



**Final 2026/2027
Integrated
Development Plan
(IDP) Review**

**Annexure I:
Integrated Waste
Management Plan
(2021-2026)**

MIDVAAL LOCAL MUNICIPALITY
MINUTES OF THE 6TH ORDINARY MEETING OF 2021 HELD ON THURSDAY,
24 JUNE 2021 AT 13:30 VIA TEAMS

C 2592/06/2021
SMC A/5566/06/2021

9.A.16 [COMM]: INTERGRATED WASTE MANAGEMENT PLAN

10/3/3/5

COMPETENCY: COUNCIL

RESOLVED

1. That the Integrated Waste Management Plan (IWMP), attached to the report as Annexure "A", be approved.
2. That the waste management objectives for the next 5 years, be approved as follows:
 - Effective waste information management and reporting
 - Improved waste education and awareness
 - Improved institutional functioning, financial management and capacity
 - Provision of efficient and financially viable waste management services
 - Increased waste minimisation and recycling
 - Improved compliance and enforcement
 - Improved future planning



GAUTENG
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Member of the Executive Council (MEC)

ECONOMIC DEVELOPMENT | AGRICULTURE, ENVIRONMENT & RURAL DEVELOPMENT

Our Ref: GWM/21-22/0051
Enquiries: Melody Manthata
Melody.Manthata@gauteng.gov.za
011-3550-8462

Ald. Peter Teixeira
Executive Mayor: Midvaal Local Municipality
P.O. Box 9
Meyerton
1960

PER EMAIL: Janetta@midvaal.gov.za

Dear Executive Mayor

ENDORSEMENT OF THE MIDVAAL LOCAL MUNICIPALITY INTEGRATED WASTE MANAGEMENT PLAN (IWMP)

I, Mpho Parks Tau, in my capacity as a Member of the Executive Council of the Gauteng Province responsible for Environmental Affairs, do hereby endorse the Midvaal Local Municipality Integrated Waste Management Plan, 2021 - 2026 (Reference number GE39053) in terms of Section 11(4)(b)(iii) of the National Environmental Management: Waste Act, 2008 (as amended).

Yours sincerely,

Mr. Parks Tau (MPL)

MEMBER OF THE EXECUTIVE COUNCIL (MEC)

ECONOMIC DEVELOPMENT, AGRICULTURE, ENVIRONMENT AND RURAL DEVELOPMENT

DATE: 8/9/2022

COPIES TO: EXECUTIVE DIRECTOR: COMMUNITY SERVICES
Solity Mosidi
Sol@midvaal.gov.za

Midvaal Local Municipality



Midvaal Local Municipality
Integrated Waste Management Plan
3rd Generation
2021 - 2026

FINAL

GIBB Reference: GE39053

15 July 2021



People • Expertise • Excellence

Midvaal Local Municipality Integrated Waste Management Plan

FINAL

CONTENTS

Chapter	Description	Page
	Contact Information	iv
	Revision Status	iv
	Distribution List	v
	Abbreviations / Acronyms / Definitions	v
	Appendices	vi
	List of Figures	vi
	List of Tables	viii
1	Introduction	1
	1.1 Definition of Waste	1
	1.2 Contents of an IWMP	2
	1.3 History of Integrated Waste Management Plans in the Midvaal Local Municipality	3
	1.4 Objectives of an Integrated Waste Management Plan	3
	1.5 Integrated Waste Management Plan Development Process	4
	1.6 Scope of the Integrated Waste Management Plan	5
	1.7 Context of Roles and Responsibilities	6
	1.8 Alignment with other Strategic Plans	7
2	Approach and Methodology	15
	2.1 Legislated Requirements for Integrated Waste Management Plans	15
	2.2 Methodology	15
	2.3 Assumptions and Limitations	18
3	Legal Requirements Overview	19

