



Prepared for:
Langeberg Local Municipality

Contact person:
Glenn Mark Slingers

Tel: (023) 616 8008
Email: gslingers@langeberg.gov.za



LANGEBERG LOCAL MUNICIPALITY INTEGRATED WASTE MANAGEMENT PLAN

DRAFT IWMP

DRAFT REPORT
REVISION 00

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Prepared by:
Delta Built Environment Consultants (Pty) Ltd

Contact person:
Chanté Stander

Tel: (012) 368 1850
Fax: (012) 348 4738
Email: chante.stander@delabec.com



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PREPARED BY:	Chanté Stander	Industrial engineer (HOD: Waste Management)	DocuSigned by:  F56816D06756492...
REVIEWED BY:	Kobus Otto	Pr. Civil Engineer (Waste Management Specialist)	DocuSigned by:  ED9F46D99BE442E...
APPROVED BY:	Stanford Acres	Civil Engineer (Group Manager: Advisory Services)	DocuSigned by:  EF1FB9CE67E94F4...
DISTRIBUTION LIST:	COMPANY	NAME & SURNAME	
	Cape Winelands District Municipality	Christo Swart	
	Langeberg Local Municipality	Glenn Mark Slingers	

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EXECUTIVE SUMMARY

The development of an Integrated Waste Management Plan (IWMP) is a statutory requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) that has been promulgated and came into effect on 1 July 2009. Its goal is the transformation of the current methodology of waste management, i.e. collection and disposal, to a sustainable practice focusing on waste avoidance and environmental sustainability. Implementation of this IWMP will be through municipal by-laws and in accordance with an implementation schedule. The development of the IWMP is necessary as it is an integral tool to identify current needs and acts as a guide towards sustainable waste management. The IWMP also shows alignment of its goals to achieve an effective waste management system. The IWMP will be developed in line with the Local Municipality's Integrated Development Plan's (IDP) strategic objectives.

The Langeberg Local Municipality (LLM) is located within the Cape Winelands District (CWD). Covering a total area of approximately 4 518 km², the LLM includes the towns of Robertson, Montagu, Ashton, Bonnievale and McGregor, as well as rural areas adjacent to and between these towns.

The Cape Winelands District Municipality (CWDM) has appointed Delta Built Environment Consultants (Delta BEC) to develop the fourth generation Integrated Waste Management Plan (IWMP) for the LLM.

LEGISLATION

This report details the roles and responsibilities in terms of waste management at National, Provincial, District and Municipal level that inform and assist integrated waste management. The roles and responsibilities are as follows:

- **National Government:** The National government is tasked with establishment of a national waste management strategy, including norms, standards and targets. The National norms and standards may cover all aspects of the waste value chain, from planning to service delivery.
- **Provincial Government:** The Provincial governments are tasked with the implementation of the National Environment Management: Waste Act (NEM:WA), Waste Management Regulations and the National Waste Management Strategy, Norms and Standards (NWMS). The Constitution requires Provincial Government to monitor and provide support to municipalities in the province, and to see to the implementation of waste-related regulations and strategies.
- **District Municipalities:** Section 84 of the Municipal Systems Act (Act 32 of 2000) assigns a function of waste disposal to district municipalities. Not all district municipalities are fulfilling this role. However, when the need arises for a regional site, district municipalities can co-operate roles.
- **Local Government:** The NEM:WA (Act 59 of 2008) requires local authorities to implement mechanisms for the provision of waste collection services including collection, storage and disposal. Local authorities are also required to facilitate recycling and waste diversion from landfill and to manage waste information appropriately.

International, National, Provincial and Local level strategic linkages in terms of waste management will be considered during the development of the IWMP. The following provincial strategies will be considered:

- **Western Cape Integrated Waste Management Plan (2017-2022)**

The Western Cape outlined four goals in the 2nd Generation IWMP (2017-2022). The Langeberg LM's goals and targets will be developed in line with the following four goals from the Western Cape IWMP:

- Goal 1: Strengthened education, capacity and advocacy towards integrated waste management.
- Goal 2: Improved integrated waste management planning and implementation for efficient waste service infrastructure.
- Goal 3: Effective and efficient utilisation of resources.
- Goal 4: Improved compliance with environmental regulatory framework.

- **Western Cape Green Economy Strategy Framework (2013)**

The 2013 Western Cape Green Economy Strategy Framework aims to achieve the double dividend of optimising green economic opportunities and enhancing environmental performance.

The strategy identifies three high-level priorities for green growth:

- 1) Natural gas and renewables.
- 2) Financial infrastructure.
- 3) Green jobs – including the waste sector.

- **Western Cape Diversion Targets for Organic Waste Management (2018)**

Organic waste is identified as a problematic waste stream in the Western Cape, with in excess of 37% of waste generated in the province being organic waste. Landfilling of organic waste results in loss of airspace, methane and leachate generation, odour and health impacts.

Diversion of organic waste from landfill can reduce these negative impacts and can also aid in job creation at waste management facilities. Compost and biochar produced from organic waste can be used as an alternative to fertilisers to improve soil condition.

The Department of Environmental Affairs and Development Planning (DEA&DP) proposed a 50% diversion from landfill sites by 2022, and a landfill ban on organic waste to landfill by 2027.

- **Guideline for Management of Abattoir Waste in Western Cape (2015)**

The guideline on the management of abattoir waste in the Western Cape was developed by the DEA&DP as one of the recommendations stemming from the status quo study of abattoir waste conducted in 2015.

The guideline provides an overview of the current status quo of abattoir waste, treatments and disposal methods.

DEMOGRAPHIC PROFILE

The Socio-Economic Profile (LLM SEP, 2019) report, drafted by the Western Cape Department of Social Development and the LLM Integrated Development Plan (IDP, 2017-2020) were used to determine the demographic profile of the LLM. According to the SEP 2019 report, the LLM has the smallest population in the Cape Winelands District (CWD), which is projected as 126 018 by 2023. The 2021 population size will be used throughout the development of this IWMP. The estimated population growth rate is 1.8% annually (SEP, 2019). It is worth noting that although the number of households in the LLM area is increasing, the actual size of households is projected to trend downwards in 2021 and 2022 but expected to revert to 4.0 persons per household in 2023.

Access to formal houses and all services in LLM is measured against a total number of households of 25 125 in 2011 and 28 401 in 2016 (SEP, 2019). The number of formal dwellings in LLM increased by 2 572 between 2011 and 2016, at an average annual rate of 2.2%, which translates into approximately 514 additional formal dwellings per year over this period.

Between 2015 and 2018, access to basic services has grown across all services. In 2018, electricity services represented the largest number of consumer units at 19 468; this is followed by water and sewerage at 17 202 and 16 282 respectively. Solid waste services had the lowest number of consumer units at 15 240 (SEP, 2019).

FINANCIAL BUDGET

The LLM waste department has a capital budget for 2020-2021 of R2 120 000; this will be utilised for the upgrading of the Ashton landfill site from razor wire fencing to concrete palisade fencing. The LLM's waste department operational budget for 2020-2021 is R40 056 12. This will be utilised for landfill sites (operational cost, maintenance and equipment), solid waste management (wages, maintenance and transportation equipment) and street cleaning (wages and equipment).

WASTE CATEGORIES AND GENERATION

The following categories of waste are generated in LLM:

- General waste
- Organic waste
- Construction and demolition (C&D) waste
- Health care risk waste (HCRW)
- Hazardous waste
- Other waste types

The waste characterisation study for the LLM was conducted and overseen by the DEA&DP in 2016. A total of 600 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 illustrated that the percentage of recyclables is 61%, organic waste 15% and non-recyclables 24% of the total volume of waste generated in LLM (LLM IWMP, 2017). McGregor had the lowest percentage of recyclables (54%) and the

highest percentage for organic waste (21%). The study illustrated that Ashton and Robertson had the highest percentage of recyclables (64%) in LLM. According to the study, Bonnievale generates the lowest percentage of organic waste (10%). The percentage of household hazardous waste (needles, medicine, tablets, paints, detergents, etc.) accounts for 2% by mass of all waste in LLM (LLM IWMP, 2017). *The results from the waste characterisation study indicate that there is a significant portion of organic waste and recyclables within the LLM waste stream that can be diverted from landfills.*

The LLM consist of large agricultural and farming areas. Hazardous waste from these areas includes fertilisers, chemical packaging and expired pesticides. The management of chemical packaging waste is an important environmental, health and safety hazard. Of particular concern are the containers from pesticide or herbicide chemicals. Typically, farmers are known to burn these empty plastic chemical containers as well as empty plastic fertiliser bags in open fires on farms, which is in turn resulting in significant air pollution. During the investigations in 2020, household hazardous waste forms part of the general waste stream, which is disposed of at the Ashton landfill site.

The major health care risk waste (HCRW) generators in the LLM are the hospitals and clinics. The LLM does not provide HCRW disposal services, resulting in it being the responsibility of the generator (public and private) to enter into a service contract with private service providers for the safe collection, transport, treatment and disposal of such waste. During the investigations in 2020, Compass Medical Waste Services is the HCRW service provider for the private and provincial LLM hospitals and clinics.

Agricultural waste refers to waste produced as a result of various agricultural operations. Some examples of agricultural waste include crop-growing, harvest residues and harvest waste (such as herbs, grains, root tubers, etc.). Waste from livestock farming such as grass, litter or feed is also considered to be agricultural waste. In LLM, the agricultural waste from farms is either used as animal feedstock, for home composting, or it is taken to the nearest municipal waste drop-off facility.

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 no records of sludge tonnages generated. The farmers during the investigations in 2020 collect the sludge on an *ad hoc* basis. The LLM does not accept any sludge at the landfill sites.

The LLM has two abattoirs, namely the Bonnievale abattoir and South African Farm Assured Meat (Robertson Abattoir).

The LLM does not accept tyres for disposal at any landfill site. In the case of tyres being disposed of at a transfer station or drop-off facility, the LLM stockpiles the tyres and uses them as barriers at parks or landfill sites. The tyre fitment centres (Supa Quick, Hi-Q, Tyger-Wheel and Tiger, etc.) have dedicated areas on their premises where the used tyres are stockpiled until collected by the respective tyre suppliers. Measures are taken to control potential spread of fires by stockpiling the tyres in separate piles.

SERVICE DELIVERY

The LLM provides waste collection services to high, medium and low-income groups, informal settlements, businesses and schools. The LLM provides clear bags for recyclables which are collected from the households with cage trucks and transported to Southey's recycling until the new MRF next to the Ashton transfer station is established. Skips used in informal settlements where bins have not yet been provided and at the drop-off facilities for garden refuse and C&D storage.

The LLM consists of large agricultural and farming areas. These include wine farms, fruit farms, dairies, etc. During the investigations in 2020, the LLM services 143 farms, with the remainder of the farmers making use of the nearest drop off facility, or their own on-site refuse dumps, where waste is often burnt to reduce the risk of flies, rats, windblown litter and odours. On-site refuse dumps are illegal and addressing this problem will be included in the needs analysis section of this report.

COMPLIANCE AND ENFORCEMENT

The LLM owns the following landfill sites:

- Robertson landfill site (closed and rehabilitated);
- McGregor landfill site (closed, but rehabilitation required);
- Bonnievale landfill site (operational);
- Ashton landfill site (operational); and
- Montagu landfill site (operational, but closure and rehabilitation required).

The LLM owns the following waste management facilities:

- Robertson transfer station and composting facility (operational);
- McGregor drop-off facility (operational);
- Bonnievale drop-off facility (operational);
- Ashton transfer station (operational); and
- Montagu transfer station (operational).

WASTE AVOIDANCE, REDUCTION AND RECYCLING

The LLM offers collection of source-separated waste to all households and businesses in the formal urban areas. The participation level in low-income areas is less than that of middle and high-income areas. The LLM distributes two clear bags per household in the towns for collection of recyclables. The recyclables were previously transported to the Ashton Material Recovery Facility (MRF), where the recyclables were further separated and sold until the Ashton MRF was vandalised in May 2020. Due to the vandalism of the MRF, the recyclables are during the investigations in 2020 transported to Southey's recycling, a private recycling company, while the plans for the new MRF next to the Ashton transfer station are developed.

OPERATIONAL STRUCTURE AND STAFF CAPACITY

The LLM currently has 79 employees and 22 vacant positions. A detailed organogram can be found in Section 4.7.

WASTE AWARENESS AND EDUCATION

The LLM currently provides presentations and educational material to schools and organisations regarding waste reduction, re-use and recycling. The LLM makes use of Expanded Public Works Programme (EPWP) employees to distribute waste awareness educational material.

GAP AND NEEDS ANALYSIS

A gap and needs analysis were undertaken to identify the shortcomings in the waste management system. Based on the gap and needs analysis, the following goals and objectives related to each goal were developed for the LLM:

- Goal 1: Effective solid waste service delivery:
 - Objective 1: Conduct a household survey to Establish whether all waste generators are equipped with appropriate waste containers (small bins / bags or bulk skips / RoRo's as required by waste type and generation rate.);
 - Objective 2: Update the collection schedule;
 - Objective 3: Prevent illegal dumping; and
 - Objective 4: Evaluate waste management fleet.
- Goal 2: Promote waste minimisation and recycling:
 - Objective 1: Improve recyclables diversion rates - with appropriate processing after collection;
 - Objective 2: Draft an organic waste diversion plan; and
 - Objective 3: Implement organic waste diversion initiatives.
- Goal 3: Ensure safe and integrated management of hazardous waste:
 - Objective 1: Provide household hazardous waste solutions; and provide systems for safe collection, bulking, storage as well as transport and appropriate disposal of all hazardous waste generated in and around LLM.
 - Objective 2: Ensure major hazardous waste generators are registered and accurately reporting on SAWIS.
- Goal 4: Improved waste education and public awareness:
 - Objective 1: Appoint public awareness task force;
 - Objective 2: Implement appropriate waste awareness programmes;
 - Objective 3: Develop /acquire access to relevant waste management training courses; and
 - Objective 4: Improve hazardous waste awareness and management expertise.
- Goal 5: Ensure sound budgeting for integrated waste management:
 - Objective 1: Evaluate staff structures, adjust where required and obtain approval for reallocation of existing / appointment of new staff. Undertake reallocation or fill vacancies based on the findings.

- Objective 2: Ensure availability of sufficient budget funding for landfill rehabilitation and closure;
- Objective 3: Development and commissioning of new Ashton MRF; and
- Objective 4: Conduct cost analysis study for the transportation of waste to the regional landfill site in Worcester.
- Goal 6: Improve regulatory compliance:
 - Objective 1: Review and develop appropriate waste management by-laws based on proposed new circumstances;
 - Objective 2: Conduct external landfill audits as per landfill licence requirements and implement remedial actions in accordance with a schedule approved by both the municipality as well as the regulating authority.
 - Objective 3: Manage and control illegal waste picking on landfill sites; and
 - Objective 4: Ensure compliance of the landfill containment barriers in accordance with R. 636.
- Goal 7: Improve waste information management:
 - Objective 1: Implement effective recyclables record keeping and ensure regular and accurate reporting;
 - Objective 2: Implement effective organic waste record keeping and ensure accurate and regular reporting and implement effective hazardous waste record keeping and ensure regular and accurate reporting
 - Objective 3: Develop industry waste database with regular and accurate data reporting.

The next phase of the project is for the Draft IWMP to go out for public commenting. As part of the development of the IWMP, the consultants will engage with stakeholders and members of the community. Stakeholders and interested and affected parties (I&APs) will be notified that the draft IWMP is out for commenting. The comments on the Draft LLM IWMP will be incorporated into the Final LLM IWMP.

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GLOSSARY OF TERMS AND ABBREVIATIONS

CWDM	Cape Winelands District Municipality
DEA&DP	Department of Environmental Affairs and Development Planning
IDP	Integrated Development Plan
IPWIS	Integrated Pollutant and Waste Information System
IWMP	Integrated Waste Management Plan
LLM	Langeberg Local Municipality
MRF	Materials Recovery Facility
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEM:WA	The National Environmental Management: Waste Act (Act No. 59 of 2008)
NWMS	National Waste Management Strategy (2020)
SAWIC	South African Waste Information Centre
SEP	Socio-Economic Profile
WC	Western Cape
WWTP	Waste Water Treatment Plan

1 INTRODUCTION

1.1 BACKGROUND

The National Waste Management Strategy (2020) (NWMS) is a legislative requirement of the National Environmental Management: Waste Act (NEM:WA) (Act No. 59 of 2008), intended to achieve the objectives of the NEM:WA and seeking to systematically improve waste management in South Africa. This approach recognises the widely adopted waste hierarchy (Figure 1-1), of which the primary objective is to reduce the amount of waste going to landfills. This approach suggests disposal of waste as a last resort.

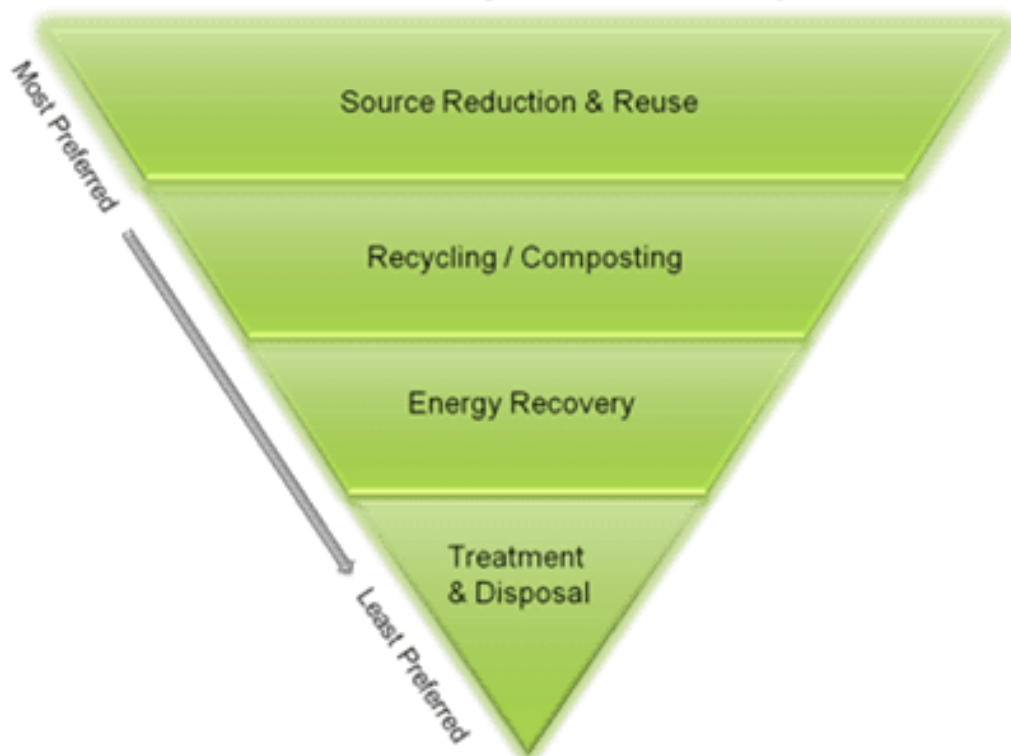


Figure 1-1: National Waste Management Strategy (NWMS, 2011) - Waste hierarchy

The development of an Integrated Waste Management Plan (IWMP) is a statutory requirement of NEM:WA that has been promulgated and came into effect on 1 July 2009. Its goal is the transformation of the historic methodology of waste management, i.e. collection and disposal, to a sustainable practice focusing on waste avoidance and environmental sustainability. The development of the IWMP is necessary as it is an integral tool to identify current needs and acts as a guide towards sustainable waste management. The IWMP will be developed in line with the LLM's Integrated Development Plan's (IDP) strategic objectives.

The Langeberg Local Municipality (LLM) is situated within the Cape Winelands District (CWD). Covering a total area of approximately 4 518 km², the LLM includes the towns of Robertson, Montagu, Ashton, Bonnievale and McGregor, as well as rural areas adjacent to and between these towns.



Figure 1-2: Cape Winelands District Municipality area

The role of the LLM in relation to environmental management is detailed in Section 152 of the Constitution, which requires municipalities, amongst others, to ensure the provision of municipal services to communities in a sustainable manner, and to promote a safe and healthy environment.

In support of the LLM's efforts to render efficient and cost-effective waste management services, CWD has appointed Delta Built Environment Consultants (Delta BEC) for the development of the fourth generation Integrated Waste Management Plan (IWMP) for the LLM.

1.2 PURPOSE OF REPORT

The purpose of this report is to analyse and quantify all aspects related to current waste management services and practices carried out by the LLM, as well as the private sector, with the view of using such information as a baseline for future planning on sustainable service delivery.

1.3 STRUCTURE OF REPORT

The report comprises the following sections:

- Section 2: Status quo study approach;
- Section 3: Relevant legislation;
- Section 4: Status quo study findings;
- Section 5: Gap and needs analysis;
- Section 6: Goals, objectives and targets assessment;
- Section 7: Implementation plan;
- Section 8: IWMP monitoring and review;
- Section 9: Public participation process;
- Section 10: Conclusion;
- Section 11: References; and
- Appendices.

2 STATUS QUO STUDY APPROACH

This section details the approach that the Delta BEC team follows during execution of the status quo phase of the project.

The process flow diagram below details the activities added to each progress report to generate the final status quo report. Site visits were conducted during the status quo investigation phase of the project. The site visits were conducted during the week of 31 August 2020 to 4 September 2020.

