LANGEBERG
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INVITATION FOR PUBLIC COMMENT

DRAFT ORGANIC WASTE DIVERSION PLAN FOR THE LANGEBERG MUNICIPALITY

Notice is hereby given to invite Interested and Affected Parties to provide comments on the development of the Langeberg Municipality's, Organic Waste Diversion Plan (OWDPs) in terms of the requirements of the National Environmental Management: Waste Act, Act 59 of 2008 (NEM:WA), as well as the Western Cape Department of Environmental Affairs and Development Planning (DEADP). The purpose of the OWDP is to promote diversion of organic waste from landfill within the Langeberg area.

The draft Organic Waste Diversion Plan for the Langeberg Municipality is available for perusal on the Municipal web site, and Municipal offices and libraries.

Any questions relating to the draft Organic Waste Diversion Plan for the Langeberg Municipality, may be directed to Mr. GM Slingers on gslingers@langeberg.gov.za or 023 616 8000.

All comments on the proposed draft Organic Waste Diversion Plan for the Langeberg Municipality must be submitted in a sealed envelope, clearly market "**Comments: Organic Waste Diversion Plan for the Langeberg Municipality"** and addressed to the Municipal Manager, Private Bag X2, Ashton, 6715.

Comments must be submitted on or before **27 October 2023**.

We respect your right to privacy and aim to ensure we comply with the legal requirements of the POPI Act, which regulates how we collect, process, store, share and destroy all personal information you provided to us.

DP LUBBE
MUNICIPAL MANAGER
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Draft Report

Organic Waste Diversion Plan

Langeberg Local Municipality

Cape Winelands District Municipality

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1 Introduction

1.1 Background

Zutari has been appointed by the Cape Winelands District Municipality (CWDM) in the Western Cape to assist with the developing an Organic Waste Diversion Plan (OWDP) on a District level as well for each of the Local Municipalities. This OWDP is compiled for the Langeberg Local Municipality (LLM).

The CWDM comprises of the following municipalities:

- Drakenstein Local Municipality (DLM);
- Witzenberg Local Municipality (WLM);
- Stellenbosch Local Municipality (SLM);
- Breede Valley Local Municipality (BVLM); and
- Langeberg Local Municipality (LLM).

The LLM comprises of the following main towns as per the municipal Integrated Waste Management Plan (IWMP) (Delta BEC, November 2021):

- Robertson;
- Montagu;
- Ashton;
- Bonnievale; and
- McGregor.

This report is the OWDP plan for the above mentioned local municipal towns and is being developed based on the principles and requirements of the National Waste Management Strategy (GN R. 56 of 28 January 2021) (NWMS) and the requirements of the Western Cape Department of Environmental Affairs and Development Planning (DEADP).

The NWMS has the concept of “circular economy” at its centre. Circular economy is an approach to minimising the environmental impact of economic activity by reusing and recycling processed materials to minimise:

(a) the need to extract raw materials from the environment; and

(b) the need to dispose of waste.

The circular economy is built on innovation and the adoption of new approaches and techniques in product design, production, packaging and use. These principles need to apply to all waste streams including organic waste.

The NWMS is important in terms of facilitating the implementation of the National Environmental Management: Waste Act, Act 59 of 2008 (NEM:WA). NEM:WA aims to promote diversion of waste from landfill. Numerous regulations have followed to promote this, specifically the National Norms and Standards for Organic Waste Composting (R 561 of 25 June 2021).

The following requirements from the DEADP need to be fulfilled through the development of this OWDP:

- The OWDP’s timelines need to be under pressure for the municipalities to meet the 50% target for 2022;

- The LLM is currently reporting to the Department all organics managed and/or disposed at their WMFs. The reporting of all volumes going to private facilities or using alternative options for diversion, including private initiatives and waste generators that do not use the Municipal services, is not always being captured and including these volumes in the reporting will provide a more accurate diversion rate; and
- Private sector involvement and enforcing the by-laws on organic waste would make a big impact if reported on correctly.

Thus, the compilation of this OWDP has focused on these requirements for the LLM.

1.2 Objectives

The objective in the development of this OWDP is to meet the required legislative requirements of the DEADP's Provincial Organic Waste Strategy (March 2020) in line with "Addendum C: Developing an Organic Waste Diversion Plan" of the Strategy.

1.3 Scope of Works

This OWDP should provide the following as a minimum:

- Status Quo of organic waste sources and volumes disposed at the Municipal Waste Management Facilities (WMFs);
- Current diversion rates within the LLM;
- Annual targets to achieve 50% diversion rate by 2022 and 100% diversion rate by 2027; and
- Where required, diversion of organic waste from landfill to meet the licence conditions.

1.4 Organic Waste definitions

The Norms and Standards for Organic Waste Composting (GN 561 of 2021) provide the following definitions:

- **Organic waste:** means waste of biological origin which can be broken down, in a reasonable amount of time, into its base compounds by micro-organisms and other living things and/or by other forms of treatment; and
- **Organics:** means both processed and unprocessed compostable organic waste.

For the purpose of this Plan, "*organic waste*" is regarded as waste which is produced by all waste generators served by municipal collection services for general municipal waste. The main categories of organic waste would include:

- **Food waste:** mix of cooked and raw leftovers after the preparation and consumption of human food originating from households/residential areas as well as from commercial activities, such as restaurants, canteens, bars, etc.;
- **Greens or garden waste:** waste coming from maintaining private residential areas/gardens (households) as well as from Municipal public areas, such as parks, playgrounds, verges etc.; and
- **Industrial waste:** the mixture of different types of residues of raw vegetables/food waste and woody materials such as packaging. This can include organic waste streams from agro-industries, such as food and animal feed processing or the processing of agricultural products for other purposes.

1.5 Motivation for Organic Waste Diversion

The following are the overarching benefits of diverting organic waste from landfill:

- Reduced cost of landfill disposal;
- Landfill air space savings;
- Reduction in greenhouse gas emissions;
- Reduced possibility of environmental pollution from landfill management i.e., leachate generation and improved air quality impacts;
- Long term/future avoided costs and savings as a result of saved landfill airspace;
- Positive impact as a result of recovering a valuable resource (organics) and processing these to produce beneficial soil amendments (i.e., compost) or used for electricity generation (i.e., biogas); and
- Practical application of a circular economy strategy to waste management which keeps organic materials in circulation at their highest value.

