Kannaland Local Municipality

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Waste Minimisation Plan

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Waste Minimisation Plan
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CONTENTS

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2	02/03/2021	78	Version 2. Draft Objectives and Targets	I. Malloy	K. Flood	W. Fyvie

3	15/04/2021	93	Version 3. Draft Implementation Plan	I. Malloy	K. Flood	K. Flood
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Distribution List

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Copy 4 of 4	Ms M Van Heerden (Kannaland Local Municipality)

Abbreviations / Acronyms / Definitions

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

SAWIS	South African Waste Information System
WCIWMP	Western Cape Integrated Waste Management Plan
WDF	Waste Disposal Facility
WMP	Waste Minimisation Plan
WRAP	Waste and Resources Action Programme
WWTW	Waste Water Treatment Works

Appendices

To be added for later chapters of the report

List of Figures

List of Tables

1 Introduction

The Garden Route District Municipality (GRDM) has identified the need to develop a waste minimisation plan (WMP) to govern waste minimisation, recycling and diversion of waste from landfill across the district. There is also a need for each of the seven local municipalities in the district to have the own waste minimisation plans to guide 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 the municipality towards achieving waste diversion targets set by National and Provincial Government.

The objective of a waste minimisation plan 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:

- Bitou Local Municipality (BLM)
- George Local Municipality (GLM)
- Mossel Bay Local Municipality (MBLM)
- 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 Kannaland Local Municipality (KLLM).

1.1 Definitions

The following definitions of waste are used in this report.

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

Waste:

a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 to this Act; or

b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the Gazette, but any waste or portion of waste, referred to in paragraphs (a) and (b), ceases to be a waste—

   i. once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been re-used, recycled or recovered;

   ii. where approval is not required, once a waste is, or has been re-used, recycled or recovered;

   iii. where the Minister has, in terms of section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste; or

   iv. where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a

waste stream from the definition of waste.

Recycling:
the process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material'

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

1.2 Contents of a WMP

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

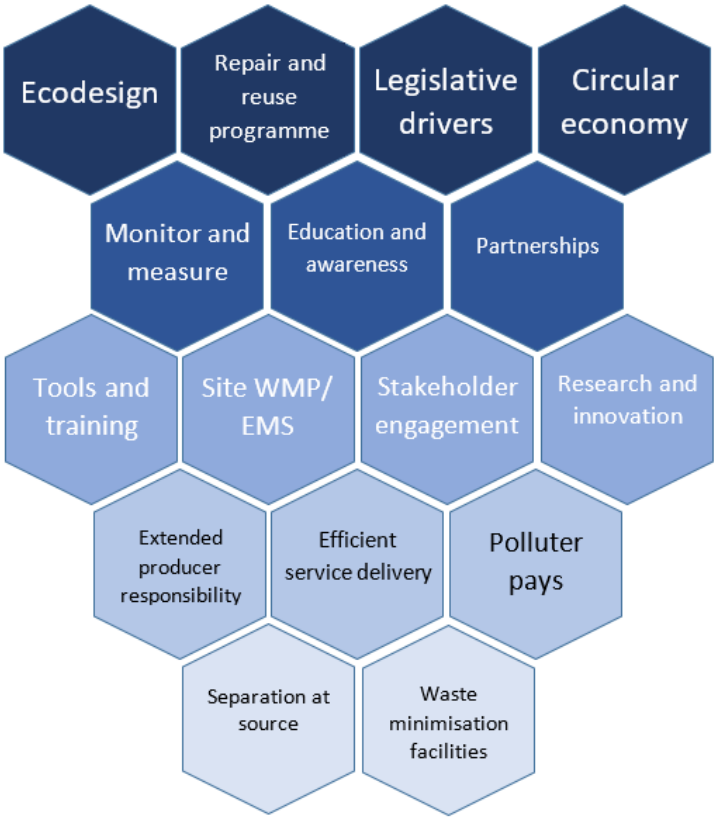


Figure 1: Common themes and contents of waste minimisation plans

1.3 History of Waste Minimisation Plans in the Kannaland Local Municipality

This is the second waste minimisation plan to be developed for the KLLM. A waste minimisation strategy was developed in June 2019 by the DEA&DP for the KLLM, but this strategy was not approved by council. Several target projects identified within the strategy's implementation plan have not been implemented.

The 2019 waste minimisation strategy identified the need to:

- Finalise and obtain approval for the strategy from council by December 2019
- Retrofit (upgrade) the existing waste disposal facilities to support the recovery of waste. These were to be achieved over a five-year period.
    - Ladismith waste disposal facility (WDF) – create a drop-off facility for recyclables and a material recovery facility (MRF)

    - Calitzdorp WDF – upgrade the existing drop-off facility into a MRF
    - Zoar WDF – create a mini MRF
    - Van Wyksdorp – create a storage space for recyclable waste
- Identify SMME's to be incorporated into the waste recovery system in the KLLM by December 2019
- Commence with a pilot project for the separation of waste at source in two suburbs, one in Ladismith and one in Calitzdorp (2-bag collection system) by July 2019
- Implement (coordinate) a separation at source programme with businesses in KLLM by September 2019
- Develop and implement an organic waste and construction and demolition waste (C&DW) diversion programme by September 2019
- Develop and implement an awareness and communication plan for the KLLM by September 2019

1.4 Objectives of a Waste Minimisation Plan

The key objectives of this WMP are:

- to move the KLLM 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 KLLM towards legal compliance with national and provincial waste minimisation targets
- Streamline waste minimisation efforts across the KLLM

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 KLLM.

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.

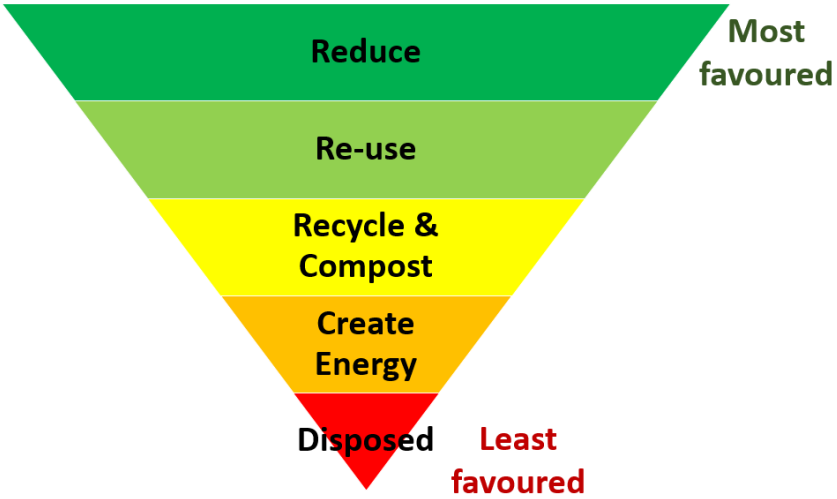


Figure 2: The waste hierarchy as per the National Waste Management Strategy (DEFF, 2020)

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 KLLM WMP will be aligned to meet the goals and targets proposed in the 2020 NWMS for local municipalities.

1.5 Waste Minimisation Plan Development Process

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

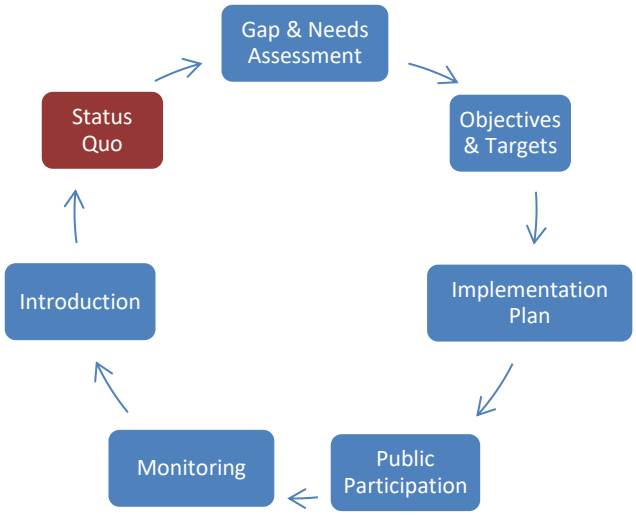


Figure 3: WMP planning phases

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 KLLM which covers an area of 4,758km^2 and is composed of 4 wards. The KLLM has a population of 24,168 people in 6,333 households (KLLM, 2020). The KLLM is one of seven local municipalities which fall under the Garden Route District Municipality (GRDM), formerly the Eden District Municipality, in the Western Cape Province.

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 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 where 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.

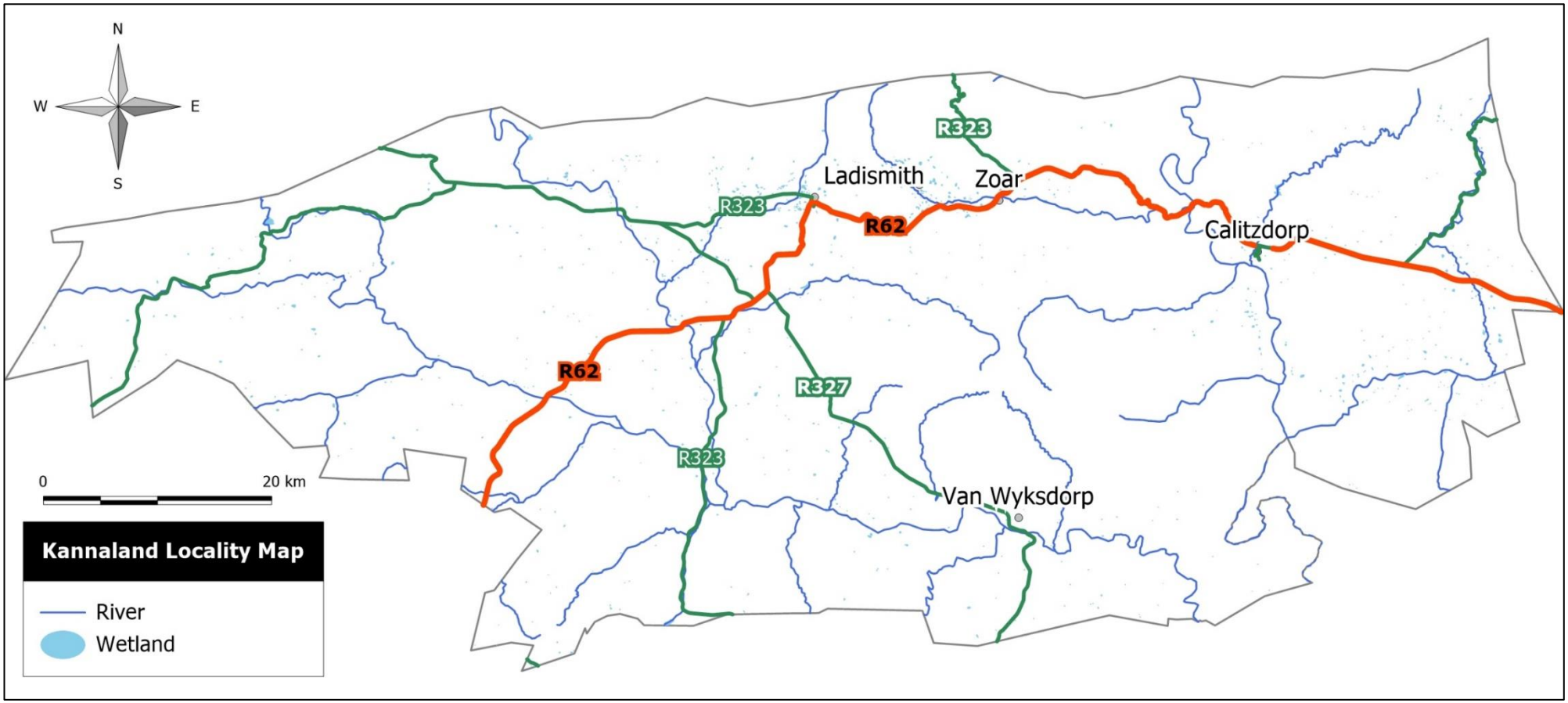


Figure 4: Kannaland Local Municipality Jurisdictional Area

2 Approach and Methodology

2.1 Project Scope

The scope of the project is for the development of a WMP for the KLLM. 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 1: KLLM 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 KLLM. 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 KLLM. 2.2 Meetings with waste management and recycling companies. 2.3 Stakeholder engagement – extended producer responsibility organisations, GreenCape, DEA&DP, non-governmental organisations (NGOs), business 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 KLLM. 3.2 Review of potential alternative waste treatment technologies which can be applied in the KLLM.
Phase 4	***Objectives and Targets*** 4.1 Development of a set of objectives and targets for KLLM to address waste diversion and minimisation needs over the short, medium and long term.
Phase 5	***Implementation Plan and Budget and Final Draft WMP*** 5.1 Develop an implementation plan for the KLLM for a 10 – 15 year period. 5.2. Develop a Financial Plan for the implementation of the Waste Minimisation Plan for the KLLM.
Phase 6	***Public Participation and Stakeholder Engagement*** 6.1 Present draft WMP to the municipal section 80 committee 6.2 Present draft WMP to the municipal council 6.3 Present the WMP at a public meeting 6.4 Update WMP based on comments received during public participation and the presentation

	to council
Phase 7	**Performance monitoring and review schedule** 7.1 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, KLLM plans and strategies were undertaken. This included the following key documents.

- Western Cape Provincial IWMP
- Western Cape Position Papers:
  - Position Paper on the Provision of Municipal Waste Management Services within the Context of Rapid Urbanisation (2017)
  - Position Paper on the Regionalisation of Waste Management Services (2017)
  - Position Paper on Organic Waste Management (2017)
  - Position Paper on Construction and Demolition Waste Management (2017)
- GRDM 3rd generation Integrated Waste Management Plan (2020 - 2025)
- KLLM 3rd generation Integrated Waste Management Plan (2020 – 2025)
- KLLM Waste Minimisation Strategy (June 2019)
- 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

2.2.2 Engagement with Stakeholders

A questionnaire was developed for use when engaging with stakeholders. The aim of the questionnaire was to capture information on the generation and management of general

waste with a focus on waste minimisation. A database of stakeholders in KLLM was developed based on:

- Companies identified in the project initiation meeting
- Recommendations from the GRDM and KLLM
- Kannaland Chamber of Business

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

Table 2: Summary of stakeholders engaged

Stakeholder	Method of engagement	Date of engagement
Kannaland Waste Department Clerk	Face-to-face interview	14 July 2020
Clorans development	Face-to-face interview	15 July 2020
Klein Karoo Agri	Face-to-face interview	15 July 2020
Southern Cape Vineyards	Face-to-face interview	15 July 2020
J & V Scrap and Recycling	Face-to-face interview	15 July 2020
Spar Ladismith	Face-to-face interview	15 July 2020
U Save	Face-to-face interview	15 July 2020
Calitzdorp Tourism	Online survey	-
Soeterus Guest Farm	Online survey	-
Peter Bayly Wines	Online survey	-
Axe Hill Winery	Online survey	-
Black Sparrow Hawking (Pty) Ltd.	Online Survey	-

2.2.3 Site Visits and Ground-Truthing

A site visit was undertaken to the KLLM on 14 – 15 July 2020 and 26 August 2020. Details of facilities visited, and interviews undertaken are listed below.

Table 3: Facility inspections undertaken as part of this WMP

Facility	Date of visit
Municipal facility used as a MRF by Clorans development	15 July 2020
Southern Cape Vineyards organic waste diversion and wastewater treatment practices	15 July 2020
J & V Scrap and Recycling	15 July 2020
Ladismith WDF	26 August 2020
Zoar WDF	26 August 2020
Calitzdorp WDF	26 August 2020
Van Wyksdorp WDF	26 August 2020

2.2.4 Presentations and Workshops

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

Table 4: Presentations/ workshops planned for the WMP

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

2.2.5 Business and Public Surveys

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

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 Facebook page on 12 June and 01 July 2020.

GARDEN ROUTE DISTRICT MUNICIPALITY
WASTE RECYCLING AND MINIMISATION SURVEY INVITE

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

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

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

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

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

Figure 5: Waste minimisation survey invite

2.2.6 Public Participation Process (PPP)

The WMP will be made available for review by the public for a period of 14 days from 19 August 2021 to 02 September 2021. The review of the WMP and the period for which the WMP will be made available to the public will be advertised in a local newspaper, Oudtshoorn Courant. The WMP will also be circulated to relevant stakeholders for review and comment.

