survey	-	Bitou
Natures Valley Ratepayers Association	Online survey	-	Bitou
Pick ‘n Pay	Face to face interview	25-Jun-20	George
Henque Waste	Face to face interview	25-Jun-20	George
Interwaste	Face to face interview	25-Jun-20	George
Go Green Organics and Planthire	Face to face interview	25-Jun-20	George
Garden Route Mall	Face to face interview	25-Jun-20	George
Eden Hospitality Service and Training (Pty) Ltd	Online survey	-	George
Curtains and Linens	Online survey	-	George
Tikketai	Online survey	-	George
Solien Energy Solutions cc	Online survey	-	George
Touw Meubels (Pty) Ltd	Online survey	-	George
Riversdale Sawmill	E-mail correspondence and face-to-face interview	17 June 2020 & 07 July 2020	Hessequa
Breede River Lodge	Online survey	06-Jun-20	Hessequa
Heidelberg SPAR	Face-to-face interview	06-Jul-20	Hessequa
Heidelberg Usave Shoprite	Face-to-face interview	06-Jul-20	Hessequa
Riversdale SPAR	Face-to-face interview	06-Jul-20	Hessequa
Henque Waste Recycling Riversdale	Face-to-face interview	07-Jul-20	Hessequa
Stilbaai OK Foods	Face-to-face interview	07-Jul-20	Hessequa
Jireh Foods/Riversdale Piggery and Composting facility	Face-to-face interview	07-Jul-20	Hessequa
Nainkin Products and Scrap Metals	Face-to-face interview	08-Jul-20	Hessequa
Sentraal-Suid Kooperasie BPK (SSK)	Face-to-face interview	08-Jul-20	Hessequa
Echesi Holdings (Pty) Ltd	Online survey	23-Jul-20	Hessequa
Clorans development	Face-to-face interview	15-Jul-20	Kannaland
Klein Karoo Agri	Face-to-face interview	15-Jul-20	Kannaland
Southern Cape Vineyards	Face-to-face interview	15-Jul-20	Kannaland
J & V Scrap and Recycling	Face-to-face interview	15-Jul-20	Kannaland
Spar Ladismith	Face-to-face interview	15-Jul-20	Kannaland
U Save	Face-to-face interview	15-Jul-20	Kannaland
Calitzdorp Tourism	Online survey	-	Kannaland
Soeterus Guest Farm	Online survey	-	Kannaland
Peter Bayly Wines	Online survey	-	Kannaland
Axe Hill Winery	Online survey	-	Kannaland
Black Sparrow Hawking (Pty) Ltd.	Online Survey	-	Kannaland

Stakeholder	Method of engagement	Date of engagement	Municipality
CX Recycling	Interview	29-Jun-20	Knysna
RENEWable Knynsa	Interview	30-Jun-20	Knysna
Pinelake Marina	Interview	30-Jun-20	Knysna
Knysna Mall	Interview	30-Jun-20	Knysna
Resque Care	Online Survey	-	Knysna
Nina de Beer architect	Online Survey	-	Knysna
Knysna Roofing CC	Online Survey	-	Knysna
Lins enviro monitors and general	Online Survey	-	Knysna
Knysna Animal Welfare Society	Online Survey	-	Knysna
Metelerkamps	Online Survey	-	Knysna
C Plas Pty Ltd	Online Survey	-	Knysna
CX Tippers & Diggers cc	Online Survey	-	Knysna
Belvidere Manor Hotel	Online Survey	-	Knysna
Yehana Projects building Construction	Online Survey	-	Knysna
Eco Environmental projects	Online Survey	-	Knysna
Mosdell Pama & Cox Knysna Inc.	Online Survey	-	Knysna
Henque Waste	Face-to-face interview and online	30-Jul-20	Mossel Bay
Superspar Mossel Bay	Face-to-face interview	30-Jul-20	Mossel Bay
Pick and Pay Langeberg Mall	Face-to-face interview	30-Jul-20	Mossel Bay
Hartenbos WWTP	Face-to-face interview	03-Aug-20	Mossel Bay
Baleng Redira Moro Tyres Recyclers	Face-to-face interview	03-Aug-20	Mossel Bay
Southern Cape Recyclers	Face-to-face interview	03-Aug-20	Mossel Bay
KwaNonqaba Shoprite	Face-to-face interview	03-Aug-20	Mossel Bay
Mossel Bay Waste Manager	Online / virtual meeting	23-Nov-20	Mossel Bay
De Bakke Car Wash	Online survey	-	Mossel Bay
Eden Business Development Consulting CC	Online survey	-	Mossel Bay
Cape Karoo International (CKI)-Mossel bay Tannery	Online survey	-	Mossel Bay
JTA Properties (Pty) Ltd t/a Mossel Bay Mall	Online survey	-	Mossel Bay
OSS Sales and Services (Pty) Ltd	Online survey	-	Mossel Bay
SeaVuna Fishing Company (Pty) Ltd	Online survey	-	Mossel Bay
Cango Wildlife Ranch	Interview	03-Jul-20	Oudtshoorn
Retain Recycling	Interview	03-Jul-20	Oudtshoorn
Queens Mall	Interview	02-Jul-20	Oudtshoorn
Swanepoel nursery	Interview	01-Jul-20	Oudtshoorn
Protea Hotel	Interview	01-Jul-20	Oudtshoorn
Spur	Interview	01-Jul-20	Oudtshoorn
Pig Farmer	Interview	02-Jul-20	Oudtshoorn
Wimpy	Interview	01-Jul-20	Oudtshoorn
Trapsuutjies NGO	Interview	02-Jul-20	Oudtshoorn
Tabaco Industry	Interview	02-Jul-20	Oudtshoorn
Food Lovers Market	Interview	02-Jul-20	Oudtshoorn
SAPS	Interview	02-Jul-20	Oudtshoorn
Army training base	Interview	02-Jul-20	Oudtshoorn
Business Chameleons (Pty) Ltd	Online survey	-	Oudtshoorn
Vredebest Oudtshoorn	Online survey	-	Oudtshoorn
Alert Patrol	Online survey	-	Oudtshoorn
Earthbound Guest House	Online survey	-	Oudtshoorn

Stakeholder	Method of engagement	Date of engagement	Municipality
Siyabonga Gas	Online survey	-	Oudtshoorn
Trapsuutjies	Online survey	-	Oudtshoorn
TOTAL Oudtshoorn	Online survey	-	Oudtshoorn
PnP Oudtshoorn	Online survey	-	Oudtshoorn
Safari Ostrich Farm	Online survey	-	Oudtshoorn
WES Elektries	Online survey	-	Oudtshoorn
Swiza Hospitality CC	Online survey	-	Oudtshoorn
Oudtshoorn Aftreeoord	Online survey	-	Oudtshoorn
DEADP	Workshop	18-Mar-21	All

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FORM IP180_B

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PROJECT NAME	:	Garden Route District Municipality Waste Minimisation Plan	**PROJECT No.**	:	GE39065
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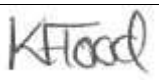
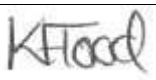
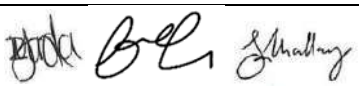
DATE	SIGNATURE	SIGNATURE	SIGNATURE

8 May 2021			

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