2 Review of legislation and by-laws

The following Legislative requirements and underlying principles will need to be considered when developing the strategy for organic waste management in LLM.

2.1 Legislative overview

Below is a summary of legislation applicable to the waste management in general which covers organic waste as well: compilation of the OWDS:

2.1.1 Legislation applicable to waste management

- National Environmental Management: Waste Act (Act No. 59 of 2008) (NEMWA);
- The National Environmental Management Act (Act No. 107 of 1998);
- Environment Conservation Act (Act No. 73 of 1989);
- The National Environmental Management: Air Quality Act (Act No. 39 of 2004);
- Hazardous Substances Act (Act No. 5 of 1973);
- National Water Act (Act No. 36 of 1998);
- Municipal Systems Act (Act No. 32 of 2000);
- Municipal Finance Management Act (Act No. 56 of 2003)
- The South African Constitution (Act 108 of 1996);
- Health Act (Act 63 of 1977);
- Occupational Health and Safety Act (Act 85 of 1993);
- Municipal Structures Act (Act 117 of 1998);
- Mineral and Petroleum Resources Development Act (Act 28 of 2002); and
- National Treasury: GRAP 17 and 19 Compliance

2.1.2 NEMWA regulations, norms and standards

- National Waste Information Regulations, R 625 (August 2012);
- National Waste Management Strategy (2020)(GN 56,28 January 2021),
- Waste Classification and Management Regulations R 634 (August 2013);
- National Norms and Standards for the Assessment of Waste for Landfill Disposal R 635 (August 2013);
- National Norms and Standards for Disposal of Waste to Landfill R 636 (August 2013);
- List of Waste Management Activities that have, or are likely to have a detrimental effect on the environment, R 921 (November 2013) (amended);
- National Norms and Standards for extraction, flaring for recovery of landfill gas, scrapping or recovery of motor vehicle, storage of waste R 924 - 926 (November 2013); and
- National Norms and Standards for the Remediation of Contaminated Land and Soil Quality R 331 (May 2014).

2.1.3 Other

- Minimum Requirements for Waste disposal by Landfill (DWAF 1998).

2.1.4 Legislation relevant to organic waste management

Legislation most relevant to the compilation of the OWDP for LLM is discussed below:

National Organic Waste Composting Strategy (2013)

The Final National Organic Waste Composting Strategy (NOWCS) Report was published by DEA (now DFFE) in 2013, with the aim to promote the diversion of organic waste from landfill through organic waste composting for soil beneficiation and other users through composting.

The NOWCS is based on five goals which seek to drive viable and sustainable change in response to legislation change, responsible waste handling and enhancing the use of organics in a circular system. The five goals and associated objectives are detailed in the NOWCS, including actions to be undertaken in order to realise each of these goals. Table 3 provides a summary of the five goals and associated objectives of the NOWCS.

Table 1: Summary of five goals and associated objectives of the NOWCS

Goals		Objectives
1.	**Review legal and regulatory requirements.**	The objective of Goal 1 is to identify legislation and regulations that require modification in order to facilitate the legal registration of composting activities and facilities.
2.	**Understand and facilitate feedstock sources and opportunities.**	Improving the monitoring of organic waste generation, disposal and treatment, as well as identifying both feedstock and product market opportunities
3.	**Provide the necessary support structure and functions to implementing composting.**	The objective of Goal 3 is to consider necessary support structures and functions that would assist in the creation of opportunities, promoted, and facilitated by legal enabling frameworks, and financial support and incentivization. Governmental synergies with the private sector and regionalization are also identified as necessary aspects requiring consideration.
4.	**Undertake education, skills transfer and awareness.**	Enhancing public awareness and education campaigns and programmes regarding certain waste types is required in order to assist with not only separation at source, but diversion of organic waste from landfill, by means of potential home composting in urban/residential areas, as well as possible communal composting within the informal, lower-income areas.
5.	**Incorporate composting into municipal planning, responsibilities and create roles for the private sector.**	This goal is about adapting the existing municipal structures to suit roles and responsibilities, including the use of IWMP's and Integrated Development Plans (IDP) and identification of private involvement, where necessary. Waste Management Officers will play a key role in planning and achieving the objectives of the NOWCS.

National Norms and Standards for Organic Waste Composting (GN 44762 of 2021)

On 25 June 2021, the Ministry of Forestry, Fisheries, and the Environment (DFFE) promulgated the National Norms and Standards for Organic Waste Composting under the NEMWA. An objective of the Norms and Standards is that organic waste composting will no longer require a waste management license under NEMWA.

The Norms and Standards seek to provide a national uniform approach relating to controlling the composting of organic waste at any facility that falls within the threshold, thereby ensuring that the best practice is always followed. The Norms and Standards are applicable to compostable organic waste and to organic composting facilities with the capacity to process in excess of 10 tonnes per day.

Provincial organic waste strategy

Western Cape Government – DEADP released a Provincial Organic Waste Strategy in March 2020 which focusses on the following:

- Alignment with the principles of the waste hierarchy to address various aspects of organic waste
- Organic waste preventative strategies, making material available as a resource, develop the required infrastructure for recovery and to support the uptake and beneficiation of this resource
- Initiatives being implemented by the private sector and other agencies with a view of forming synergies with these entities working towards a fully integrated strategy
- Identification of possible policy instruments that can be applied by various organs of state to meet the 50% and 100% organic waste targets for 2022 and 2027 respectively.