One virtual meeting to present the WMP for the public will be held depending on the public demand for the virtual presentation of the WMP. The date of the meeting is proposed for 24 August 2021 and was communicated in the newspaper advert.

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

2.3 Assumptions and Limitations

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

3 Legislative Overview

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

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

Topic	Section	Requirements	Comments
General duty	3	The state must put in place measures that seek to reduce the amount of waste generated, and where waste is generated, ensure that it is re-used, recycled and recovered in an environmentally sound manner.	DEFF has initiated the development of guidelines and strategies to increase recycling in the province including a study on waste separation at source, a review of the 2011 National Waste Management Strategy (NWMS) and a study on options for recycling and re-use of construction and demolition waste.
Waste service standards	9 (2)	Each municipality must perform its duty in terms of waste management services by adhering to all national and provincial norms and standards	The municipality 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 municipality should review their by-laws to determine if they are conducive to waste minimisation, recycling and diversion from landfill.
General duty in respect of waste management	16 (1)	A holder of waste must: • Avoid the generation of waste and where waste cannot be avoided minimise the amounts of waste that are generated • Reduce, re-use, recycle and recover waste	The municipality is classified as a 'holder of waste' as the municipality transports waste. As such the municipality must put in place measures which seek to minimise waste. Section 30 of the GRDM Waste Management By-Law allows the GRDM to dictate how different waste types can be disposed of. This condition is applicable to the KLLM as well.

3.1 National Waste Management Strategy (2020)

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

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

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

Goal	Targets for 2020

1. Prevent waste, and where waste cannot be prevented, divert 40% of waste 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.

Waste from the KLLM is disposed of at the two operational landfill sites namely the Ladismith and Zoar landfill sites. The KLLM needs to screen waste to ensure that none of the prohibited waste streams are transported to the landfill sites.

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

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

Waste type prohibited or restricted in terms of disposal	Compliance timeframe
filters, but excluding other oil containing wastes.	
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 8: Recycling requirements of the National Domestic Waste Collection Standards (GN 21 of 2011)

Requirement	Comment
Separation at source must be encouraged in line with relevant industry waste management plans (indWMPs) and all households in metropolitan municipalities and secondary cities must be separating waste at source	The development of indWMPs is not the responsibility of the KLLM. The KLLM should however be aware of the indWMPs and the implications of these plans. The KLLM is currently undertaking separation at source, however this programme needs to be expanded.
Service providers/ municipalities must provide clear guidelines to households on sorting of waste, appropriate waste containers and removal scheduled for different waste types	The KLLM must ensure that clear recycling guidelines are provided to households.
Community involvement in recycling must be encouraged	The KLLM needs to encourage community participation in private recycler programmes operating in the municipality. Once the municipality commences with a recycling programme, the municipality should encourage the community to participate in these programmes as well.
Municipalities must provide an enabling	The KLLM should provide an enabling environment for

Requirement	Comment
environment for recycling through a kerbside collection service for mainstream recyclable or provision of communal collection points.	recycling through the development of a two-bag kerbside collection service and public drop off facilities for recyclable and green waste.
Non-mainstream recyclable (e-waste, scrap metals batteries etc.) must be routed to drop-off centres	There are no drop-off facilities for HHW in the KLLM. The KLLM should also undertake regular open days for HHW.
Recyclable waste must be removed from drop-off centres at least once a fortnight	Once developed, the KLLM must implement this requirement for recycling drop-off facilities.

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

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

The National Norms and Standards for the Storage of Waste (GN 926, 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.

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

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

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

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

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

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

4 Context of Roles and Responsibilities for Waste Minimisation

4.1 National Government

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

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

4.2 Provincial Government

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

4.3 Local Government

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

5 Alignment with other Strategic Plans

There are a number of strategic plans on a national, provincial and local level which have been taken into consideration during the 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 9: Summary of 2020 NWMS Goals (goals related to waste minimisation shown in bold)

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 (KLLM 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 developed in 2017. The WCIWMP is centred around 4 goals and 14 strategic objectives.

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

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

Goal	Strategic Objectives
	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 KLLM. The KLLM WMP will be aligned with the WCIWMP and such projects will be incorporated into the implementation plan for the KLLM WMP.

5.2.2 Western Cape Waste Awareness Strategy

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

5.2.3 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 with waste management and diversion targets up to 2030.

The report identified infrastructure needs for each local municipality to bring them toward compliances with waste minimisation targets by 2019.

The following waste minimisation infrastructure needs were identified for the KLLM:

- A chipping facility in Ladismith for the chipping of all garden waste in Kannaland to divert green waste from landfill
- A MRF to be constructed in Ladismith for the recovery of recyclables

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.

As a local municipality within the GRDM these by-laws are also applicable to the KLLM.

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

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

The plan identified seven goals to improve waste management in the district. Goal 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

5.3.4 Garden Route District Municipality By-Laws

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

- The establishment of a district waste 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.

5.4 Alignment with Local Strategic Plan

5.4.1 Kannaland Local Municipality Fourth Generation Integrated Development Plan

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

1. **Reliable Infrastructure** - To provide access to reliable infrastructure that will contribute to a higher quality of life for Kannaland citizens
2. **Service Delivery** - To provide adequate services and improve our public relations
3. **Safe Communities** - To strive towards a safe community in Kannaland through the proactive management of traffic, environmental health, fire and disaster risks
4. **Socio-Economic Development** - To facilitate economic growth and social and community development
5. **Effective and Efficient Governance** - To promote efficient and effective governance with high levels of stakeholder participation
6. **Efficient Workforce** - To provide an efficient workforce by aligning our institutional arrangements to our overall strategy
7. **Financial Sustainability** - To strive towards a financially sustainable municipality

The following waste-related projects as per the IDP are planned for the KLLM before 2022:

- Erection of signage for the three landfill sites
- Addressing the issue of stormwater diversion at the landfill sites
- Looking into possibilities of recycling/waste diversion
- Recycling projects

- Further cleaning of illegal dumping sites in Kannaland Municipal Area
- Environmental awareness and clean-up campaigns
- Awareness campaigns on illegal dumping and waste minimisation
- Purchasing of new collection equipment and proper maintenance of vehicles
- Waste removal services to informal settlements as well as farm areas
- Calitzdorp: Solid Waste Transfer Station Project.

5.4.2 Kannaland 3rd Generation IWMP 2020 – 2025

The KLLM 3rd generation IWMP has been developed but has not been approved by the Kannaland Municipality council and was therefore not sent to the DEA&DP for endorsement. One of the objectives in the IWMP was 'increased waste minimisation and recycling' (KLLM, 2020). The table below presents projects identified in the IWMP which were 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 11: KLLM IWMP projects related to waste minimisation and recycling

No.	Action	Timeframe	Relevance to waste minimisation
Goal 1: Effective waste information management and reporting			
Objective 1.1 Accurate waste information is reported on the IPWIS and GRWMIS			
1.1.1	KLLM to continue to report on the IPWIS system for Ladismith and Zoar landfill sites. Waste data to also be reported for Calitzdorp and Van Wyksdorp.	2020 – 2025	These actions are critical in improving waste information gathering and management. In order for the KLLM to measure the success of waste minimisation initiatives accurate baseline data is required. At present there are no accurate waste disposal records for recyclable, green and construction and demolition waste for the KLLM as visual estimates are captured for waste entering the landfill site. Weighbridges are required at the Ladismith and Zoar landfill sites as the KLLM plans to continue to use these sites.
1.1.2	Gate controllers to be stationed at all municipal facilities to record incoming waste.	2020 – 2025	
1.1.3	All new gate controllers to undergo DEA&DP waste calculator training prior to commencing work, and all existing gate controllers to undergo refresher training.	2020 – 2025	
1.1.4	Weighbridges to be installed at the Ladismith and Zoar landfill sites.	Site 1: 2021 – 2022 Site 2: 2022 - 2023	
1.1.5	All municipal waste facilities are registered and reporting on the GRWMIS.	2020 – 2025	
1.1.6	Domestic waste characterisations are undertaken once every 3 years. A representative sample is used from different suburbs across the municipality	2022, 2025	Domestic waste characterisations can be used to measure the effectiveness of waste minimisation initiatives. If waste characterisations are undertaken before and after awareness initiatives or implementation of programmes such as home composting or swop shop the effectiveness of these programmes can be measured through comparison of the domestic waste stream before and after implementation.
Objective 1.2 The 2020 IWMP is regularly reviewed, and the implementation status of project is monitored.			
1.2.1	Undertake quarterly performance reviews of this IWMP and send reports to GRDM and DEA&DP.	2020 – 2025	The KLLM should continually track the implementation of waste minimisation projects to ensure they are on track to achieve the targets set in the IWMP.
Objective 1.3 Effective internal management of waste related data			
1.3.1	Develop an inventory of all internal waste related data sets.	2020 – 2025	The KLLM must ensure appropriate systems are in place to capture waste information related to waste minimisation, recycling and diversion from landfill.
1.3.2	Develop systems for effectively capturing and storing waste data sets identified in the above inventory, such that they are readily available.	2020 – 2025	
Goal 2: Improved education and awareness			
Objective 2.1 Waste awareness campaigns are well planned and executed. Sufficient awareness materials are available for the waste awareness campaigns			
2.1.1	Develop an annual waste awareness calendar *(to be developed at the*	2020 – 2025	This target refers to waste education and awareness as a whole. Waste

No.	Action	Timeframe	Relevance to waste minimisation
	beginning of each financial year). Waste awareness events should be aligned with national and international environmental days (refer to section 6.1.7.5 of this plan)		minimisation and recycling awareness campaigns form a key part of waste education and awareness. 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 KLLM to co-ordinate local programmes with district, provincial and national awareness programmes.
2.1.2	Dedicated employees for waste education and awareness to be appointed, key performance indicators (KPIs) to be included in their formal job descriptions.	2020 – 2025	A lack of awareness campaigns has been attributed to a lack of employees to manage the programmes. The appointment of dedicated employees for waste awareness will increase the amount of awareness undertaken in the KLLM.
2.1.3	The GRDM waste mascot is to be incorporated into future waste awareness materials.	2020 – 2025	In order to standardise waste educational and awareness materials used across the district, the districts mascot Rocky the Rooster should be incorporated into all of the KLLM's awareness materials.
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 the KLLM. School recycling competitions to be implemented once a year.	2020 – 2025	Waste awareness campaigns, with a focus on waste minimisation and recycling are required in schools to educate learners on this topic.
Goal 3: Improved institutional functioning and capacity			
Objective 3.1 The cleansing services department has sufficient well capacitated employees to allow for the waste management function to be actioned effectively and for the IWMP to be implemented			
3.1.1	A WMO must be designated in writing. The WMO must be from middle to senior management in the KLLM and be responsible for matter pertaining to waste management	2020	The KLLM must designate a WMO that will be responsible of coordinating the implementation of all projects and tasks identified in the municipality's IWMP and this WMP. This will assist the KLLM to meet the targets of the NWMS.
3.1.2	The cleansing services department's organogram is to be reviewed to determine if sufficient positions are listed to allow implementation of this IWMP. All key positions should be filled.	2020/21	The KLLM needs to ensure the sufficient staff are appointed to allow the waste minimisation, recycling and diversion projects listed in the IWMP and this WMP are implemented.
3.1.3	Implementation of the IWMP to be added as KPIs to the Waste Manager or supervisor's performance evaluation criteria.	2020 – 2025	Implementation of the IWMP projects should be added to the WMO KPIs to ensure waste minimisation, recycling and diversion projects are actioned.
3.1.4	Training schedule to be developed with training needs for employees at different levels identified. The KLLM Human Resource (HR) Department to approve all training.	2020 – 2025 (annually)	All KLLM employees should receive basic training on waste minimisation. More in-depth training would be required for management and employees responsible for waste education and awareness.
3.1.5	KLLM to implement the training needs of employees identified in 3.1.4.	2020 – 2025	
3.1.6	All landfill sites and future waste management facilities to be managed by experienced and qualified personnel.	2020 – on-going	The future waste management facilities (MRF and composting facilities) should be managed by experienced personnel to ensure continued operation of the facilities and to maximise the waste diverted through these

No.	Action	Timeframe	Relevance to waste minimisation
			facilities.
3.1.7	KLLM WMO to attend quarterly GRDM WMO forum meetings and provincial forum meetings.	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 5.1 The diversion of recyclables from waste destined for landfill is increased			
5.1.1	The KLLM should implement a pilot separation at source programme (2-bag system) in Ladismith.	2020	A kerbside separation at source (S@S) programme is the easiest recycling programme for the public to become involved with as it requires less effort then having to transport recyclables to a drop-off facility. In February and March 2020, the KLLM commenced with a S@S pilot programme in Ladismith. The programme only operated for a month due to the COVID-19 virus pandemic and before the level 5 national lockdown commenced in March 2020. The KLLM should reintroduce this S@S pilot programme. The service provider that managed the programme indicated that a high participation rate from households was experienced when the programme was operational.
5.1.2	The KLLM should implement pilot swop shops and buy back centre programmes.	2022	Swop-shops and buy back centres serve as valuable education and awareness tools in low-income areas. It is important that these programmes operate in low-income areas for these reasons.
5.1.3	Drop-off facilities for recyclables to be constructed in Calitzdorp (2021), Van Wyksdorp (2023), Zoar (2025)	2021 - 2025	Public drop-off facilities in Calitzdorp, Zoar and Van Wyksdorp for source separated materials will provide a location for recycling in each town in the KLLM.
5.1.4	The KLLM should implement an in-house recycling programme. Records of waste collected through this system to be reported separately by the service provider who collects the recyclables.	2020	The KLLM needs to lead by example and expand existing in-house recycling programmes to all municipal offices and buildings. This programme can be used as an education and awareness tool.
5.1.5	The KLLM to develop one MRF. The location of the MRF will be determined through the waste infrastructure masterplan (refer to objective 7).	2025-2026	The construction of a MRF in the KLLM will assist the KLLM to increase recycling in the municipality. According to the 2020 NWMS, the establishment of a MRF is required at an existing landfill site with sufficient airspace more than 5 years. It is envisaged that the Ladismith landfill site if operated correctly and with the introduction of waste diversion programmes will have at least 20 years airspace at the Ladismith landfill site.
Objective 5.2 The diversion of organic waste from landfill is increased			
5.2.1	Develop an organic waste diversion plan and submit to DEA&DP	2020 – 2025 (annually)	An organic waste diversion plan (strategy) is required to guide the KLLM's organic waste diversion efforts.
5.2.3	The KLLM should implement the organic waste diversion plan.	2020 – 2025	

No.	Action	Timeframe	Relevance to waste minimisation
5.2.2	The KLLM should roll out a pilot home composting programme.	2021/22	This programme should be rolled out to households to increase the volume of organic waste diverted from landfill. In addition, this will increase the awareness of organic waste diversion from landfill and the importance of reuse of household organic waste.
5.2.4	The KLLM should develop small composting facilities (less than 10 tonnes/day) in Ladismith, Van Wyksdorp, Calitzdorp and Zoar.	2020 – 2025	The development of small composting facilities in the KLLM will assist the KLLM to increase waste diversion of garden waste from landfill. These small composting facilities can also serve as public drop-off facilities for source separated green waste in Ladismith, Calitzdorp, Zoar and Van Wyksdorp.
5.2.5	The KLLM to provide drop-off facilities for garden waste at all existing and proposed waste management facilities.	2022/23	Provision of drop-off facilities for green waste at existing and future waste facilities will allow the public to drop-off green waste. The public must be educated that only 'clean' green waste e.g. green waste which is not mixed with any other waste streams will be accepted. This green waste can then chipped and transported in bulk for composting or made available for the community (farmers) or private composters.
Goal 7: Improved future waste infrastructure planning			
Objective 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	Develop a waste infrastructure masterplan to guide the development of waste facilities over the next 5 – 20 years. The plan should identify future waste infrastructure needs, identify suitable sites and advise on the licensing/ registration requirements for each facility. The plan must also determine the way forward in terms of landfill sites. The 2016 DEA&DP waste infrastructure report should be reviewed during the development of the masterplan.	2023	The masterplan should identify infrastructure which is required to increase recycling and waste diversion from landfill. This masterplan should be implemented.
7.1.2	Implement the waste infrastructure masterplan.	2023 - 2035	

5.5 National Waste Management Interventions

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

5.5.1 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). With regards to waste minimisation and diversion, the KLLM utilise EPWP beneficiaries for waste awareness and education campaigns. EPWP beneficiaries furthermore assist with illegal dumping and litter cleaning activities in the municipality.