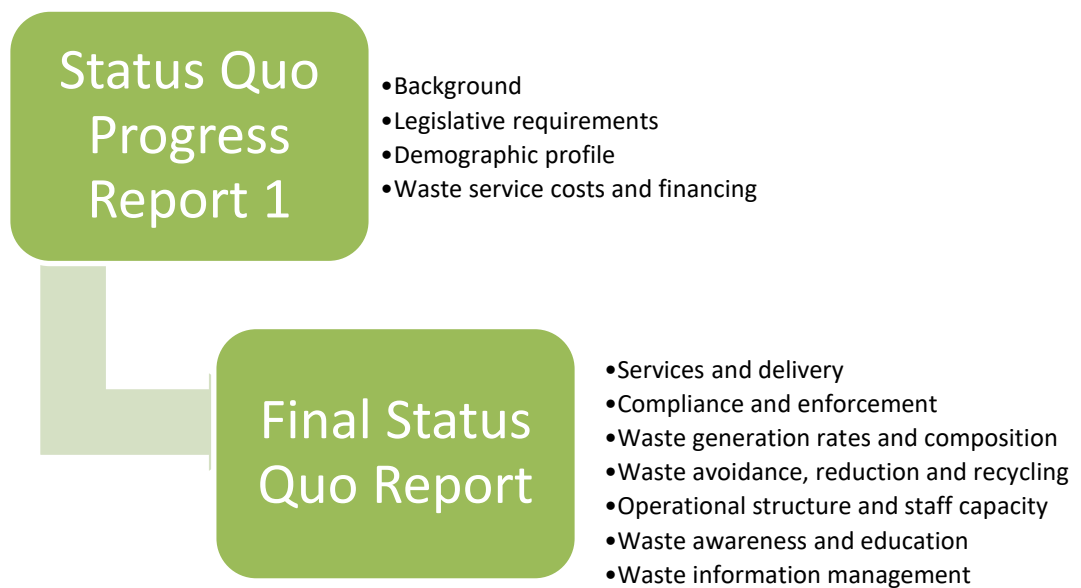


Figure 2-1: Process flow diagram

3 RELEVANT LEGISLATION

This chapter of the report details the roles and responsibilities in terms of waste management at National, Provincial, District and Local Municipal level that inform and assist integrated waste management.

3.1 ROLES AND RESPONSIBILITIES

3.1.1 NATIONAL GOVERNMENT

The National government is tasked with establishment of a national waste management strategy, including norms, standards and targets. The National norms and standards may cover all aspects of the waste value chain, from planning to service delivery.

3.1.2 PROVINCIAL GOVERNMENT

The Provincial governments are tasked with the implementation of the National Environment Management: Waste Act (NEM:WA), Waste Management Regulation and the National Waste Management Strategy, Norms and Standards (NWMS). The Constitution requires Provincial Government to monitor and provide support to municipalities in the province, and to see to the implementation of waste-related regulations and strategies.

3.1.3 DISTRICT MUNICIPALITIES

Section 84 of the Municipal Systems Act (Act 32 of 2000) assigns a function of waste disposal to district municipalities. Not all district municipalities are fulfilling this role. However, when the need arises for a regional site, district municipalities can co-operate roles.

3.1.4 LOCAL GOVERNMENT

The NEM:WA (Act 59 of 2008) requires local authorities to implement mechanisms for the provision of waste collection services including collection, transportation, storage and disposal. Local authorities are also required to facilitate recycling and waste diversion from landfill, and manage waste information appropriately.

3.2 STRATEGIC LINKAGES IN TERMS OF WASTE MANAGEMENT ON INTERNATIONAL, NATIONAL, PROVINCIAL AND LOCAL LEVEL

3.2.1 INTERNATIONAL TREATIES

The following list of international treaties will be considered:

- Basel Convention;
- Rotterdam Convention; and

- Stockholm Convention.

3.2.1.1 The Basel Convention

The Basel Convention (1989) is a global agreement which seeks to address the transboundary movement of hazardous waste. It also aims to ensure that strict controls are in place when any transboundary movement and disposal of hazardous waste does occur, and ensures that it is undertaken in an environmentally sound and responsible manner.

The Basel Convention, held on 22 March 1989, came into effect during May 1992 after ratification by the prerequisite number of countries. South Africa ratified the Convention in 1994, with the Department of Environmental Affairs (DEA) being the focal point for the convention. Whilst South Africa subsequently acceded to this Convention, no legislation was passed at the time to give effect to it. The second Basel Convention, held on 8 October 2005, set standards for the control of transboundary movements of hazardous wastes and their disposal, setting out the categorisation of hazardous wastes and the policies for their disposal between member countries. South Africa accedes to this convention and implements its provisions.

The main objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. The Convention specifically aims to reduce hazardous waste generation, promote environmentally sound management of hazardous wastes, restrict transboundary movements of hazardous wastes and provides a regulatory system which applies to cases where transboundary movement of hazardous waste is permissible (United Nations Environment Programme, 2020).

3.2.1.2 The Rotterdam Convention

The Rotterdam Convention promotes and enforces transparency in the importation of hazardous chemicals and whilst it explicitly excludes waste, its implementation may lead to bans on listed chemicals. Some of these chemicals may occur in stockpiles of obsolete chemicals such as pesticides that have been identified as a major waste management challenge. Extended producer responsibility schemes will be used to effectively manage obsolete chemicals (United Nations Environment Programme, 2020).

3.2.1.3 The Stockholm Convention

In 1995, the United Nations Environment Programme called for global action to be taken on persistent organic pollutants (POPs), which pose a threat to both health and the environment. As a result, the negotiations for the Stockholm Convention on POPs were initiated and culminated in May 2001, with the convention enforced in May 2004. South Africa accedes to this convention, whereby member countries have agreed to phase out POPs, and prevent their import or export. It imposes restrictions on the handling of all intentionally

produced POPs. Parties to the Convention are also required to undertake the following responsibilities (United Nations Environment Programme, 2020):

- Develop and implement appropriate strategies to identify stockpiles, products and articles in use that contain or are contaminated with POPs;
- Manage stockpiles and wastes in an environmentally sound manner;
- Dispose of waste in a way that destroys or irreversibly transforms POPs content;
- Prohibit recycling, recovery, reclamation, direct re-use or alternative use of POPs; and
- Endeavour to develop strategies to identify contaminated sites and perform eventual remediation in an environmentally sound manner.

3.2.2 NATIONAL ACTS, REGULATIONS AND STRATEGIES

3.2.2.1 The South African Constitution (Act No. 108 of 1996)

Section 24 of the Bill of Rights of the Constitution of South Africa clearly states that everyone has the right to:

- a) An environment that is not harmful to their health or well-being.
- b) Have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
 - i) Prevent pollution and ecological degradation.
 - ii) Promote conservation.
 - iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The Constitution places an emphasis on the need to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures, e.g. IWMPs. It is within this provision that IWMPs must strive or come up with measures to uphold the rights of all citizens within the jurisdiction of the municipality and should enhance and promote environmental protection from any form of degradation as enshrined by the South African Constitution.

3.2.2.2 The National Environmental Management Act (Act No. 107 of 1998)

NEMA is the cornerstone of all environmental legislation in South Africa. The purpose of NEMA is to uphold the provisions of Section 24 of the Bill of Rights (the Constitution of the Republic of South Africa). It aims to promote and uphold the rights of South African citizens to live in an environment that is not harmful to its health or well-being.

NEMA places sustainable development at the centre of every development process that has the potential to have an impact on social, economic and environmental matters, whereby it requires the integration of social, economic

and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations.

3.2.2.3 The Hazardous Substances Act (Act No. 15 of 1973)

This act and its regulations provide for the control of substances which may cause injury or ill-health to or death of human beings due to their toxic, corrosive, irritant, strongly sensitising or flammable nature, the division of such substances or products into groups in relation to the degree of danger, to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification and disposal of such substances and products.

3.2.2.4 The Municipal Systems Act (Act No. 32 of 2000)

In terms of Section 25 of the MSA, each municipal council must, within a prescribed period after the start of its elected term, adopt a single, inclusive and strategic plan (IDP) for the development of the municipality. The IDP is required to include sectoral environmental plans, which would be an IWMP for waste management. In their IDPs, municipalities are required to ensure proper resource allocation to achieve the targets set in the respective plans.

3.2.2.5 The Local Government: Municipal Structures Act (Act No. 117 of 1998)

This act provides for an appropriate division of functions and powers between categories of municipalities which include solid waste disposal sites, in so far as it relates to:

- a) The determination of a waste disposal strategy.
- b) The regulation of waste disposal.
- c) The establishment, operation and control of waste disposal sites, bulk waste transfer facilities and waste disposal facilities for more than one local municipality in the district.

3.2.2.6 The National Environmental Management: Waste Act: Waste Classification & Management Regulations (R. 634 August 2013)

This regulation provides for the classification of waste by waste generators in accordance with SANS 10234:2008, within 180 days of generation. The GHS classifies waste in terms of its physical and health hazards as well as the hazards it presents to the aquatic environment. Waste that was previously classified in terms of the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (1998) must now be classified in terms of SANS 10234:2008. Waste listed in Annexure 1 of the WCMR does not require classification in terms of SANS 10234:2008.

3.2.2.7 The National Environmental Management: Waste Act: National Standard for Assessment of Waste (R. 635 August 2013)

The standards prescribe the requirements for the assessment of waste prior to disposal to landfill, as required by Regulation 8 (1) (b) and (c) of the Waste Classification and Management Regulations of 2013. The standards classify waste into four categories based on its total concentration (TC) and leachable concentration (LC) in comparison with the acceptable limits.

3.2.2.8 The National Environmental Management: Waste Act: National Standard for Disposal of Waste to Landfill (R. 636 August 2013)

The standard provides for the new classification of landfill sites and requirements for containment and barrier designs. The new classifications are Class A, B, C and D. The standards prescribe types of waste (as per the classification of waste by R.635) to be disposed at different classes of landfill sites. The standards also provide for waste disposal restrictions on certain types of waste such as tyres, asbestos, persistent organic pollutants (POPs) and organic waste.

3.2.2.9 National Environmental Management: Waste Act: National Waste Information Regulations (January 2013)

Waste generators are obliged to report waste quantities generated, diverted and treated. This is required in order to ensure efficient planning for waste management activities. In terms of the regulations, certain requirements must be complied with during reporting, such as the name of the facility, waste types and quantities generated, percentage of waste diverted, etc.

3.2.2.10 National Environmental Management: Waste Act (59/2008): Waste Tyre Regulations (29 September 2019)

The aim of this regulation is to provide guidelines for the safe management of tyre waste. It outlines the prohibitions, registration of waste generators, duties of tyre dealers, the waste tyre stockpile abatement plan and the storage of waste tyres.

3.2.2.11 National Environmental Management Act: NEMA, EIA Regulations (18 June 2010)

The EIA Regulations regulate the procedure and criteria relating to the preparation, evaluation, submission, processing and approval of applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts. Waste activities which should be subjected to EIA are prescribed in GN. 921, NEM:WA schedule.

3.2.2.12 The National Environmental Management: Waste Act: Draft National Norms and Standards for Organic Waste Composting (4 September 2019)

The norms and standards are aimed at controlling the composting of organic waste at facilities falling within certain thresholds as described in Paragraph 3 of these norms and standards in order to prevent or minimise potential negative impacts on the bio-physical and socio-economic environment.

3.2.2.13 The White Paper on Integrated Pollution and Waste Management for South Africa (17 March 2000)

(Government Gazette 20978, 17 March 2000) – DEA National Waste Management Policy. It is focused on a holistic and integrated system and process of management, aimed at pollution prevention and minimisation at source, managing the impact of pollution and waste on the receiving environment, and remediating damaged environments.

3.2.2.14 The National Waste Management Strategy (2020)

The NWMS (2020) was approved by Cabinet on 9 September 2020. This strategy was developed in alignment with the National Environmental Management: Waste Act and builds on the successes and lessons learnt from the NMWS (2011).

The NWMS (2020) is broadly focused on preventing waste and diverting waste from landfill by leveraging the concept of the Circular Economy to drive sustainable, inclusive economic growth and development in the waste sector, while reducing the social and environmental impacts of waste. Its implementation plan will create jobs in the waste sector and increase awareness and compliance around waste.

The following are the three strategic goals in the revised NWMS (2020):

- Waste Minimisation - the aim is to prevent waste and where waste cannot be prevented, 40% should be diverted from landfill within 5 years through reuse, recycling, recovery and alternative waste treatment: 20% of waste reduction in waste generation, and 20% of waste reused in the economic value chain.
- Effective and Sustainable Waste Services - this would see all South Africans living in clean communities with waste services that are well managed and financially sustainable.
- Waste Awareness and Compliance - the aim is to create a culture of compliance with zero tolerance of pollution, litter and illegal dumping.

Among the significant strategic shifts from the 2011 strategy in the NWMS 2020 are addressing the role of waste pickers and the informal sector in the Circular Economy, promoting product design packaging that reduces waste or encourages reuse, repair and preparation for recycling, and support markets for source-separated recyclables. NWMS 2020 also investigates potential regulatory or economic interventions to increase participation rates in residential separation

at source programmes, alongside investing in the economies associated with transporting of recyclables to waste processing facilities and addressing the skills gaps within the sector.

The strategy also requires engagement with the National Treasury regarding the operational expenditures for municipalities associated with implementing the NWMS and Waste Act.

3.2.2.15 The Waste Tyre Regulations (2017)

The Waste Tyre Regulations (2017) outline a number of prohibitions as far as waste tyre management is concerned as follows:

No person may:

- a) Manage waste tyres in a manner which does not comply with these regulations.
- b) Recover or dispose of a waste tyre in a manner that is likely to cause pollution of the environment or harm to health and well-being.
- c) Dispose of a waste tyre at a waste disposal facility.
- d) Recover any financial contribution in terms of a waste tyre management plan from a subscriber to the plan, unless authorised by law.
- e) Export waste tyres in whatever form unless the exportation of such waste tyres is authorised by the Minister in writing.

3.2.3 PROVINCIAL PLANS, STRATEGIES AND GUIDELINES

3.2.3.1 Western Cape Integrated Waste Management Plan (2017-2022)

The Western Cape outlined four goals in the 2nd Generation IWMP (2017-2022). The LLM's goals and targets will be developed in line with the following four goals from the Western Cape IWMP.

- Goal 1: Strengthened education, capacity and advocacy towards integrated waste management.
- Goal 2: Improved integrated waste management planning and implementation for efficient waste services and infrastructure.
- Goal 3: Effective and efficient utilisation of resources.
- Goal 4: Improved compliance with environmental regulatory framework.

These four goals were identified by the Western Cape to addresses the following:

- Promoting sustainable waste management; this includes waste avoidance, cleaner production, waste minimisation, resource-use efficiency, resource recovery and recycling;
- Diverting waste from waste management disposal facilities;
- Minimising adverse environmental and social impacts of waste management, particularly for the vulnerable; and

- Providing guidance and support for both municipalities and industries in developing IWMPs that promote integrated waste management.

3.2.3.2 Western Cape Green Economy Strategy Framework (2013)

The 2013 Western Cape Green Economy Strategy Framework aims to achieve the double dividend of optimising green economic opportunities and enhancing environmental performance.

The strategy identifies three high-level priorities for green growth:

- 1) Natural gas and renewables.
- 2) Financial infrastructure.
- 3) Green jobs – including the waste sector.

3.2.3.3 Western Cape Diversion Targets for Organic Waste Management (2018)

Organic waste is identified as a problematic waste stream in the Western Cape, with in excess of 37% of waste generated in the province being organic waste. Landfilling of organic waste results in loss of airspace, methane and leachate generation, odour and health impacts.

Diversion of organic waste from landfill can reduce these negative impacts and can also aid in job creation at waste management facilities. Compost and biochar produced from organic waste can be used as an alternative to fertilisers to improve soil condition.

The Department of Environmental Affairs and Development Planning (DEA&DP) proposed a 50% diversion from landfill sites by 2022, and a landfill ban on organic waste to landfill by 2027.

3.2.3.4 Guideline for Management of Abattoir Waste in Western Cape (2015)

The guideline on the management of abattoir waste in the Western Cape was developed by the DEA&DP as one of the recommendations stemming from the status quo study of abattoir waste conducted in 2015.

The guideline provides an overview of the current status quo of abattoir waste, treatments and disposal methods.

3.2.4 LOCAL BY-LAWS AND PLANS

3.2.4.1 Cape Winelands By-Laws

The Cape Winelands District Municipality does not manage waste collection or disposal. Therefore it does not have Solid Waste By-Laws. However, Chapter 8 of the Municipal Health By-Laws of the Cape Winelands District Municipality relates to waste management. *The Waste Management section is outdated and needs to be reviewed to include NEM:WA and NWMS.* The section reads as follows:

'Part 1: General provisions regarding recovery, storage and disposal of waste

Recovery, storage and disposal of waste

- 1) *Waste must be recovered, stored, transported and disposed of —*
 - a) *without endangering human health;*
 - b) *without the use of processes or methods likely to harm or pollute the environment; and*
 - c) *in a manner that does not create a health nuisance.*
- 2) *A person who contravenes subsection (1) commits an offence.*

Part 2: Hazardous Waste

Applicable legislation

The municipality, taking cognizance of the provisions of the Environment Conservation Act, 1989 (Act No. 73 of 1989) the Hazardous Substances Act, 1973 (Act 15 of 1973), the National Health Act, 61 of 2003, and the regulations made under these Acts, adopts the provisions in this Part.

Storage of hazardous waste

- 1) *An empty container in which hazardous waste such as, but not limited to, pesticides was stored is to be treated as hazardous waste, and —*
 - a) *must be stored in such a manner that —*
 - i) *no pollution of the environment occurs at any time;*
 - ii) *no health nuisance is created at any time;*
 - b) *while being stored on site, must be clearly marked or labelled with the words "Hazardous Waste";*
 - c) *the owner or occupier of the land must fence off the storage area to prevent unauthorised access; and*
 - d) *shall be dealt with as Class 6 waste as described in the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (Second Edition, 1998) as published by the Department of Water Affairs and Forestry and as amended from time to time.*
- 2) *A person who contravenes a provision of subsection (1)(a) to (d) commits an offence.'*

3.2.4.2 LLM By-laws

The LLM during the investigations in 2020 does not have waste management by-laws.

3.2.4.3 LLM Integrated Development Plan

The IWMP forms part of the Integrated Development Plan (IDP) required in terms of Chapter 5 of the Municipal Systems Act. In order to align the IWMP with the IDP (2017-2022) of LLM, the strategic goals from the IDP will be considered in this IWMP.

Section 24 of the Municipal Systems Act states:

'(1) The planning undertaken by a municipality must be aligned with, and complement, the development plans and strategies of other affected municipalities and other organs of state so as to give effect to the principles of cooperative government contained in Section 41 of the Constitution.

(2) Municipalities must participate in national and provincial development programmes as required in Section 153(b) of the Constitution.'

The following are the strategic objectives of the LLM IDP:

- Strategic Objective 1: Housing: Effective approach to integrated human settlements and improved living conditions of all households.
- Strategic Objective 2: Basic Service Delivery: Maintain infrastructure to provide basic services to all citizens.
- Strategic Objective 3: Local Economic Development: Create an enabling environment for economic growth and decent employment.
- Strategic Objective 4: An efficient, effective, responsive and accountable administration.
- Strategic Objective 5: Sound Financial Management: Adherence to all laws and regulations applicable to LG.
- Strategic Objective 6: Effective stakeholder engagements to promote civic education.

The LLM IWMP will be aligned with Strategic Objective 2 of the IDP, which is to provide and maintain infrastructure to provide basic services to all citizens.

4 STATUS QUO STUDY FINDINGS

This chapter of the report will be discussed under the following headings:

- Geographical area, geo-physical and geo-hydrological conditions;
- Demographic profile;
- Waste management cost and financing;
- Waste categories and generation;
- Service delivery;
- Compliance and enforcement;
- Waste avoidance, reduction and recycling;
- Operational structure and staff capacity; and
- Waste awareness and education.

4.1 GEOGRAPHICAL AREA, GEO-PHYSICAL AND GEO-HYDROLOGICAL CONDITIONS

The Langeberg Local Municipality (LLM) is situated within the Cape Winelands District (CWD). Covering a total area of approximately 4 518 km², the LLM includes the towns of Robertson, Montagu, Ashton, Bonnievale and McGregor, as well as rural areas adjacent to and between these towns. LLM is divided into 12 wards. The spatial orientation of the wards is shown in Figure 4-1.



Figure 4-1: LLM wards

4.1.1 CLIMATE

LLM is a predominantly winter rainfall region. Langeberg receives approximately 250 mm of rain per annum and experiences a high average temperature of 33 °C during summer months and average temperatures as low as 6 °C in July.

4.1.2 TOPOGRAPHY

The topography of LLM is dominated by two major mountain ranges—the Langeberg Mountain Range which stretches across the northwest of the municipality passing Robertson, Montagu and Ashton east towards Swellendam, and the Riviersonderend Mountain Range which is to the south of the town of McGregor. The LLM lies between these two mountains and has rich, fertile soil suitable for agriculture. As a result of this, agriculture is one of the greatest economic sectors in LLM in terms of both employment and GDP.

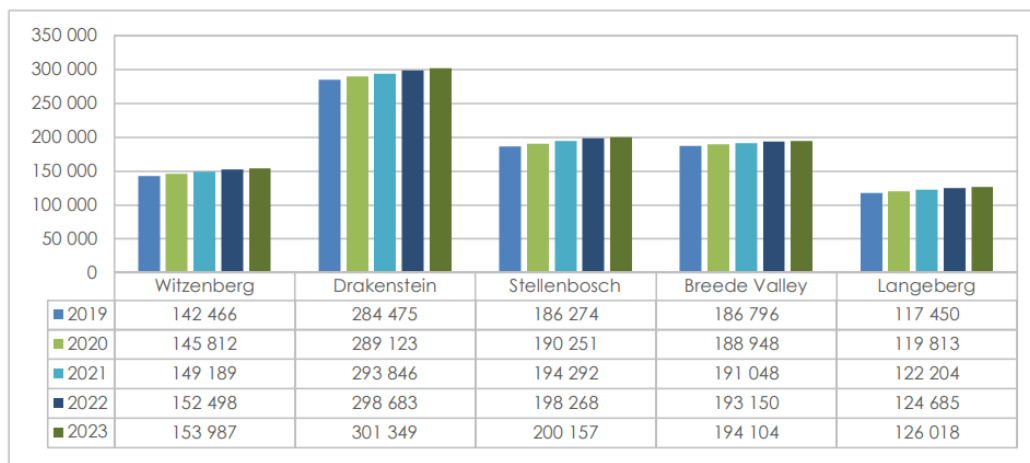
4.2 DEMOGRAPHIC PROFILE

The Socio-Economic Profile (LLM SEP, 2019) report, drafted by the Western Cape Department of Social Development, and the LLM Integrated Development plan (IDP, 2017 - 2020) were used to determine the demographic profile of the LLM.

4.2.1 POPULATION PROFILE

LLM has the smallest population of all the local municipalities in the Cape Winelands District, which, according to the SEP 2019 report, is projected to be 126 018 by 2023. The estimated population growth rate is 2% annually (SEP, 2019).

Table 4-1: LLM population profile (LLM SEP, 2019)



4.2.2 SOCIO-ECONOMIC GROUPS AND INCOME DISTRIBUTION

4.2.2.1 Age distribution

Table 4-2 depicts the population composition regarding age categories of the LLM. The total population is broken down into three different groups, namely:

- Age 0-14: children;
- Age 15-65: working age population; and
- Age 65+: seniors.