2.2 Waste By-Laws

2.2.1 Langeberg Municipality: Integrated Waste Management By-Law (2021)

The LLM has an Integrated Waste Management By-Law that was published on 11 March 2022. The By-Law encompasses the management of organic waste as shown in the excerpt below:

16. Recycling

(1) Any owner or occupier of a business or residential premise or any other holders of waste as determined by the municipality and in areas as determined by the municipality may be required to—

(a) separate their waste in recyclable, e.g. e-waste; plastics, paper and glass and non-recyclable waste in accordance with the directives of the municipality;
(b) separate their waste in organic waste, eg. food waste, garden waste or any other waste of organic nature;
(c) use different containers for waste so separated as directed or provided by the municipality;
(d) place containers containing the recyclable waste outside the entrance to the premises at a time and day specified by the municipality or, if so requested, drop containers off at places as directed by the municipality; and
(e) follow any other reasonable prescribed procedures.

(2) The municipality may locate drop-off centres for recyclables at places ensuring easy and safe access for the public.

Part 1
Garden Waste

18. Composting

The owner or occupier of premises on which garden waste is generated may compost garden waste on the property, provided that such composting does not cause a nuisance or a detrimental impact on human and environmental health.

19. Removal and disposal of garden waste

(1) The owner or occupier of premises on which garden waste is generated must remove and dispose of it within a reasonable time after generation of the waste at a waste handling or waste disposal facility determined by the municipality.

(2) At the request of the owner or occupier of any premises the municipality could remove garden waste from premises subject to the payment of the charge and the conditions determined by the municipality.

(3) A container provided by the municipality for disposal of garden waste may not be used by any person for the disposal of domestic or other forms of waste.

The updated By-Law allow for the separation of organics at source, composting of organics as well as the general handling of organic waste. This OWDP will assist the LLM in implementing a practical system diverting organic waste in the appropriate manner.

3 Status Quo of Waste Management

3.1 Background to Langeberg Local Municipality

LLM is located within the Cape Winelands District Municipality (CWDM), in Western Cape Province of South Africa.

The municipality covers a total area of approximately 4 518 km^2 and includes the towns of Robertson, Montagu, Ashton, Bonnievale and McGregor, as well as rural areas adjacent to and between these towns (IWMP, 2021), as shown in Figure 1.

The main economic sectors are wholesale and retail (19.9%), manufacturing (18.2%), finance, insurance, real estate and business services (17.3%), agriculture, forestry and fishing (25.9%), community, social and personal services (8.5%) (**https://municipalities.co.za/overview/1209/langeberg-local-municipality**, October 2022).

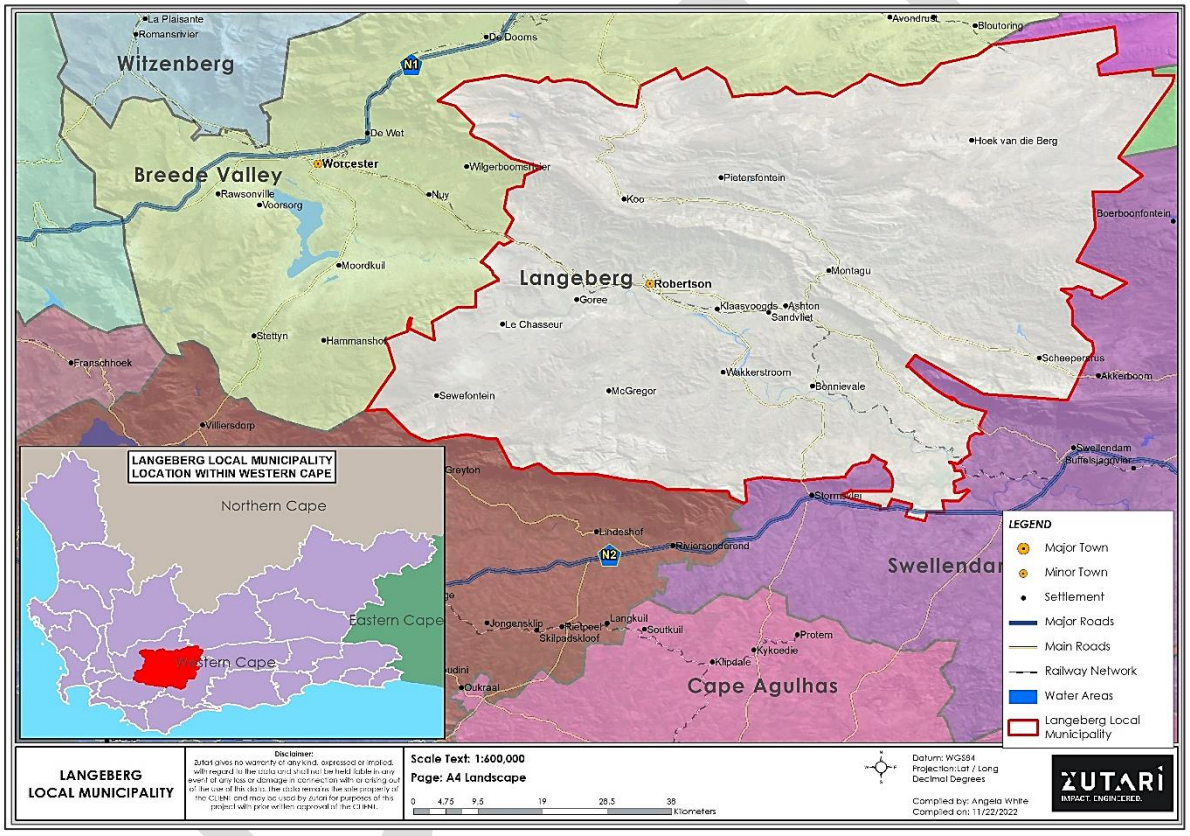


Figure 1: Langeberg Local Municipality

3.2 Waste management facilities within the LLM

An OWDP is required for the facilities listed below, however one overarching OWDP has been compiled for CWDM in order to take into account all the operations in the LLM and to ensure an integrated approach is required for managing organic waste. LLM currently has a number of waste management facilities described below.