5.5.2 Community Work Programme

The Community Work Programme (CWP) provides part time employment to underemployed or unemployed people. The CWP employees work three days a week. The CWP programme is involved with development of public assets, and community development. The CWP workers assist with waste awareness and education campaigns which include topics of waste minimisation and diversion. Furthermore, CWP workers assist with illegal dumping and litter cleaning activities in the municipality.

5.5.3 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. This programme is active in the KLLM. A Youth Environmental Coordinator (YEC) was designated for the KLLM and assists with the clean-up campaigns, education and awareness campaigns for waste diversion and recycling programmes in the KLLM. Participants for the YCOP still need to be appointed and employed for the district to assist the YEC and KLLM. Municipal, EPWP or CWP staff assist the YEC with clean-up campaigns and education and awareness training.

5.5.4 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. The Good Green Deeds programme has not yet commenced in the KLLM.

5.5.5 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 Municipal Cleaning and Greening Programme has not yet commenced in the KLLM.

The GRDM was requested by the DEA&DP to co-ordinate the implementation of the programme in the district.

6 Benefits of Waste Minimisation

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

6.1.1 Reduced Consumption of Resources

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

6.1.2 Preservation of Landfill Site Airspace

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

6.1.3 Reduction in Negative Impact Associated with Landfilling of Waste

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

(a) Greenhouse Gas Emissions

When organic waste is disposed of at a landfill site, compacted and covered it can breakdown anaerobically. The anaerobic breakdown of waste results in methane emissions. Methane is a greenhouse gas which is 25 times more potent that carbon dioxide (CO_2) over its lifespan (web reference 4). When organic waste is broken through composting it is broken down aerobically and the release of methane is avoided (web reference 5).

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

(b) Reduction in Leachate Generation

Due to a high-water content, organic waste can increase leachate generation in landfill sites. Leachate, if not managed correctly is a pollution risk to ground and surface water resources.

Leachate management systems can be used to manage leachate, these systems can be expensive to install and maintain.

(c) Reduction of Fire Risk

The accumulation of a large volume of dried green waste presents 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.

6.1.4 Economic Opportunities

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

Composting of waste is typically 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 in the KLLM 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 KLLM is available in the KLLM 2020 IWMP (KLLM, 2020).

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

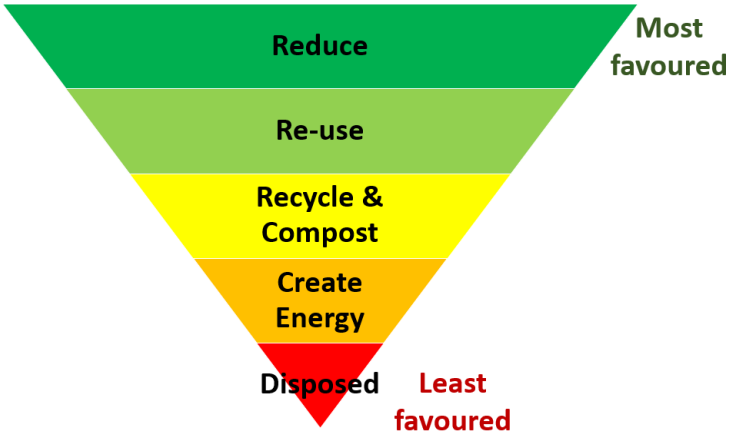


Figure 6: The waste hierarchy as per the National Waste Management Strategy (DEFF, 2020)

7.1 Waste Generation and Disposal

In order to understand the current status of the implementation of the waste management hierarchy, waste generation information is needed.

The following sections discuss waste generation and disposal for the KLLM.

7.1.1 Waste Records

The following waste disposal records were provided by the KLLM for February 2019 to November 2019. These were the same waste disposal tonnages that were recorded on IPWIS. These were waste disposal records for the Ladismith and Zoar landfill sites. No records are available for the Calitzdorp and Van Wyksdorp landfill sites.

Table 12: Waste disposal records (source, KLLM, 2020)

Month	Waste stream (tonnes/ month)				
	Municipal (Domestic) waste	Commercial and Industrial	Organic waste	C&DW	Total
February 2019	79	57	54	24	214
March 2019	45	37	26	18	126
April 2019	54	31	23	8	116
May 2019	51	43	23	13	130
June 2019	55	31	31	14	131
July 2019	76	29	26	5	136

Month	Waste stream (tonnes/ month)				
	Municipal (Domestic) waste	Commercial and Industrial	Organic waste	C&DW	Total
August 2019	61	34	23	7	125
September 2019	53	30	10	6	99
October 2019	46	48	20	6	120
November 2019	62	36	18	13	129
Total	**582**	**376**	**254**	**114**	**1,326**
Average/ month	**58.2**	**37.6**	**25.4**	**11.4**	**132.6**
Estimate for 12 month period	**698.4**	**451.2**	**304.8**	**136.8**	**1,591.2**

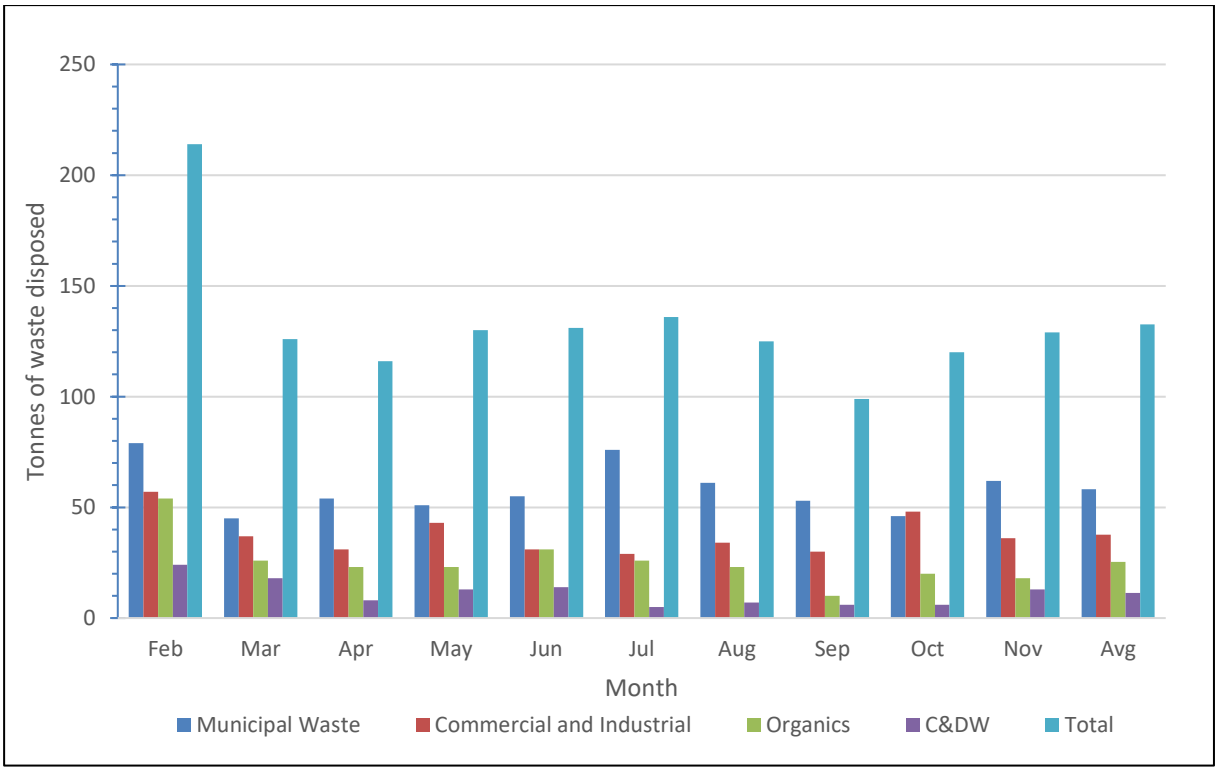


Figure 7: KLLM waste disposal tonnages (2019)

In 2018, a total of 388.6 tonnes of domestic waste was disposed of at the landfill sites in the KLLM and in 2019, an estimated 698.4 tonnes of domestic waste was disposed of at the landfill sites (KLLM IWMP, 2020). This represents a significant increase in domestic waste disposal at the landfill sites in the KLLM that could be attributed to an extension of the waste collection service in the KLLM or the improvement in record keeping of waste disposal tonnages at the Ladismith and Zoar landfill sites.

7.1.2 Integrated Pollutant and Waste Information System Records

The KLLM submits records for the Integrated Pollutant and Waste Information System (IPWIS), which is a waste information system managed by DEA&DP. The records presented in section 7.1.1 were the same records provided by DEA&DP and were based on information uploaded by the KLLM onto the IPWIS.

7.1.3 Hypothetical Waste Generation

The table below provides the estimates of waste generation in the KLLM over a five and ten year period. The waste generation rates have been estimated based on historic and anticipated population growth and the income brackets of the population (KLLM IWMP, 2020). An estimated 4,015 tonnes of domestic waste will be generated in the KLLM in 2020. As the population of the municipality grows so too will domestic waste generation rates. Projected waste generation rates for 2024 and 2029 are 4,024 and 4,035 tonnes respectively (KLLM, 2020). These waste generation estimates are for domestic waste only.

Table 13: Future domestic waste generation and disposal rates based on projected population growth rate of 0.054% per annum

Year	Population	Projection of generation quantities based on population (tonnes/annum)	Projection based on disposal data at landfill sites, visual estimation data (tonnes/annum)
2019	24,207	4,013	698.4
2020	24,220	4,015	698.8
2024	24,273	4,024	700.3
2029	24,340	4,035	702.2

According to the waste disposal records for the KLLM from February to November 2019, a total of 582 tonnes of domestic waste was disposed of at the Ladismith and Zoar landfill sites. This equates to an annual estimated total of 698.4 tonnes. Projected waste disposal rates based on actual landfill site records for 2024 and 2029 are 700.3 and 702.2 tonnes respectively. The waste disposed at landfill represents only 14.5% of the estimated domestic waste generation for the KLLM.

The household domestic records do not include the waste disposed of by residents at the Calitzdorp and the Van Wyksdorp landfill sites. In addition, the KLLM does not provide a waste collection service to all households in the KLLM. Only 81.9% of households in the KLLM receive a waste collection service (weekly and removed less often) where the domestic waste is landfilled. The remaining domestic waste may therefore be unaccounted for and not recorded (KLLM 2020).

7.2 Domestic Waste Profile

A waste characterisation exercise was undertaken by the GRDM for the KLLM in March 2019. The aim of the study was to determine the profile of domestic waste which was being disposed of to landfill.

During the waste characterisation exercise 368 black bags (1.3 tonnes) of waste were collected from 12 different suburbs. Waste was sorted into 15 categories. The results of the waste characterisation are presented below. The hypothetical mass generated per waste type is presented in the table as well. This provides an indication of tonnages of each waste type available in the domestic waste stream that can be diverted from landfill and reused, recycled, composted or treated.

Table 14: Waste profile for KLLM (source: Eden District Municipality, 2016)

Waste type	Percentage of total mass (%)	Hypothetical domestic mass generated per waste type in 2019 (tonnes)
Soft plastics	10.7%	429.4
Hard plastics	10.8%	433.4
Paper	7.1%	284.9
Cardboard	8.7%	349.1
Glass	9.8%	393.3
Metal	3.1%	124.4
Recyclables sub-total	**50.2%**	**2,014.5**
Food waste	15.1%	606.0
Garden waste	3.0%	120.4
Wood	0.2%	8.0
Organic waste sub-total	**18.3%**	**734.4**
E-waste	0.1%	4.0
Hazardous	0.8%	32.1
Household hazardous	**0.9%**	**36.1**
Textiles	7.6%	305.0
Inert	1.1%	44.1
Nappies	8.7%	349.1
Rest*	13.3%	533.7
Total	**100.0%**	**4,013**

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

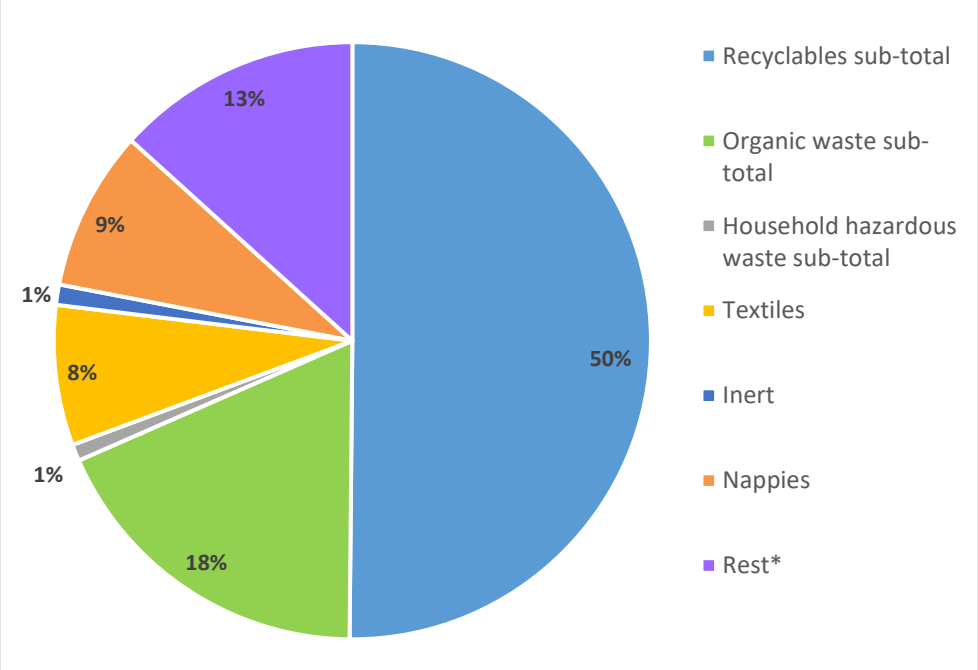
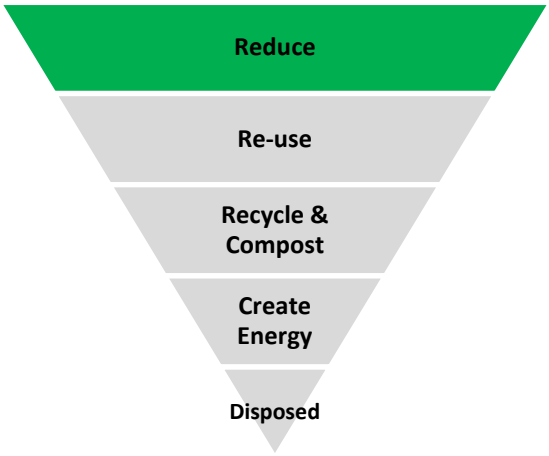


Figure 8: Kannaland Local Municipality Waste Profile in sub-categories (source: Garden Route District Municipality, 2019)

7.3 Reduce

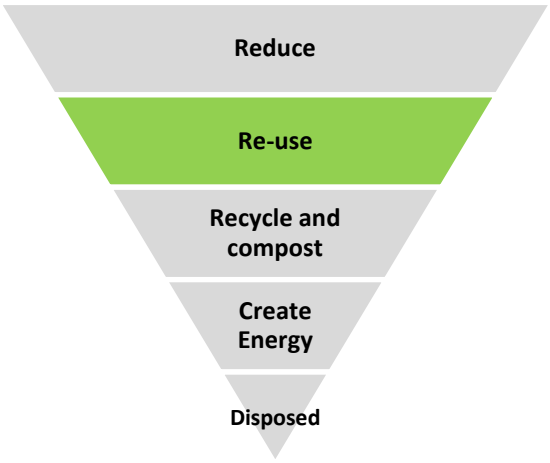


Waste reductions is the aspirations of the waste hierarchy, but are typically beyond the control of local municipalities.