Table 4-2 provides the LLM's population composition per age categories. These groupings are also expressed as a dependency ratio which in turn indicates who is part of the workforce (age 15-65) and those who are depending on them (children and seniors). A higher dependency ratio (above 60%) means a higher pressure on social systems and the delivery of basic services.

Table 4-2: LLM age categories (LLM SEP, 2019)

LANGEBERG: AGE COHORTS, 2019-2025				
Year	Children 0-14 Years	Working Age 15-65 Years	Aged 65+	Dependency Ratio
2019	35 318	75 400	6 732	55.8
2022	37 125	80 044	7 516	55.8
2025	38 750	84 311	8 079	55.5
Growth	1.6%	1.9%	3.1%	-

4.2.2.2 Household size

Household size refers to the number of people per household. It is worth noting that although the number of households in the LLM area is increasing, the actual size of households is projected to trend downwards in 2021 and 2022 but reverts to four persons per household in 2023. This potentially implies an inflow of young professionals (either single, as couples or with small family groupings) into the area because of enhanced urbanisation (LLM SEP, 2019).

Table 4-3: Household size (LLM SEP, 2019)

LANGEBERG: HOUSEHOLD SIZE, 2019-2023				
2019	2020	2021	2022	2023
4.0	4.0	3.9	3.9	4.0

4.2.2.3 Income distribution

The following table provides the annual income for households living within the LLM area (IDP, 2017 - 2020). From information in the IDP, 57.0% of people in the

municipality fall in the low-income bracket, 38.0% in the middle-income and 5.0% in the high-income bracket.

Table 4-4: LLM income distribution (IDP, 2017 - 2020)

Amount (2016)	Cape Winelands District	Langeberg	
No income	13.1	10.0	Low income
R1 – R6 327	1.9	2.5	
R6 328 – R12 653	3.5	4.3	
R12 654 – R25 306	13.4	15.8	
R25 307 – R50 613	20.1	24.3	Middle Income
R50 614 – R101 225	18.4	19.8	
R101 226 – R202 450	12.3	10.8	
R202 451 – R404 901	8.8	7.3	High income
R404 902 – R809 802	5.7	3.6	
R809 803 – R1 619 604	2.0	1.0	
R1 619 605 – R3 239 208	0.5	0.2	
R3 239 209 or more	0.4	0.2	

4.2.3 EMPLOYMENT STATUS AND EDUCATION LEVELS

Education and training improve access to employment opportunities and help to sustain and accelerate overall development.

4.2.3.1 Employment status

LLM employs the least workers when compared to the other LMs within the Cape Winelands District (CWD). The LLM area had the second lowest unemployment rate in CWD at 7.9% in 2015 (SEP, 2017). The number of jobs recorded in 2015 was 51 372. The jobs in the LLM mostly originate from the agricultural sector (23.4%) and wholesale and retail trade, catering and accommodation sector (25.2%) (SEP, 2017). The agriculture sector created the most jobs in 2015 due to the record wine grape harvest in the area, which increased the demand for seasonal workers (SEP, 2017). The seasonality of jobs in the agriculture sector has widespread implications for the economy of the LLM area as household income and spending are cyclical in line with agricultural activities in this area, which in turn affects businesses in the tertiary sector.

4.2.3.2 Education levels

4.2.3.2.1 Learner enrolment

Learner enrolment in LLM increased at an annual average growth rate of 3% from 17 838 to 18 374 learners between 2016 and 2018 (LLM SEP, 2019). This could be attributed to a number of factors including changing demographic and socio-economic context.

4.2.3.2.2 Learner-teacher ratio

The learner-teacher ratio in LLM increased between 2016 and 2017, from 26.3 in 2016, to 27.3 in 2017, decreasing again in 2018 to 26.5 (LLM SEP, 2019). Factors influencing the learner-teacher ratio include the ability of schools to employ more educators when needed and the ability to collect school fees (LLM IDP, 2017-2022).

4.2.3.2.3 Educational facilities

The number of schools within the LLM has remained unchanged at 55 between 2016 and 2017, but with one less school in 2018. This could negatively impact upon the education outcomes, given the gradual increase in learner enrolment (LLM SEP, 2019).

4.2.3.2.4 Educational outcomes

The matric pass rate within the LLM dropped from 85.7% in 2016 to 79.5% in 2017. In 2018, the matric pass rate further dropped marginally to 79.0%.

4.2.4 ECONOMIC PERFORMANCE

The ability of households to pay for services such as water, electricity, sanitation and refuse removal depends on income generated from economic activities. A slowdown in economic activity may result in job losses¹ and the inability of households to pay for services, leading to reduced municipal revenues (LLM SEP, 2019).

LLM has the lowest Gross Domestic Product (GDPR) per capita compared to other local municipalities in the CWD. At R39 689.00 in 2018, LLM GDPR is below that of the CWD figure of R50 716.00 as well as that of the Western Cape (R60 079.00) (LLM SEP, 2019).

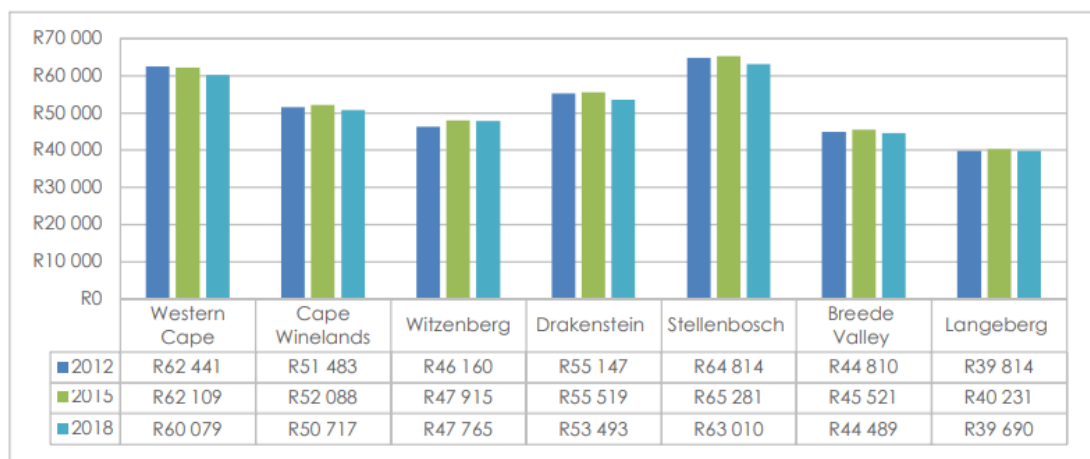


Figure 4-2: Cape Winelands District GDPR contribution (LLM SEP, 2019)

¹ Job losses are severely aggravated in 2020 due to COVID-19, which is likely to have a significant impact on several other statistics presented in the Status Quo report.

4.2.5 DEVELOPMENT PROFILES

4.2.5.1.1 Access to housing

Access to formal housing and services in LLM is measured against a total number of households of 25 125 in 2011 and 28 401 in 2016 (LLM SEP, 2019). The number of formal dwellings in LLM increased by 2 572 between 2011 and 2016, at an average annual rate of 2.2%, which translates into approximately 514 additional formal dwellings per year over this period.

4.2.5.1.2 Access to basic services

Figure 4-3 illustrates the access to basic services in the LLM area between 2015 and 2018 as indicated in Statistics South Africa's Non-Financial Census of Municipalities. Between 2015 and 2018, the number of consumer units has grown across all services. In 2018, electricity services represented the largest number of consumer units at 19 468; this is followed by water and sewerage at 17 202 and 16 282 respectively. Solid waste services had the lowest number of consumer units at 15 240 (LLM SEP, 2019).

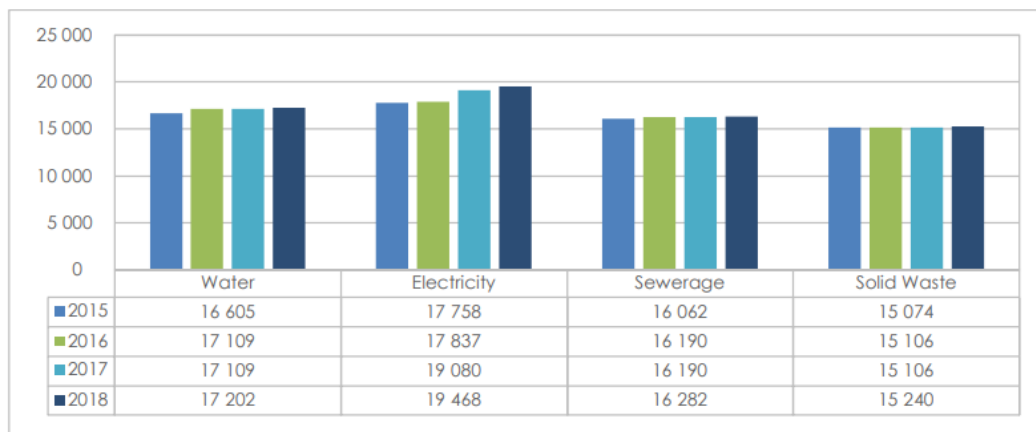


Figure 4-3: LLM breakdown of access to basic services (LLM SEP, 2019)

4.2.5.1.3 Free basic service

Indigent households (a family earning a combined income of less than R3 200.00 per month) qualify for free basic water, electricity, sanitation and waste removal services. In 2020, the LLM area had 6 599 solid waste indigent households.

4.3 WASTE MANAGEMENT COST AND FINANCING

4.3.1 DETAILED BREAKDOWN OF OPERATIONAL AND CAPITAL BUDGET

Table 4-5 provides the capital and operational solid waste management budget for the 2020-2021 financial year.

Table 4-5: LLM capital and operational expenditure for 2020-2021

CAPITAL AND OPERATIONAL BUDGET FOR 2020-2021	
Capital budget (2020-2021)	R2 120 000.00 (Excl. VAT)

CAPITAL AND OPERATIONAL BUDGET FOR 2020-2021	
Palisade fencing for Ashton landfill site	R2 120 000.00 (Excl. VAT)
Operational budget (2020-2021)	R40 056 123.00 (Excl. VAT)
Landfill sites (operational cost, maintenance and equipment)	R10 231 596.00 (Excl. VAT)
Solid waste management (wages, maintenance and transportation equipment)	R20 191 979.00 (Excl. VAT)
Street cleaning (wages and equipment)	R9 632 548.00 (Excl. VAT)

4.3.2 DETAILED BREAKDOWN OF OPERATIONAL AND CAPITAL EXPENDITURE

This operational and capital expenditure section will be updated once the information is available.

4.3.3 CURRENT TARIFF STRUCTURE

4.3.3.1 Waste collection tariffs for households and businesses

Table 4-6 provides the waste collection tariff structure for households and businesses in the LLM. There was a 4.5% increase in the tariffs from 2019/2020 to 2020/2021.

Table 4-6: Waste collection tariff structure for households and businesses

DESCRIPTION OF SERVICE	2019/2020 (VAT EXCL.)	2020/2021 (VAT EXCL.)	INCREASE
One removal per week			
General (240 l wheelie bin)	R153.87	R160.79	4.5%
Indigent tariff (income ≤ 3 500 per month) (100% subsidised)	R153.87	R160.79	4.5%
Informal housing	R153.87	R160.79	4.5%
Spaza shops (240 l wheelie bin)	R153.87	R160.79	4.5%
Schools and hostels (excluding creches) - per 240 l bin removed	R153.87	R160.79	4.5%
Businesses - waste removal per week			
General - one removal	R323.97	R338.55	4.5%
General - two removals	R647.93	R677.08	4.5%
General - three removals	R947.42	R990.05	4.5%
Bulk removals and perishable products			
General	R1 218.12	R1 272.94	4.5%
MEGA industries (the tariffs for MEGA industries are standard, any additional removals will be charged at actual cost plus 20%)			

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DESCRIPTION OF SERVICE	2019/2020 (VAT EXCL.)	2020/2021 (VAT EXCL.)	INCREASE
Langeberg and Ashton foods	R22 187.54	R23 185.98	4.5%
Langeberg and Ashton foods	R17 433.09	R18 217.58	4.5%
Fruit packers	R2 286.63	R2 389.53	4.5%
Parmalat	R7 598.48	R7 940.41	4.5%
All wine cellars	R2 137.03	R2 233.20	4.5%
Small cheese factories	R2 137.03	R2 233.20	4.5%
Môreson	R1 538.68	R1 607.92	4.5%
Municipal departments			
One removal per week - General (240 l wheelie bin)	R153.87	R160.79	4.5%
Two removals per week - General (240 l wheelie bin)	R307.74	R321.59	4.5%
Three removals per week - General (240 l wheelie bin)	R461.61	R482.38	4.5%
Sports grounds (240 l wheelie bin)	R153.87	R160.79	4.5%
Dept.: Sport (240 l wheelie bin)	R153.87	R160.79	4.5%
Availability - vacant plots excluding properties zoned for agriculture purposes, roads, play parks and parking areas belonging to home owners associations.	R153.87	R160.79	4.5%

4.3.4 ADDITIONAL WASTE COLLECTION TARIFF STRUCTURE

Table 4-7 provides the tariffs of additional waste collection and disposal services rendered by the LLM.

Table 4-7: Additional waste collection and disposal tariffs

DESCRIPTION OF SERVICE	2019/2020		2020/2021	
	Excl. VAT	Incl. VAT	Excl. VAT	Incl. VAT
General services				
Removal of rejected tins per tonne	R372.00	R428.00	R417.00	R480.00
Removal of garden refuse per m³	R122.00	R141.00	R137.00	R158.00
Removal of garden refuse per tonne	R328.00	R378.00	R367.00	R422.00
Special removal of household refuse per tonne	R456.00	R525.00	R511.00	R588.00
Removal of industrial/condemned refuse per tonne	R519.00	R597.00	R581.00	R668.00
Small holdings that dump refuse up to four households (farms)	R109.00	R126.00	R122.00	R140.00
Rural businesses that dump refuse up to 12 times (households/farms)	R352.00	R405.00	R394.00	R453.00
Rural businesses that dump refuse on an ad hoc basis per tonne	R256.00	R295.00	R287.00	R330.00
Additional dumping per household more than 12 times	R32.00	R37.00	R36.00	R41.00
Removal of illegal dumping	Actual cost + 20% + VAT		Actual cost + 20% + VAT	
Cleaning of private plot	Actual cost + 20% + VAT		Actual cost + 20% + VAT	
C&D				
Clean (only sand, stone, soil, small pieces of concrete, bricks less than 100 mm)	Free	Free	Free	Free
Builders' rubble that contains stones				
Pieces of concrete, bricks bigger than 100 mm (price per tonne)	R256.00	R295.00	R287.00	R330.00

DESCRIPTION OF SERVICE	2019/2020		2020/2021	
	Excl. VAT	Incl. VAT	Excl. VAT	Incl. VAT
Waste contaminated with tree stumps and other waste	R256.00	R295.00	R287.00	R330.00
Any other approved waste not specified	R256.00	R295.00	R287.00	R330.00
Disposal of rejected material				
Removal of rejected material per kg	R5.00	R6.00	R6.00	R7.00
Self-dumping of rejected material per kg	R4.00	R5.00	R4.48	R5.15
Fruit delivered at compost area per tonne	R298.00	343.00	R334.00	R384.00
Hiring of skips				
Monthly rent 6 m³ (one removal per month)	R648.00	R746.00	R726.00	R835.00
Monthly rent 9 m³ (one removal per month)	R792.00	R911.00	R887.00	R1 020.00
Rental of 6 m³ skip per occasion (one day only)	R370.00	R426.00	R414.00	R476.00
Rental of 9 m³ skip per occasion (one day only)	R470.00	R541.00	R526.00	R605.00
Rental of 30 m³ skip per occasion			R1 753.00	R2 016.00
Additional removal of 6 m³ skip (additional to first removal per month)	R361.00	R416.00	R404.00	R465.00
Additional removal of 9 m³ skip (additional to first removal per month)	R461.00	R531.00	R516.00	R593.00
Garden refuse				
Disposal of clean approved garden refuse	Free	Free	Free	Free
Compost per m³	R247.00	R285.00	R277.00	R319.00
Green chippings per/m³	R106.00	R122.00	R119.00	R137.00
Special services				
Safe disposal of asbestos (R/kg)	R550.00	R633.00	R616.00	R708.00

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DESCRIPTION OF SERVICE	2019/2020		2020/2021	
	Excl. VAT	Incl. VAT	Excl. VAT	Incl. VAT
Safe disposal of tyres (car and LVD (per tyre))	R23.00	R27.00	R26.00	R30.00
Safe disposal of big tyres	R44.00	R51.00	R49.00	R56.00
Safe disposal of fluorescent tubes (per tube)	R7.00	R9.00	R8.00	R9.00
Replace of 240 l wheelie bin	Actual cost + 10% + VAT		Actual cost + 10% + VAT	
Refuse bags (per pack)				
Black bags (per pack)	R32.00	R37.00	R36.00	R41.00
Clear bags (per pack)	R32.00	R37.00	R36.00	R41.00

4.3.5 FREE BASIC SERVICES BUDGET

The LLM area reported 6 599 solid waste indigent households in 2020. The budgeted 2020-2021 amount for free solid waste basic services is R13 309 855.00.

4.4 WASTE CATEGORIES AND GENERATION

4.4.1 WASTE CATEGORIES GENERATED

Table 4-8 provides the categories of waste generated in LLM.

Table 4-8: Categories of waste generated in LLM

CATEGORIES	DESCRIPTION
General waste	Domestic general waste: Disposable materials generated by households. This waste usually contains recyclable materials and non-recyclables.
	Business general waste: Business general waste includes all waste produced by supermarkets and businesses that is non-hazardous. This waste usually contains high quantities of recyclable materials.
Organic waste	Garden refuse and food waste.
Construction and demolition (C&D) waste	Concrete, mortar, bricks, wood, insulation materials, gypsum, etc. generated from construction and demolition sites.
Health care risk waste (HCRW)	Discarded blood and human tissue, sharps, infectious materials, expired pharmaceuticals, etc.
Hazardous waste	Used mineral oils, solvent residues, paint and resin waste, organic chemical residues, putrescible waste (slaughterhouse), sewage sludge and used agricultural chemicals.
Other waste types	This includes agriculture, abattoirs and tyre waste.

4.4.2 DOMESTIC WASTE PROFILE

The waste characterisation study of the LLM was conducted and overseen by the DEA&DP in 2016. 600 waste samples were collected and sorted. The waste was sorted at the Ashton MRF by Expanded Public Works Programme (EPWP) employees.

During the waste characterisation study, the following methodology was followed to sort the waste (LLM IWMP , 2017):

- Black bags were weighed and recorded on the recording sheet.
- Black bags were opened and contents sorted.
- The waste from each black bag was then sorted by waste category and placed in bins.

- Each of the bins were then weighed (bin weight subtracted) and the volume and mass for each was then recorded on the data sheet.

The waste categories were grouped into the following (LLM IWMP, 2017 :

- Plastic (soft);
- Plastic (dense);
- Paper;
- Cardboard;
- Glass;
- Metals;
- Organics (food and green waste);
- Composite packaging;
- E-waste (computers, electrical appliances, batteries, globes);
- Household hazardous waste (needles, medicine, tablets, paints, cleaning products, etc.);
- Nappies, sanitary towels and condoms; and
- Other (wrappers, chips packets, foil, cling wrap, faeces, sand, stone).

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 LLM (LLM IWMP, 2017).

McGregor had the lowest percentage of recyclables (54%) and the highest percentage for organic waste (21%). The study illustrated that Ashton and Robertson had the highest percentage of recyclables (64%) in LLM. According to the study, Bonnievale generates the lowest percentage of organic waste (10%).

Table 4-9: Waste characterisation study results (LLM IWMP , 2017)

WASTE CATEGORY	ASHTON	BONNIEVALE	MCGREGOR	MONTAGU	ROBERTSON
Recyclables	64%	62%	54%	59%	64%
Organic waste	13%	10%	21%	19%	12%
Non-recyclables	23%	27%	25%	21%	24%

The percentage of household hazardous waste (needles, medicine, tablets, paints, detergents, etc.) accounts for 2% by mass of all waste in LLM (LLM IWMP, 2017). This is a high percentage when considering that such hazardous waste is disposed of on rural general waste landfills; excluding industrial hazardous waste that may be disposed of illegally at the general waste landfills (often covered with general waste to prevent it from being identified when entering the landfill).

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.

4.4.3 HAZARDOUS WASTE

For the purposes of this study, Table 6: Schedule 3 of the National Environmental Management: Waste Amendment Act, 2014 Act No. 26 of 2014: Category A: Hazardous Waste (refer to Appendix A) was used to determine the various industrial groups potentially generating hazardous waste in the study area.

Schedule 3 identifies 17 industrial groups, subdivided into 86 waste fractions. This study has determined that businesses and industries in LLM generate hazardous waste categorised under four out of the potential 17 industrial groups listed in Schedule 3.

These are:

- Industrial Group 1: Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing.
- Industrial Group 9: Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks.
- Industrial Group 12: Oil wastes and wastes of liquid fuels (except edible oils).
- Industrial Group 16: Wastes from human or animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care).

The LLM consist of large agricultural and farming areas. Hazardous waste from these areas includes fertilisers, chemical packaging and expired pesticides. The management of chemical packaging waste is an important environmental, health and safety hazard. Of particular concern are the containers from pesticide or herbicide chemicals. Typically, farmers are known to burn these empty plastic chemical containers as well as empty plastic fertiliser bags in open fires on farms, which is in turn resulting in significant air pollution.

Table 4-10 provides the number of questionnaires sent out to the industrial groups and the number of questionnaires received to date (02 February 2021).

Table 4-10: Number of questionnaires sent

INDUSTRIAL GROUP	SUBGROUP	NO. OF QUESTIONNAIRES SENT	NO. OF QUESTIONNAIRES RECEIVED
Industrial Group 1	Food packaging factories, wineries, farms	6	0
Industrial Group 9	Paint store	2	0
Industrial Group 12	Filling stations and vehicle workshops	4	2

INDUSTRIAL GROUP	SUBGROUP	NO. OF QUESTIONNAIRES SENT	NO. OF QUESTIONNAIRES RECEIVED
Industrial Group 16	Medical facilities (hospitals and clinics)	Not required – data sourced from Compass	-

During the investigations in 2020, household hazardous waste forms part of the general waste stream, which is disposed of at the Ashton landfill site.