- The LLM owns the following landfill sites;
  - Robertson landfill site (closed and rehabilitated);
  - McGregor landfill site (closed, but rehabilitation required);
  - Bonnievale landfill site (operational, registered on IPWIS);
  - Ashton landfill site (operational, registered on IPWIS);
  - Montagu landfill site (operational, due for closure and rehabilitation, registered on IPWIS);
- The LLM owns the following waste management facilities;
  - Robertson transfer station;
  - Robertson composting facility (operational, registered on IPWIS);
  - McGregor drop off facility (operational);
  - Bonnievale drop off facility (operational);
  - Ashton transfer station (operational);
  - Ashton material recovery facility – (Was burn down in May 2020, registered on IPWIS); and
  - Montagu transfer station.

The above facilities are summarised in Table 2 below.

Table 2 Summary of waste management facilities

Waste Management Facility	Status	Waste accepted	Description
Ashton transfer station	Operational facility	■ Clean green waste ■ Recyclables (glass, paper, cardboard, plastic, metal) ■ General waste (non-recyclable)	■ LLM plans to use the transfer station as the central point for the entire LLM's waste will be transported once the regional landfill site in Worcester is established. ■ Dedicated skips for non-recyclable general waste and recyclables. ■ Non-recyclable general waste is transported to Ashton landfill site for disposal ■ Recyclables are managed by a private company. Recyclables will be managed by the municipality once the new MRF has been constructed and operational. ■ Clean green waste is transported to the Robertson Compost Facility.
Ashton landfill site	Operational landfill	■ General waste	■ Poor security on site with high levels of illegal waste picking and vandalism ■ Landfill has reached its capacity of airspace ■ LLM applied to construct and commission an additional cell on the landfill site that can be used for disposal until the regional landfill site in Worcester is commissioned
Bonnievale public drop off facility	Operational facility	■ Recyclables (glass, paper, cardboard, plastic, metal) ■ General waste (domestic and business)	■ Dedicated skips for non-recyclable general waste and recyclables ■ Non-recyclable general waste is transported to Ashton landfill site for disposal ■ Recyclables are managed by a private company. Recyclables will be managed by the municipality ones the new MRF has been constructed and operational.
Bonnievale landfill site	Operational landfill	■ Garden refuse ■ Construction and demolition (C&D) waste	■ The garden refuse is stockpiled on the right side of the site, chipped and sold twice a year ■ Bonnievale landfill will reach capacity by 2056

Waste Management Facility	Status	Waste accepted	Description
Montagu transfer station	Operational facility	■ Recyclables (glass, paper, cardboard, plastic, metal) ■ General waste (domestic and business) ■ Clean green waste ■ General waste (non-recyclable)	■ Skips are provided for non-recyclable general waste, clean garden refuse and recyclables. ■ Clean garden refuse skips are transported to the Robertson composting facility ■ Non-recyclable general waste is transported to Ashton landfill site for disposal ■ Recyclables are managed by a private company
Montagu landfill site	Operational landfill	■ C&D waste	■ Landfill has reached its capacity of airspace ■ C&D waste is used as cover material
Robertson transfer station and composting facility	Operational facility	■ Recyclables (glass, paper, cardboard, plastic, metal) ■ General waste (domestic and business)	■ Dedicated area for drop-off of recyclables, as well as non-recyclable general waste. ■ Non-recyclable general waste is transported to Ashton landfill site ■ Green waste is chipped and stockpiled. If possible it is sold or used as cover on the closed landfill
Robertson landfill site	Closed and rehabilitated	■ N/A	■ Landfill closed and rehabilitated
McGregor public drop-off facility	Operational facility	■ General waste (non-recyclable) ■ Garden refuse ■ C&D waste ■ Recyclables (glass, paper, cardboard, plastic, metal)	■ Non-recyclable general waste is transported to Ashton landfill site for disposal ■ Recyclables are managed by a private company ■ Garden refuse is transported to Robertson composting facility ■ C&D waste is not accepted at the facility, but dedicated skips are provided for general and green waste.
McGregor landfill site	Closed and rehabilitated	■ N/A	■ Landfill closed and rehabilitated ■ C&D waste is accepted at the facility and used as cover material.

Some current images of the Robertson waste facility are shown in Figure 2 to Figure 4

Figure 2 Robertson chipping operation

Figure 3 Robertson green waste stockpile for chipping

Figure 4 Robertson closed and rehabilitated landfill in centre of slide

3.3 Proposed future operations

LLM provided the flow diagram below (**Error! Reference source not found.**) indicating proposed future operations that include the management of organic waste. This incorporates the management of organics at the Robertson Composting Facility and Bonnievale WMF.