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

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

7.4 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. Clean (uncontaminated) construction and demolition waste 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.

7.4.1 Construction and Demolition Waste

(a) Targets for Construction and Demolition Waste

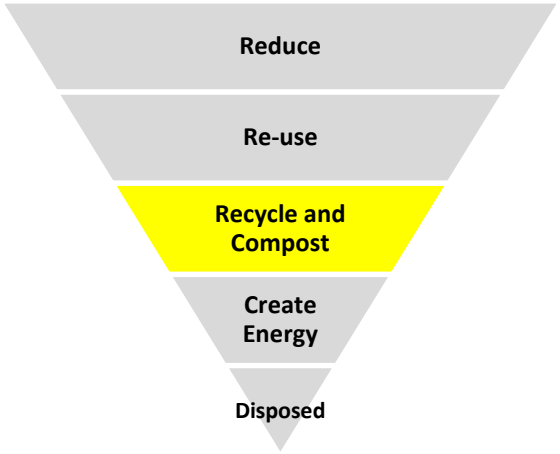
- Divert 40% of waste (including C&DW) from landfill in 5 years, 55% in 10 years and 70% within 15 years leading to zero waste going to landfill - NWMS, 2020 (DEFF, 2020)
- C&DW only disposed of as cover material by 2021 NWMS, 2020 (DEFF, 2020)

(b) Current Management of Construction and Demolition Waste

Currently nearly all C&DW generated in the KLLM is stockpiled at the Ladismith, Zoar and Calitzdorp landfill sites. When plant is available on site, clean C&DW is used as cover material for waste at the Ladismith landfill site. Minor amounts of C&DW generated in Van Wyksdorp has been used as cover material at the landfill sites. There is no other known diversion of C&DW from landfills in the KLLM.

Clean (uncontaminated) C&DW disposed at the Calitzdorp landfill is used at the Ladismith landfill site as cover material. The municipality intends to crush and divert all clean C&DW at the Calitzdorp landfill to the Ladismith landfill to be used as cover material. Some of the clean C&DW at the Calitzdorp landfill site will be used to create a berm between the landfill and a river adjacent to the landfill to ensure storm water does not enter into the landfill site.
A local business previously enquired with the municipality to crush and remove the building rubble from one of the landfill sites in the municipality. However, the request from the local business did not materialise for reasons unknown.

7.5 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'.

7.5.1 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 stationery. 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.

Two bag system – in this section the two-bag system refers to the black bag for non-recyclable waste and a different coloured bag (e.g. blue) used for recyclable materials.

(b) Legislative targets for Waste Recycling

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

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

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

- 20% diversion of recyclables by 2019

(c) Recycling Records

There are currently no recycling records maintained by the KLLM and no information system or database was developed by the KLLM to maintain such information. There are also no records of recycling of waste from the SAWIS and the IPWIS for the KLLM. The 2018 to 2020 recycling records maintained by a private recycler based in the Hessequa Local Municipality and collecting recyclables from the KLLM are presented below. The table indicates the breakdown of recyclable types from January to November 2018. Only monthly total tonnages were provided for January 2019 to June 2020. The monthly average was only calculated including months for when recycling occurred in the KLLM.

Table 15: Recycling records January 2018 – June 2020 (tonnes) (source, KLLM and Henque Waste)

Month	Paper and cardboard	Plastic	Glass	Total
January 2018	2.2	0.4	---	2.6
February 2018	---	---	---	
March 2018	---	---	---	
April 2018	---	---	---	
May 2018	---	---	---	
June 2018	5.2	2.7	0.7	8.7
July 2018	1.7	1.1	0.2	3.0
August 2018	6.5	2.4	0.6	9.8
September 2018	11.7	4.2	0.2	16.3
October 2018	4.7	2.5	0.2	7.4
November 2018	10.2	3.0	0.3	13.5
December 2018	---	---	---	---
January 2019	---	---	---	---
February 2019	---	---	---	---
March 2019	---	---	---	5.0
April 2019	---	---	---	4.3
May 2019	---	---	---	2.8
June 2019	---	---	---	
July 2019	---	---	---	
August 2019	---	---	---	
September 2019	---	---	---	
October 2019	---	---	---	
November 2019	---	---	---	4.4
December 2019	---	---	---	7.4
January 2020	---	---	---	10.1
February 2020	---	---	---	12.2
March 2020	---	---	---	6.8
April 2020	---	---	---	
May 2020	---	---	---	3.8
June 2020	---	---	---	4.2
Total				**122.3**
Average/ month (for 17 months)				**7.2**
Percentage of total material recovered for recycling	69.1	26.9	3.9	
Average/ month for 2018 (7 months)				**8.8**
Average/ month for 2019 (5 months)				**4.4**
Average/ month for 2020 (5 months)				**7.4**

(d) Separation at Source Programmes

The KLLM currently has no separation at source (multi-bag) waste collection system in operation

In 2020, a cooperative between the municipality and a private recycler was developed to start a separation at source pilot project where recycled waste was separated at source and collected by the private recycler. The separation at source pilot project operated initially in the

Ladismith area. Door-to-door education and awareness campaigns regarding the separation at source was conducted before the commencement of the programme. The programme started in February 2020 but was stopped in March 2020 due to the COVID-19 pandemic and the national lockdown. The recycler had also not sorted the separated recyclable waste collected from the households due to a concern for the health and safety of staff. No recycled tonnage data was therefore available from the 3-week period of the separation at source pilot study. This programme has not recommenced.

Clear bags were used for recyclables and the programme was launched in Ladismith in the areas indicated below.

Table 16: Areas serviced by the clear bag system

Tuesday (after general waste was collected on Monday)
Ladismith, all houses within North Street, Kloof street, South street and Towerkop street

The recycler that managed the 2-bag system indicated that the residents were interested in the programme and that the weekly participation rate of households increased steadily. The households which participated generally followed the guidelines provided by the recycler on the types of waste which can be placed into clear bags.

The municipality plans to resume with a pilot study separation at source programme in Ladismith in 2021. The exact date when the programme will recommence and how it will be implemented is unknown.

(e) Recycling Drop-Off Facilities

The KLLM has no dedicated municipal drop-off facilities for recycling. The 2020 KLLM IWMP lists the development of recycling drop-off facilities as a project, but the municipality has not planned to develop such facilities in the short-term.

(f) Swop Shops

The KLLM has no swop shops. The 2020 KLLM IWMP lists the development of swop shops as a project, but the municipality has not commenced with any planning to develop a swop shop in the short term. Generally, the volumes of waste collected by the swop-shops are small, but they form a valuable education and awareness tool.

(g) In-house Recycling Programme

Recycling bins are available in the KLLM offices to encourage employees to recycle at work. Recycled waste is collected by a private recycler, however, no records of the types and volumes of recyclables collected through this programme were provided to the KLLM. The KLLM therefore cannot quantify the success of the in-house recycling programme in terms of tonnages.

Figure 9: In-house recycling bins located in municipal offices

(h) Planned Recycling Facilities

The 2020 KLLM IWMP Implementation Plan provides details of several recycling facilities and initiatives for the KLLM, but none of these have been planned or budgeted for yet therefore have not yet commenced. The recycling facilities and initiatives proposed in the 2020 IWMP are:

- The development and implementation of swop shops and buy-back centre programmes
- Development of drop off facilities for recyclables in Calitzdorp (2021), Van Wyksdorp (2023) and Zoar (2025)
- Development of a MRF (2025-2026).

(i) Private Recycling and Waste Minimisation

Recycling conducted in the KLLM is largely driven by private recyclers. There are three recyclers based in Ladismith and mainly collecting recyclables from businesses in Ladismith. The recyclables collected by these recyclers are transported to Riversdale or Cape Town. None of these private recyclers report recycling tonnages to the KLLM. The private recyclers indicated that the KLLM has not engaged them to request recycling tonnages. Average monthly recycling tonnages for the past three years for one of the recyclers operating in Ladismith is provided below:

- In 2018, approximately 8.8 tonnes of recyclable was collected per month over 7 months
- In 2019, approximately 4.8 tonnes of recyclable was collected per month over 5 months

- In 2020, approximately 7.4 tonnes of recyclable waste was collected per month over 5 months.

(j) Waste Available for Recycling

A waste characterisation exercise for the KLLM was undertaken by the GRDM in 2019. The aim of the study was to determine the profile of domestic waste which was being disposed of to landfill. During the waste characterisation exercise 368 black bags (1.3 tonnes) of waste were collected from 12 different suburbs and was sorted into 15 categories.

The table below presents the results of the waste characterisation exercise. These results were used to determine the hypothetical availability of recyclable materials in the domestic waste stream. Approximately 2,015.6 tonnes of recyclable material is generated per annum in the domestic waste stream (50.2% of the total domestic waste generation). Additional recyclable material will be generated through business and industry. The profile of business and industry waste is unknown therefore the volumes of materials cannot be calculated.

Table 17: Waste profiles, including the mass and volume of each recyclable waste type, for KLLM (source: Eden District Municipality, 2016)

Waste type	Percentage of total mass (%)	Amount of waste type (tonnes/annum) domestic waste
Soft plastics	10.7%	429.6
Hard plastics	10.8%	433.6
Paper	7.1%	285.1
Cardboard	8.7%	349.3
Glass	9.8%	393.5
Metal	3.1%	124.5
Total per annum	**50.2%**	**2,015.6**
Total per month		**168.0**

7.5.2 Household Hazardous Waste Recycling

(a) Definitions

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

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

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

(b) Targets for Households Hazardous Waste Management

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

(c) Description of Household Hazardous Waste

Common types of HHW are:

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

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

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

(d) Household Hazardous Waste Generation

There are no records available for the generation or disposal of HHW in the KLLM. A 2019 waste characterisation survey of domestic waste was undertaken by the KLLM, GRDM and DEA&DP and waste was sorted into 15 categories including e-waste and hazardous waste. The table below summarises the results of the waste characterisation for e-waste and hazardous waste.

Table 18: Domestic waste characterisation – household hazardous waste results (GRDM, 2016)

Waste type	Examples	Mass % of total domestic waste stream	Total in domestic waste stream (tonnes/ annum)
E-waste	Electrical or battery operated objects	0.1%	4.0
Hazardous waste	Paints, resins, glue, fluorescent tubes, batteries, pesticides, asbestos	0.8%	32.1
Total per annum (tonnes)-		**0.9%**	**36.1**
Total per month (tonnes)-			**3.0**

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 2020 an estimated 4,015 tonnes (KLLM, 2020) of domestic waste was generated in the KLLM. If 0.9% of this waste was composed of HHW, then 36.1 tonnes of domestic hazardous waste would be generated in the KLLM in 2020.

(e) Households Hazardous Waste Drop-Off Facilities

There are no HHW drop-off facilities in the KLLM and no HHW open days were held where HHW can be dropped off at a public drop-off facility. The e-waste and HHW generated in the KLLM was most likely disposed of with domestic waste.

(f) Financial Savings from Diversion of Recyclable Material from Landfill

At present the KLLM uses the Ladismith and the Zoar landfill sites for the disposal of waste. The Calitzdorp and the van Wyksdorp landfill sites are no longer used by the municipality for the disposal of waste and should be closed and rehabilitated according to their waste management licence conditions. However due to a lack of access control at these two landfill sites, illegal dumping continues at these sites. The Ladismith and Zoar landfill sites accept all types of general waste and are permitted to operate until available airspace capacity has been reached.

The Ladismith landfill site is currently used as the main landfill site for the disposal of waste in the KLLM and has the largest available airspace in the KLLM. The estimated remaining airspace and lifespan of the landfill is more than 20 years. Once the airspace at Ladismith landfill site is exhausted, the municipality would need to transport waste from the KLLM to the GRDM regional landfill site near Mossel Bay for disposal. The KLLM will be charged a tariff per tonne for disposal of waste at the regional landfill site and waste would need to be transported approximately 170 km to the regional landfill. The KLLM can reduce transport and disposal costs by diverting recyclable material from the regional landfill site.

(g) Financial Costs Associated with Recycling

Separation at source is one of the mechanisms which can be used by municipalities to create an enabling environment for recycling and to obtain high quality, uncontaminated recyclables. There can, however, be high costs associated with separation at source which can range between R350 – R500 per tonne of waste on top of the standard cost to collect domestic waste. Waste which is separated at source requires further sorting which requires a sorting facility (a clean MRF) and labour. The cost of a separation at source programme, including transport and sorting costs, is estimated at R840 per tonne (Smith, F.H and Trois C 2018).

The KLLM would need to conduct a financial costing of all proposed recycling and waste diversion projects to determine the total cost of recycling and waste diversion in the municipality and to achieve the NWMS targets.

7.5.3 Composting

(a) Definitions

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

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

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

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

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

(b) Legislative Drivers for Organic Waste Diversion from Landfill

The following key legislated targets for organic waste diversion from landfill need to be noted:

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

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

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

(c) Organic Waste Generation

An estimated 980.8 tonnes per annum of organic waste is generated in the KLLM. The majority of organic waste was food waste, 606.3 tonnes per annum, thereafter 254 tonnes per annum of garden waste was disposed at the Ladismith and Zoar landfill sites (visually recorded at the landfill) and 120.5 tonnes of garden waste was disposed of in the domestic waste stream. A combined 374.5 tonnes per annum of garden waste is generated in the KLLM. There are no large scale municipal organic waste diversion programmes.

Table 19: Waste profile of organic waste for KLLM (source: Garden Route District Municipality, 2019 and DEADP records, 2020)

Waste type	Percentage of total domestic waste stream by mass (%)	Amount of waste type (tonnes/annum)
Food waste (domestic waste stream)	15.1%	606.3
Garden waste (domestic waste stream)	3.0%	120.5
Garden waste (received at landfill sites)	-	254.0
Total		**980.8**

(d) Landfill Site Disposal of Organic Waste

The KLLM uses the Ladismith and Zoar landfill sites for the disposal of organic waste. The KLLM allows the community of Van Wyksdorp to dispose of organic waste (green waste) at the Van Wyksdorp landfill site. The WML for the Van Wyksdorp landfill requires the site to be closed and rehabilitated. The KLLM have closed the Calitzdorp landfill site, however due to lack of access control at the landfill site, the public illegally dumped organic waste at the Calitzdorp landfill site.

The Calitzdorp and Van Wyksdorp landfill sites have closure licenses and according to the waste management licences closure was scheduled to commence in December 2019 for the Van Wyksdorp landfill site and July 2020 for the Calitzdorp landfill site.

(e) Diversion of green waste from KLLM landfill sites

There are no municipal organic waste diversion programmes.

(f) Composting Facility

There are no composting facilities in the KLLM. 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.

(g) Home Composting Programme

A pilot home composting programme is in the process of being established in the KLLM. The project is a joint programme between the KLLM and GRDM. The programme will trial the use of compost containers, worm farms and compost heaps to divert organic waste from landfill. The GRDM will provide compost containers, worm farms and worms, training, training materials. The GRDM will also manage the data collection and capturing for the project.

The project has experienced some challenges with communication with the participants as not all participants have access to email.

(h) Garden Waste (Green Bag) Collection System

The KLLM has no municipal garden waste collection system (green bag system) in place for the collection of garden waste from households. Residents dispose of garden waste at the landfill sites within the municipality.

(i) Wood Waste Management

Wood waste contributes 0.2% of the domestic waste stream in the KLLM (GRDM, 2019). Wood waste (old window frames, wooden beams etc.) also contribute to C&DW. Wood is disposed

at the municipal landfill sites Wood waste can further be broken down into the following categories:

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

The table below summarises the results of the waste characterisation for wood waste and possible mass of wood waste generated in 2020 in the KLLM. In 2020 an estimated 4,015 tonnes (KLLM, 2020) of domestic waste was generated in the KLLM. If 0.2% of this waste was composed of wood waste, then 8.03 tonnes of domestic wood waste would be generated in the KLLM in 2020 which equates to approximately 669 kg of wood waste generated per month.