The Rose Foundation is during the investigations in 2020 in charge of ensuring collection and recycling of the waste oil from vehicle service stations in LLM. Waste oil from filling stations generally consists of oil from car leakages and used oil bottles purchased by customers. The following table provides the average oil sales per month and the disposal method for empty oil containers as provided by two filling stations.

Table 4-11: Filling station waste oil

DESCRIPTION	ROBERTSON SHELL	ASHTON TOTAL
Average oil sales per month	Approximately 350 l per month	Approximately 200 l per month
Disposal method of empty oil containers	Illegally disposed of through the normal municipal channels	Illegally disposed of through the normal municipal channels
Service provider	LLM	LLM
Grease traps service frequency	Cleaned once per year	No grease traps

4.4.4 HEALTH CARE RISK WASTE

The major health care risk waste (HCRW) generators in the LLM are the hospitals and clinics. The LLM does not provide HCRW disposal services, resulting in it being the responsibility of the generator to enter into a service contract with private service providers for the safe collection, transport, treatment and disposal of such waste. Compass Medical Waste Services is during the investigations in 2020 the HCRW service provider for the private and provincial LLM hospitals and clinics. Compass is licenced to transport infectious HCRW, sharps HCRW, anatomical HCRW and expired pharmaceutical HCRW. Compass reports all HCRW collected, treated and disposed of on IPWIS. Compass is permitted to treat sharps and infectious HCRW via Autoclave. This treatment process is done in closed chambers that apply heat through steam under high pressure to disinfect HCRW. All HCRW treated by Compass is shredded after being treated and sent to the Visershok hazardous waste landfill for disposal. Anatomical HCRW and pharmaceutical HCRW is sent to a third party (BCL Medical Waste) for treatment by means of incineration. Schedule 0-4 pharmaceutical HCRW is treated and disposed of at the

Vissershok hazardous waste landfill. Schedule 5-6 pharmaceutical HCRW is incinerated (at BCL Medical Waste) and the ash is disposed at the Vissershok hazardous waste landfill.

Table 4-12 provides the LLM's HCRW mass for 2019 and 2020 as provided by Compass.

Table 4-12: Private and provincial hospital and clinic HCRW mass provided by Compass

TOWN	2019 TOTAL (kg)	2020 TOTAL (kg)	AVERAGE MONTHLY (kg)
Ashton	296	1 144	144
Clinic - Bram Care Centre	82	104	19
Provincial Clinic - Cogmans	54	241	29
Provincial Clinic - Zolani Building	121	519	64
Homes 1 Station	39	258	30
SAPS - Ashton Station		21	7
Bonnievale	108	525	63
Ambulance - Bonnievale Station	15	25	10
Provincial Clinic – Happy Valley	93	485	58
SAPS – Bonnievale Funeral Home		15	5
McGregor		15	15
SAPS - McGregor		15	5
Montagu	1 531	5 801	733
Ambulance - Montagu EMS Station	8	58	7
Clinic - Montagu PHS	142	710	85
Provincial Hospital	1 380	5 014	639
SAPS - Montagu		19	2
Robertson	3 483	11 409	14 892
Ambulance - Robertson EMS Station	352	156	51
Provincial Clinic - Bergsig	133	631	76
Provincial Clinic - Nkqubela	52	302	35
Correctional Services	64	62	11
Dentist	31	13	9
Dentist	33	23	7
Doctor	169	187	40
Funeral - Robertson	81	59	7
Provincial Hospital	2 569	9 953	1 252

TOWN	2019 TOTAL (kg)	2020 TOTAL (kg)	AVERAGE MONTHLY (kg)
SAPS - Robertson		23	6
Grand Total	5 418	18 893	

4.4.5 OTHER WASTE TYPES COMPOSITION

4.4.5.1.1 Agricultural waste

Agricultural waste refers to waste produced as a result of various agricultural operations. Some examples of agricultural waste include crop-growing, harvest residues and harvest waste (such as herbs, grains, root tubers, etc). Waste from livestock farming such as grass, litter or feed is also considered to be agricultural waste. In LLM, the agricultural waste from farms is reportedly either used as animal feedstock, for home composting or it is taken to the nearest drop-off facility.

4.4.5.1.2 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.

The LLM Waste Water Treatment Plan (WWTP) operator indicated that there are no sludge tonnages recorded. The farmers during the investigations in 2020 collect the sludge on an ad hoc basis. The LLM does not accept any sludge at the landfill sites.

4.4.5.1.3 Abattoirs

The LLM has two abattoirs, namely the Bonnievale abattoir and South African Farm Assured Meat (Robertson Abattoir).

4.4.5.1.4 Tyres

Waste tyres are regulated under the National Environmental Management: Waste Act, 2008 (Act 59 of 2008), the National Norms and Standards for Disposal of Waste to Landfill, 2013 (R. 636) and the Waste Tyre Regulations, 2017. The Waste Tyre Regulations, 2017 placed a landfill ban on waste tyres as of 29 September 2017.

The Waste Tyre Regulations (2017) outline a number of prohibitions as far as waste tyre management is concerned as follows:

No person may:

- a) Manage waste tyres in a manner which does not comply to these regulations.

- b) Recover or dispose of a waste tyre in a manner that is likely to cause pollution of the environment or harm to health and well-being.
- c) Dispose of a waste tyre at a waste disposal facility.
- d) Recover any financial contribution in terms of a waste tyre management plan from a subscriber to the plan, unless authorised by law.
- e) Export waste tyres in whatever form unless the exportation of such waste tyres is authorised by the Minister in writing.

According to the regulations, the Waste Bureau is responsible to facilitate, supervise and control the management of waste tyres for the interim until a new industry waste management plan is approved in terms of Section 28 or 29 of the Act. The tyre producers must submit declarations on the quantities of tyres produced and imported to the Waste Bureau on a quarterly basis and the Bureau must establish a waste tyre forum with all affected industries to address the governance and operational matters pertaining to the management of waste tyres during the interim—until the new industry waste tyre plan is approved² (CSIR, 2020).

The LLM does not accept tyres for disposal at any landfill site. In the case of tyres being disposed of at a transfer station or drop off facility, the LLM stockpiles the tyres and uses them as barriers at parks or landfill sites. The tyre fitment centres (Supa Quick, Hi-Q, Tiger Wheel and Tyre, etc.) have a dedicated area where the used tyres are stockpiled until collected by the respective tyre suppliers.

² The new draft regulations on Industry Waste Plans has recently (2020) been circulated

4.4.6 WASTE GENERATION RATES

4.4.6.1 Current waste generation rates (IPWIS)

The generation of general waste, recyclables, garden refuse and C&D was determined by analysing the landfill disposal reports recorded on the IPWIS. Table 4-13 provides a breakdown of the waste generation in the LLM from 2018 to 2020.

Table 4-13: Current waste generation as per IPWIS reports

DETAILS		DISPOSED (WASTE DISPOSED WITHIN THE LOCAL MUNICIPALITY)				DIVERTED (WASTE DIVERTED WITHIN THE LOCAL MUNICIPALITY)				GENERATION (WASTE THAT IS/NOT GENERATED WITHIN THE LOCAL MUNICIPALITY)			
YEAR	MONTH	MUNICIPAL	COMMERCIAL AND INDUSTRIAL	ORGANICS	C&D	MUNICIPAL	COMMERCIAL AND INDUSTRIAL	ORGANICS	COVER & FILL MAT/ CRUSHING	MUNICIPAL	COMMERCIAL AND INDUSTRIAL	ORGANICS	C&D
2018	January	2221	-	-	-	49	-	106	34	2270	-	106	34
2018	February	3409	-	-	-	37	-	113	59	3447	-	113	59
2018	March	2133	-	-	-	24	-	109	98	2157	-	109	98
2018	April	2269	-	-	-	31	-	128	122	2299	-	128	122
2018	May	1991	-	-	-	49	-	164	171	2041	-	164	171
2018	June	1810	-	-	-	47	-	127	129	1856	-	127	129
2018	July	2087	-	-	-	30	-	113	382	2117	-	113	382
2018	August	2276	-	-	-	44	-	89	503	2320	-	89	503
2018	September	1645	-	-	-	31	-	136	269	1676	-	136	269
2018	October	1699	-	-	-	44	-	131	148	1743	-	131	148
2018	November	2192	-	-	-	52	-	118	84	2245	-	118	84
2018	December	2099	-	-	-	37	-	68	265	2136	-	68	265
TOTAL		25830	-	-	-	477	-	1403	2261	26307	-	1403	2261
2019	January	2666	-	-	-	30	-	85	328	2696	-	85	328

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DETAILS		DISPOSED (WASTE DISPOSED WITHIN THE LOCAL MUNICIPALITY)				DIVERTED (WASTE DIVERTED WITHIN THE LOCAL MUNICIPALITY)				GENERATION (WASTE THAT IS/NOT GENERATED WITHIN THE LOCAL MUNICIPALITY)			
2019	February	2069	-	-	-	38	-	110	401	2107	-	110	401
2019	March	2192	-	-	-	34	-	99	92	2225	-	99	92
2019	April	1988	-	-	-	21	-	114	98	2009	-	114	98
2019	May	2385	-	-	-	30	-	150	144	2415	-	150	144
2019	June	1662	-	-	-	40	-	122	143	1702	-	122	143
2019	July	2210	-	-	-	47	-	188	268	2258	-	188	268
2019	August	2029	-	-	-	41	-	169	427	2071	-	169	427
2019	September	1411	-	-	-	36	-	119	361	1447	-	119	361
2019	October	2081	-	-	-	60	-	163	170	2141	-	163	170
2019	November	1778	-	-	-	22	-	144	170	1800	-	144	170
2019	December	2041	-	-	-	18	-	92	97	2058	-	92	97
TOTAL		24512	-	-	-	417	-	1557	2698	24929	-	1557	2698
2020	January	2110	-	-	-	20	-	130	72	2130	-	130	72
2020	February	1698	-	-	-	41	-	124	115	1739	-	124	115
2020	March	2125	-	-	-	53	-	112	63	2178	-	112	63
2020	April	1939	-	-	-	39	-	7	15	1978	-	7	15
2020	May	1397	-	-	-	25	-	89	35	1422	-	89	35
2020	June	1918	-	-	-	17	-	379	131	1935	-	379	131
2020	July	2114	-	-	-	115	-	226	70	2228	-	226	70
2020	August	1743	-	-	-	103	-	197	133	1847	-	197	133
2020	September	1891	-	-	-	163	-	53	77	2054	-	53	77
2020	October	1745	-	-	-	184	-	203	196	1930	-	203	196

LANGEBERG LOCAL MUNICIPALITY INTEGRATED WASTE MANAGEMENT PLAN

DETAILS		DISPOSED (WASTE DISPOSED WITHIN THE LOCAL MUNICIPALITY)				DIVERTED (WASTE DIVERTED WITHIN THE LOCAL MUNICIPALITY)				GENERATION (WASTE THAT IS/NOT GENERATED WITHIN THE LOCAL MUNICIPALITY)			
2020	November	1998	-	-	-	181	-	208	129	2179	-	208	129
2020	December	2302	-	-	-	139	-	142	100	2441	-	142	100
TOTAL		22980	-	-	-	1079	-	1871	1136	24059	-	1871	1136

Table 4-14 provides a summary of the total waste generated per waste category and the fraction of the total waste that each waste category consumes according to the IPWIS data. The organics include all garden refuse quantities from the Robertson composting facility.

Table 4-14: Summary table of waste generation as per IPWIS reports

YEAR	MUNICIPAL	COMMERCIAL & INDUSTRIAL	ORGANICS	C&D
2018	26307	-	1403	2261
2019	24929	-	1557	2698
2020	24059	-	1871	1136

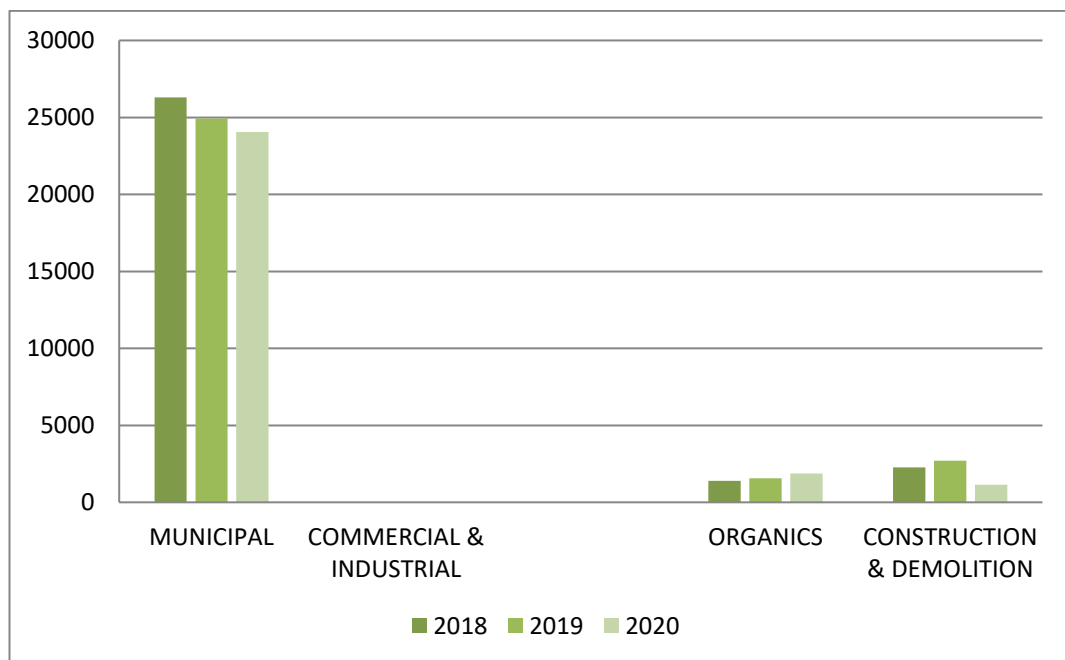


Figure 4-4: Waste generation as per IPWIS reports for 2018-2020

4.4.6.2 Projected future waste generation rates

The projected future waste generation rates were calculated using the projected future population figures and the IPWIS data of the LLM. The LLM 2019 population of 117 450 from the LLM SEP report (2019) and the 2019 IPWIS waste generation rates of 29 183 were used as the base year for further extrapolation. The assumption was made that the population growth rate of 2% will remain unchanged. Table 4-15 provides the future waste generation rates. The amount of waste generated per income group was calculated using the average percentage of people per income group. The percentage distributions were extracted from the LLM IDP as follows:

- Low income (R0.00-R50 613.00): 57%;
- Middle income (R50 614.00-R404 901.00): 38%; and
- High income (R404 902.00-more): 5%.

Table 4-15: Future estimated waste generation rates

YEAR	POPULATION	TOTAL WASTE GENERATION (TONNES)	LOW INCOME (57%)	MIDDLE INCOME (38%)	HIGH INCOME (5%)
2019	117 450	29 183	16 635	11 090	1 459
2020	119 799	29 767	16 967	11 311	1 488
2021	122 195	30 362	17 307	11 538	1 518
2022	124 639	30 970	17 653	11 768	1 548
2023	127 132	31 589	18 006	12 004	1 579
2024	129 674	32 221	18 366	12 244	1 611
2025	132 268	32 865	18 733	12 489	1 643
2026	134 913	33 523	19 108	12 739	1 676
2027	137 611	34 193	19 490	12 993	1 710

4.5 SERVICE DELIVERY

Table 4-16 provides a summary of the LLM's service delivery.

Table 4-16: Service delivery summary table

SERVICE AREA	RECEPTACLE	TRUCK USED FOR COLLECTION	TYPE OF WASTE	COMMENT
Households, small businesses and schools	240 l bins	REL compactor trucks	Domestic general waste and business general waste	The LLM provides waste collection services to high, medium and low-income groups, businesses and schools.
Informal settlements and businesses	Black bags	REL compactor trucks	Domestic general waste and business general waste	Where skips are used in informal settlement and for businesses where cages are used for storage of general waste bags.
Households, small businesses, shops and schools	Clear bags	Cage truck	Recyclables	The clear bags are collected from the households with cage trucks and transported to Southey's recycling until the new MRF next to the Ashton transfer station is established.

LANGEBERG LOCAL MUNICIPALITY INTEGRATED WASTE MANAGEMENT PLAN

SERVICE AREA	RECEPTACLE	TRUCK USED FOR COLLECTION	TYPE OF WASTE	COMMENT
Informal settlement areas and skip locations	6 m ³ Skips	Skip loader truck	Garden refuse, domestic general waste and C&D	Skips used in informal settlements where bins have not yet been provided and at the drop-off facilities for garden refuse and C&D storage.
Drop off facilities	20-30 m ³ RoRo containers	RoRo trucks without trailers	Garden refuse and C&D	Used for storage of garden refuse and construction and demolition waste at public drop off facilities.
Parmalat factory	Cage	REL compactor truck	General business waste	One cage at the Parmalat factory that is serviced by the LLM. The Parmalat factory uses this cage to store black bags until collection by LLM.



Figure 4-5: 240 l wheelie bins in residential areas



Figure 4-6: Skips used for garden refuse, C&D and domestic waste in informal settlement areas

4.5.1 FORMAL RESIDENTIAL HOUSES

The LLM provides waste collection services to high, medium and low-income groups. The LLM provided 240 l wheelie bins to all households in the formal urban areas.

Waste from the 240 l wheelie bins is collected with rear-end-loader (REL) waste collection trucks in all formal urban areas and transported to the Ashton landfill site for disposal. Clear bags are provided to formal households in LLM for collection of recyclable materials. The clear bags are collected from the households with cage trucks and transported to Southey's recycling facility where it is manually sorted - until the new mechanised MRF next to the Ashton transfer station is established.

4.5.2 INFORMAL SETTLEMENTS

The LLM make use of skips to service the informal settlements, but due to the high levels of illegal dumping around skips, the LLM also provides black bags to informal settlements on a quarterly basis in an attempt to prevent/limit illegal dumping.

4.5.3 BUSINESS, INDUSTRIES AND SCHOOLS

LLM provides waste collection services to businesses in all the towns in its area of jurisdiction. These include retail stores, office blocks, small, medium, micro-enterprise (SMME) businesses and informal trading. The waste is transported to the Ashton WDF. Business areas have different waste generation profiles. They are generating significant amounts of waste with a proportionately higher percentage of recyclable packaging material forming part the waste stream. The composition of business waste may also vary significantly between different types of businesses. Most businesses in LLM have an onsite waste storage area where wheelie bins are stored and collected by the LLM. Certain businesses such as Spar compact their own recyclable waste (mainly packaging plastics and cardboard waste) to have the waste collected through its own internal systems. In instances like that, the LLM only collects their non-recyclable waste.

The Parmalat factory in Bonnievale make use of a private waste collection company (Interwaste) to collect the rejected food products (such as cheese, milk, etc.) for safe disposal. The LLM services one cage at the factory which is used to store general waste black bags until collection by means of a REL.

Table 4-17 provides a list of all the schools serviced by the LLM in each main town. The schools not included in the list make use of the nearest drop off facility to dispose of their waste.

Table 4-17: List of all schools serviced by LLM

ROBERTSON	MONTAGU	BONNIEVALE	ASHTON	MCGREGOR
A Mpayipeli & I Mdletye	Ashbury Primêre Skool	Skoolhostel	Ashton Public Combined School	McGregor Primêre Skool
Dagbreek Laerskool	Hepenede Handjies	Bonnie People	Ashton Sekondêre Skool	McGregor Waldorf School
De Villiers Laerskool	Huis van Velden	Hoërskool Bonnievale	Ashton Sekondêre Skool - Hostel	Whole Life Education Centre
De Waal Hostel	Kabouterland Pre Primêr	Jakes Gerwel Tegnies	H. Venter Primêre Skool	
Langeberg Sekondere Skool	Kabouterland Pre Primêre - Stichting nuwe horizon	Pre Primêre Skool (Irena Coetzee)	Laerskool Ashton	
Langeberg SS Skool (Koshuis)	Montagu Hoërskool	Telletubbies	Stockwell NKG Primêre Skool	
Mahlubimu House CC	Montagu Laerskool	Wes Kaap Onderwys (BPS)		
Masakheke Combined	Montagu Pre Primêr			
Masakheke School (High School)	Nuwe Lewe Land Akademie			

ROBERTSON	MONTAGU	BONNIEVALE	ASHTON	MCGREGOR
Masakheke School (High School)	Precious Jewers Play Group/Church of the Nazarene			
Merwehof	Sakhikanya Early Development Childhood			
N Witbooi	W.A. Rossouw Primêre Skool			
Nkqubela Primary School	Warmbron Pre Primêr			
Nkqubela Primary School				
NV Madywabe				
PT Madywabe				
Rhotso House CC				
RN Gqobana (Hostel)				
Robertson hoërskool				
Robertson laerskool				
Robertson Logos Christian School				
Vergesig Primêre Skool				
Vorbereidingskool				
Vorbereidingskool (ou skool)				
Vrolike Vinkies				

4.5.4 FARMS

The LLM consists of large agricultural and farming areas. These include wine farms, fruit farms, dairies, etc. During the investigations in 2020, the LLM services 143 farms, with the remainder of the farmers making use of the nearest drop off facility, or their own on-site refuse dumps, where waste is often burnt to reduce the risk of flies, rats, windblown litter and odours. On-site refuse dumps are illegal and will be included in the needs analysis section of this report.

4.5.5 FREE BASIC REFUSE REMOVAL

During the investigations in 2020, the LLM consists of 6 599 indigent households that receive free basic refuse removal services.

4.5.6 WASTE COLLECTION AND TRANSPORT

4.5.6.1 Waste collection schedule

Table 4-18 provides a summary of the current (2020) waste collection schedule. Figure 4-7, Figure 4-8 and Figure 4-9 provide the detailed waste collection schedules. The current skip locations are indicated in red dots on the figures below.