3.1	South African Legislation	19
3.2	International Legislation	20
3.3	Key Changes to Legislation since 2013	21
4	Waste Management Performance Review	22
4.1	Implementation of 2013 Integrated Waste Management Plan	22
4.2	Progress towards Compliance with National Waste Management Strategy Goals	32
5	Situation Analysis	34
5.1	Scope and Purpose of the Situation Analysis	34
5.2	Demographics	35
5.3	Type of Housing and Access to Services	36
5.4	Local Economy	38
5.5	Waste Profile	40
5.6	Waste Generation	48
5.7	Future Waste Generation	52
5.8	Waste Information Systems	53
5.9	Health Care Risk Waste	54
5.10	Waste Services	55
5.11	Waste Recycling	57
5.12	Management of Hazardous Waste	58
5.13	Organic Waste Management	58
5.14	Waste Management Facilities	58
5.15	Landfill site airspace concerns	78
5.16	Other Waste Management Services	80
5.17	Complaints	84
5.18	Compliance Notices	84
5.19	Waste Management Fleet	84
5.20	Waste Management By-Laws	86

5.21	Institutional Management	87
5.22	Financial Management	90
5.23	Waste Employee Interviews	97
6	Gap and Needs Assessment	99
6.1	Gaps and Needs Identified in 2013 IWMP	99
6.2	Gaps and Needs Identified in 2021	103
7	Goals, Objectives and Assessment of Alternatives	113
7.1	Goals for Midvaal Local Municipality	113
7.2	Alignment with National and Provincial Waste Management Goals	114
7.3	Objectives and Assessment of Alternatives	115
8	Implementation Plan	122
9	Monitoring	131
10	References	132
	<i>Introduction</i>	135
	International conventions	135
	South African Legislation	138
	National Policies and Guidelines	151
	Local Strategy and Policies	160
	Document Control and Disclaimer	170

Contact Information

Please contact the undermentioned should you require further information.

GIBB (Pty) Ltd	
Address:	9 Pearce Street Berea East London PO Box 19844 Tecoma 5214 Tel: +27 43 706 3600 Fax: +27 43 721 0141
Website	www.gibb.co.za
Contact Person	Ian Malloy Environmental Consultant
	
Contact number	043 706 300
Cell number	061 491 1736
Fax Number	043 721 0141
Email	imalloy@gibb.co.za

Revision Status

Rev No.	Issue Date	# Pages	Revision Description	Prepared By	Reviewed By	Approved By
0	13/03/2020	132	Midvaal Draft Situation Analysis	Ziyanda Makapela	Ian Malloy and Kate Flood	Walter Fyvie
01	12/06/2020	164	Implementation Plan	Ziyanda Makapela and Ian Malloy	Ian Malloy and Kate Flood	Walter Fyvie
02	02/11/2020	166	Implementation Plan	Ziyanda Makapela and Ian Malloy	Ian Malloy and Kate Flood	Walter Fyvie
03	08/01/2021	167	Draft IWMP with Implementation Plan	Ian Malloy	Kate Flood	Walter Fyvie
04	02/03/2021	178	Draft IWMP with Implementation Plan	Ian Malloy	Kate Flood	Walter Fyvie
05	23/04/2021	182	Draft IWMP	Ian Malloy	Kate Flood	Walter Fyvie
06	15/07/2021	183	Final IWMP	Ian Malloy	Kate Flood	Walter Fyvie

Rev 06/July 2021

Distribution List

Name	Organisation	Designation	Contact Number	Email
Mukhethwa Mudau	MLM	Assistant Director: Waste Management	016 360 7701	Mukhethwam@midvaal.gov.za
Phethile Kona	MLM	Foreman: Landfill sites	016 360 7641	phethilek@midvaal.gov.za
Janett Seno	SDM	DEFF LGS: SDM	016 450 3261	Janetts@sedibeng.gov.za
Eddy Tshabalala	SDM	Director: Development and Planning	016 360 7583	thysa@midvaal.gov.za
Thys Arlow	MLM	Architect	084 208 0038	cobus@intsika.com
Palesa Mathibeli	GDARD	Director: Pollution and Waste Management	011 240 2575	PALESA.MATHIBELI@gauteng.gov.za
Walter Fyfie	GIBB	Technical Executive	041 509 9150	wfyvie@gibb.co.za
Ian Malloy	GIBB	Project Leader	021 469 9100	imalloy@gibb.co.za
Kate Flood	GIBB	Technical Lead	041 509 9160	kflood@gibb.co.za
Ziyanda Makapela	GIBB	Environmental Scientist	043 706 3685	zmakapela@gibb.co.za