Table 20: Domestic waste characterisation – household wood waste results (GRDM, 2019)

Waste type	Examples	% of total domestic waste stream	Total in domestic waste stream (tonnes/ annum)
Wood waste	Wood pallets, chipboard, mixed wood off-cuts, etc.	0.2%	8.03
Total per month (tonnes)-			**0.669**

(j) Sewage Sludge Generation

Two tonnes of sewage sludge was generated per month in 2019 in the KLLM (24 tonnes per annum). Sewage sludge is disposed at the Ladismith landfill site (Department of Environmental Affairs and Development Planning, 2021). The municipality plans to engage with farmers to use the sludge for composting.

7.5.4 Construction and Demolition Waste

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

(a) Definitions

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

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

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

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

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

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

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

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

(c) Construction and Demolition Waste Generation

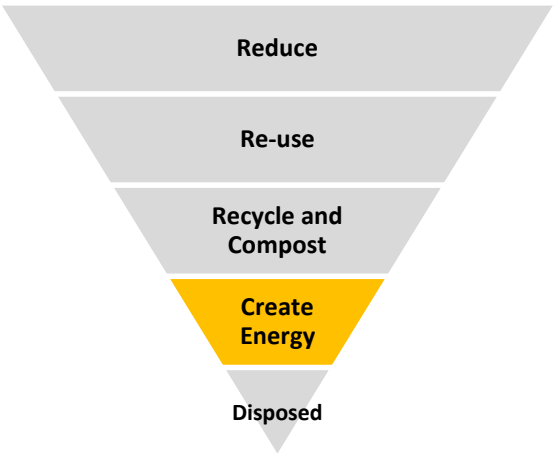
Construction and demolition waste disposal data was provided by DEA&DP (IPWIS records) and KLLM. In 2019, on a monthly basis an average of 9.5 tonnes of C&DW was disposed of at Ladismith and Zoar landfill site. Construction and demolition waste accounts for nearly 8.6% of the total waste disposed of by the KLLM. There is currently no formal diversion of C&DW in the KLLM. The C&DW monthly disposal tonnages for 2019 are presented in the table below. These figures exclude disposal of C&DW as Calitzdorp and Van Wyksdorp landfill sites.

Table 21: C&DW disposal records for January 2019 – December 2019 (provided by DEA&DP on 22/05/2020)

Month	Construction and demolition waste (tonnes)
January 2019	0
February 2019	24
March 2019	18
April 2019	8
May 2019	13
June 2019	14
July 2019	5
August 2019	7
September 2019	6
October 2019	6
November 2019	13
December 2019	0
Total	**114**

Month	Construction and demolition waste (tonnes)
Average/ month	9.50

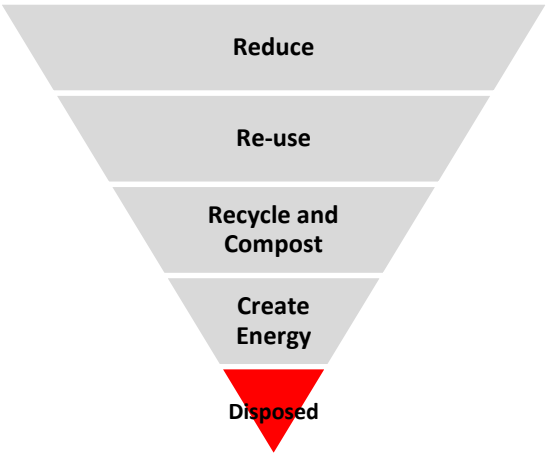
7.6 Create Energy



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.

7.7 Treatment and Disposal



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

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

7.8 Waste Education and Awareness

7.8.1 Waste Education and Awareness Campaigns

There are no designated employees at the KLLM to manage or conduct waste education and awareness campaigns. A limited number of waste awareness campaigns have been undertaken at schools. Awareness campaigns were conducted through the EPWP programme

from 2014 to 2016 and in consultation with the Department of Environmental Forestry and Fisheries (DEFF, formerly Department of Environmental Affairs) from April to October 2019. The KLLM had planned to conduct awareness campaigns in 2020, but due to the COVID-19 pandemic and national lockdown the awareness campaigns could not take place.

Awareness campaigns were largely focussed on general waste management and reducing illegal dumping in the municipality, but since April 2019 the awareness campaigns at schools included waste minimisation, diversion and recycling as well. In terms of awareness raising materials, the KLLM has used the materials made available GRDM such as the Rocky the Rooster information banners. No budget was available for the KLLM to print and distribute their own flyers. The KLLM has also published articles in the municipal newsletter related to recycling and illegal dumping.

The list of schools that were visited during the awareness campaigns from April to October 2019 are presented in the table below. The DEFF and KLLM held a recycling competition between the different grades at the Ladismith Primary and High School. The grade that recycled the most won the competition. A key challenge noted by the co-ordinator was a language gap between the learners and the co-ordinators. This highlights the need for awareness campaigns to be undertaken in the home language of the target audience and awareness materials should also be translated into the predominant local languages.

Table 22: 2019 and 2020 waste education and awareness campaigns (campaigns specific to waste minimisation and recycling and shown in bold)

Month	Event details	Location	No. of people
April	Waste Management Awareness- Eco Brick – Ladismith High School	Ladismith Hoerskool	30
May 2019	Waste Management Awareness- (Recycling and Eco Brick)	Towerkop primary school (grade 7)	193
May 2019	National Biodiversity Day	Ladismith Primary School (grade 6)	32
June 2019	Air quality	Van Wyksdorp Primary (grade 5)	32
July 2019	Mandela Day celebration - Recycling	Hoeko Primary School grade R – 7)	115
August 2019	Waste Management Awareness- 3 Rs	Ladismith Primary School (Grade 5 and 6)	52
August 2019	Waste Management Awareness- 3 Rs	Ladismith Secondary School	42
August 2019	Waste Management Awareness- 3 Rs	PB Botha Primary School (grade 7, 8 and 9)	201
August 2019	Waste Management Awareness- 3 Rs	Amalienstein Primary School (grade 7, 8 and 9)	89
October 2019	Waste Management: recycling and Implementation of Green Schools Project	Ladismith High School (Resource class)	9
October 2019	Environmental Education	Ladismith High School (Hostel learners)	20
October 2019	Waste Management: recycling and Implementation of Green Schools Project	Ladismith Primary School (Grade 1 - 3)	107
October 2019	Waste Management: recycling and Implementation of Green Schools Project	Ladismith Primary School (Resource class)	9
October 2019	Waste Management: recycling and Implementation of Green Schools Project	Ladismith Primary School (Grade 1 - 3	107

Month	Event details	Location	No. of people
14 February 2020	Waste awareness and clean-up campaign	Towerkop Primary School (Grade 7 learners)	28
17 – 20 February 2020	Illegal dumping clean-up campaign in Sakkiesbaai	CWP participants	18
24 February 2020	Separation at source pilot project awareness. Door to door awareness to 100 households in Ladismith. Awareness conducted by Clorans Development and YCOP coordinator	Ladismith community	100 households
24 February 2020	Illegal dumping clean-up campaign in Sakkiesbaai (follow up from the first clean up capmiagn in the)	CWP participants	18
16 March 2020	Separation at source pilot project awareness. Follow up on door to door awareness to 100 households in Ladismith. Clear bags for recyclables and flyers were distributed to households. Awareness conducted by Clorans Development and YCOP coordinator	Ladismith community	100 households
16 September 2020	Waste awareness and education to EPWP workers in Ladismith	Ladismith	19
17 September 2020	Waste awareness and education to EPWP workers in Zoar	Zoar	15
20 October 2020	Survey on clean-up campaigns of Illegal dumping in Sakkiesbaai. Survey conducted by YCOP and EPWP workers.	Sakkiesbaai	8
22 October 2020	Waste awareness and clean-up campaign	Varkeiskloof - Ladismith	10
10 – 11 November 2020	Waste awareness and clean-up campaign	Sakkiesbaai - Ladismith	6

The tonnages of waste collected from grades 1 – 3 and the resource class of the Ladismith primary school are presented in the table below. While only a low amount of waste was collected (76.4kg between 04 – 25 October 2019) the recycling programmes also act as awareness programmes for learners.

Table 23: Tonnages of waste collected through school recycling programme

Grade	Kg of recyclables collected
1	15.6
2	32.5
3	20.9
Resource class	7.4
Total	**76.4**

7.8.2 District Waste Awareness Campaigns

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

- Each municipality developing a waste awareness calendar and aligning it with district programmes

- GRDM waste mascot, Rocky the Rooster, to be incorporated into the local municipalities waste awareness materials
- Waste awareness campaigns at schools to be undertaken in consultation with the municipalities
- GRDM to undertake a public perception survey to determine the public preferred method of engagement

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

- Waste Minimisation Public Awareness and Education Campaign: The campaign aims to encourage residents to reduce waste generation and divert waste from landfill.
- Wise Up on Waste: Development of waste educational materials including videos as well as teacher guides have been developed under the programme.
- Waste Management in Education (WAME) programme materials which were developed by DEA&DP are available on the GRDM website. The GRDM previously coordinated WAME workshops for all schools in the GRDM.
- Home Composting Pilot Projects: Home composting programme was rolled out in December 2020 in the KLLM.
- 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 was part of the school waste awareness programmes and events at local municipalities.
- Information banners: GRDM procured banners featuring Rocky the Rooster and which contains recycling facts for different waste streams. The KLLM has made use of the banner at public meetings and awareness events.

Figure 10: Examples of waste information banners featuring the GRDM waste mascot Rocky (image provided by GRDM)

7.8.3 Kannaland Local Municipality Website

There is a page dedicated to waste management on the KLLM official website (https://www.kannaland.gov.za/waste-management). No information is provided on the webpage regarding waste management, collection, minimisation and recycling.

7.9 Waste Management By-Laws

A brief review of the KLLM by-law related to waste management was undertaken as part of the WMP development to identify gaps in the by-law in terms of waste minimisation and recycling. This review does not constitute a full legal review.

One by-law addresses waste management in the KLLM.

- Integrated Waste Management by-laws (2013)

The following gaps were noted in the by-laws regarding waste minimisation and recycling

- The by-law states that the KLLM requires generators to separate waste and to store recyclable waste separately from non-recyclable waste. The by-law is however not clear as to what the generator should do with the recyclable waste and how it should be managed
- The by-law refers to the disposal of recyclable waste and the delivering of the waste to a licensed waste disposal site. The aforementioned is in contradiction with the waste hierarchy which requires that recyclable waste should be diverted from landfill

The GRDM has developed a generic waste by-law and DEA&DP have developed a waste by-law model. The KLLM should review their by-law and either adopt the GRDM generic by-law or use the DEA&DP model to update their waste by-law. Both resources have been developed to assist local municipalities to develop a comprehensive waste by-law and they can be amended as required to ensure the suit the needs of the KLLM.

7.10 Waste Management Budget for Waste Minimisation and Recycling

There is no budget for waste minimisation and recycling in the KLLM. The KLLM has budgeted a total of R8.8 million for the waste management department for the 2020/21 financial year. The main portions of the budget for waste management in the KLLM is indicated in the table.

Table 24: KLLM waste management budget

Waste Management Budget Item	Budget
Employee related costs	R3,216,178.00
Operational costs (R 3.2 million for the management of the landfill sites in the KLLM)	R3,268,140.00
Inventory (consumables)	R1,200,000.00
Bad debts	R1,041,740.00
Contracted services (medical examinations)	R90,000.00
Depreciation	R19,990.00
Total	R8,798,588.00

8 Waste Minimisation Survey Results

8.1 Waste Survey Limitations

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

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

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

8.2 Participation Rates

A total of 11 responses from business in KLLM and 8 responses from the public were received on the survey. Due to the low response rate to the 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 25: Waste minimisation survey results

Respondent group	Completed surveys
Business/ industry	11
Public	8
Total	**19**

8.3 Business/ Industry Survey Results

Responses from the following business/ industry groups were received:

- Hospitality and tourism industry – hotels, B&B, hospitality service and tourism centre, etc.
- Winery
- Waste Management Consultancy (specialising in waste to energy and products)
- Waste Management Company

8.3.1 Waste Information Management

The first section of the survey aimed to determine how business and industry currently manage waste information. None of the businesses that responded to the survey use the SAWIS, IPWIS or GWIS. Only three of the respondents to the survey maintain waste records based on visual estimation. None of the other respondents maintain waste records.

8.3.2 Waste Generation and Management

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

Table 26: Waste generated per month and management methods

Waste stream	Tonnes/ month generated	Management method
Cardboard, paper	100 kg	Disposed
Cardboard, paper	91.67 kg	Recycled
Glass	100 kg	Recycled
Food waste (grape skins and stalks)	41.67 kg	Composted and reused at the facility
Plastic	20 kg	Recycled
Total	353.34 kg	

8.3.3 Waste Management Facilities

The following waste management facilities are used by respondents.

Table 27: Waste management facilities used by respondents

Waste facility name	No. users
The recycling depot, Oudtshoorn	1
Waste collection point in Calitzdorp	1
Total	2

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

- No improvements were recommended for the recycling depot n Oudtshoorn.
- Calitzdorp has a historic dump site which is till used and poorly managed. This dump site can be improved/upgraded to improve the entire waste management system in Calitzdorp including recycling.

8.3.4 Waste Minimisation Programmes

Where business and industry undertake waste minimisation programme in-house they were requested to provide details of challenges and lessons learnt.

Table 28: Internal waste minimisation programmes successes/ lessons learnt

Successes	Lessons learnt
The business recycles everything that they possibly can.	There are businesses and individuals that recycle in the community, but this should be expanded to benefit the whole community and environment. The recycling programmes should utilise individuals from the community to further benefit the community.

Respondents rated the municipal recycling programmes, available facilities to businesses, waste minimisation campaigns and availability of information on waste minimisation as very poor.

The following reasons were given for responses:

There is no municipal waste disposal facility or recycling facility in the community where the respondent resides and or within 15 kilometres. The respondent travels to Oudtshoorn to recycle waste and dispose of general waste. This is costly and there are safety issues at the Oudtshoorn landfill site.

8.3.5 Waste Education and Awareness

Respondents were asked to identify their preferred method for the municipality to contact them. Email communication, radio advertising, social media platforms, workshops/road shows and signage were the preferred method of engagement for businesses.

Community waste awareness programmes are not being run in the KLLM by business and industry that responded to the survey. Respondents indicated that their businesses are too small to conduct such programmes.
Business and industry are not aware of waste awareness programmes being undertaken by private companies in their communities or by the KLLM. A respondent indicated that many waste awareness programmes start, but are not sustained.

8.3.6 Waste Minimisation and Recycling Challenges

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

- The staff need to travel far to recycle (a business in Calitzdorp that travels to Oudtshoorn to recycle waste)
- There is an inability or lack of appetite from the municipality for recycling

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

- Provide facilities for recycling in the municipality
- Conduct awareness campaigns at business and in the community to encourage recycling
- Remove politics in the decision made by the municipality and organise themselves to improve the conditions in the municipality
- Prioritise the budget allocated to waste management

8.3.7 Impact of COVID-19 on Waste Management

The hospitality industry indication that waste generation volumes have decreased due to lower occupant rates from less guests during the national lockdown.

8.3.8 Survey Conclusions and Recommendations

Although only a few responses were received (7) and even fewer surveys were fully completed (4) from business/industry. The following recommendations and conclusions are from the survey:

- There is a need for the KLLM 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 in the KLLM
- 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 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 the KLLM to ensure the sustainability of recycling businesses
- The KLLM should provide a consistent waste collection service so that waste bags are not torn and preyed upon by people and animals and eventually waste is scattered in public and private spaces.
- There is a considerable amount of recyclables in the waste that can be collected, sorted and sent for recovery/recycling with more involvement and commitment from the KLLM.