Table 4-18: Summary waste collection schedule

DAY OF THE WEEK	TOWN
Monday	Montagu households
Tuesday	Montagu, Ashton
Wednesday	McGregor, Ashton
Thursday	Awaiting information
Friday	Montagu businesses

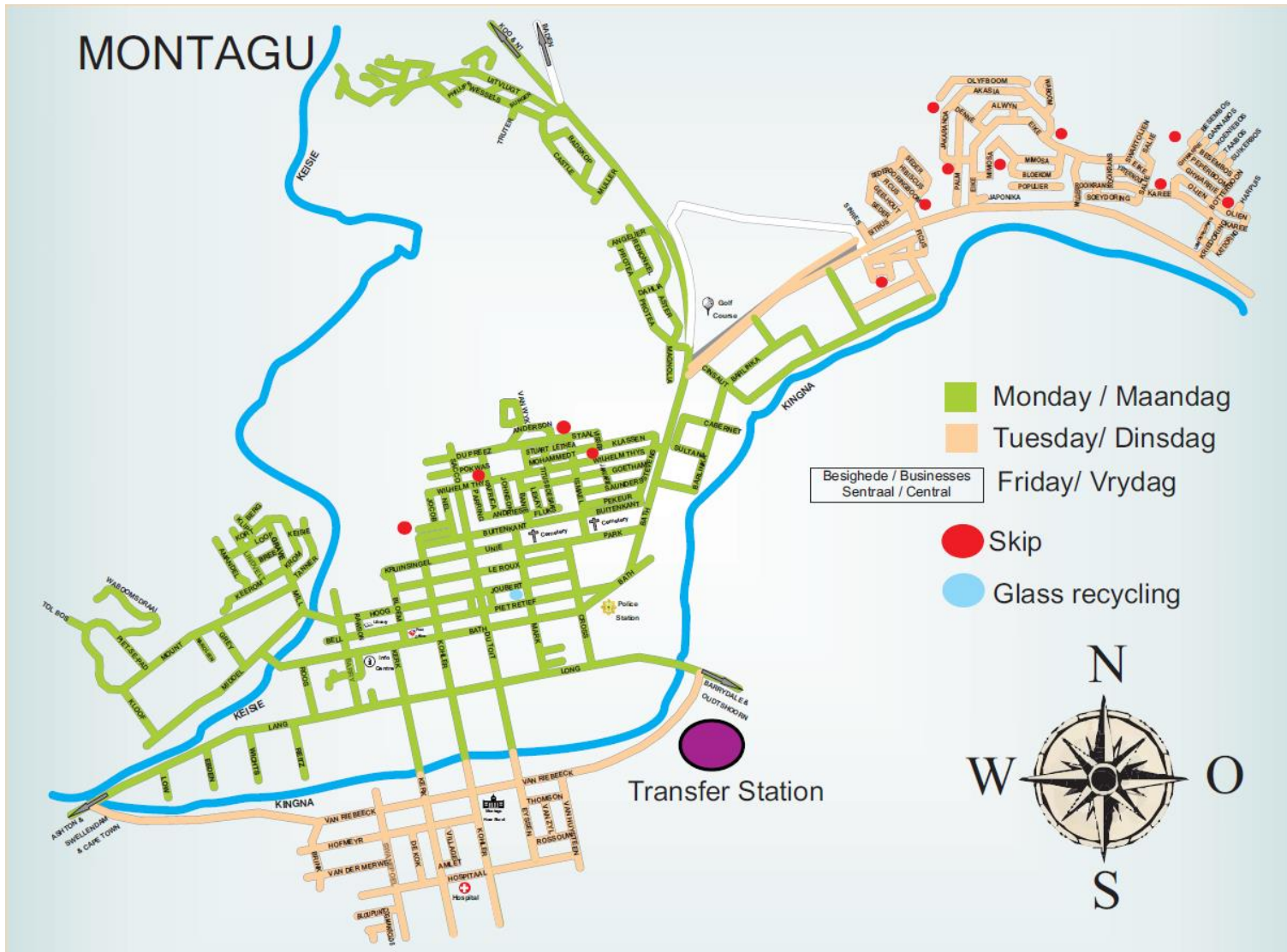


Figure 4-7: Montagu waste collection schedule

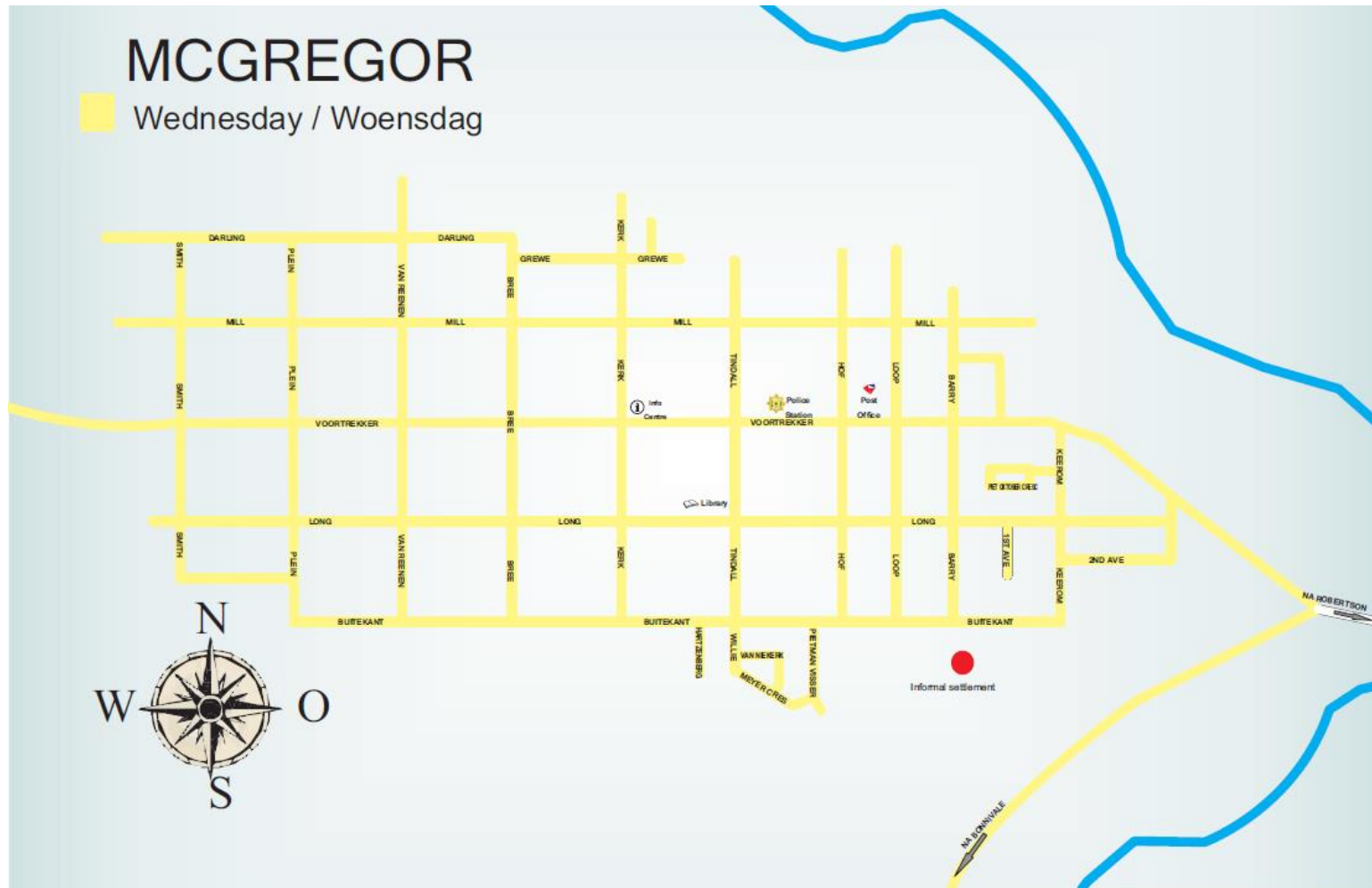


Figure 4-8: McGregor waste collection schedule

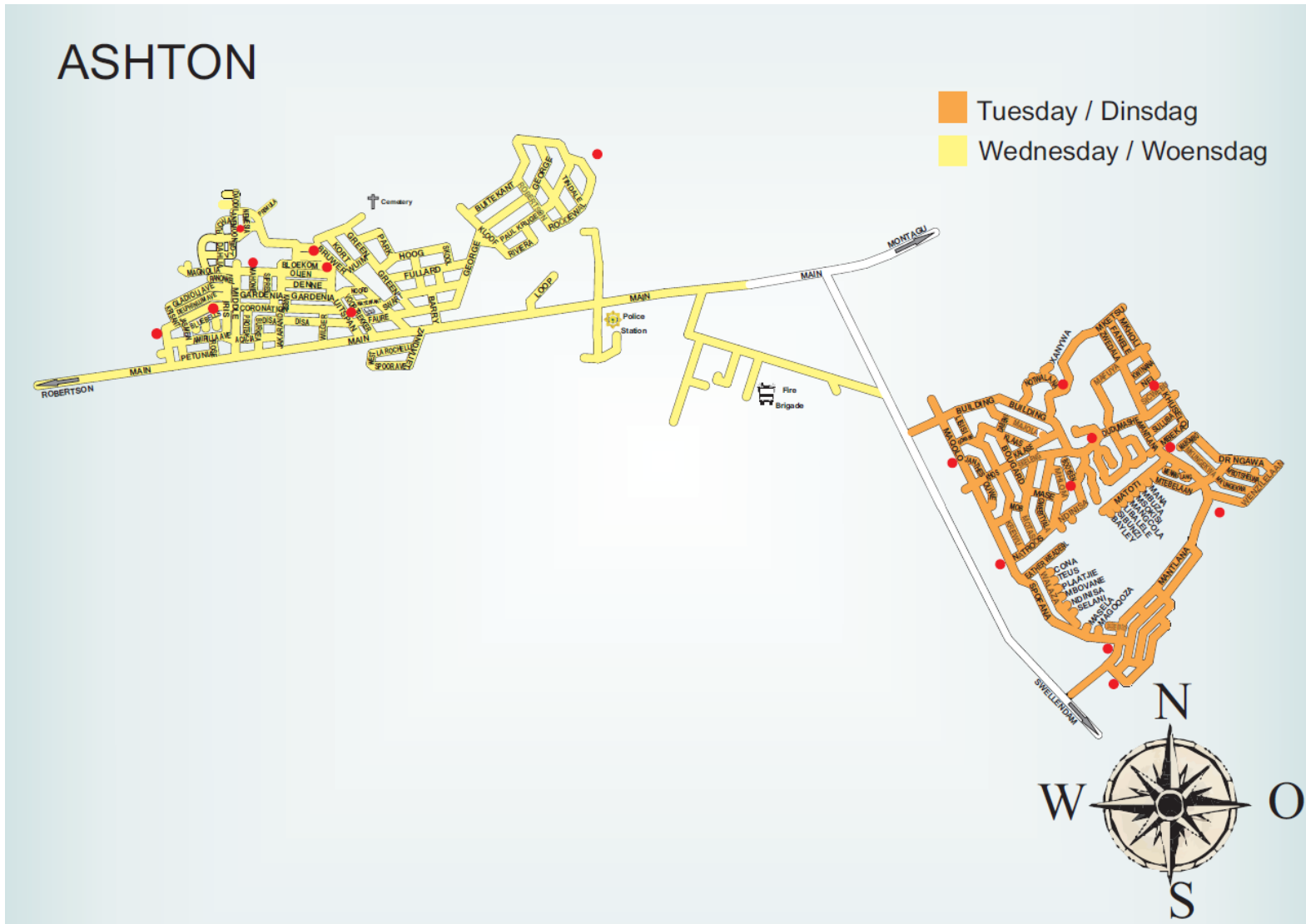


Figure 4-9: Ashton waste collection schedule

4.5.6.2 Fleet

The collection of general waste from businesses, households, schools and other organisations is carried out by six rear-end-loading (REL) vehicles. Currently there are three vehicles servicing Robertson and McGregor and the other three are used to service Bonnievale, Montague, Ashton and nearby farms. LLM does not have a map of existing routes to optimise round trip times and levels of efficiency for waste collection services.

Table 4-19: Waste collection fleet

VEHICLE TYPE	YEAR MODEL	CAPACITY	SERVICE AREA	TYPE OF WASTE COLLECTED
UD Compactor	2016	19 m ³	Robertson/ McGregor	General waste
UD Compactor (New)	2019	19 m ³	Montagu/Ashton/ Bonnievale	General waste
Isuzu FVZ Compactor	2010	19 m ³	Montagu/Ashton/ Bonnievale	General waste
Nissan Compactor	2007	13 m ³	Robertson	General waste
Isuzu FTR Compactor	2003	13 m ³	Standby Truck	Standby truck
UD 90 Compactor	2013	13 m ³	Robertson	General waste
Nissan Roll on Roll off (RoRo)	2012	30 m ³	All towns	Collect general waste from transfer stations and drop off facilities
UD 85 Skip Loader	2017	6 m ³	All towns	Collect general waste from transfer stations and drop off facilities, and business waste
Nissan UD 70 (Tipper)	2002	5 m ³	All towns	Used to assist with removal of illegal dumping in all towns
MAN Tipper	2006	5 m ³	All towns	Used to assist with removal of illegal dumping in all towns
Nissan CM Cage Truck	1996	6 m ³	Montagu/Ashton/ Bonnievale	Collection of recycling from households and businesses
Isuzu Cage Truck	1983	5 m ³	Robertson/ McGregor	Collection of recycling from households and businesses
Hino FD 10 – 136 Cage Truck	1975	5 m ³	Standby Truck	Standby truck

VEHICLE TYPE	YEAR MODEL	CAPACITY	SERVICE AREA	TYPE OF WASTE COLLECTED
Ford 4000 (Tractor) with skip trailer	1972	Not Applicable	Ashton	Skips waste removal
Samel Extra Large Truck	2006	Not Applicable	Robertson Compost Facility	Used at the Robertson Compost Facility
John Deere (Tractor) with skip trailer	1997	Not Applicable	Bonnievale	Skips waste removal
Landini 7860 (Tractor) with skip trailer	2010	Not Applicable	Robertson	Skips waste removal
New Holland (Tractor) with skip trailer	1988	Not Applicable	Montagu	Skips waste removal
Ford 3000 (Tractor) with front loader and compost turner	1973	Not Applicable	Robertson	Used at the Robertson Compost Facility
Volvo Wheel Front-End-Loader	2015	Not Applicable	All towns	Used to assist with removal of illegal dumping in all towns
Bomag Landfill Compactor	2006	Not Applicable	Ashton	Compact waste at the Ashton WDF

Table 4-20 presents a list of additional fleet owned by the Solid Waste Management Department, used by the supervisors to transport small equipment (for example brooms, bins, plastic bags, etc.) and to transport EPWP workers.

Table 4-20: Additional Solid Waste Management Department fleet

VEHICLE NAME	TYPE OF VEHICLE	VEHICLE USE
Ford Ranger 2.2	Single Cab Pickup (Large)	Used by Solid Waste Management (SWM) Supervisor in Robertson
Ford Ranger 2.2	Single Cab Pickup (Large)	Used by SWM Supervisor in Montagu
Nissan NP 200	Single Cab Pickup (Small)	Used by SWM Superintendent in Robertson/McGregor
Nissan NP 200	Single Cab Pickup (Small)	Used by SWM Supervisor in Bonnievale
Nissan 1400	Single Cab Pickup (Extra Small)	Used by SWM Supervisor at the Ashton WDF

VEHICLE NAME	TYPE OF VEHICLE	VEHICLE USE
Ford Bantam 1300	Single Cab Pickup (Extra Small)	Used by SWM Superintendent in Bonnievale/Ashton/Montagu
Nissan Hardbody 2.7	Single Cab Pickup (Large)	Used by SWM Supervisor in Ashton

4.6 COMPLIANCE AND ENFORCEMENT

4.6.1 REGISTRATION STATUS

The municipality has five waste facilities that are registered on the IPWIS:

- Ashton landfill;
- Ashton material recovery facility;
- Bonnievale landfill;
- Montagu landfill; and
- Robertson compost facility.

4.6.2 LANDFILL SITES

The LLM owns the following landfill sites:

- Robertson landfill site (closed and rehabilitated);
- McGregor landfill site (closed, but rehabilitation required);
- Bonnievale landfill site (operational);
- Ashton landfill site (operational); and
- Montagu landfill site (operational, but closure and rehabilitation required).

4.6.2.1 Robertson landfill site (closed)

The Robertson landfill site is closed and rehabilitated. Monitoring and removal of alien vegetation is done by the staff from the adjacent composting facility. Gas monitoring was reportedly done by the DEA&DP in 2018. There are no water monitoring boreholes on the landfill site, thus groundwater sampling and testing is not done. The landfill site scored 86% compliance in the *2020 internal landfill audit* conducted by the LLM.



Figure 4-10: Robertson landfill site (Google Earth image: 2020)

The following table provides a summary of the information available and activities at the Robertson landfill site.

Table 4-21: Robertson landfill site summary table

LANDFILL COMPLIANCE AND ENFORCEMENT SUMMARY	
Licence/permit no.	TBC
Location	33°49'15.55"S, 19°52'15.27"E
Classification	TBC
Remaining airspace	N/A – landfill closed and rehabilitated
General management of the site (windblown litter, stormwater, access control, compaction, water quality monitoring, etc.)	N/A – landfill closed and rehabilitated
Informal salvaging	N/A – landfill closed and rehabilitated
Internal audits (frequency, level of compliance, identification of main issues)	Yes, reportedly undertaken at the legally required intervals

LANDFILL COMPLIANCE AND ENFORCEMENT SUMMARY	
External audits (frequency, level of compliance, identification of main issues)	No, too expensive
Any illegal activities taking place	N/A – landfill closed and rehabilitated
Waste management control officer	Mr Glenn Slingers
Complaints register on site	N/A – landfill closed and rehabilitated

4.6.2.2 McGregor “Historic” landfill site (closed, but rehabilitation required)

The landfill site is located approximately 2 km southwest of the town of McGregor, behind the current McGregor drop off facility. The landfill site is classified as a G:C:B-. McGregor landfill was issued a closure licence on 12/05/2015. Since closure of the landfill site, grass has naturally grown on the landfill site but no rehabilitation has been done. The LLM has undergone a written agreement from the DEA&DP that the Municipality will quantify and decide on further action to be taken with capping or removing the remaining waste at the McGregor landfill site by the end of January 2021. The DEA&DP also indicated that areas of the historical landfill site which are already capped and remediated that have subsided or left depressions in which precipitation could accumulate or pond could be filled with clean C&D until the precipitation can run off freely. Immediately after the fill material has been placed, the capping layer must be restored again over the fill material and allow the regeneration of vegetation that is not alien or invasive in that region.

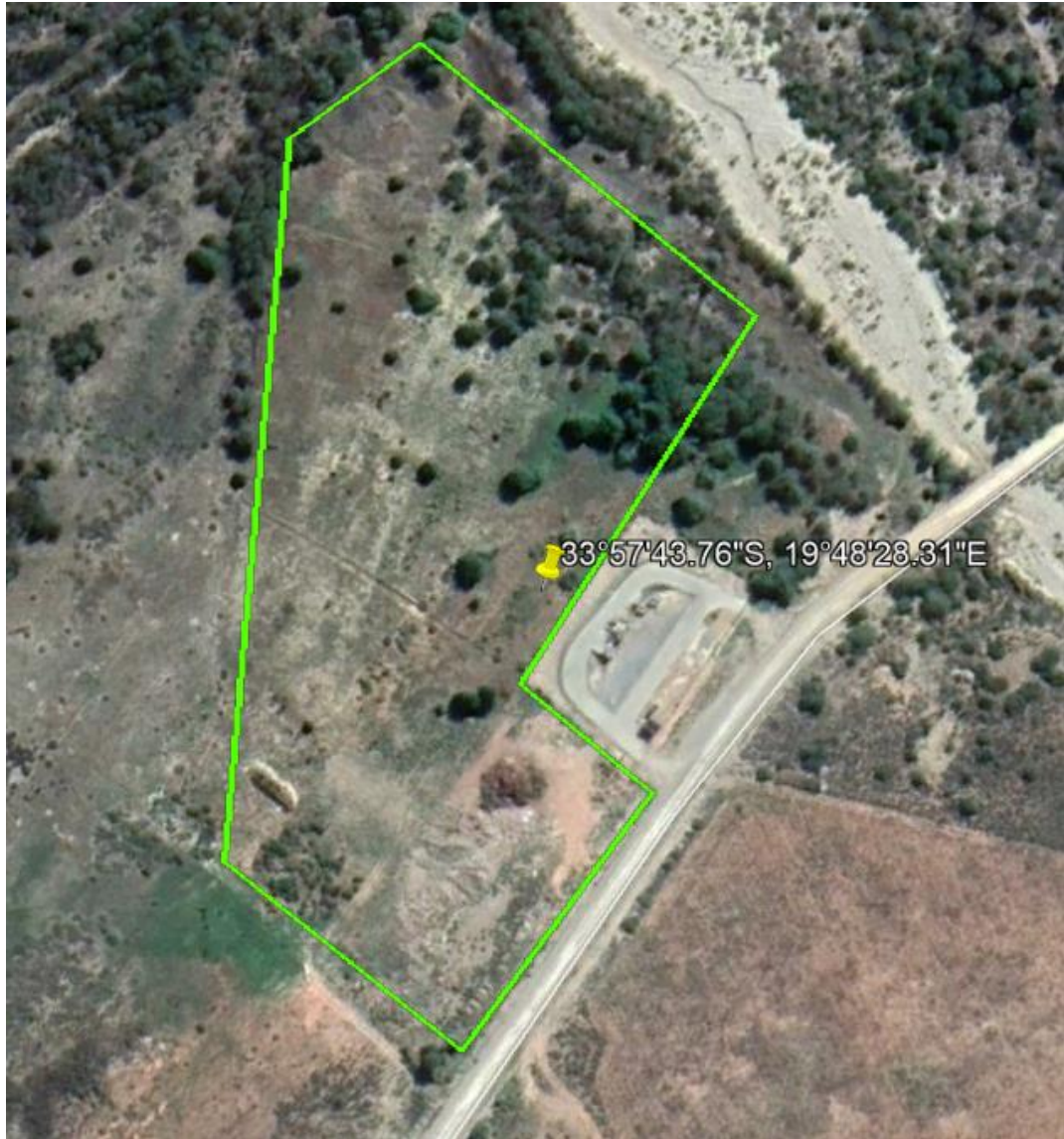


Figure 4-11: McGregor "Historic" landfill site (Google Earth image: 2020)

The following table provides a summary of the information available and activities at the McGregor landfill site.