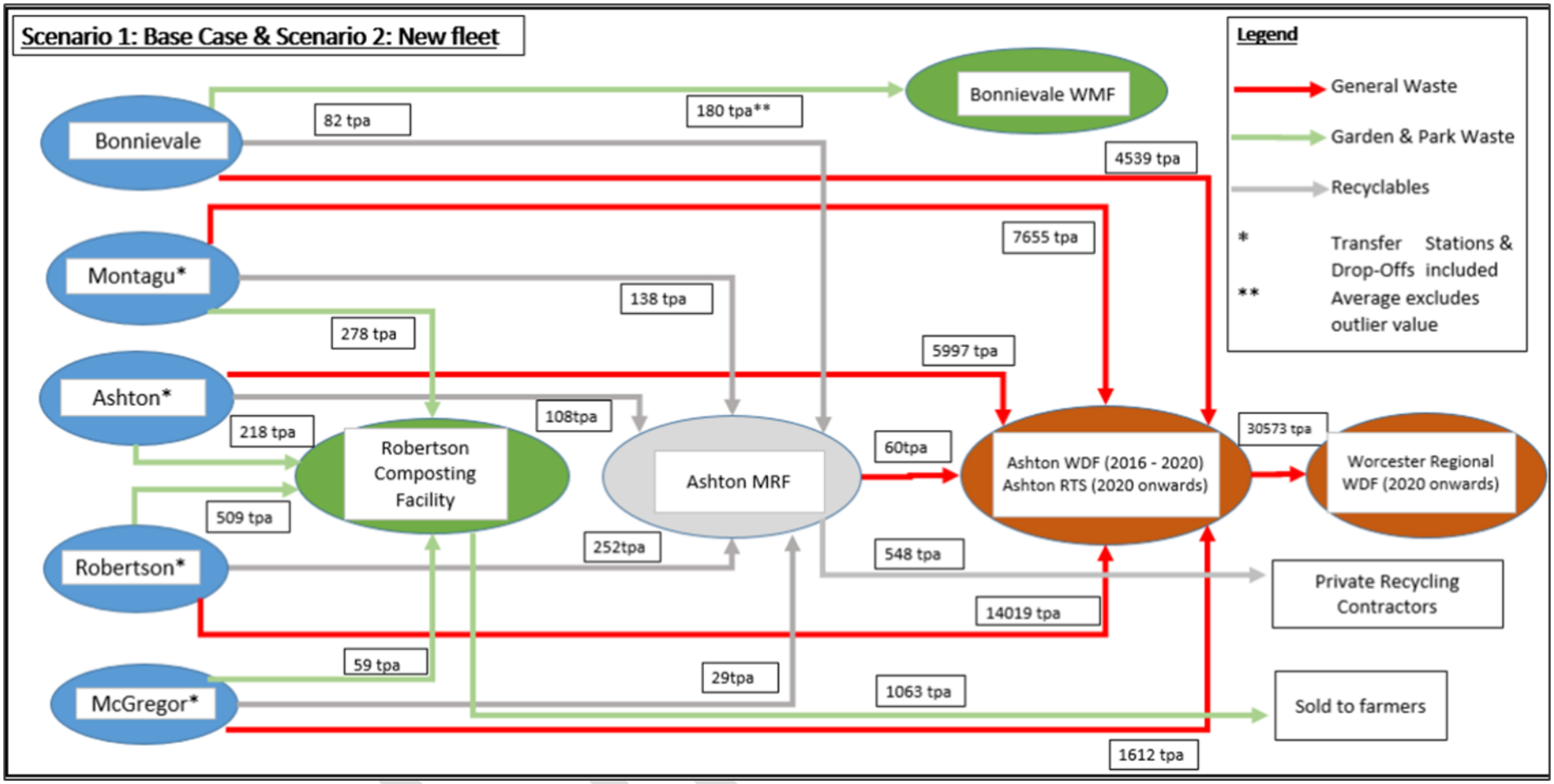


Figure 5: LLM proposed future operations

4 Waste characterisation study

The CWDM IWMP (2021) summarised the waste characterisation studies done within each of the local municipalities and the results are shown below in Figure 6. The organic waste, which included food and green waste) amounted to 33% of the waste composition.

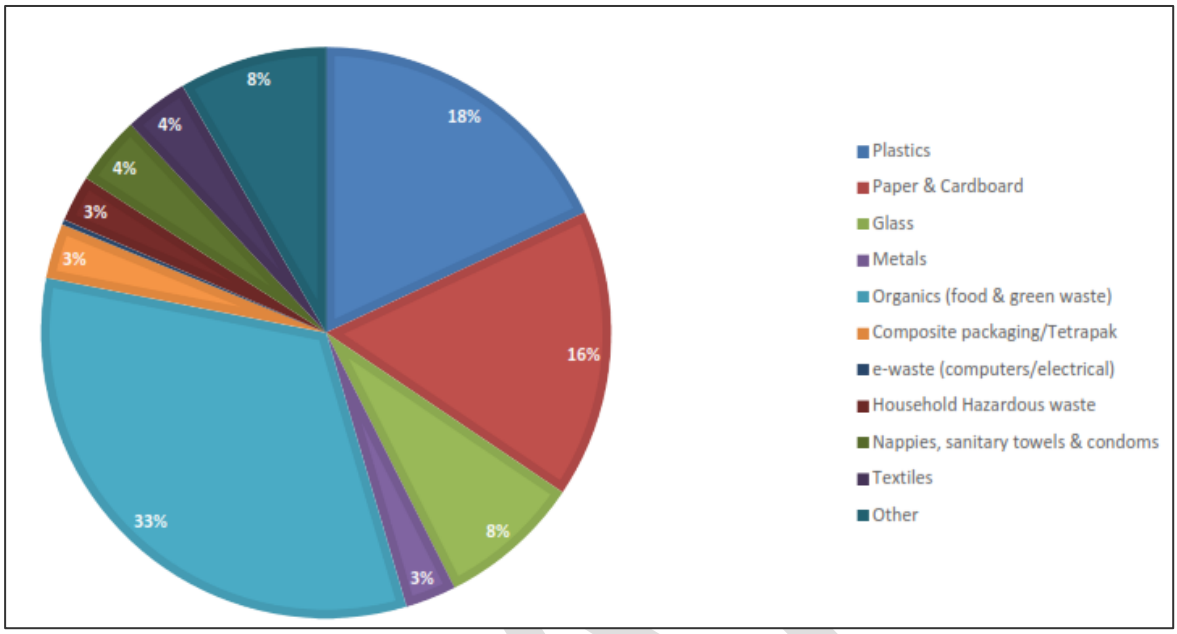
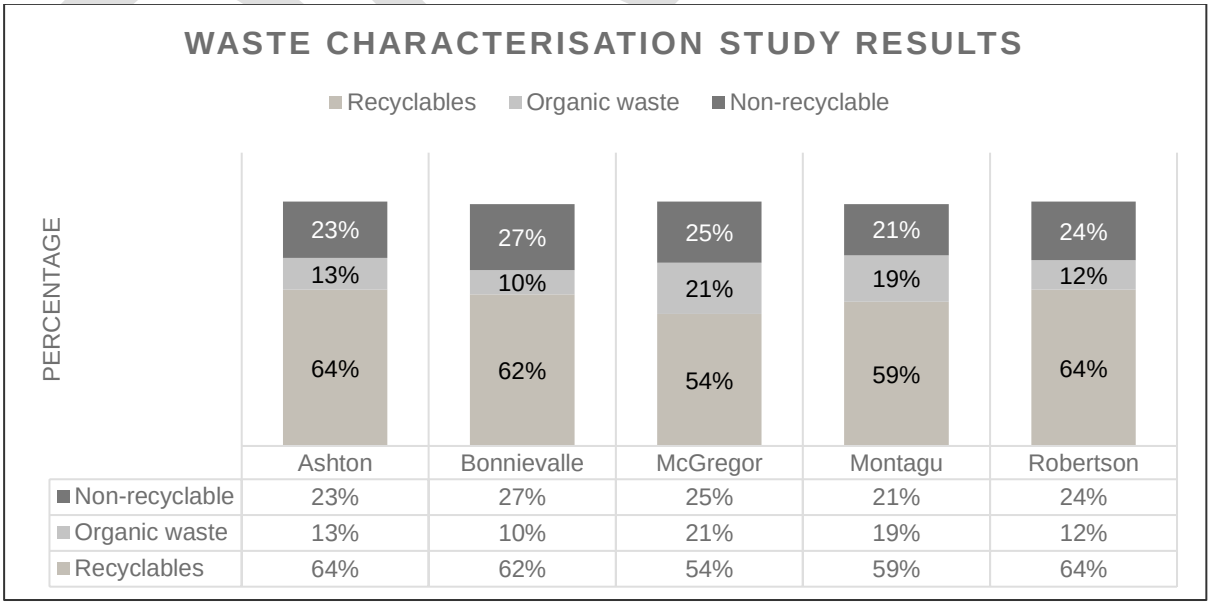