8.4 Public Survey Results

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

Table 29: Suburbs represented in the survey

Areas/ suburb	No. of responses
Calitzdorp	7
Ladismith	1
Total	8

8.4.1 Waste Minimisation and Recycling Programmes

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

Table 30: Waste avoidance and minimisation efforts currently undertaken by respondents

Option	No. responses
Use reusable shopping bags instead of plastic bags	3
Use reusable coffee cups for takeaway coffee and hot drinks	0
Use a reusable water bottle instead of buying bottled water/ cool drinks	3
Say no to plastic or single use utensils (e.g. plastic/ cardboard	5
Choose products based on packaging (e.g. choose loose fruit and vegetables instead of ones with excessive packaging	4
None – my household does not participate in any waste avoidance or minimisation	2
Other (please specify)	3

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

- Waste is separated within the household, but there is no service to collect the recycled waste. Eventually this separated recyclable waste is disposed of at the landfill site
- Waste is separated in the household and recycled waste is dropped off at a municipality within the Cape Winelands District Municipality as there are no recycled waste drop-off facilities in the Kannaland or Garden Route District municipalities
- Reuse as many items as possible in the household.
- Donate glass bottles to a neighbour who does bottling and preserving
- Cardboard is donated to a neighbour for their compost heap

Table 31: Methods which households would use to recycle if they were available

Option	No. responses
Provide a separate bag for recyclables and collect from my door-step	5
Provide safe and easily accessible facilities for me to drop-off recyclables	5
Set up a buy-back centre where I can sell recyclable material generated by my household	2
Provide a swop-shop where I can exchange recyclable material generated by the household for products (e.g. cleaning products, stationary, tinned food) or coupons	3
Teach me how to recycle so I know how to participate in recycling and provide me with more information on how and why to recycle	2
None, I am not interested in recycling	0
Other	1
Total	

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

- 5 respondents rated the municipal recycling programmes as very poor
- 5 respondents rated the municipal recycling facilities as very poor
- 5 respondents rated the municipal waste minimisation campaigns as very poor
- 5 respondents rated the information available on waste minimisation/ recycling as very poor
- 4 respondents rated the knowledge of municipal staff in terms of waste minimisation needs as very poor and 1 respondent as very good

The following reasons were given for responses. 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 recycling programmes:

- No recycling facilities, programme or awareness campaigns are available.

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

- The KLLM need to relook at their tender in Kannaland. There is no base for sorting and no infrastructure to move the waste off site.
- Incentive driven programs
- Provide a drop off recycling facility
- Provide tamper-proof drop off bins for paper, cardboard, plastic, glass and metal
- Implement waste minimisation and recycling at households and incorporate EPWP workers in these programmes

8.4.2 Organic Waste Management

Respondents use composting heaps to manage their food waste and transport their garden waste to landfill sites for disposal. The remaining respondents use a composting bin or dispose of organic waste with their other household waste.

The majority of respondents indicated they would use a home composting bin or worm farm and make use drop-off facilities for separated food or garden waste if this was available. Few of the respondents indicated they would separate food waste for collection by the municipality. All respondents indicated they would separate or divert their domestic organic waste if there was a programme in place for the diversion of domestic organic waste.
No additional suggestions were made by the public respondents to decrease organic waste disposal to landfill.

8.4.3 Waste Education and Awareness

Majority of the respondents indicated that they are unaware of the any waste education and awareness programmes conducted by the municipality or private organisation. They further rated the municipal waste education and awareness programmes as poor to very poor..Re
Majority of respondents indicated they firstly preferred social media platforms and email communication for education and awareness, and secondly referred clean-up campaigns and recycling competitions. Respondents did not prefer the use of flyers/printed material, radio advertising and workshops/roadshows for education and awareness programmes.
The following suggestions on how municipalities can improve waste education and awareness programmes were raised:

- The municipality needs to start waste minimisation awareness campaigns
- Appoint more staff to conduct awareness campaigns
- Start awareness campaigns at the pre-primary and primary schools and then move onto high schools and adults.

The following additional comments were provided by the respondents for consideration in the development of the waste minimisation plan:

- The landfill sites are a mess, and a proper recycling programme will reduce the volume of recyclable waste at the Kannaland landfill sites.
- The municipality should involve the community through the development and implementation of these plans.
- Unemployed people in the municipality can be approached and employed through the Community Work Programme or the Expanded Public Works Programme and implement the waste minimisation plan.

8.4.4 Survey Conclusions and Recommendations

Similarly, to the businesses survey responses, a very low number of responses (8) was received for the public survey, however the results indicate that there is a need for the KLLM to engage more frequently with residents to ensure that they are aware of waste minimisation and recycling initiatives, programmes and facilities. The survey further highlighted

- The residents in the KLLM want the municipality to start with recycling programmes and approach businesses in the KLLM to start or make use of any private recycling programmes.
- A lack of municipal facilities that are available to residents to drop-off source separated recyclables
- Respondents want to recycle, but there are no recycling facilities or programmes in the KLLM for the public to use
- Awareness campaigns focussing on recycling must be improved so that people are aware of the importance of recycling. The municipality must also provide facilities and recycling programmes.

9 Gap and Needs Assessment

The aim of the gap and needs assessment is to identify shortcoming in current waste minimisation practices in the KLLM. 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.

9.1 Waste Minimisation Challenges and Recommendations

9.1.1 Lack of Baseline Data

There is no accurate waste generation or disposal data for the KLLM. Waste entering the landfill sites is recorded manually based on visual estimates. During the fieldwork only the Ladismith landfill was staffed; however, large volumes of C&DW and minor volumes of domestic waste were disposed at the Zoar and Calitzdorp landfill sites. As these sites were not manned, waste entering them was not recorded. Furthermore, access to the landfill sites was not controlled outside operational hours, waste can be disposed at these sites without being recorded. Without baseline data it is difficult to manage waste in the municipality and accurately determine what percentage of waste generated is being diverted and to set realistic target for future diversion.

In the short term the KLLM should ensure that all landfill sites are manned during operating hours by trained staff and that access control (fence and a locked gate) is introduced at the landfill sites. The staff should be able to record all waste disposed of at the landfill sites. 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. This is applicable to the Ladismith landfill site.

9.1.2 Separation at Source Programme

The municipality currently has no separation at source programme in operation. A pilot separation at source programme was operated for one month from February to March 2020, but was stopped due to COVID-19 and the national lockdown that was implemented from March 2020. A cooperative was developed with a private recycler operating in Ladismith that commenced with the pilot separation at source programme in February 2020. The programme was piloted in a small portion of the Ladismith town and education and awareness training was provided to households prior to the introduction of the programme. The recycler had also not sorted the separated recyclable waste collected from the households due to the risk of contracting the virus from the recyclable waste.

The following mechanisms can be used to recommence the separation at source programme and ensure participation of households:

- The municipality could assist the recycler with a suitable area and building to separate and store the recyclables. The facility previously provided did not have an electricity connection. The recycler could therefore not bale the recyclables.
- The municipality could provide households with clear bags to commence with separation of waste.
- The residents should be informed of how to participate in the programme, what materials can be recycled and how to recycle them (e.g. rinsing of jars), and the importance of recycling through education and awareness programmes. This can be done as a joint initiative between the municipality and the recycler
- Once the separation at source programme recommences, the recycler should quantify participation rates in different suburbs, and target households and suburbs with low participation rates with door-to-door awareness campaigns or the use of social media
- The municipality should extend the programme to more suburbs in the municipality. There are four main towns in the KLLM that can be targeted for the separation at source programmes namely Ladismith, Calitzdorp, Zoar and Van Wyksdorp. Many of the respondents of the online public survey reside in Calitzdorp and were interested in recycling in their town. The municipality could prioritize this area for the extension of the separation at source programme and similarly develop a cooperative with a local private recycler.
- The KLLM should collate the recycling tonnages and the number of households participating in the programme on a monthly basis to determine the tonnes of waste diverted from landfill and the success of the programme.

9.1.3 Lack of Recycling Facilities to Encourage Community Involvement

There are no municipal facilities such as recycle drop off centres or communal points, swop shops or buy-back centres in operation in the KLLM to encourage residents to recycle. The municipality should provide recycling drop-off points for various recyclables (glass, paper and cardboard, plastic, etc.) in Ladismith, at the Ladismith landfill site and in Calitzdorp. A dedicated area or container could be added for source separated recyclables along with some educational signage. The KLLM should also pilot either a swop-shop or buy-back centre in Ladismith and Calitzdorp.

The KLLM should provide the infrastructure and equipment for the drop-off facilities and the swop-shops/buy-back centres, but these facilities, in the short term should be managed by the private sector.

9.1.4 Lack of Waste Minimisation Infrastructure

The only waste management infrastructure within the KLLM are the four landfill sites and a general waste drop off facility in Van Wyksdorp. There are no green waste or recyclable waste drop-off facilities.

Development of infrastructure such as MRFs, drop-off centres, drop-off facilities, swop-shops and composting facilities could assist the KLLM to increase waste diversion from landfill.

A drop-off facility for recyclables and green waste is recommended for each of the four towns in the KLLM.

9.1.5 Lack of Waste Minimisation Education and Awareness Campaigns and Information

The respondents to the public survey indicated there is a lack of education and awareness, and information available on waste minimisation and recycling. No information on recycling is available on the KLLM website and municipal waste collection staff are not knowledgeable of areas where waste can be dropped off.

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

- Include separation at source in litter picks and clean-up campaigns. Participants in the programmes should be given different coloured bags to allow litter to be sorted into recyclable and non-recyclable streams
- Assess the type of events used for waste education and awareness. Practical events such as visits to source separation demonstrations can be added to the awareness programme.
- Encourage green events in the municipality where recycling bins should be available at markets and sporting events. Event organisers should be required to submit waste minimisation plans to the KLLM well in advance of events.
- Brief press releases on waste minimisation campaigns can be published via social media to keep residents updated on awareness campaigns. Topics which could be covered on social media could be:
    - Get to know your recycling service provider (once a programme is established) or cooperative recycler – an interview with the recycling service provider or private recycler to explain how the programme works, do's and don'ts of recycling and the importance of recycling
    - Invitation for farmers or residents to collect chipped green waste from landfill sites when it is available
    - Did you know segments? Weekly facts related to waste minimisation and recycling e.g. *"did you know, recycling paper saves water and electricity as well as trees. Less water and electricity are needed to make products from recycled paper then to make products from trees".*
    - Once recycling is implemented provide monthly recycling progress reports – a brief report back on recycling tonnages for the month. This should be presented visually using graphs. The progress report should compare results month by month.
    - What happens to your recyclables? A step-by-step explanation of the recycling process from collection at the door to final processing.

9.1.6 Volatile Markets for Recyclable Materials

The markets for recyclable materials are heavily influenced by national and international conditions. At present there is an oversupply of polyethylene terephthalate (PET), plastic and paper in the local market. Recycling companies may struggle to sell these materials or to get the desired price for the materials. There is very little the KLLM can do to mitigate against poor markets. The poor markets influence the sustainability of recycling and how much recyclables

are collected by private recyclers and waste pickers. This entirely affects how much waste is diverted from the landfill site.

9.1.7 Perceived Low Waste Disposal Costs Compared to Recycling

The KLLM landfill sites were not currently managed in accordance with their license conditions, and the operational cost does not consider the rehabilitation cost for the landfill sites. If the landfill sites were managed correctly and a contribution made to a rehabilitation fund, the cost to manage the landfill would increase substantially.

The KLLM does not have a separation at source programme or any other recycling service therefore the cost of recycling cannot be compared to the cost of disposal of waste to landfill. Municipalities within the GRDM which are providing a separation at source programme are paying the service provider between R 650 – R850 per tonne. This fee typically includes collection of the source separation waste, sorting and some education and awareness. The KLLM could reduce the cost by assisting the service provider with some aspects of the service.

The cost of recycling through a separation at source programme is higher than landfilling, but the disposal of waste at landfill has a number of additional impacts which are not easily quantified these include:

- Non-compliance with legislation
- Increased greenhouse emissions from anaerobic decomposition of organic waste
- Surface and groundwater pollution from landfill sites
- Consumption of airspace
- Nuisance odours from landfill sites

9.1.8 Lack of Waste Minimisation Budget

The KLLM have not budgeted for waste minimisation projects or pilot projects for the 2020/21 and the 2021/22 financial years. Without the provision of capital or operational budget for waste minimisation and recycling initiatives, the municipality cannot implement any recycling or waste diversion projects.

The 2020 IWMP identified the need for the KLLM to undertake a full costing accounting exercise of the waste management services to determine its true cost. The cost can then be compared against income from tariffs to determine if current tariffs are sufficient to meet current costs and future costs such as maximising waste minimisation efforts.

9.1.9 Lack of Diversion of Organic Waste from Landfill

There are currently no programmes in place to divert bulk green waste from landfill and the KLLM is therefore not in a position to achieve the national or provincial targets related to the diversion of green waste from landfill.

In order to meet the legislated targets, the KLLM should consider chipping and composting organic waste. No commercial composting facilities were identified during the fieldwork or

engagement with the KLLM. In the short term, the KLLM can chip green waste at the landfill sites and make it available for the public or farmers to collect free of charge. There are farmers in the KLLM which require chipped organic waste for composting and soil conditioning. The KLLM should engage with these parties to determine if they have a need for mixed chipped green waste and if they would be willing to collect it from the municipal landfill sites. The KLLM would need to purchase or rent a chipper to achieve this.

The 2020 KLLM IWMP identified the need for the development of small compositing facilities (receiving less than 10 tonnes/day of organic waste) and organic waste drop-off facilities in Ladismith, Calitzdorp, Van Wyksdorp and Zoar. The estimated cost of the small compositing facility was R1,500,000.00 and the garden waste drop-off facility was R50,000.00. According to the IWMP the composting facilities should be constructed by 2025 and the garden waste drop off facilities by 2023. Developing the composting facilities and drop-off facilities would provide a long-term solution for organic waste diversion from landfill in the KLLM.

The KLLM should develop the Organic Waste Diversion plan for the municipality which will detail how the municipality would commence with organic waste diversion from landfill. This plan should also detail how the municipality attempts to achieve the NWMS and the WCIWMP targets for organic waste diversion from landfill. The DEADP has developed a template for the Organic Waste Diversion Plan that the municipality could use to develop their organic waste diversion plan. This plan should be a live document that the municipality should update annually or when required. The municipality should keep record of all meetings and engagements regarding the organic waste diversion plan and projects, and ensure that this information is not lost. This is an important tool for long term planning should staff changes occur in the waste management department.

An estimated 606 tonnes of food waste were generated by residents in the KLLM in 2020. This excludes food waste generated by business and industry. The GRDM has planned to pilot a home composting programme in the KLLM where 40 households will be provided with a home composting bin for food waste. The mass of food waste placed in the bin will be recorded to determine the total mass of food waste diverted from landfill. It is recommended that the KLLM develop a plan to extend the home composting programme to divert this waste from landfill.

9.1.10 Lack of Diversion of Construction and Demolition Waste

There are currently no waste diversion programmes for C&DW. Some C&DW was used as cover material at the Ladismith landfill site. From 2021 onwards, the NWMS will only allow C&DW to be disposed of at landfill as a cover material. The KLLM should implement measures to use as much of the C&DW brought to landfill as cover material. The KLLM should also record the volume (then tonnage) of C&DW used as cover material and then record this tonnage of C&DW as reused and not disposed to landfill.

A market for C&DW is needed to encourage the crushing and recycling of this material. The KLLM can consider adding a requirement that a certain percentage of material used in

municipal infrastructure projects is recycled material. However, use of recycled C&DW in construction is not a straightforward process as the material needs to comply with SANS requirements. If the KLLM were to start crushing C&DW for reuse in construction, an incentive would be needed to encourage clean C&DW to be dropped off at the Ladismith site. This could be achieved by allowing free disposal of 'clean' C&DW and charging a rate per volume for contaminated C&DW.

Table 32: Waste management gaps and needs

Legislated Requirements/ Best Practice	Gaps	Needs
1. General Waste Minimisation and Recycling		
• 40% diversion of waste by 2025, 55% diversion by 2030 and 70% diversion by 2035 (2020 NWMS) • 50% diversion of municipal waste from landfill by 2023 (Operation Phakisa) • 20% diversion rate of recyclables by 2019 (WCIWMP) • All municipalities to include provisions for drop-off/ buy back centres/ storage centres in their IWMPs by 2023 (2020 NWMS) • All new and landfill sites with long remaining airspace/ lifespan to include a MRF by 2021 (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).	• 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
2. Organic Waste Management		
• 40% diversion of waste by 2025, 55% diversion by 2030 and 70% diversion by 2035 (2020 NWMS) • 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)	• 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
3.Hazardous Waste Recycling		
• Municipalities to provide communal collection points for non-mainstream recyclables such as batteries and	• There are no drop-off facilities for HHW in the KLLM • There are no open days where HHW drop-off	• Provide drop-off facilities for HHW in Ladismith and Calitzdorp • Discuss the importance of diversion of HHW from landfill at municipal

Legislated Requirements/ Best Practice	Gaps	Needs
fluorescent tubes for collection by a private service provider (NDWCS)	facilities are made available for households	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
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)	• 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 the KLLM. • Generally, there are limited markets for crushed C&DW and resistance from industry to use crushed C&DW for construction projects	• 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 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.
5.Waste Information Management		
	• 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 recycling tonnages.