Table 4-22: McGregor landfill site summary table

LANDFILL COMPLIANCE AND ENFORCEMENT SUMMARY	
Licence/permit no.	9/2/5/1/B2/10/WL0082/13
Location	33°57'43.76"S, 19°48'28.31"E
Classification	G:C:B-
Remaining airspace	N/A – landfill closed
General management of the site (windblown litter, stormwater, access control, compaction, water quality monitoring, etc.)	Grass has naturally grown on the landfill site but no rehabilitation has been done
Informal salvaging	N/A – landfill closed

LANDFILL COMPLIANCE AND ENFORCEMENT SUMMARY	
Internal audits (frequency, level of compliance, identification of main issues)	Yes, reportedly undertaken at the legally required intervals
External audits (frequency, level of compliance, identification of main issues)	No, too expensive
Any illegal activities taking place	N/A – landfill closed
Waste management control officer	Mr Glenn Slingers
Complaints register on site	N/A – landfill closed

4.6.2.3 Bonnievale landfill site (operational)

Bonnievale landfill has an operational permit and is classified as a G:S:B-. The site is located approximately 1.5 km west of the town Bonnievale. The Bonnievale landfill site currently receives garden refuse and C&D generated by the Bonnievale community. The garden refuse is stockpiled on the right side of the site, chipped and sold twice a year. The C&D is stockpiled on the left of the site. The incoming volume of waste disposed of at the landfill is estimated and reported to the Integrated Pollutant and Waste Information System (IPWIS). The landfill site is fully fenced and was in a good state during the time of the site visit.

The landfill rehabilitation closure provision report states that at the current deposition rate of 41 m³ per month and at an annual population growth rate of 1.79%, the Bonnievale landfill will reach its capacity by 2056 (JPCE, 2020).



Figure 4-12: Bonnievale landfill site (Google Earth image: 2020)



Figure 4-13: Bonnievale landfill signage



Figure 4-14: Garden refuse stockpiled

The following table provides a summary of the information available and activities at the Bonnievale landfill site.

Table 4-23: Bonnievale landfill site summary table

LANDFILL COMPLIANCE AND ENFORCEMENT SUMMARY	
Licence/permit no.	Permit 16/7/H500.D79.Z1.P304
Location	30°55'36.2070"S, 20°4'49.8690"E
Classification	G:S:B-
Remaining airspace	2065 at current deposition rate (JPCE, 2020)
General management of the site (windblown litter, stormwater, access control, compaction, water quality monitoring, etc.)	During the time of the site visit there was good access control with a lockable gate and fencing. Only accepts garden refuse and C&D at this landfill site.
Informal salvaging	None
Internal audits (frequency, level of compliance, identification of main issues)	Yes, reportedly undertaken at the legally required intervals
External audits (frequency, level of compliance, identification of main issues)	Yes, reportedly undertaken at the legally required intervals
Organic waste diversion strategy in place at the facility	Yes, the garden refuse is stockpiled on the right side of the site, chipped and sold twice a year
Any illegal activities taking place	None
Waste management control officer	Mr Glenn Slingers
Complaints register on site	Yes

4.6.2.4 Ashton landfill site (operational)

The Ashton landfill site is located less than 400 m north of the township of Zolani and about 2 km east of the town of Ashton. The Ashton landfill site is classified as a G:S:B-. It is currently operational and receives all of LLM's general waste. The site is fenced, but the fence is during the investigations in 2020 in a bad condition. The LLM reportedly budgeted for the 2020/2021 financial year to upgrade the fence to a concrete palisade fence for additional security. There is security at the gate, a guardhouse, an office and a weighbridge. The incoming waste disposed at the landfill is weighed and the mass is reported to the IPWIS system.

The LLM experiences high levels of illegal waste picking and vandalism on the landfill site. During the time of the site visits, there were approximately 50 waste pickers on site. The Ashton landfill site previously had the only operating MRF in LLM, but the facility was vandalised and burnt down during May 2020 (during the time of the COVID 19 lockdown). The LLM plans to establish a new MRF next to the Ashton transfer station where there is better security.

The landfill rehabilitation closure provision report states that, according to the approved final landfill waste body (landform), the Ashton landfill site has already reached its capacity (JPCE, 2020). The 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.



Figure 4-15: Ashton landfill site (Google Earth image: 2020)



Figure 4-16: Ashton landfill site waste pickers

The following table provides a summary of the information available and activities at the Ashton landfill site.

Table 4-24: Ashton landfill site summary table

LANDFILL COMPLIANCE AND ENFORCEMENT SUMMARY	
Licence/permit no.	Permit 16/2/7/H300/D41/Z1/P332/A1
Location	33°50'6.15"S; 20° 6'4.93"E
Classification	G:S:B-
Remaining airspace	None. LLM applied for opening a new cell
General management of the site (windblown litter, stormwater, access control, compaction, water quality monitoring, etc.)	Poor security on site. LLM planning to upgrade the fence with 2021 budget.
Informal salvaging	Yes
Internal audits (frequency, level of compliance, identification of main issues)	Yes, reportedly undertaken at the legally required intervals
External audits (frequency, level of compliance, identification of main issues)	Yes, reportedly undertaken at the legally required intervals
Any illegal activities taking place	Yes – illegal waste pickers on site and vandalism
Waste management control officer	Mr Glenn Slingers
Complaints register on site	Yes

4.6.2.5 Montagu landfill site (operational, but closure and rehabilitation required)

The site is located approximately 1 km east of the town of Montagu, adjacent to the Montagu transfer station. The Montagu landfill has an operating permit as a G:S:B- landfill, but has reached its capacity. The landfill site during the investigations in 2020 receives C&D waste that is used as cover material. The incoming waste volumes disposed at the landfill are estimated and reported to the IPWIS. During the time of the site visit, it was evident that the landfill site was well managed. The landfill site is fenced with a security gate.



Figure 4-17: Montagu landfill site (Google Earth image: 2020)



Figure 4-18: C&D waste disposed at Montagu landfill site

The following table provides a summary of the information available and activities at the Montagu landfill site.

Table 4-25: Montagu landfill site summary table

LANDFILL COMPLIANCE AND ENFORCEMENT SUMMARY	
License/permit no.	Permit B33/2/800/45/2/P169
Location	33°47'37.50"S, 20° 8'5.63"E
Classification	G:S:B-
Remaining airspace	None. Should be closed and rehabilitated.

LANDFILL COMPLIANCE AND ENFORCEMENT SUMMARY	
General management of the site (windblown litter, stormwater, access control, compaction, water quality monitoring, etc.)	Good management at the site. Landfill is fenced and only receives C&D used as cover material.
Informal salvaging	None
Internal audits (frequency, level of compliance, identification of main issues)	Yes, reportedly undertaken at the legally required intervals
External audits (frequency, level of compliance, identification of main issues)	No, too expensive
Any illegal activities taking place	None
Waste management control officer	Mr Glenn Slingers
Complaints register on site	Yes

4.6.3 WASTE MANAGEMENT FACILITIES

The LLM owns the following waste management facilities:

- Robertson transfer station and composting facility (operational);
- McGregor drop off facility (operational);
- Bonnievale drop off facility (operational);
- Ashton transfer station (operational); and
- Montagu transfer station (operational).

4.6.3.1 Robertson transfer station and composting facility (operational)

The Robertson transfer station and composting facility is situated approximately 1.3 km southwest of Robertson. The two facilities are located next to each other (Figure 4-19). The site is equipped with a weighbridge, office and ablution facilities. The site is fenced and during the time of the site visit there were gate controllers and security present. The transfer station area has a dedicated area for drop-off of recyclables, as well as non-recyclable general waste. The non-recyclable general waste is during the investigations in 2020 transported to the Ashton landfill site for disposal and the recyclables are managed by a private company (Southey's recycling) until the new MRF next to the Ashton transfer station is established. The composting process used at Robertson is the Controlled Microbial Composting (CMC) process. The compost is sold to farmers and members of the public.

Waste allowed:

- Domestic waste by members of the public (2 m³ per person per day);
- Business general waste not containing hazardous waste (2 m³ per day); and
- Recyclable materials:

- Glass, paper, cardboard, plastic, metal.

Waste not allowed:

- Asbestos waste;
- Expired, spoiled or unusable hazardous products;
- Mixed, hazardous chemical waste from analytical laboratories and laboratories from academic institutions;
- Non-infectious animal carcasses;
- C&D waste;
- Liquid waste;
- Waste tyres; and
- Clean green waste.



Figure 4-19: Robertson transfer station and composting facility (Google Earth Image: 2020)



Figure 4-20: Robertson weighbridge and composting windrows

4.6.3.2 McGregor public drop off facility (operational)

The McGregor drop off facility is located approximately 2 km southwest of the McGregor town. The site is fenced with a lockable gate and an office building with ablutions. There are dedicated skips for non-recyclable general waste, garden refuse, C&D and recyclables. The non-recyclable general waste is during the investigations in 2020 transported to the Ashton landfill site for disposal and the recyclables are managed by a private company (Southey's recycling) until the new MRF next to the Ashton transfer station is established. The garden refuse is transported to the Robertson composting facility.

Waste allowed:

- Domestic waste by members of the public (2 m³ per person per day);
- Business general waste not containing hazardous waste (2 m³ per day);
- Recyclable materials:
 - Glass, paper, cardboard, plastic, metal.
- Clean green waste.

Waste not allowed:

- Asbestos waste;
- Expired, spoiled or unusable hazardous products;
- Mixed, hazardous chemical waste from analytical laboratories and laboratories from academic institutions;
- Non-infectious animal carcasses;
- C&D waste;
- Liquid waste; and
- Waste tyres.



Figure 4-21: McGregor public drop off facility

4.6.3.3 Bonnievale public drop off facility (operational)

The Bonnievale public drop off facility is located approximately 1.5 km west of the town on route to the Bonnievale landfill site. The site is fully fenced with a lockable gate. There are dedicated skips for non-recyclable general waste and recyclables. The non-recyclable general waste is during the investigations in 2020 transported to the Ashton landfill site and the recyclables are managed by a private company (Southey's recycling) until a new MRF next to the Ashton transfer station is established.

Waste allowed:

- Domestic waste by members of the public (2 m³ per person per day);
- Business general waste not containing hazardous waste (2 m³ per day); and
- Recyclable materials:
 - Glass, paper, cardboard, plastic, metal.

Waste not allowed:

- Asbestos waste;
- Expired, spoiled or unusable hazardous products;
- Mixed, hazardous chemical wastes from analytical laboratories and laboratories from academic institutions;
- Non-infectious animal carcasses;
- C&D waste;
- Liquid waste;
- Waste tyres; and
- Clean green waste.



Figure 4-22: Bonnievale public drop off facility

4.6.3.4 Ashton transfer station (operational)

Currently the Ashton transfer station services the town Ashton, but the LLM plans to use this transfer station as the central point from which the entire LLM's waste will be transported, once the regional landfill site in Worcester is established. The transfer station is equipped with a weighbridge and an office building with ablution facilities. The site is fully fenced with a lockable gate. There are also dedicated skips for non-recyclable general waste and recyclables. The non-recyclable general waste is during the investigations in 2020 transported to the Ashton landfill site and the recyclables are managed by a private company (Southey's recycling) until the new MRF next to the Ashton transfer station is established.

Waste allowed:

- Clean green waste; and
- Recyclable materials:
 - Glass, paper, cardboard, plastic, tin.

Waste not allowed:

- Asbestos waste;
- Expired, spoiled or unusable hazardous products;
- Mixed, hazardous chemical wastes from analytical laboratories and laboratories from academic institutions;
- Domestic waste;
- Business waste not containing hazardous waste or hazardous chemicals;
- Non-infectious animal carcasses;
- C&D waste;
- Liquid waste; and
- Waste tyres.



Figure 4-23: Ashton transfer station with weighbridge

4.6.3.5 Montagu transfer station (operational)

The Montagu transfer station is located approximately 1 km east of Montagu. During the time of the site visits, it was evident that the site is well managed and neat. The site is fenced and has a security building, parking for waste vehicles and a ramp for dropping waste off. Skips are provided for non-recyclable general waste, clean garden refuse and recyclables. The clean garden refuse skips are transported to the composting facility in Robertson. The non-recyclable general waste is during the investigations in 2020 transported to the Ashton landfill site and the recyclables are managed by an external company (Southey's recycling) until a new MRF next to the Ashton transfer station is established.



Figure 4-24: Montagu transfer station

Waste allowed:

- Domestic waste by members of the public (2 m³ per person per day);
- Business general waste not containing hazardous waste (2 m³ per day);
- Recyclable materials:
 - Glass, paper, cardboard, plastic, metal; and
- Clean green waste.

Waste not allowed:

- Asbestos waste;
- Expired, spoiled or unusable hazardous products;

- Mixed, hazardous chemical wastes from analytical laboratories and laboratories from academic institutions;
- Non-infectious animal carcasses;
- C&D waste;
- Liquid waste; and
- Waste tyres

4.6.4 WASTE-RELATED COMPLAINTS

LLM has a hotline for logging complaints regarding service delivery and complaints can also be logged on LLM's website. Complaints pertaining to solid waste are forwarded to the Solid Waste Manager and then to the respective Solid Waste Supervisors for the particular town.

4.6.5 ILLEGAL DUMPING, LITTERING AND COSTS ASSOCIATED WITH CLEAN-UP EFFORTS

The LLM experienced high levels of illegal dumping in areas where there are skips used for waste collection.

The LLM during the investigations in 2020 has a dedicated team with a Front and Wheel loader for illegal dumping hot spot clean ups and street cleaning in and around all towns. The waste is transported and disposed at the Ashton landfill site.

The budget for illegal dumping hot spot clean ups and street cleaning is estimated to be approximately R3 million per annum. The LLM utilises this budget to appoint general labourers for street cleaning, litter picking, illegal dumping hot spot clean-up and in some cases for waste awareness campaigns.

4.7 WASTE AVOIDANCE, REDUCTION AND RECYCLING

4.7.1 WASTE MINIMISATION INITIATIVES

The LLM offers collection of source-separated waste to all households and businesses in the formal urban areas. The participation level in low-income areas is less than that of middle and high-income areas. The LLM distributes two clear bags per household in the towns for collection of recyclables. The recyclables were previously transported to the Ashton Material Recovery Facility (MRF) where the recyclables were further separated and sold until the Ashton MRF was vandalised in May 2020. Due to the vandalism of the MRF, the recyclables are during the investigations in 2020 transported to Southey's Recycling, a private recycling company, while the plans for the new MRF next to the Ashton transfer station is developed.

4.7.2 PRIVATE SECTOR INITIATIVES

The Bonnievale Spar runs a private recycling initiative to involve the public in recycling.

4.7.3 WASTE DIVERSION TONNAGES

Table 4-26 provides the percentage of waste diverted from landfills for 2018, 2019 and 2020 (January to June) according to the IPWIS data received. The diverted waste percentage of organic waste includes only the garden refuse diverted to the Roberson composting facility and the C&D is used as daily cover material. The LLM municipal waste diversion rates are low and additional initiatives will have to be implemented to achieve higher diversion rates.

Table 4-26: Percentage waste diverted

	MUNICIPAL			COMMERCIAL AND INDUSTRIAL			ORGANICS			C&D		
	Generated	Diverted	%	Generated	Diverted	%	Generated	Diverted	%	Generated	Diverted	%
2018	25 830	477	2%	-	-	-	1 403	1 403	100%	2 261	2 261	100%
2019	24 512	417	2%	-	-	-	1 557	1 557	100%	2 698	2 698	100%
2020	22 980	1 079	5%	-	-	-	1 871	1 871	100%	1 136	1 136	100%

4.8 OPERATIONAL STRUCTURE AND STAFF CAPACITY

The designated Waste Management Officer for the LLM is Mr Glenn Sligners.

4.8.1 SOLID WASTE MANAGEMENT

The table below provides the LLM-approved organogram 2020/21 indicating the filled and vacant positions.

Table 4-27: LLM organogram

SOLID WASTE MANAGEMENT	AREA	FILLED/VACANT
Manager: Solid Waste Management	Bonnievale	Position filled
Secretary	Bonnievale	Vacant
Ashton/Bonnievale/Montagu - solid waste		
Superintendent: Solid Waste Management	Bonnievale	Vacant
Ashton area		
Supervisor: Solid Waste	Ashton	Position filled
Landfill Site		
Supervisor: Landfill Site	Ashton	vacant
Driver Operator: Dump Scraper	Ashton	vacant
Weighbridge Operator	Ashton	Position filled
Operator Compactor	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
Street Cleansing		
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Vacant
General Assistant: Solid Waste	Ashton	Vacant
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled

SOLID WASTE MANAGEMENT	AREA	FILLED/VACANT
General Assistant: Solid Waste	Ashton	Vacant
General Assistant: Solid Waste	Ashton	Position filled
General Assistant: Solid Waste	Ashton	Position filled
Collections		
Driver Operator: Front-End Loader	Ashton	Position filled
Driver Operator: Solid Waste	Ashton	Position filled
Driver Operator: Solid Waste	Ashton	Position filled
Driver Operator: Role-On/Role-Off Truck	Ashton	Position filled
Driver Operator: Tractor with Skip Trailer	Ashton	Vacant
Landfill/Transfer Station		
Team Leader: Transfer Station	Ashton	Vacant
Montagu area		
Supervisor: Solid Waste	Montagu	Position filled
Collections		
Driver Operator: Compactor	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
Driver Operator: Compactor	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Vacant
Driver Operator: Tractor with Skip Trailer	Montagu	Position filled
Street Cleansing		
General Assistant: Solid Waste	Montagu	Position filled

SOLID WASTE MANAGEMENT	AREA	FILLED/VACANT
General Assistant: Solid Waste	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
General Assistant: Solid Waste	Montagu	Position filled
Landfill/Transfer Station		
Team Leader: Transfer Station	Montagu	Vacant
Bonnievale area		
Supervisor: Solid Waste	Bonnievale	Position filled
Collections		
Driver Operator: Compactor	Bonnievale	Vacant
General Assistant: Solid Waste	Bonnievale	Position filled
General Assistant: Solid Waste	Bonnievale	Position filled
General Assistant: Solid Waste	Bonnievale	Position filled
General Assistant: Solid Waste	Bonnievale	Position filled
General Assistant: Solid Waste	Bonnievale	Position filled
Driver Operator: Tractor with Skip Trailer	Bonnievale	Position filled
General Assistant: Solid Waste	Bonnievale	Position filled
General Assistant: Solid Waste	Bonnievale	Position filled
General Assistant: Solid Waste	Bonnievale	Position filled
Landfill/Transfer Station		
Team Leader: Transfer Station	Bonnievale	Vacant
Robertson/McGregor - solid waste		
Superintendent: Solid Waste Management	Robertson	Vacant

SOLID WASTE MANAGEMENT	AREA	FILLED/VACANT
Supervisor: Solid Waste	Robertson	Position filled
Transfer Station		
Team Leader: Transfer Station	Robertson	Vacant
Compost		
Driver Operator: Compost Site	Robertson	Vacant
Weighbridge Operator	Robertson	Position filled
Transfer Station		
Team Leader: Transfer Station	McGregor	Vacant
Collections		
Supervisor: Solid Waste	Robertson	Vacant
Driver Operator: Compactor	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
Driver Operator: Compactor	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled

SOLID WASTE MANAGEMENT	AREA	FILLED/VACANT
General Assistant: Solid Waste	Robertson	Position filled
Driver Operator: Compactor	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
Driver Operator: Skip Truck	Robertson	Position filled
Driver Operator: Tractor with Skip Trailer	Robertson	Vacant
Street Cleansing		
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Vacant
General Assistant: Solid Waste	Robertson	Vacant
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Vacant
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled

SOLID WASTE MANAGEMENT	AREA	FILLED/VACANT
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled
General Assistant: Solid Waste	Robertson	Position filled

4.9 WASTE AWARENESS AND EDUCATION

The LLM currently provides presentations and educational material to schools and organisations regarding waste reduction, re-use and recycling. The LLM makes use of Expanded Public Works Programme (EPWP) employees to distribute waste awareness educational material.

5 GAP AND NEEDS ANALYSIS

Based on the findings of the status quo investigation, a number of gaps and needs have been identified.

Gaps and needs related to waste management in the LLM have been identified in terms of each of the following waste management activities:

- Waste service delivery;
- Waste minimisation, recycling and re-use initiatives;
- Organic waste management;
- Hazardous waste management;
- Waste management facilities;
- Waste management collection fleet, plant and equipment;
- Waste management information;
- Waste education and public awareness;
- Human and financial resource management; and
- Strategic planning.

5.1 WASTE SERVICE DELIVERY

Table 5-1 provides the gaps identified in the waste management services with the resulting needs.

Table 5-1: Waste service delivery gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
The exact number of households not receiving waste collection services is unknown	Determine the level of service provision.
Farmers making use of open burning of waste or own refuse dumps	The LLM is providing good waste management collection services to the majority of households. However, no information is available on, amongst others, the disposal of fertiliser containers. The assumption is made that farmers reportedly burn these containers. The LLM needs to investigate the disposal methods and determine the feasibility of providing creative collection services in the rural areas.
The collection schedule is outdated	Update the collection schedule based on the service delivery demand.
Illegal dumping	The LLM has good illegal dumping clean-up efforts in place, but spends a lot of money on these clean-up efforts. The LLM needs to identify ways in which illegal dumping can be prevented.

5.2 WASTE MINIMISATION, RECYCLING AND RE-USE INITIATIVES

Table 5-2 provides the gaps identified in terms of waste minimisation, recycling and re-use initiatives with the resulting needs.

Table 5-2: Waste minimisation, recycling and re-use initiatives gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
Low participation in separation at source	Implement initiatives for increased participation in separation at source programmes.
Low rates on recyclable material diversion from landfills	Improve rates on recyclable material diversion from landfills.
Vandalism of MRF	Prevent vandalism of the MRF and other municipal waste management facilities.

5.3 ORGANIC WASTE MANAGEMENT

Table 5-3 provides the gaps identified in terms of organic waste management with the resulting needs.

Table 5-3: Organic waste management gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
Low garden refuse and organic waste diversion rates from landfills	Improve organic waste diversion rates.
Organic waste diversion strategy	Develop organic waste diversion strategy.
At present, some organic waste is disposed of at the landfill sites	Divert organic waste from landfill sites to composting facility.
Lack of knowledge on home composting	Conduct home composting awareness and education campaigns.

5.4 HAZARDOUS WASTE MANAGEMENT

Although local municipalities are legally not responsible for the management and safe disposal of hazardous waste³ generated by major businesses and industries within their area of jurisdiction, they do need to ensure that no hazardous waste is disposed of on municipal landfills that are not licenced, developed and operated to the required standards. Table 5-4 provides the gaps identified in terms of hazardous waste management with the associated needs.