Figure 6: Waste Characterisation study summary[1]

The LLM IWMP reports on a waste characterisation study conducted during 2016 and included in the LLM IWMP 2017. The waste characterisation study of the LLM was conducted and overseen by the DEA&DP in 2016. Six hundred waste samples were collected and sorted. The waste was sorted at the Ashton MRF by Expanded Public Works Programme (EPWP) employees.

The results from the waste characterisation study conducted in 2016 illustrated that the percentage of recyclables is 61%, organic waste 15% and non-recyclables 24% of the total of waste generated in the LLM (IWMP, 2021) and are summarised in the table below.



	Ashton	Bonnievalle	McGregor	Montagu	Robertson
Non-recyclable	23%	27%	25%	21%	24%
Organic waste	13%	10%	21%	19%	12%
Recyclables	64%	62%	54%	59%	64%

Figure 7: Waste Characterisation study results (IWMP, 2021)

[1] CWDM IWMP (2021)

The results from the waste characterisation study indicate that there is a significant portion of recyclables and organic waste within the LLM waste stream that can be diverted from landfills (IWMP, 2021).

5 Organic waste management

5.1 Background to organic waste generation within the LLM

LLM does not provide a separation waste collection service dedicated to organic waste and the public disposes of organic and green waste fractions at the drop-off facilities, transfer station or the landfills. All greens are separated at the transfer station.

Organic waste disposed into the general waste stream includes grass cuttings and other smaller garden waste fractions capable of fitting into the black bags for kerbside collection.

Currently organic waste is accepted at the waste facilities listed in the section above and all organic waste is transported to the Robertson Composting Facility. Currently, Bonnievale landfill has sufficient space to stockpile and chip organic waste is needed, however, LLM have prioritised that all organic waste from Ashton, Montagu and McGregor to be transported to the Robertson Composting Facility.

Communal skips were previously placed for organics but were not successful.

5.2 Current organic waste generation

The IWMP 2021 provides information on organic waste generated and diverted from 2018 to 2020 according to IPWIS. The LLM provided updated information as reported to IPWIS as discussed below.

5.2.1 Garden waste

According to the IWMP (2021), organic waste generated included all garden refuse volumes from the Robertson composting facility amounted to 1871tons in 2020.

The following organic waste is diverted from facilities to the Robertson composting facility:

- Montagu transfer station – skips provided for clean garden waste transported to Robertson;
- McGregor Public drop-off - skips provided for clean garden waste transported to Robertson;
- Ashton transfer station - skips provided for clean garden waste transported to Robertson; and
- Bonnievale Landfill – Garden waste stockpiled, chipped and sold to the public.

Table 3 indicates the waste calculator and weighbridge data from Robertson Composting Facility provided for the years 2021 and 2022.

Table 3: Garden waste diversion

Facility	Bonnievale Landfill		Robertson Composting Facility	
Date	**2021**	**2022**	**2021**	**2022**
Jan	67 tons	63 tons	134 tons	101 tons
Feb	54 tons	71 tons	126 tons	116 tons
March	13 tons	51 tons	82 tons	140 tons
April	26 tons	81 tons	150 tons	140 tons
May	39 tons	58 tons	146 tons	118 tons
June	26 tons	36 tons	156 tons	114 tons
July	32 tons	41 tons	135 tons	142 tons
Aug	41 tons		156 tons	

Sept	38 tons		119 tons	
Oct	71 tons		133 tons	
Nov	49 tons		153 tons	
Dec	67 tons		181 tons	
Average tpm	**44 tons**	**57 tons**	**139 tons**	**124 tons**

The figures for 2021 were used to calculate the estimated diversion rate as indicated in Table 4.

Table 4 Estimated diversion rates

Month	Ashton Landfill	Diverted recyclables	Organics Bonnievale	Robertson Composting Facility	Total waste stream	Estimated organic fraction of 15% as per IWMP	Percentage organics diverted
January	1341	0	67	134	1543	231	87%
February	1782	0	54	126	1962	294	61%
March	1915	0	13	82	2010	302	31%
April	2071	0	26	150	2248	337	52%
May	2242	0	39	146	2427	364	51%
June	2065	99	26	156	2346	352	52%
July	1706	79	32	135	1951	293	57%
August	1334	98	41	156	1630	244	81%
September	1777	109	38	119	2043	307	51%
October	2203	157	71	133	2563	385	53%
November	1634	104	49	153	1940	291	69%
December	2146	81	67	181	2475	371	67%
Total	**22216**	**726**	**522**	**1672**	**25137**	3771	58%

The total estimated diversion rate for 2021 was 58%.