Legislated Requirements/ Best Practice	Gaps	Needs
6.Waste Education and Awareness		
• The service provider/ municipality must provide guidelines to households on how to separate waste • Municipalities must implement education and awareness training regarding the basic refuse removal in relevant areas (National Domestic Waste Collection Standards, 2011)	• 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.
7.By-Laws		
-	• 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.
8.Waste Minimisation Budget		
All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost reflective tariffs (NWMS, 2020)	• 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.

10 Objectives, Targets and Action

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

Table 33: Objectives and targets

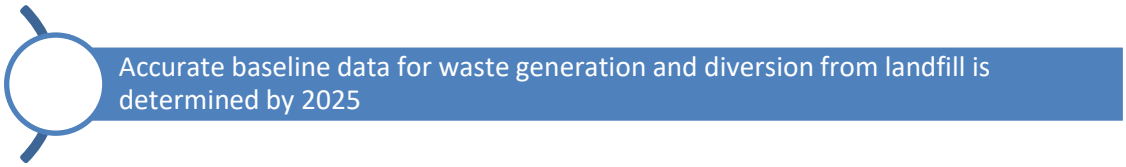
Objective	Target	Actions
1. Improved waste minimisation data management	1.1 Accurate baseline data for waste generation and diversion from landfill to be determined by 2025	1.1.1 All recycling companies to be registered and report on GRWMIS 1.1.2 Weighbridge to be installed at Ladismith landfill site 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
2. Improved waste minimisation education and awareness	2.1 Waste minimisation education and awareness programmes to be well planned and executed 2.2 All school learners to be educated on waste minimisation 2.3 The public and business to be informed of the importance of waste minimisation and how they can participate in waste minimisation	2.1.1 Calendar of events to be planned at the beginning of each year 2.2.1 Bi-annual engagement at all schools 2.3.1 Monthly waste minimisation messages/ information published via social media 2.3.2 Update waste minimisation information available on the municipal website 2.3.3 Notice boards at future recycling drop-off facilities
3. Increase the diversion of waste from landfill 4. Improved waste minimisation data management	3. 3.1 Meet the following targets: 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 <u>Recyclables</u> 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 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

Objective	Target	Actions
		place prior to commencement • Fining schedule for non-compliance 3.1.7 Develop a sustainable public procurement procedure for the municipality
	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	<u>3.2 Organic waste</u> 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
	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	<u>3.3. Construction and demolition waste</u> 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
	3.4 Meet the following targets from the NWMS targets: • 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035	3.4 <u>Household hazardous waste</u> 3.4.1 Provide 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

11 Implementation Plan

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

11.1 Objective 1. Improved Waste Minimisation Data Management



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

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

Action 1.1.2. Weighbridge to be installed at Ladismith landfill site

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.3 Weighbridge to be installed at Ladismith Landfill site
Priority	High
Prior projects	None
Timeframe	2025
Budget required	R800,000 per weighbridge
Responsibility	KLLM
Implementation guide	1. Ensure the landfill site has an electricity supply 2. Improve access control at the landfill site to prevent theft of computer equipment 3. Appoint an engineer to design the weighbridge and office 4. Develop a specification for a weighbridge and add it to the bill of quantities for the contractor appointed to install the weighbridge 5. Ensure weighbridge software is compatible with the GRWMIS and IPWIS
Key performance	Weighbridge installed and operational by 2025.

indicator	

Action 1.1.3 Quantify waste collected through the in-house recycling programme

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.3 Quantify waste collected through the in-house recycling programme
Priority	Low
Prior projects	None
Timeframe	2021 – ongoing
Budget required	Nil. Recycler collecting recyclables can provide information to municipality. Municipality to assist recycler in this regard (possibly labelling waste bags containing recyclables)
Responsibility	KLLM
Implementation guide	1. Ensure all municipal offices have recycling bins 2. Ensure the private recycler collects recyclables from all municipal offices or municipality ensures recyclables are brought to one office for the private recycler to collect 3. Appoint a recycling champion per office and a recycling co-ordinator 4. Train employees on how to recycle and why recycling is important 5. Obtain records of waste collected for recycling per office either by weighing the waste in-house or requesting records from the service provider. Note: when waste is collected from municipal offices it would need to be kept separate from waste collected from households, business etc. and labels would be needed to distinguish between different offices 6. Records of waste recycled per office to be sent to the recycling co-ordinator on a monthly basis
Key performance indicator	Records of in-house recycling available on a monthly basis.

Action 1.1.4. Capture volumes of C&DW used as cover material at landfill sites

Target	1.1 Accurate baseline data for waste generation and diversion from landfill is determined by 2025
Action	1.1.2 Capture volumes of C&DW used as cover material. Convert the volumes to tonnages and record this as reuse of C&DW
Priority	Medium
Prior projects	None
Timeframe	2021 - ongoing
Budget required	Nil
Responsibility	KLLM
Implementation guide	1. Train staff (gate controller or plant operator) stationed at landfill sites to record all volumes of C&DW used as cover material at the landfill site 2. The volume of C&DW used as cover material to be converted to tonnages on a monthly basis 3. This tonnage to be recorded as C&DW diverted from landfill and reused as cover material.
Key performance indicator	Volume records and tonnages of C&DW used as cover material at landfill sites

11.2 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	2021 – ongoing
Budget required	Nil
Responsibility	KLLM
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 GRDM, 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. S@S programme, expansion of home composting programme, • Clean-ups campaigns, using a 2-bag system • Monthly updates on the progress of the separation at source programme (once reintroduced in Ladismith) • Visits to waste minimisation facilities, composting sites or recycling depots (once established or operated) • 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. A close out report should be developed for all events including a portfolio of evidence such as photographs and attendance registers
Key performance indicator	Development of a waste awareness calendar.

Action 2.2.1 Bi-Annual engagement at all schools

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

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

Target	2.3 The public and business to be informed of the importance of waste minimisation and how they can participate in waste minimisation
Action	2.3.2 Monthly waste minimisation messages/ information published via social media or sent via email
Priority	High
Prior projects	2.1.1 Calendar of events to be planned at the beginning of each year
Timeframe	October 2021 – onwards
Budget required	Nil, internal project
Responsibility	KLLM Waste Management and KLLM 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 the GRDM waste mascot, Rocky the Rooster. Template to be approved by communications department 3. Plan a calendar of social media posts e.g. 1st week of month update on recycling projects that have commenced in the municipality and/or tonnages collected through S@S programme and ranking of suburbs in terms of participation rate (use a star rating system from 1 to 5), once a quarter a recycling fact, once a quarter an article on municipal waste minimisation programmes or events. Recommended topics for posts 1. How to recycle? 2. What happens to my recycled waste? 3. Interview with private recyclers in the municipality 4. Performance of the municipal recycling initiatives, highlighting different suburbs (star rating system)

	5. Video/ photo tour of municipal/ service provider waste facilities 6. Do you know where to take your recycled waste? Details of recycling drop-off facilities per area. 7. Invitations to attend waste minimisation events e.g. HHW drop-off days 8. 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.

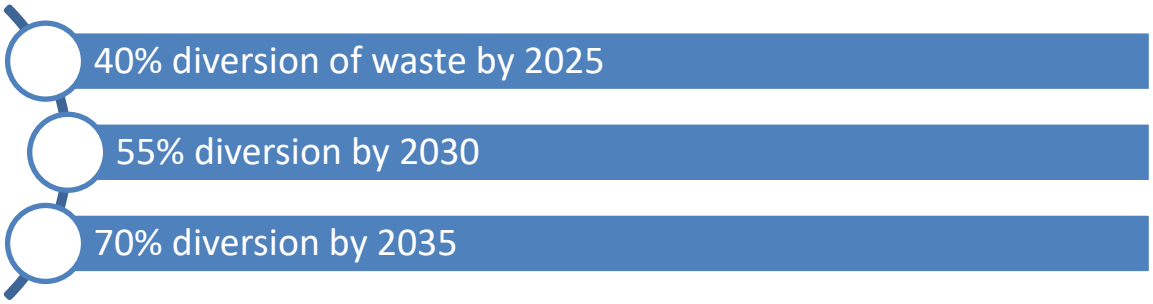
2.3.2 Update waste minimisation information published on the municipal website

Target	2.3 The public and business to be informed of the importance of waste minimisation and how they can participate and waste minimisation
Action	2.3.2 Update waste minimisation 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	KLLM Waste Management and Communications Department
Implementation guide	1. KLLM to compile information to be added to the website, including: • Calendar or 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 list of areas covered by the kerbside separation at source programme (once introduced) • A map showing the location of recycling drop-off facilities (once established) • Contact details for KLLM 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 • Waste management by-law
Key performance indicator	Amount of information available on KLLM website.

2.3.3. Notice boards at all future recycling drop-off facilities

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

11.3 Objective 3.1 Increase the Diversion of Recyclable Waste from Landfill



Action 3.1.1 Appoint a recycling service provider for the S@S programme
Action 3.1.2 Establish a buy-back centre/ swop shop

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 Appoint a recycling service provider 3.1.2 Establish a buy-back centre
Priority	High
Prior projects	None
Timeframe	2021 – 2023
Budget required	TBC – part of the scope of work for the recycling service provider to be appointed by the municipality
Responsibility	KLLM, GRDM
Implementation guide	1. Identify areas for a S@S programme and establishment of a buy-back centre / swop shop independently 2. Develop a guide for public on how to S@S 3. Develop a programme of collection of source separated waste, it should be collected on the same day as general waste (black bags) 4. Determine the scope of works for the recycling service provider to be appointed. The services should include: a. Implementation of a S@S programme in the identified areas within the municipality (for e.g. Ladismith, Calitzdorp, Zoar and Van Wyksdorp) b. Establish and manage a buy-back centre/swop shop at a secure facility in an area identified in the municipality. Secure facility locations could be at a school, a municipal building or church. c. Collection of recycled waste from the municipal offices d. Assist with waste education and awareness campaigns 5. Determine annual performance targets for the collection of recycled waste through the initiatives identified. Each initiative (S@S programme, buy back centres/swop shops, municipal recycling programme and education and awareness campaigns) should have independent annual targets that will increase the waste diverted from landfill. 6. Communicate the details of the S@S programme and the establishment of the buy-back centre programmes to the public
Key performance indicator	1. Appoint a service provider to manage the S@S programme and ensure it is run successfully 2. At least one buy-back centre is established and is sustainable 3. Tonnage of waste collected through the separation at source programme 4. Number of awareness campaigns undertaken in the municipality by the service provider

Action 3.1.3 Develop recycling drop-off facilities in Calitzdorp, Zoar and Van Wyksdorp

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 recycling drop-off facilities in Calitzdorp, Zoar and Van Wyksdorp
Priority	Medium
Prior projects/ task	2.3.3 Notice boards at future recycling drop-off facilities
Timeframe	2025
Budget required	R100,000 per drop-off facility to purchase bins
Responsibility	KLLM
Implementation guide	1. Identify a site in Calitzdorp, Zoar and Van Wyksdorp for the development of a recycling drop-off facility. Suitable locations may be outside municipal offices. Recycling drop-off facilities can form part of the scope of works for the engineer managing the design of the Ladismith MRF 2. Review the design of recycling facilities to ensure: • Easy access for the public • Suitable containers for different types of recyclable waste e.g. skips may be suitable for glass but not paper or plastic • Sufficient space to store recyclable material
Key performance indicator	Recycling drop-off facilities established in Calitzdorp, Zoar and Van Wyksdorp

Figure 11: Example of recycling drop-off facilities

Action 3.1.4 Construct a MRF at the Ladismith landfill site

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 Construct a MRF at the Ladismith landfill site
Priority	Medium
Prior projects/ task	Nil
Timeframe	2022 – 2023 source budget to develop MRF 2023 – 2024 Appoint Engineer to commence with design 2025 – 2026 Construct the MRF
Budget required	TBC, depends on the size and the design of the MRF (fully mechanised or partially mechanised)
Responsibility	KLLM

Implementation guide	1. Source funding for the development of a MRF (e.g. MIG, KLLM, etc.) 2. Appoint an engineer for the design of MRF 3. Engineer to appoint and manage a contractor for the construction of the MRF 4. Appoint a service provider to manage and operate from the MRF 5. Ensure records of waste processed at the MRF are captured
Key performance indicator	A MRF is established

3.1.5 All significant public events to have a waste minimisation 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	3.1.5 All significant public events to have a waste minimisation plan
Priority	Medium
Prior projects/ task	3.1.6 Revise the waste management by-law
Timeframe	2022 – events on municipal property, 2024 – events on private property
Budget required	Nil
Responsibility	KLLM, GRDM
Implementation guide	1. Develop a template for the event waste minimisation plan in consultation with the GRDM. Template to include the following information • Event time, date and location • Type of event • Methods used to advertise the event • How waste minimisation will be advertised by the event • Expected types and volumes of waste which would be generated by the event • Waste service provider/planned method of management of waste • Details of how waste will be minimised, recycled or reused • Details of how single use items e.g. plastic bottles, take away boxes, plastic cutlery will be avoided • Details of the number of type of bins to be provided for the event as well as the location of the bins • A reporting format, to be completed once the event is concluded to detail how much waste was generated, how much was recycled and how much was disposed of • A declaration which the event organiser as well as businesses/ individuals who are participating in the event e.g. exhibitors or caterers, have to sign which binds them to the event waste minimisation plan 2. Designate an existing employee to review event waste minimisation plans 3. Train the designated employee on what an event waste minimisation plan should cover 4. Undertake spot checks of events to ensure the waste minimisation plans are being implemented
Key performance indicator	All public events to have a waste minimisation plan in place

Action 3.1.6 Revise waste management by-laws

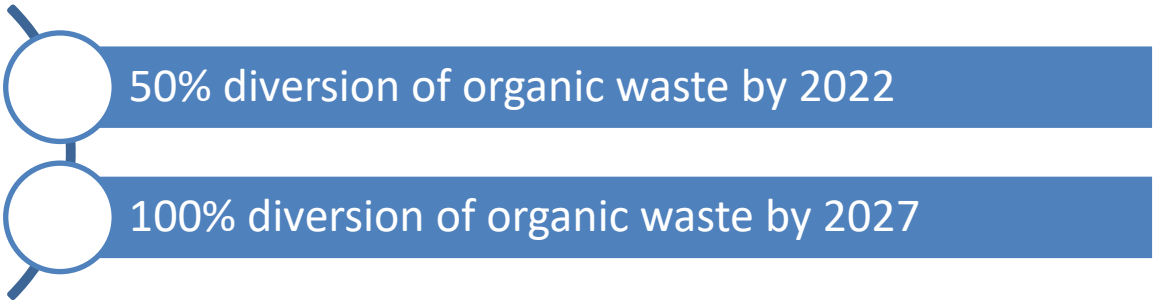
Objective	Increase the Diversion of Waste from Landfill
Target	• 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.1.6 Enforce the waste separation at source requirements of the by-law
Priority	Medium
Prior projects/ task	None
Timeframe	2022 draft by-laws 2023 PPP required for by-laws gazetting

	2023 Review of bylaws by a legal team 2024 Gazetting of by-laws
Budget required	Nil, if undertaken internally
Responsibility	KLLM
Implementation guide	1. Source GRDM generic waste management by-law 2. Review gaps between GRDM generic waste by-law and existing KLLM by-law 3. Revise the waste management by-law, can be undertaken in-house or outsourced 4. Revise by-law to ensure it: • Makes participation in the kerbside separation at source programme mandatory for households • Makes separation at source mandatory for all businesses • Requires all public events to have an event waste minimisation plan • All large or municipal construction projects to have an approved waste minimisation plan in place • A fining schedule for non-compliance • Ban certain waste streams from landfill e.g. offcuts from plank manufacture, saw dust • Specify which landfill sites accept which waste types e.g. C&DW, green waste, general waste
Key performance indicator	Enforced and revised waste management by-law