³ In terms of the duty-of-care principle as required in NEMWA, generators of hazardous waste are responsible for the legally compliant management, treatment and disposal of such hazardous waste generated

Table 5-4: Hazardous waste gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
There are no containers for safe disposal and storage for household hazardous waste at the drop-off/transfer station facilities	Provide service for household hazardous waste to be collected and disposed at legally compliant hazardous waste disposal facilities.
Lack of household hazardous waste awareness	Raise awareness regarding the separation at source and environmentally sound management of household hazardous waste.
Lack of hazardous waste information and generation rates	Improve hazardous waste information system for LLM to have accurate data on hazardous waste generation rates – allowing for effective monitoring and control over LLM’s industrial hazardous waste generation and management.

5.5 WASTE MANAGEMENT FACILITIES

Table 5-5 provides the gaps identified in terms of the waste management facilities with the resulting needs.

Table 5-5: Waste management facilities gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
McGregor “Historic” landfill requires rehabilitation	Rehabilitation of landfill site.
Montagu landfill requires rehabilitation	Rehabilitation of landfill site.
Illegal waste picking at the Ashton landfill site	Prevent illegal waste picking at the Ashton landfill site.
Approval of extension of footprint application for additional cell at the Ashton landfill is required	Get approval for the extension of the landfill footprint.
Approval and development of the new MRF is required	Get council approval for and develop the new MRF.
The landfill containment barriers of all sites do not comply with R. 636 (National norms and standards for disposal of waste to landfill)	Ensure compliance with R. 636 on all new landfill cell developments.

5.6 WASTE MANAGEMENT COLLECTION FLEET, PLANT AND EQUIPMENT

Table 5-6 provides the gaps identified in terms of the waste management collection fleet, plant and equipment with the resulting needs.

Table 5-6: Waste management collection fleet and equipment gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
There are no household hazardous waste containers at drop off facilities	Provide household hazardous waste containers and ensure that such waste is managed, transported and disposed of in a legally compliant manner.
There are no used oil containers at drop off facilities	Provide used oil collection containers and have it serviced by the ROSE Foundation.
Some municipal waste collection vehicles are operating beyond their effective service life.	Evaluate fleet to determine reliability, cost effectiveness and efficiency. Replace collection vehicles that are no longer serviceable; or for which the service and maintenance costs exceeds the monthly instalments on new replacement vehicles.
The cage trucks for collection of recyclables are very old	Replace cage trucks for which operational requirements are not met and replace where the service and maintenance costs exceeds the monthly instalments on new replacement vehicles.
Three tractors used for skip removal are older than 20 years	Evaluate plant to determine the reliability, cost effectiveness and efficiency and replace where the service and maintenance costs exceeds the monthly instalments on new replacement plant.

5.7 WASTE MANAGEMENT INFORMATION

In order to effectively plan for waste management services, a knowledge of waste generation quantities and types is required. Table 5-8 provides the gaps identified in terms of the availability of waste management information with the resulting needs.

Table 5-7: Waste management information gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
Limited information available regarding industrial general and hazardous waste categories and generation rates	Source information regarding industrial general and hazardous waste categories and generation rates.
Lack of major waste generator information	Ensure that major waste generators are identified and information on waste generation is sourced
No waste management by-laws exist	Develop waste management by-laws that are relevant to and appropriate for LLM

5.8 WASTE EDUCATION AND PUBLIC AWARENESS

Table 5-8 provides the gaps identified in terms of the waste education and initiatives with the resulting needs.

Table 5-8: Waste education and initiatives gaps and needs

GAP IDENTIFIED	RESULTING NEED
Limited information on awareness regarding industrial general and hazardous waste generation	Determine awareness around industrial general and hazardous waste management and disposal.
Lack of general and domestic hazardous waste management knowledge at households – including ‘reduce, reuse, and recycle.’	Improve knowledge of general and domestic hazardous waste management at household level – including ‘reduce, reuse, and recycle.’
Lack of waste awareness initiatives	Implement waste awareness initiatives at schools, households and public facilities.
Lack of recycling information on recycling collection systems and drop-off facilities in and around the towns	Improve availability of information on recycling collection systems and drop-off facilities.

5.9 STAFF AND FINANCIAL RESOURCE MANAGEMENT

Table 5-9 provides the gaps identified in terms of the staff and financial resource management with the associated need to effectively address the gap.

Table 5-9: Staff and financial management gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
Vacancies in the staff structure	Review staff structure and requirements.
No designated person for waste awareness	Appoint staff as waste awareness educators.
The municipality must ensure that there is sufficient provision in the operational budget for upcoming projects	Ensure sufficient financial resources.

5.10 STRATEGIC PLANNING

Future planning is essential in ensuring that a waste management service can meet the changing requirements of a municipality and comply with changing legislation and best practice guidelines. Table 5-10 provides the gaps identified in terms of the future waste management planning with the associated need to effectively address the gap.

Table 5-10: Future planning gaps and needs identified

GAP IDENTIFIED	RESULTING NEED
Development of IWMPs at required 5 year intervals	Ensure for budgeting to review and update the IWMP at required 5 year intervals.
No feasibility study has been done to determine and evaluate the financial and operational effect of using the new regional landfill site to dispose of waste in the future.	Undertake a feasibility study to determine and evaluate the financial and operational effect of using the new regional landfill site to dispose of waste in the future.

6 GOALS, OBJECTIVES AND TARGETS ASSESSMENT

The goals and objectives of an IWMP are used to address potential shortcomings or necessary improvements identified during the gaps and needs analysis. Goals are long-term aspirations for waste management, while objectives are more focused, measurable targets which, if implemented correctly, will allow the municipality to reach the identified goals.

The Guidelines for the development of Integrated Waste Management Plans by the Western Cape (WC) DEA&DP state the following in terms of developing strategic goals, objectives and targets:

- Strategic goals must be set based on relevant waste legislation, regulations and policies and should be guided by the waste management hierarchy.
- The setting of goals, objectives and targets must also take into consideration the municipal response to the goals and targets set in the NWMS.
- The strategic goals must include setting targets for waste management such as collection, recycling, recovery and disposal.

The DEA&DP Guidelines describe goals, objectives and targets as follows:

- **Goal:** Long-term desired result which can be accomplished through various projects. Goals are not necessarily measurable but instead present a long-term desired end state for the municipality. The goals will be aligned to the NWMS and the Western Cape IWMP.
- **Objectives:** Measurable outputs which, once completed, will contribute to the accomplishment of a goal. Objectives will have deadlines to drive their implementation.
- **Targets:** Smaller projects which, when combined, will fulfil the requirement of an objective. The targets will also have deadlines for implementation.

The NWMS 2020 strategic goals that will be used to align the IWMP are as follows:

- **Waste Minimisation** - the aim is to prevent waste and where waste cannot be prevented, 40% should be diverted from landfill within 5 years through reuse, recycling, recovery and alternative waste treatment: 25% of waste reduction in waste generation and 20% waste reused in the economic value chain.
- **Effective and Sustainable Waste Services** - this would see all South Africans living in clean communities with waste services that are well managed and financially sustainable.
- **Waste Awareness and Compliance** - the aim is to create a culture of compliance with zero tolerance of pollution, litter and illegal dumping.

The Western Cape outlined four goals in the 2nd Generation IWMP (2017-2022). The LLM's goals and targets will be developed in line with the following four goals from the Western Cape IWMP.

- Goal 1: Strengthened education, capacity and advocacy towards integrated waste management.
- Goal 2: Improved integrated waste management planning and implementation for efficient waste services and infrastructure.
- Goal 3: Effective and efficient utilisation of resources.
- Goal 4: Improved compliance with environmental regulatory framework.

6.1 GOALS IDENTIFIED FOR LLM

In order to align the LLM's goals with those of the Western Cape IWMP (2017-2022) and the NWMS (2020), the following goals were formulated:

- Goal 1: Effective solid waste service delivery.
- Goal 2: Promote waste minimisation and recycling.
- Goal 3: Ensure safe and integrated management of hazardous waste.
- Goal 4: Improved waste education and public awareness.
- Goal 5: Ensure sound budgeting for integrated waste management.
- Goal 6: Improve regulatory compliance.
- Goal 7: Improve waste information management.

6.2 ALIGNMENT WITH NATIONAL AND PROVINCIAL WASTE MANAGEMENT GOALS

The NWMS (2011), NWMS (2020) and the Western Cape IWMP (2017-2022), along with the status quo of waste management within the LLM, were used to develop the 2021-2027 LLM IWMP. The table provides an overview of how the goals of the LLM will be aligned with the above-mentioned strategies.

Table 6-1: Alignment of LLM goals with provincial and national goals

LLM GOALS	WESTERN CAPE IWMP GOALS	NWMS 2011 GOALS	NWMS 2020 GOALS
Goal 1: Effective solid waste service delivery	Goal 3: Effective and efficient use of resources	Goal 2: Ensure effective and efficient delivery of waste services	Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable
Goal 2: Promote waste minimisation and recycling	Goal 3: Effective and efficient use of resources	Goal 1: Promote waste minimisation, re-use, recycling and recovery of waste	Goal 1: Prevent waste and, where waste cannot be prevented, divert 50% of waste from landfill within 5 years, 65% within 10 years, and at least 80% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment
Goal 3: Ensure safe and integrated management of hazardous waste	Goal 3: Effective and efficient use of resources	Goal 2: Ensure effective and efficient delivery of waste services	Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable
Goal 4: Improved waste education and public awareness	Goal 1: Strengthen education, capacity and advocacy towards integrated waste management	Goal 4: Ensure that people are aware of the impact of waste on their health, well-being and the environment	Goal 3: South Africans are aware of waste and a culture of compliance with waste management norms and standards exists, resulting in zero tolerance of pollution, litter and illegal dumping

LANGEBERG LOCAL MUNICIPALITY INTEGRATED WASTE MANAGEMENT PLAN

LLM GOALS	WESTERN CAPE IWMP GOALS	NWMS 2011 GOALS	NWMS 2020 GOALS
Goal 5: Ensure sound budgeting for integrated waste management	Goal 2: Improved integrated waste management planning and implementation for efficient waste services and infrastructure	Goal 5: Achieve integrated waste management planning Goal 6: Ensure sound budgeting and financial management for waste services	Goal 2: All South Africans live in clean communities with waste services that are well managed and financially sustainable
Goal 6: Improve regulatory compliance	Goal 4: Improved compliance with environmental regulatory framework	Goal 8: Establish effective compliance with and enforcement of the Waste Act	Goal 3: South Africans are aware of waste and a culture of compliance with waste management norms and standards exists, resulting in zero tolerance of pollution, litter and illegal dumping
Goal 7: Improve waste information management	Goal 2: Improved integrated waste management planning and implementation for efficient waste services and infrastructure	-	Goal 1: Prevent waste and, where waste cannot be prevented, divert 50% of waste from landfill within 5 years, 65% within 10 years, and at least 80% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment

6.3 OBJECTIVES AND TARGETS FOR THE MUNICIPALITY

Table 6-2 provides the strategic objectives and targets for each of the seven goals identified for the LLM.

Table 6-2: Objectives and targets for each of the LLM's goals

GOAL	OBJECTIVE	ACTION/TARGET
Goal 1: Effective solid waste service delivery	Objective 1: Conduct a household survey to Establish whether all waste generators are equipped with appropriate waste containers (small bins / bags or bulk skips / RoRo's as required by waste type and generation rate.);	<ul style="list-style-type: none"> Appoint a service provider to conduct a community survey to identify the exact number and location of households not receiving waste collection services. Plan and budget for effective (and appropriate) waste management service delivery based on outcomes of survey.
	Objective 2: Update the collection schedule	Review and update the collection schedule to ensure efficient and cost-effective waste collection through route optimisation with the least possible unproductive travelling.
	Objective 3: Prevent illegal dumping	<p>Identify illegal dumping hotspots and add receptacles at these areas. The waste management officer should assess potential reasons causing the prevalence of illegal dumping by way of:</p> <ul style="list-style-type: none"> Identifying illegal dumping hotspots; Making key observations; Conducting brief community surveys and interviews; and Identifying the stream of waste (and where possible potential sources) that is predominant at the illegal dumping sites. Providing appropriate infrastructure ensuring user-friendly waste disposal facilities – e.g. ramps allowing the emptying of wheelbarrows wheelie bins into skips; even by children and the elderly. Monitor and empty skips as required to prevent overfilling and waste subsequently being put on fire.

GOAL	OBJECTIVE	ACTION/TARGET
	Objective 4: Evaluate waste management fleet	<ul style="list-style-type: none"> • Launch waste awareness campaigns to educate the community on proper waste management and disposal practices. . • Evaluate waste collection vehicles to ensure that they remain reliable, cost-effective and efficient. • Ensure that daily routine inspections be done on vehicles before waste collection commences • Undertaken preventative maintenance on vehicles where appropriate. • Plan and budget for future fleet, plant and equipment requirements allowing for routine replacement of vehicles that are not reliable. • Ensure that the landfill used for disposal is equipped with plant and tow cables to assist vehicles stuck in mud and do not allow waste collection vehicles to be pushed by bulldozers or landfill compactors • Have access to backup vehicle under all circumstances.
Goal 2: Promote waste minimisation and recycling	Objective 1: Improve recyclables diversion rates - with appropriate processing after collection;	<ul style="list-style-type: none"> • Conduct a survey to evaluate the participation rates of the separation at source programme of all areas; focussing on income areas where most recyclable material is generated. • Provide public recycling drop-off facilities in secured areas and have material removed regularly to prevent overflowing containers . • Establish buy-back centres in low-income areas • Implement recycling competitions and other awareness programs at schools. • Facilitate for municipalities to ringfence avoided landfill disposal

LANGEBERG LOCAL MUNICIPALITY INTEGRATED WASTE MANAGEMENT PLAN

GOAL	OBJECTIVE	ACTION/TARGET
		<p>costs for allocation to recyclers providing evidence of waste diverted from landfill.</p>
	<p>Objective 2: Draft an organic waste diversion plan</p>	<ul style="list-style-type: none"> • Identify potential applications and markets for processed organic waste diverted from landfills. • Undertake cost-benefit study to determine the financial viability of the alternative processing options. • Draft a plan documenting the initiatives to reduce organic waste sent to landfills. The municipality can also review the Department Organic Waste template for guidance.
	<p>Objective 3: Implement organic waste diversion initiatives</p>	<ul style="list-style-type: none"> • Review collection fleet and determine the need for new trucks to collect garden refuse bags. • Attract private sector interest in either setting up businesses for the processing and sale of organic waste independently, or alternative in PPP's • Facilitate for municipalities to ringfence avoided landfill disposal costs for allocation to processors providing evidence of waste diverted from landfill. • Promote and market increased use of compost instead of chemical fertilisers. • Educate the communities and farmers on at-source composting.
<p>Goal 3: Ensure safe integrated management of hazardous waste</p>	<p>Objective 1: Provide household hazardous waste solutions; and provide systems for safe collection, bulking, storage as well as transport and appropriate disposal of all hazardous waste generated in and around LLM</p>	<ul style="list-style-type: none"> • Provide household hazardous waste containers at the public drop-off facilities and have such waste collected and disposed of by a legally compliant contractor. • Create public awareness about the environmental impact of inappropriate hazardous waste disposal, as well as any alternative collection and disposal systems available to them.
	<p>Objective 2: Ensure major hazardous</p>	<ul style="list-style-type: none"> • Identify major hazardous waste generators in the LLM and

GOAL	OBJECTIVE	ACTION/TARGET
	waste generators are registered on SAWIS	<p>determine the types and volumes of hazardous waste generated.</p> <ul style="list-style-type: none"> • Ensure that appropriate facilities are available for the safe storage, bilking, transport, and disposal of hazardous waste generated by industry. • Monitor the registration of and regular accurate reporting by major hazardous waste generators in the LLM.
Goal 4: Improved waste education and public awareness	Objective 1: Appoint public awareness task force	<ul style="list-style-type: none"> • Appoint a team to establish a plan for the implementation of waste awareness campaigns in the LLM. • Empower officials from relevant authorities for the monitoring and prosecution of polluters.
	Objective 2: Implement waste awareness programmes	<ul style="list-style-type: none"> • Provide ongoing waste awareness campaigns for the public; • Provide waste minimisation education material on the monthly municipal bill ; • Launch recycling competitions at schools; and • Place recycling information on notice boards at shops. • Promote recycling and make the public aware of appropriate recyclable material drop-off facilities,
	Objective 3: Develop /acquire access to relevant waste management training courses	<ul style="list-style-type: none"> • Initiate community-based waste management education and awareness programmes for rural councillors and communities; and • Budget and ensure personnel in the waste management department go for regular training to ensure compliance and enforcement of waste management acts, regulations and strategies • Ensure that both public and private sector staff are appropriately trained for their respective jobs and that refresher courses
	Objective 4: Improve hazardous waste awareness and management expertise.	<ul style="list-style-type: none"> • Send relevant officials on formal training courses (training the trainers) to ensure they are well equipped to train fellow staff members as well as the public on appropriate hazardous waste

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GOAL	OBJECTIVE	ACTION/TARGET
		<p>management.</p> <ul style="list-style-type: none"> • Provide educational material to ensure that households are made aware of the effect of household hazardous waste; and • Provide guideline to households on how to properly dispose of hazardous waste at appropriate facilities provided and maintained by the LLM.
Goal 5: Ensure sound budgeting for integrated waste management	Objective 1: Evaluate staff structures, adjust where required and obtain approval for reallocation of existing / appointment of new staff.	<ul style="list-style-type: none"> • Undertake a survey to determine the staff compliment required and adjust the organogram accordingly. • Reallocate redundant staff to alternative positions where suitable trained and experienced to fill such positions. Provide alternative training where feasible. • Fill vacant positions with suitable qualified and experienced staff. • Ensure for sound budgeting to fill vacancies in waste management department as per the finally approved organogram.
	Objective 2: Ensure availability of sufficient budget for landfill rehabilitation and closure	<ul style="list-style-type: none"> • Budget and plan for the rehabilitation of the McGregor landfill site; and • Budget and plan for the closure and rehabilitation of the Montagu landfill site. • Appoint suitable qualified consultants and contactors to execute the work as per the contract amount and within the required timeframes.
	Objective 3: Development of new Ashton MRF	<ul style="list-style-type: none"> • Appoint suitable qualified consultants to design and plan new MRF at the Ashton transfer station; and • Budget and appoint a suitable qualified contractor for the construction and commissioning of the new MRF at the Ashton transfer station.
	Objective 4: Conduct cost analysis study	<ul style="list-style-type: none"> • Appoint a service provider to conduct a cost benefit analysis

GOAL	OBJECTIVE	ACTION/TARGET
	for the transportation of waste to the regional landfill site in Worcester.	(feasibility) study to evaluate the effect that the disposal at the new regional landfill site in Worcester, together with associated transfer and transport costs, will have on the waste management operational costs.
Goal 6: Improve regulatory compliance	Objective 1: Review and develop appropriate waste management by-laws based on proposed new circumstances;	<ul style="list-style-type: none"> • Develop appropriate and relevant waste management by-laws that will protect the environment and enhance waste management in LLM; • Approve and promulgate the bylaws and • Enforce the by-laws.
	Objective 2: Conduct external landfill audits as per landfill licence requirements and implement remedial actions in accordance with a schedule approved by both the municipality as well as the regulating authority	<ul style="list-style-type: none"> • Review all landfill waste management licences to establish external audit dates; • Continue to conduct internal audits on a quarterly basis. • Appoint an external consultant to conduct annual external audits at all waste management facilities; • Undertake routine maintenance and based on recommendations from specialists, implement mitigating measures where required.
	Objective 3: Manage illegal waste picking on landfill sites	<ul style="list-style-type: none"> • Implement a system to accommodate and manage the waste pickers at the Ashton landfill site. • Implement waste separation at source where possible for recyclable waste not to be directed to landfills for recovery from source. • Develop a plan to budget for management of waste pickers. The plan should include provision of PPE, reporting to the waste officer/security, and assistance with the selling of recyclable materials; and • Work with SMMEs and informal recyclers to offer an opportunity to further divert recyclables, while stimulating job creation.

GOAL	OBJECTIVE	ACTION/TARGET
	Objective 4: Ensure compliance of the landfill containment barriers with R. 636	<p>Community-based organisations can also be approached.</p> <p>Appoint suitable qualified consultant to assist with closure and rehabilitation of existing unlined cells, and development of new lined cells in accordance with the relevant legislation.</p>
Goal 7: Improve waste information management	Objective 1: Implement effective recyclables record keeping and ensure regular and accurate reporting;	<ul style="list-style-type: none"> • Ensure recycling company reports mass correctly; and • Once the MRF is established next to Ashton transfer station, develop recoding system to ensure mass is captured correctly.
	Objective 2: Implement effective organic waste record keeping and ensure accurate and regular reporting and implement effective hazardous waste record keeping and ensure regular and accurate reporting	<ul style="list-style-type: none"> • Ensure all organic waste and garden refuse is recorded correctly upon arrival at the Robertson composting facility; and • Record mass of compost sold to farmers.
	Objective 3: Develop industry waste database with regular and accurate data reporting.	<p>Implement effective communication system:</p> <ul style="list-style-type: none"> • Place an advert in the local paper instructing organisations to register; • Make registration forms available on the website; and • Develop a database of industries operating in the LLM and track the registration and reporting status. Issue written notifications to the organisations which are not registered or reporting accurately.

7 IMPLEMENTATION PLAN

The following section presents an implementation plan to assist the LLM in meeting the objectives and targets outlined in the gap and needs analysis section. The implementation plan contains a number of projects and respective actions which, if properly executed, should enable the LLM to achieve its objectives and targets. The identified projects have been prioritised and span a period of seven years (2021-2027). Table 7-2 below outlines the implementation plan.

The table below provides the legend for the implementation plan.