As indicated in previous section, all organic waste, including garden wate, is transported to the Robertson Composting Facility. Currently, Bonnievale landfill has sufficient space to stockpile and chip organic waste if needed, however, LLM have prioritised that all organic waste from Ashton, Montagu and McGregor to be transported to the Robertson Composting Facility.

5.2.2 Agricultural waste

LLM do not receive any agricultural waste at any of the municipal WDFs. Farmers within the municipality have their own facilities for storing or processing green waste. They manage their own agricultural waste by various methods within their farming operations, such as use for animal feedstock or composting. As a result, there is no requirements for agricultural waste collection.

5.2.3 Sewage sludge

Sewage sludge is a key hazardous waste type generated from wastewater treatment plants due to the presence of heavy metals from industrial processes. Sewage sludge can be treated through composting for agricultural use as fertiliser or disposed of at a hazardous waste landfill site. Guidelines have been developed by the Water Research Commission that details for the safe disposal of sewage sludge. The LLM WWTP operator indicated that there are records of sludge tonnages generated.

During the investigations in 2020, it was observed that the farmers collect the sludge on an ad hoc basis. The LLM does not accept any sludge at the landfill sites. Dry sludge is based on the operational design specification at 4200mg/l over the age of 15 – 20 days. The following data was provided in Table 5.

Table 5: Summary of sewage sludge generated

WWTW	Quantity of sludge	Management	Disposal
Ashton WWTW	0.8326Tons/month	Stockpile on site	Level it on the ground as it is classified/fit for agricultural use
Montagu WWTW	1.98Tons/month	Stockpile on site	Level it on the ground as it is classified/fit for agricultural use
Robertson WWTW	1,64Tons/month	Stockpile on site	Farmer collects as per request
Mc Gregor WWTW	None	None	None
Bonnievale WWTW	1.155Tons/month	Stockpile on site	Level it on the ground as it is classified/fit for agricultural use

5.2.4 Abattoir waste

Abattoir waste is not accepted at the landfills. The Robertson Abattoir treats and composts their own waste and declined to make volumes available for inclusion in this report.

The Bonnievale Abattoir received an environmental authorisation in 2019 from DEADP to increase the capacity of slaughter units thus increasing the volumes of organic waste that would be generated. Information on volumes of generation as well as how the waste is treated or disposed has been requested but has not been received yet.

5.2.5 Other major generators and role players

Lactalis in Bonnievale is currently considered one of the larger cheese processing factories in the country processing approximately 30 000 tons of cheese per years. Lactalis is using a private contractor to remove organic waste from their premises for further processing at Reliance composting or as feedstock at Osdam Boerderye (Pty) Ltd. For 2021 a total of 136,5 tons of organic waste was diverted from landfill and from January to October 2022 a total of 36,4 tons of organic waste was diverted from landfill.

Constitutional Wine Growers outside Robertson used to have an unlicensed composting plant but have ceased operation due to cost. They have indicated that they would be willing to process organic waste from the LLM if the LLM is amenable to paying for the chipping cost.

Fruit pips from Capedry in Montagu is bought by a third party, shredded to reduce the size and sold for use as a soil saver/dust suppressor in parking lots. Figure 8 and Figure 9 was from a parking lot of a farm stall just outside Robertson. Due to the shape and size, the shredded pips compact fairly well and do not appear to rut easily.

Figure 8: Parking lot covered with shredded fruit pips

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Figure 9 Close up view of shredded pips

There are several commercial organic waste generators that make their organic waste available to pig farmers as feedstock. Quantities are unknow and not recorded

The retailers such as Checkers and Spar have their own initiatives to reduce waste to landfill. Volumes are unknown and not recorded.

6 Gap Analysis

The following potential gaps have been identified for further investigation regarding Organic waste Management/ Practices/ Requirements within LLM.

Table 6: Gap analysis

Objective / Target	Current state	Gaps	Actions required to address Gaps
Inadequate information regarding organic and garden waste generators, quantities generated and current methods of treatment/disposal	Garden waste is disposed of at the landfill and composting facility where records are kept. The waste data and quantities were made available. No data is kept of private generators such as restaurants', fruit industry, hotels etc.	No records of organic waste generators such as agriculture, abattoirs, hospitality industry etc.	Registering of waste generators and transporters in the municipality. This will improve data capturing at waste sites. Moreover, it will enable a clearer indication of the amount of diversion that can take. place in LLM. This will enable the LLM to evaluate organic waste management system requirements in greater detail.
Organic waste stream diversion strategies	No formal organic waste stream diversion strategies.	The need for formal organic waste stream diversion strategies as they will favour and encourage separation at source, identifies a treatment option and creates an enabling environment.	Diversion strategies for organic waste stream should be put in place such as the following: ■ Separation at source strategy. ■ Proper collection plan. ■ Identify private initiatives that the LLM can use to advance organic waste diversion from landfills. ■ The Robertson composting facility currently receives less than 10 tons/day, thus no licence is required. ■ Training, Education and Awareness Campaign.
Implement a phased approach to manage, process, treat and reduce organic waste to landfill	There is no organic waste management system in place in LLM apart from dealing with garden waste.	The need for a phased approach is required which is aligned with provincial targets.	■ LLM must pursue a multi-pronged approach to organic waste diversion that will manage, treat, and reduce organic waste to landfill.