Action 3.1.7 Sustainable public procurement procedure for the municipality

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 Sustainable public procurement procedure for the municipality
Priority	Medium
Prior projects/ task	None
Timeframe	2024
Budget required	Nil, if undertaken internally
Responsibility	KLLM
Implementation guide	1. Undertake a literature review of national and internal sustainable public procurement procedure 2. Develop a sustainable public procurement procedure which considers the following: • Procurement of products/ services which use recycled materials e.g. furniture made from recycled wood or plastic • Procurement from companies which practice separation at source and recycling or reuse of waste • Use of companies or suppliers which participate in waste minimisation
Key performance indicator	Enforced and revised waste management by-law

11.4 Objective 3.2 Increase the Diversion of Organic Waste from Landfill



Action 3.2.1. Roll out home composting bins to an additional 100 households per annum

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	3.2.1. Roll out home composting bins to an additional 100 households per annum
Priority	Medium
Prior projects	3.9 Develop a sustainable public procurement procedure for the municipality
Timeframe	2022 – 2032
Budget required	R850/ bin (2022), Y1 – R85,000
Responsibility	KLLM Waste Management, Supply Chain Management
Implementation guide	1. Source funding for home composting bins 2. Issue a request for quotation for the supply of home composting bins. Home composting bins to be procured in line with the sustainable public procurement procedure 3. Place an advert inviting the public to register for a home composting bin. Note in the advert that spot checks will be done to ensure households are using the bin. If they are not using the bin the KLLM reserves the right to remove the bin. Bins to remain the property of KLLM 4. Develop a database of households who registered. First 100 to be given bins. 5. Develop a training course and training materials on how to use a home composting bin 6. Hold a workshop with the households who registered for the bins to explain how to use the bins correctly 7. Undertake spot checks of 30% of the households each year to ensure bins are being used 8. If bins are not being used correctly, bin to be collected by the KLLM and given to other households who requested a bin
Key performance indicator	1. 100 home composting bins issued per year 2. Spot checks on 30 households which bins were issued to per annum

Action 3.2.3 Develop a green waste chipping facility at the Ladismith landfill site

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	3.2.3 Add a chipping facility to the Ladismith landfill site and allow the public/ business to collect chipped waste
Priority	Medium
Prior projects/ task	None
Timeframe	2023
Budget required	1 chipper (R700,000.00)
Responsibility	KLLM
Implementation guide	1. Ensure budget for chippers is included in the waste management budget 2. Prepare a specification for chippers 3. Publish a request for quotation (RFQ) for the provision of chippers. The RFQ should cover supply of chippers, training of KLLM employees on use of the chippers and maintenance of chippers 4. Issue communication with the public via social media, the KLLM website and through ward

	councillors to inform them that chipped green waste will be available for collection from KLLM landfill sites 5. Identify a location at the landfill sites to chip waste. Chipping should preferably occur away from the waste body and close to the entrance of the site so it is easily accessible 6. Landfill site gate controllers to be trained to direct vehicles carrying clean green waste to the chipping site 7. Gate controllers to estimate and record the volume of chipped green waste leaving the site. Training will be required.
Key performance indicator	• Volume of green waste diverted from the landfill sites

Action 3.2.4 Roll out on-site composting or worm farms to all schools before 2028

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	3.2.4 Roll out on-site composting or worm farms to all schools before 2028
Priority	Medium
Prior projects	None
Timeframe	2023 – 2030
Budget required	R1,600/school for equipment
Responsibility	KLLM
Implementation guide	1. Develop a database of all schools in KLLM. Information to be captured to include: • School name • Location • Contact details • Grades • Number of pupils 2. Prioritise schools for the provision of bins starting with the largest 3. Determine whether the school should be provided with a worm farm or compost bin. Worm farms are better suited for food waste and compost bin can be used for green waste e.g. grass cuttings from sports fields 4. Visit the school to deliver the worm farm or home compost bin 5. Appoint a project co-ordinator from the school to manage the project 6. On-site practical training with the project co-ordinator 7. Provide educational materials to the project co-ordinator 8. Undertake an interactive session with pupils on how to use the compost bins or worm farms 9. Undertake a follow up visit after 6 weeks to ensure the worm farm or compost bin is being used correctly 10. Document successes and challenges and use these to update guidelines used for subsequent schools
Key performance indicator	The number of schools that worm farms or compost bins are rolled out to and are being used correctly.

Action 3.2.5 Develop a composting facility

Objective	Increase the Diversion of Waste from Landfill
Target	50% diversion of organic waste by 2022 100% diversion of organic waste by 2027
Action	3.2.6 Develop a composting facility
Priority	High
Prior projects/ task	None
Timeframe	2027-2028
Budget required	R5 - 8 million for a drop-off for green waste and small compost facility
Responsibility	KLLM
Implementation	1. Site selection for the composting facility

guide	2. Compost facility preliminary design 3. Commence with licence requirements for the composting facility which could include a) Waste management licence b) Water use licence 4. Engineering design of the composting and development of BoQ 5. Appoint contractor to construct the composting facility 6. Procure required facilities, plant and equipment, and appoint service provider or staff to manage and operate the composting facility
Key performance indicator	Development and operation of the composting facility

11.4.1 Annual Diversion Targets for Organic Waste

Annual diversion targets for organic waste have been set to assist the KLLM to move towards compliance with the Western Cape diversion targets.

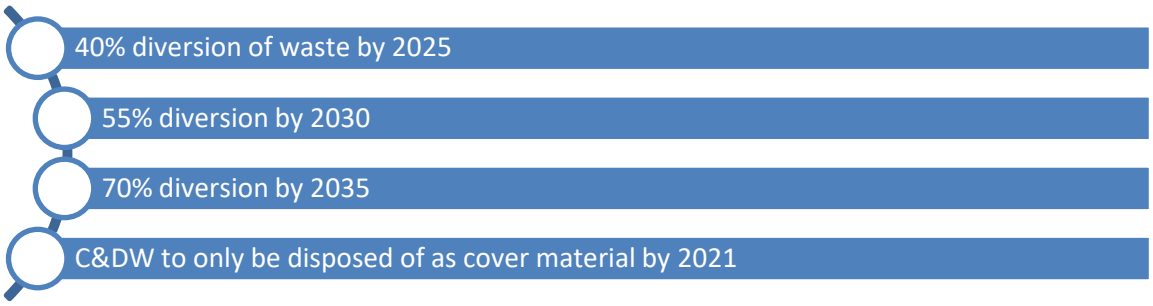
Table 34: Annual organic waste diversion targets

Year	Green waste diversion target	Organic waste diversion target	Continued diversion mechanism	New diversion mechanisms
2021	30%	2%	• Home composting bins at 40 households and schools • Stockpile green waste at the Ladismith landfill for diversion	• Engage with farmers to remove green waste from Ladismith landfill site • Home composting workshops – compost heaps • On-site composting at schools' workshops
2022	40%	4%	• Home composting bins at 40 households and at schools • Stockpile green waste at the Ladismith landfill • Home composting workshops – compost heaps • Engage with farmers to remove green waste from Ladismith landfill site • On-site composting at schools	• Home composting bins to an additional 100 households • Home composting workshops – compost heaps • On-site composting at schools • Engage with farmers to remove green waste from Ladismith landfill site • All events to develop and comply with an events management plan (food waste)
2023	60%	6%	• Home composting bins at 140 households and at schools • Home composting workshops – compost heaps • On-site composting at schools • Engage with farmers to remove green waste from Ladismith landfill site • All events to develop and comply with an events management plan (food waste)	• Chip green waste at the Ladismith landfill site • Farmers and public to remove chipped green waste from Ladismith landfill site • Home composting bins to an additional 100 households • On-site composting at additional schools • All large organic waste producers to prepare and comply with an organic waste diversion plan
2024	70%	8%	• Home composting bins at 240 households and at schools • Home composting workshops – compost heaps • On-site composting at schools • Chip green waste at the Ladismith landfill site • Farmers and public to remove chipped green waste from Ladismith landfill site • All events to develop and comply with an events management plan (food waste)	• Home composting bins to an additional 100 households • On-site composting at additional schools

Year	Green waste diversion target	Organic waste diversion target	Continued diversion mechanism	New diversion mechanisms
			• All large organic waste producers to prepare and comply with an organic waste diversion plan	
2025	75%	10%	• Home composting bins at 340 households and at schools • Home composting workshops – compost heaps • On-site composting at schools • Chip green waste at the Ladismith landfill site • Farmers and public to remove chipped green waste from Ladismith landfill site • All events to develop and comply with an events management plan (food waste) • All large organic waste producers to prepare and comply with an organic waste diversion plan	• Home composting bins to an additional 100 households • On-site composting at additional schools • Develop one green waste drop-off and chipping facility
2026	80%	11%	• Home composting bins at 440 households and at schools • Home composting workshops – compost heaps • On-site composting at schools • Chip green waste at the Ladismith landfill site • Farmers and public to remove chipped green waste from Ladismith landfill site • All events to develop and comply with an events management plan (food waste) • All large organic waste producers to prepare and comply with an organic waste diversion plan • Operate one green waste drop-off and chipping facility	• Home composting bins to an additional 100 households • On-site composting at additional schools • Develop one green waste drop-off and chipping facility
2027	85%	12%	• Home composting bins at 540 households and at schools • Home composting workshops – compost heaps • On-site composting at schools • Chip green waste at the Ladismith landfill site • Farmers and public to remove chipped green waste from Ladismith landfill site • All events to develop and comply with an events management plan (food waste)	• Develop a small municipal composting facility • Home composting bins to an additional 100 households • On-site composting at additional schools

Year	Green waste diversion target	Organic waste diversion target	Continued diversion mechanism	New diversion mechanisms
			• All large organic waste producers to prepare and comply with an organic waste diversion plan • Operate two green waste drop-off and chipping facility	
Education and awareness			To be undertaken regularly – • Home composting programme – to encourage the use of compost bins or compost heaps • How to guide for home composting – podcasts, user guides, hints and tips etc. • Details of the location of green waste drop-off facilities • Hints to avoid food waste e.g. meal planning, how to store food correctly	

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



Action 3.3.1. Use C&DW as cover material at the Ladismith landfill sites

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. Use C&DW as cover material at the Ladismith landfill site
Priority	Medium
Prior projects/ task	None
Timeframe	2025
Budget required	TBC
Responsibility	KLLM
Implementation guide	1. Allocate C&DW crushing area on site 2. Appoint a service provider to crush the C&DW or purchase a crusher and crush the C&DW 3. Develop maintenance plan for equipment if purchased 4. Allocate team for organising of C&DW cover material operations 5. Cover material used on sites daily.
Key performance indicator	• Decrease volume of C&DW disposal in landfill site

Action 3.3.2 All municipal or large-scale construction projects to have an approved waste minimisation plan in place prior to commencement

Objective	Increase the Diversion of Waste from Landfill
Target	• 40% diversion of waste from landfill by 2025 • 55% diversion of waste from landfill by 2030 • 70% diversion of waste from landfill by 2035
Action	3.3.2 All municipal or large-scale construction projects to have an approved waste minimisation plan in place prior to commencement
Priority	Medium
Prior projects/ task	3.1.8 Revise waste management by-law 3.1.9 Sustainable public procurement procedure
Timeframe	2024
Budget required	Nil
Responsibility	KLLM, GRDM
Implementation guide	1. Develop a template for the construction waste minimisation plans in consultation with the GRDM. Template to include the following information • Project type • Project location • Project duration • Expected types and volumes of waste which would be generated by the project

	• Waste service provider/planned method of management of waste • Details of how waste will be stored on site – e.g. kept free on contamination • Landfill site 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. Designate an existing employee to review the construction waste minimisation plans 3. Train the designated employee on what the construction waste minimisation plan should cover 4. Undertake spot checks of construction projects to ensure the waste minimisation plans are being implemented
Key performance indicator	• All municipal and large construction projects to have a construction waste minimisation plan • Volume of construction and demolition waste disposed at landfill sites is reduced

11.6 Objective 3.4 Household Hazardous Waste in Ladismith and Calitzdorp

Action 3.4.1 Provide drop-off facilities 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
Action	3.4.1 Provide drop-off facilities for HHW
Priority	Medium
Prior projects/ task	None
Timeframe	2025 - 2028
Budget required	R30,000 per drop-off facility
Responsibility	KLLM
Implementation guide	1. Identify a location per town (Ladismith and Calitzdorp) for HHW drop-off facilities. The site should be secure and manned/ supervised. Suitable sites would be the landfill sites or municipal office/ buildings 2. Release a request for quotation for supply and servicing of containers for HHW. Shipping containers can be adapted for use as HHW drop-off facilities. 3. Appoint a service provider to manage the recycling or safe disposal of HHW. Monthly reports to be provided. 4. Train staff at the drop-off facility on what types of HHW are accepted, how to store HHW and how to report HHW dropped off. 5. Inform the public of HHW drop-off facilities through social media posts and email correspondence.
Key performance indicator	• HHW drop-off facilities set up in Ladismith and Calitzdorp • Volume of HHW collected and recycled

Action 3.4.2 Host bi-annual open days 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
Action	3.4.2. Host bi-annual open days for HHW
Priority	Low
Prior projects/ task	3.4.1 Provide drop-off facilities for HHW 2.1.1 Calendar of awareness events planned at the beginning of each year
Timeframe	2023 onwards
Budget required	Nil, advertise open days using social media, email communication, newsletter and through existing communication platforms e.g. councillors, use drop-off facilities (action 3.4.1) and use the service provider appointed under 3.4.1.

Responsibility	KLLM
Implementation guide	1. Set dates for HHW open days (action 2.1.1) 2. Communicate details of open days 2 weeks in advance to the public 3. Ensure extra staff are on hand at the HHW drop-off facilities to manage increased volumes of HHW
Key performance indicator	• Number of open days held • Tonnage of HHW collected during open days

12 Monitoring and Review

The WMP planning cycle includes a monitoring and review phase.

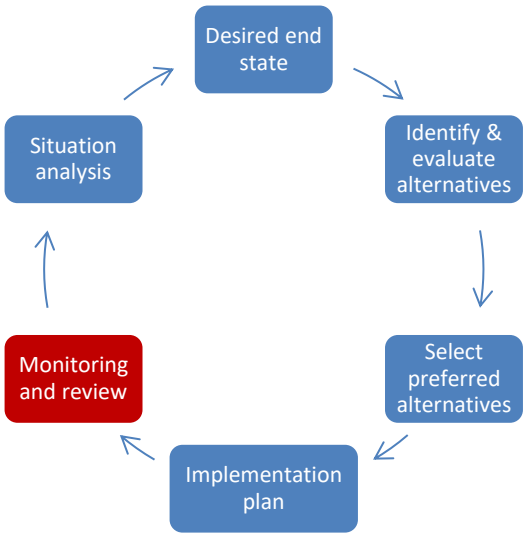


Figure 12: WMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA)

The WMP should be treated as a live document and updated as and when required. Updates 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 plans must also be recorded in the bi-annual review. Sharing of this information across the GRDM should be encouraged to assist other local municipalities to successfully implement similar projects.

The bi-annual progress report should also provide estimates for the diversion rates of different waste streams. The progress report should be submitted to GRDM.

13 References

Department of Environmental Affairs (2019) National Waste Management Strategy 2019 Revised and Updated National Waste Management Strategy

Department of Environmental Affairs (2017) National norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening and Bailing of General Waste (GN 1093 of 2017)

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Mossel Bay Local Municipality (undated) Third Review of the Fourth Generation Integrated Development Plan (IDP) 2020/ 2021

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Mossel Bay Local Municipality (2019) Waste Infrastructure Masterplan

Mossel Bay Local Municipality (2017) Solid Waste Diversion Plan (Draft)

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CLIENT	:	Garden Route District Municipality			
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TITLE OF DOCUMENT	:	Kannaland Local Municipality Waste Minimisation Plan – Status Quo and Gaps and Needs Assessment			
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	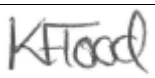	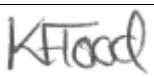	

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