Table 7-1: Implementation plan legend

TERM	IMPORTANCE
Short-term	Red
Medium-term	Yellow
Long-term/continuous	Green

Table 7-2: Implementation plan

GOAL	OBJECTIVE	PROJECT DESCRIPTION	TIMEFRAME							ESTIMATED BUDGET REQUIRED
			2021	2022	2023	2024	2025	2026	2027	
Goal 1: Effective solid waste service delivery	Objective 1: Conduct a household survey to Establish whether all waste generators are equipped with appropriate waste containers (small bins / bags or bulk skips / RoRo's as required by waste type and generation rate.);	<ul style="list-style-type: none"> Appoint a service provider to conduct a community survey to identify the exact number and location of households not receiving waste collection services. Plan and budget for effective (and appropriate) waste management service delivery based on outcomes of survey. 								R1 500 000
	Objective 2: Update the collection schedule	Review and update the collection schedule to ensure efficient and cost-effective waste collection through route optimisation with the least possible unproductive travelling.								Overhead costs for LLM if done in-house
	Objective 3: Prevent illegal dumping	Identify illegal dumping hotspots and add receptacles at these areas. The waste management officer should assess potential reasons causing the prevalence of illegal dumping by way of: <ul style="list-style-type: none"> Identifying illegal dumping hotspots; Making key observations; Conducting brief community 								Overhead costs for LLM if done in-house

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GOAL	OBJECTIVE	PROJECT DESCRIPTION	TIMEFRAME				ESTIMATED BUDGET
		<p>surveys and interviews; and</p> <ul style="list-style-type: none"> Identifying the stream of waste (and where possible potential sources) that is predominant at the illegal dumping sites. Providing appropriate infrastructure ensuring user-friendly waste disposal facilities – e.g. ramps allowing the emptying of wheelbarrows wheelie bins into skips; even by children and the elderly. Monitor and empty skips as required to prevent overfilling and waste subsequently being put on fire. Launch waste awareness campaigns to educate the community on proper waste management and disposal practices. . 					
	<p>Objective 4: Evaluate waste management fleet</p>	<ul style="list-style-type: none"> Evaluate waste collection vehicles to ensure that they remain reliable, cost-effective and efficient. Ensure that daily routine inspections be done on vehicles before waste collection commences 					<p>Overhead costs for LLM if done in-house</p>

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GOAL	OBJECTIVE	PROJECT DESCRIPTION	TIMEFRAME				ESTIMATED BUDGET			
		<ul style="list-style-type: none"> Undertaken preventative maintenance on vehicles where appropriate. Plan and budget for future fleet, plant and equipment requirements allowing for routine replacement of vehicles that are not reliable. Ensure that the landfill used for disposal is equipped with plant and tow cables to assist vehicles stuck in mud and do not allow waste collection vehicles to be pushed by bulldozers or landfill compactors Have access to backup vehicle under all circumstances. 								
<p>Goal 2: Promote waste minimisation and recycling</p>	<p>Objective 1: Improve recyclables diversion rates - with appropriate processing after collection;</p>	<ul style="list-style-type: none"> Conduct a survey to evaluate the participation rates of the separation at source programme of all areas; focussing on income areas where most recyclable material is generated. Provide public recycling drop-off facilities in secured areas and have material removed regularly to prevent overflowing containers Establish buy-back centres in low- 								<p>R2 000 000 per annum for awareness materials.</p> <p>R10 000 to establish buy-back centres and R1 000 / annum for maintenance & Repairs</p>

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GOAL	OBJECTIVE	PROJECT DESCRIPTION	TIMEFRAME						ESTIMATED BUDGET
		income areas <ul style="list-style-type: none"> Implement recycling competitions and other awareness programs at schools. Facilitate for municipalities to ringfence avoided landfill disposal costs for allocation to recyclers providing evidence of waste diverted from landfill. 							
	Objective 2: Draft an organic waste diversion plan	<ul style="list-style-type: none"> Identify potential applications and markets for processed organic waste diverted from landfills. Undertake cost-benefit study to determine the financial viability of the alternative processing options. Draft a plan documenting the initiatives to reduce organic waste sent to landfills. The municipality can also review the Department Organic Waste template for guidance. 							Overhead costs for LLM if done in-house
	Objective 3: Implement organic waste diversion initiatives	<ul style="list-style-type: none"> Review collection fleet and determine the need for new trucks to collect garden refuse bags. Attract private sector interest in either setting up businesses for the processing and sale of organic 							R2 000 000 per annum for awareness materials.

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GOAL	OBJECTIVE	PROJECT DESCRIPTION	TIMEFRAME					ESTIMATED BUDGET
		waste independently, or alternative in PPP's <ul style="list-style-type: none"> Facilitate for municipalities to ringfence avoided landfill disposal costs for allocation to processors providing evidence of waste diverted from landfill. Promote and market increased use of compost instead of chemical fertilisers. Educate the communities and farmers on at-source composting. 						
Goal 3: Ensure safe integrated management of hazardous waste	Objective 1: Provide household hazardous waste solutions; and provide systems for safe collection, bulking, storage as well as transport and appropriate disposal of all hazardous waste generated in and around LLM	<ul style="list-style-type: none"> Provide household hazardous waste containers at the public drop-off facilities and have such waste collected and disposed of by a legally compliant contractor. Create public awareness about the environmental impact of inappropriate hazardous waste disposal, as well as any alternative collection and disposal systems available to them. 						R 1-mil per annum for waste removal service
	Objective 2: Ensure major hazardous waste generators are registered on SAWIS	<ul style="list-style-type: none"> Identify major hazardous waste generators in the LLM and determine the types and volumes of hazardous waste generated. 						Overhead costs for LLM if done in-house

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GOAL	OBJECTIVE	PROJECT DESCRIPTION	TIMEFRAME				ESTIMATED BUDGET
		<ul style="list-style-type: none"> Ensure that appropriate facilities are available for the safe storage, barking, transport, and disposal of hazardous waste generated by industry. Monitor the registration of and regular accurate reporting by major hazardous waste generators in the LLM. 					
Goal 4: Improved waste education and public awareness	Objective 1: Appoint public awareness task force	<ul style="list-style-type: none"> Appoint a team to establish a plan for the implementation of waste awareness campaigns in the LLM. Empower officials from relevant authorities for the monitoring and prosecution of polluters. 					R3 000 000 per annum for awareness materials.
	Objective 2: Implement waste awareness programmes	<ul style="list-style-type: none"> Provide ongoing waste awareness campaigns for the public; Provide waste minimisation education material on the monthly municipal bill ; Launch recycling competitions at schools; and Place recycling information on notice boards at shops. Promote recycling and make the public aware of appropriate recyclable material drop-off facilities, 					R2 000 per annum for awareness materials.

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GOAL	OBJECTIVE	PROJECT DESCRIPTION								ESTIMATED BUDGET
	Objective 3: Develop /acquire access to relevant waste management training courses	<ul style="list-style-type: none"> • Initiate community-based waste management education and awareness programmes for rural councillors and communities; and • Budget and ensure personnel in the waste management department go for regular training to ensure compliance and enforcement of waste management acts, regulations and strategies • Ensure that both public and private sector staff are appropriately trained for their respective jobs and that refresher courses 								R7 500 per course for department training
	Objective 4: Improve hazardous waste awareness and management expertise.	<ul style="list-style-type: none"> • Send relevant officials on formal training courses (training the trainers) to ensure they are well equipped to train fellow staff members as well as the public on appropriate hazardous waste management. • Provide educational material to ensure that households are made aware of the effect of household hazardous waste; and • Provide guideline to households on how to properly dispose of 								R2 000 per annum for awareness materials.

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GOAL	OBJECTIVE	PROJECT DESCRIPTION								ESTIMATED BUDGET
		hazardous waste at appropriate facilities provided and maintained by the LLM.								
Goal 5: Ensure sound budgeting for integrated waste management	Objective 1: Evaluate staff structures, adjust where required and obtain approval for reallocation of existing / appointment of new staff.	<ul style="list-style-type: none"> Undertake a survey to determine the staff compliment required and adjust the organogram accordingly. Reallocate redundant staff to alternative positions where suitable trained and experienced to fill such positions. Provide alternative training where feasible. Fill vacant positions with suitable qualified and experienced staff. Ensure for sound budgeting to fill vacancies in waste management department as per the finally approved organogram. 								TBC with LLM
	Objective 2: Ensure availability of sufficient budget for landfill rehabilitation and closure	<ul style="list-style-type: none"> Budget and plan for the rehabilitation of the McGregor landfill site; and Budget and plan for the closure and rehabilitation of the Montagu landfill site. Appoint suitable qualified consultants and contactors to execute the work as per the contract amount and within the 								R100 000 per landfill for rehabilitation design and approval. R5 000 000 for rehabilitation cost

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GOAL	OBJECTIVE	PROJECT DESCRIPTION					TIMEFRAME			ESTIMATED BUDGET
		required timeframes.								
	Objective 3: Development of new Ashton MRF	<ul style="list-style-type: none"> Appoint suitable qualified consultants to design and plan new MRF at the Ashton transfer station; and Budget and appoint a suitable qualified contractor for the construction and commissioning of the new MRF at the Ashton transfer station. 								Estimated cost for new MRF R40 000 000
	Objective 4: Conduct cost analysis study for the transportation of waste to the regional landfill site in Worcester.	<ul style="list-style-type: none"> Appoint a service provider to conduct a cost benefit analysis (feasibility) study to evaluate the effect that the disposal at the new regional landfill site in Worcester, together with associated transfer and transport costs, will have on the waste management operational costs. 								To be determined by consultants, estimated as R1 500 000
Goal 6: Improve regulatory compliance	Objective 1: Review and develop appropriate waste management by-laws based on proposed new circumstances;	<ul style="list-style-type: none"> Develop appropriate and relevant waste management by-laws that will protect the environment and enhance waste management in LLM; Approve and promulgate the 								Estimated as R 1 000 000 to review and enforce

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GOAL	OBJECTIVE	PROJECT DESCRIPTION			TIMEFRAME				ESTIMATED BUDGET
		bylaws and <ul style="list-style-type: none"> Enforce the by-laws. 							
	Objective 2: Conduct external landfill audits as per landfill licence requirements and implement remedial actions in accordance with a schedule approved by both the municipality as well as the regulating authority	<ul style="list-style-type: none"> Review all landfill waste management licences to establish external audit dates; Continue to conduct internal audits on a quarterly basis. Appoint an external consultant to conduct annual external audits at all waste management facilities; Undertake routine maintenance and based on recommendations from specialists, implement mitigating measures where required. 							R500 000 per landfill for survey and calculations of remaining airspace
	Objective 3: Manage illegal waste picking on landfill sites	<ul style="list-style-type: none"> Implement a system to accommodate and manage the waste pickers at the Ashton landfill site. Implement waste separation at source where possible for recyclable waste not to be directed to landfills for recovery from source. Develop a plan to budget for 							R1 000 for PPE for waste pickers

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GOAL	OBJECTIVE	PROJECT DESCRIPTION					TIMEFRAME			ESTIMATED BUDGET
		<p>management of waste pickers. The plan should include provision of PPE, reporting to the waste officer/security, and assistance with the selling of recyclable materials; and</p> <ul style="list-style-type: none"> • Work with SMMEs and informal recyclers to offer an opportunity to further divert recyclables, while stimulating job creation. Community-based organisations can also be approached. 								
	Objective 4: Ensure compliance of the landfill containment barriers with R. 636	Appoint suitable qualified consultant to assist with closure and rehabilitation of existing unlined cells, and development of new lined cells in accordance with the relevant legislation.								To be determined by consultants, estimated as R3 000 000
Goal 7: Improve waste information management	Objective 1: Implement effective recyclables record keeping and ensure regular and accurate reporting;	<ul style="list-style-type: none"> • Ensure recycling company reports mass correctly; and • Once the MRF is established next to Ashton transfer station, develop recoding system to ensure mass is captured correctly. 								Nil, in house employees to check quantities
	Objective 2: Implement effective organic waste record keeping and ensure accurate and regular	<ul style="list-style-type: none"> • Ensure all organic waste and garden refuse is recorded correctly upon arrival at the Robertson composting facility; 								Nil, in house employees to check quantities

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GOAL	OBJECTIVE	PROJECT DESCRIPTION	TIMEFRAME				ESTIMATED BUDGET					
	reporting and implement effective hazardous waste record keeping and ensure regular and accurate reporting	and <ul style="list-style-type: none"> Record mass of compost sold to farmers. 										
	Objective 3: Develop industry waste database with regular and accurate data reporting.	Implement effective communication system: <ul style="list-style-type: none"> Place an advert in the local paper instructing organisations to register; Make registration forms available on the website; and Develop a database of industries operating in the LLM and track the registration and reporting status. Issue written notifications to the organisations which are not registered or reporting accurately. 								R100	000	for software

8 IWMP MONITORING AND REVIEW

Regular and ongoing monitoring of the Implementation Plan (outlined in Section 7) is required to ensure the goals, objectives and targets of the IWMP are accomplished within the designated timeframes.

8.1 REPORTING

According to Section 13(2) of The National Environmental Management Waste Act (Act 59 of 2008), performance reports on the implementation of the integrated waste management plan must be prepared in terms of Section 46 of the Municipal Systems Act and must contain the following information:

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

8.2 MONITORING AND REVIEW

The designated Waste Management Officer (WMO) is responsible for preparing the performance reports on the implementation of the IWMP on an annual basis.

The Annual Performance Report must summarise the municipality's progress towards meeting the goals, targets and objectives outlined in the Implementation Plan of the IWMP. More specifically, the Report should comprise the following:

- Strategic Issues: The LLM's performance and progress on meeting the short, medium and long-term goals, objectives and targets.
- Financial Issues: Reporting on budget forecasting, obtaining sufficient budgets and budgeting constraints with respect to both existing waste management operations and the implementation of this IWMP.
- IWMP Amendments: Amendments to the IWMP necessitated by the outcomes of feasibility studies, financial constraints, etc.
- Communication: Keeping councillors, key stakeholders and the residents informed on the progress in meeting the IWMP.

8.3 REVISION OF THE IWMP

As this IWMP forms part of the Integrated Development Plan required in terms of Chapter 5 of the Municipal Systems Act, the next comprehensive revision of the IWMP should occur in 2027.

The comprehensive review will update the status quo; evaluate overall progress against the goals, objectives and targets outlined in this IWMP; review gaps and needs; and reformulate the goals and objectives as required to continue to improve waste management services in the LLM.

9 PUBLIC PARTICIPATION PROCESS

As part of the development of the IWMP, the consultants will engage with stakeholders and members of the community. Stakeholders and interested and affected parties (I&APs) will be notified that the draft IWMP is out for commenting. The comments on the Draft LLM IWMP will be incorporated into the Final LLM IWMP.

10 CONCLUSION AND RECOMMENDATIONS

The purpose of this report is to analyse and quantify all aspects related to current waste management services and practices carried out by the LLM with the view of using such information as a baseline for future planning.

In terms of waste management service delivery, the LLM provides weekly waste collection services to all formal residents, informal residents, schools and businesses. The LLM have sufficient drop-off facilities and an operational composting facility in Robertson town. The LLM have 2 operational landfill sites namely; Bonnievale landfill site and Ashton landfill site and 3 closed landfill sites namely; McGregor landfill site, Robertson landfill site and the Montagu landfill site. The Bonnievale landfill site is used to dispose garden refuse and builder's rubble and the Ashton landfill site is used for general waste.

The analyses of the current waste management system have led to the identification of gaps and needs (Chapter 5) and these are addressed with the overarching goals, objectives and targets in Chapter 6.

The main goals for integrated waste management in LLM can be summarised as follows:

- To ensure for effective solid waste service delivery;
- To promote waste minimisation and recycling;
- To ensure safe and integrated management of hazardous waste;
- To improved waste education and public awareness;
- To ensure sound budgeting for integrated waste management;
- To improve regulatory compliance; and
- To improve waste information management.

For these goals to be met, a series of implementation instruments (action plans) will need to be implemented. These action plans are detailed in the implementation plan in this Chapter 7 of this report.

As part of the development of the IWMP, the consultants will engage with stakeholders and members of the community. Stakeholders and interested and affected parties (I&APs) will be notified that the draft IWMP is out for commenting. The comments on the Draft LLM IWMP will be incorporated into the Final LLM IWMP.

11 REFERENCES

CSIR, 2020. *Industry Waste Management Plan*, s.l.: Department of Environmental Affairs.

Department of Environmental Affairs, 2006. *Guidelines for the development of Integrated Waste Management Plans (IWMPs)*, Pretoria: Department of Environmental Affairs.

IDP, 2017 - 2020. Integrated Development Plan. *Langeberg Municipality*.

JPCE, 2020. *Langeberg Landfill Closure Provision Report*, s.l.: Langeberg Local Municipality.

LLM IWMP, 2017. *3rd Generation Integrated Waste Management Plan*, s.l.: Langeberg Local Municipality.

LLM SEP, 2019. Langeberg Municipality Socio-Economic Profile. *Western Cape Government*.

SEP, 2019. Langeberg Municipality Socio-Economic Profile. *Western Cape Government*.

United Nations Environment Programme, 2020. *Overview*. [Online] Available at: <http://chm.pops.int/TheConvention/Overview/tabid/3351/Default.aspx>

United Nations Environment Programme, 2020. *Overview*. [Online] Available at: <http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx>

United Nations Sustainable Development, 1992. Article 21. *United Nations Conference on Environment & Development*.

APPENDIX A: Table 6: Schedule 3 of the National Environmental Management: Waste Amendment Act, 2014 Act No. 26 of 2014: Category A: Hazardous Waste

INDUSTRIAL GROUP	WASTE FRACTIONS
1. Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	(a) hazardous portion of wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
2. Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard	(a) hazardous portion of wastes from wood processing and the production of panels and furniture (b) hazardous portion of wastes from wood preservation (c) hazardous portion of wastes from pulp, paper and cardboard production and processing
3. Wastes from the leather, fur and textile industries	(a) hazardous portion of wastes from the leather and fur industry (b) hazardous portion of wastes from the textile industry
4. Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal	(a) wastes from petroleum refining (b) wastes from the pyrolytic treatment of coal (c) wastes from natural gas purification and transportation
5. Wastes from inorganic chemical processes	(a) wastes from the manufacture, formulation, supply and use (MFSU) of acids (b) wastes from the MFSU of bases (c) wastes from the MFSU of salts and their solutions and metallic oxides (d) metal-containing wastes (e) wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes (f) wastes from the MFSU of halogens and halogen chemical processes (g) wastes from the MFSU of silicon and silicon derivatives (h) wastes from the MFSU of phosphorous chemicals and phosphorous chemical processes (i) wastes from the MFSU of nitrogen chemicals, nitrogen chemical processes and

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	<p>fertiliser manufacture</p> <p>(j) wastes from the manufacture of inorganic pigments</p> <p>(k) other wastes from inorganic chemical processes</p>
6. Wastes from organic chemical processes	<p>(a) wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals</p> <p>(b) wastes from the MFSU of plastics, synthetic rubber and man-made fibres</p> <p>(c) wastes from the MFSU of organic dyes and pigments</p> <p>(d) wastes from the MFSU of organic plant protection products, wood preserving agents and other biocides</p> <p>(e) wastes from the MFSU of pharmaceuticals</p> <p>(f) wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics</p> <p>(g) other wastes from the MFSU of fine chemicals and chemical products</p>
7. Wastes from thermal processes	<p>(a) hazardous portion of wastes from power stations and other combustion plants</p> <p>(b) hazardous portion of wastes from the iron and steel industry</p> <p>(c) wastes from aluminium thermal metallurgy</p> <p>(d) wastes from lead thermal metallurgy</p> <p>(e) wastes from zinc thermal metallurgy</p> <p>(f) wastes from copper thermal metallurgy</p> <p>(g) wastes from silver, gold and platinum thermal metallurgy</p> <p>(h) wastes from other non-ferrous thermal metallurgy</p> <p>(i) hazardous portion of wastes from casting of ferrous pieces</p> <p>(j) hazardous portion of wastes from casting of non-ferrous pieces</p> <p>(k) hazardous portion of wastes from manufacture of glass and glass products</p> <p>(l) hazardous portion of wastes from manufacture of ceramic goods, bricks, tiles and construction products</p> <p>(m) hazardous portion of wastes from manufacture of cement, lime and plaster and</p>

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	articles and products made from them
8. Waste from the photographic industry	(a) hazardous portion of waste from the photographic industry
9. Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks	(a) wastes from MFSU and removal of paint and varnish (b) wastes from MFSU of other coatings (including ceramic materials) (c) wastes from MFSU of printing inks (d) wastes from MFSU of adhesives and sealants (including waterproofing products)
10. Wastes from chemical surface treatment and coating of metals and other materials; non-ferrous hydrometallurgy	(a) wastes from chemical surface treatment and coating of metals and other materials (for example, galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising) (b) wastes from non-ferrous hydrometallurgical processes (c) wastes from sludges and solids from tempering processes (d) wastes from hot galvanising processes
11. Wastes from shaping and physical and mechanical surface treatment of metals and plastics	(a) hazardous portion of wastes from shaping and physical and mechanical surface treatment of metals and plastics (b) wastes from water and steam degreasing processes
12. Oil wastes and wastes of liquid fuels (except edible oils)	(a) waste hydraulic oils (b) waste engine, gear and lubricating oils (c) waste insulating and heat transmission oils (d) oil/water separator contents (e) wastes of liquid fuels (f) hazardous portion of other oil wastes
13. Waste organic solvents, refrigerants and propellants	(a) waste organic solvents, refrigerants and foam/aerosol propellants
14. Other wastes not specified in the list	(a) hazardous portion of wastes from end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (b) hazardous portion of wastes from electrical and electronic equipment

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	<ul style="list-style-type: none"> (c) hazardous portion of wastes from off-specification batches and unused products (d) wastes from discarded gases in pressure containers and discarded chemicals (e) wastes from discarded batteries and accumulators (f) wastes from transport tank, storage tank and barrel cleaning (g) spent catalysts wastes (h) oxidising substances wastes (i) aqueous liquid wastes destined for off-site treatment (j) waste linings and refractories
15. Construction wastes	<ul style="list-style-type: none"> (a) wastes from bituminous mixtures, coal tar and tarred products (b) discarded metals (including their alloys) (c) waste soil (including excavated soil from contaminated sites), stones and dredging spoil (d) wastes from insulation materials and asbestos-containing construction materials (e) wastes from gypsum-based construction material (f) wastes from other construction and demolition [wastes]
16. Wastes from human or animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care)	<ul style="list-style-type: none"> (a) wastes from natal care, diagnosis, treatment or prevention of disease in humans (b) wastes from research, diagnosis, treatment or prevention of disease involving animals
17. Wastes from waste management facilities	<ul style="list-style-type: none"> (a) hazardous portion of wastes from incineration or pyrolysis of waste (b) hazardous portion of wastes from physico/chemical treatments of waste (c) hazardous portion of stabilised/solidified wastes (d) hazardous portion of wastes from aerobic treatment of solid wastes (e) hazardous portion of wastes from anaerobic treatment of waste (f) landfill leachate wastes (g) wastes from shredding of metal-containing wastes (h) wastes from oil regeneration

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	(i) wastes from soil remediation
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