Objective / Target	Current state	Gaps	Actions required to address Gaps
considering the provincial targets			■ The recommended phased approach may include the following: ■ Separation at source roll out for a phased 2-bag separation at source programme. ■ Implementation and encouraging incentives for separation of garden waste along with enforcement of the amended by-law as a last resort. ■ Treatment of Organic Waste ■ Improvement of waste data capturing and reporting. ■ Training, Education and Awareness Campaign focused on Separation at Source and organic waste. ■ Monitoring and Measuring
Communicating strategies to the various communities whilst respecting the diversity and uniqueness of each community	No communication since there is no strategy	No communication since there is no strategy	■ Finalise first version of this plan and update accordingly. ■ Development of a communication strategy which includes engagement and awareness with generators is required to be developed

7 Options available for beneficiation of organic waste

The options and framework for developing the strategy are summarised in Table 7 below. At this stage it is a draft strategy which will be updated once workshopped with the LLM

Table 7: Draft Implementation plan

Municipal Options	Requirements – Infrastructure / Actions	Possible constraints	Possibility of implementing	Mode of implementation	Budget required	Actions required	Implementation timeframe Short: 1-2 years Medium: 2-5 years Long term: 5 – 10 years
Separation of Organics							
▪ **Separation at source - Residential**	Wet & Dry separation	Budget - cost of bags Budget – additional collection service will be needed green bags Public commitment	Limited due to human nature	Additional vehicle for collection service Public consultation			
▪ **Separation at source - Commercial**	Wet & Dry separation	Participation of commercial entities	Good	Through By-laws and incentives such as discount on rates depending on participation Additional vehicle to service commercial clients	Depending on waste characterisation and additional collection vehicle may be required Potential R2,5 mil	Awareness raising Dedicated commercial collection of organic waste	Short to medium
▪ **Mechanical biological separation**	Decanter to separate solid and liquid waste can be considered at the Bonnievale Landfill and Robertson Composting facility	Budget Need back-up equipment for failures	Possible	Public consultation, environmental authorisations, appoint operator	R5,5 mil x 2	Investigate financial viability and cost-benefit analysis	Short to medium
Public drop-off facility	Public garden waste disposal facilities	Legislative and budget constraints Availability of suitable locations	Possible	Environmental authorisations or registration, public consultation, design, construction	TBD	Evaluation if such a system will add benefit to the municipality, especially in outlying areas	Medium to long term
Separate garden waste from general waste at landfill or transfer station (Ashton, Montagu, Bonnievale)	Dedicated area on landfill for storage and or processing of garden waste	Space constraints Budget for additional staff	Good	Identify a suitable area on top of the landfill that is only dedicated to the disposal and processing of garden waste. Adequate landfill personnel to ensure separate disposal	Depends on private involvement	TBD	Short term
Shredding/Chipping of garden waste at Bonnievale and Robertson	Personnel and appropriate equipment	Budget	Good	Ensure appropriate registration/authorisation of facility	R1,5 mil	Budget for additional personnel and equipment	Medium
▪ **Own use**	None	None					
▪ **Sell off to users**	Garden waste already being chipped at landfills	Municipal financial management	Good	Adequate planning by Municipality	None	Adequate planning by Municipality	Short, Medium and long term
Composting							
• **Municipality on landfill**	Dedicated area on landfill for disposal of garden waste and organics.	Appropriate personnel and equipment	Limited				
▪ **External Composting**	Composting company within the municipal area	Procurement Financial arrangement with the facility as it needs to be viable for	Good	Engage with private companies If agreement can be reached, the facility must be authorised through registration	Currently None Longer term TBD depending on	Engagement from municipality with private companies, also	Short to medium

Municipal Options	Requirements – Infrastructure / Actions	Possible constraints	Possibility of implementing	Mode of implementation	Budget required	Actions required	Implementation timeframe Short: 1-2 years Medium: 2-5 years Long term: 5 – 10 years
	Possibility to make use of Constitution Road Wine Growers composting facility which is part of an Empowerment project (BEE)	them. They indicated that it can be viable if the municipality pays for chipping of waste.		for Norms and Standards. LLM to support and assist in process Offset airspace saving	agreement with private service provider	dependant on long term planning and public participation process	
▪ **Home composting**	Provide households with equipment (such as composting bins) and/or knowledge on composting techniques	Budget Lack of public commitment	Limited	Public awareness and training	R 200 000 p/a	Development of a communication strategy which includes engagement and awareness with generators should be developed and implemented	
Bio digestion							
▪ **Internal**	Biodigester	Legislative and budget constraints Insufficient feedstock	Good	Procure funding Authorise facility Public consultation Appoint contractor to construct and commission	First phase budget already secured through finding (R 10 mil)	Identify potential site Longer term planning	Short to medium term
▪ **External**	Separation of organics and garden waste Can discuss possible options with Bio 2 watt	Procurement / competitive bidding	Good	Engagement with companies doing bio digestion	Depending on procurement process	Engagement with companies doing bio digestion	Medium

7.1 Summary of infrastructure requirements to meet targets.

The LLM should consider if separating organic at household level, transfer stations or final disposal facilities will be more feasible. From the information presented in Figure 5, the Municipality intends diverting greens to Bonnievale and Robertson, however the plan does not appear to deal with the separation of organics from the domestic and commercial waste streams. The separation of organics from the domestic and commercial waste stream will save on transport and disposal cost to the new regional landfill.

The LLM is already “composting” and processing garden waste/greens at the Robertson Composting Facility and does separate disposal of garden waste at the Bonnievale Landfill.

The feasibility of the above-mentioned options should be investigated in more detail by the LLM and the proposed plan updated accordingly.

7.2 Budgetary requirements

At this stage the budget requirements cannot be determined until a feasibility study as mentioned in the previous section is concluded. The outcome of such a study will inform the budget requirements.

7.3 Implementation Plan

The detailed implementation plan should be updated once the feasibility study has been concluded.

7.4 Communication Plan

A communication strategy has to be developed to discuss the possible implementation scenarios with the various communities, once the feasibilities has been determined.

The establishment of a Monitoring Committee should be developed with members of the LLM to monitor and manage the progress of the OWDP. The committee should meet annually to establish compliance to the OWDP, progress to meet the National targets, verify calculations and reporting to the Department and IPWIS through an established monitoring and evaluation system to monitor progress. Annual reports must be sent to the Department, accompanied by graphic representations of percentages diverted.

8 Conclusion

This initial OWDP compiled for the LLM needs to be updated once the feasibility studies as discussed, have been finalised to reflect the various suggested feasibilities and communication strategies required to formalise this plan.

The estimated organic waste diversion rate for 2021 was 58%. Most of the garden waste is being diverted and the LLM has to extract the organic component from the domestic and commercial waste stream to have a significant impact on the percentage of organics diverted.

In diversity there is beauty
and there is strength.

MAYA ANGELOU

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