Abbreviations / Acronyms / Definitions

BKB	Bontle Ke Botho
CCA	Chromated copper arsenate
C&DW	Construction and demolition waste
DEFF	Department of Environment, Forestry and Fisheries (formerly Department of Environmental Affairs (DEA))
DM	District Municipality
DOH	Department of Health
DoE	Department of Education
DWS	Department of Water and Sanitation (formerly Department of Water Affairs (DWA))
ECA	Environment Conservation Act (73 of 1989)
EPWP	Expanded Public Works Programme
eWASA	e-Waste Association of South Africa
FBRR	Free Basic Refuse Removal
GDARD	Gauteng Department of Agriculture and Rural Development
GDPR	Gross Domestic Product per Region
GIWMP	Gauteng Integrated Waste Management Plan
GSDF	Gauteng Spatial Development Framework
GWIS	Gauteng Waste Management Information System
HCRW	Health Care Risk Waste
HHW	Household Hazardous Waste
HWMP	Hazardous Waste Management Plan
IDP	Integrated Development Plan
IT	Information Technology
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Plan.
Las	Local Authorities (Local and District level authorities)
LM	Local Municipality
MEC	Member of Executive Council
MLM	Midvaal Local Municipality
MIIU	Municipal Infrastructure Investment Unit
MRF	Material Recovery Facility
NEMA	National Environmental Management Act
NEMWA	National Environmental Management: Waste Act (59 of 2008)

NWMS	National Waste Management Strategy
OHS Act	Occupational Health and Safety Act (85 of 1993)
PCBs	Polychlorinated Biphenyls
PE-HD	Polyethylene high density
PE-LD	Polyethylene low density
PET	Polyethylene Terephthalate
POP(s)	Persistent Organic Pollutant(s)
PP	Polypropylene
PS	Polystyrene
PSC	Project Steering Committee
PVC	Polyvinyl Chloride
RDP	Reconstruction and Development Programme
ROSE	Recycling Oil Saves the Environment
RSA	Republic of South Africa
S@S	Separation at Source
SABS	South African Bureau of Standards
SANBI	South African National Biodiversity Institute
SAWIC	South African Waste Information Centre
SAWIS	South African Waste Information System
SDM	Sedibeng District Municipality
SIDA	Swedish International Development Cooperation Agency
STATSA	Statistics South Africa
UN	United Nations
WHO	World Health Organisation
WIS	Waste Information System
WMCO(s)	Waste Management Control Officer(s)
WMO(s)	Waste Management Officer(s)
WWTW	Waste Water Treatment Works

Appendices

Appendix A: Waste Legislation

Appendix B: Summary of Funding Agencies Applicable to Waste Management Legislation

Appendix C: Public Participation Process

Appendix D: Midvaal Local Municipality Council Resolution to approve the 2021 IWMP

List of Figures

Figure 1: The waste hierarchy as per the National Waste Management Strategy (DEFF, 2020).....	4
Figure 2: IWMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA).....	4
Figure 3: Midvaal local municipality jurisdictional area	5
Figure 4: IWMP planning phases – situation analysis	34
Figure 5: Ethic profile	35
Figure 6: Houses by type of dwelling	36
Figure 7: RDP/ government subsidy status of households	36
Figure 8: Access to safe drinking water.....	36
Figure 9: Access of households to the internet.....	37
Figure 10: The economic activity by sector for the Midvaal Local Municipality (IDP 2014 - 2019)	39

Figure 11: Waste characterisation results – low income households.....	44
Figure 12: Waste characterisation results – high income households.....	44
Figure 13: Waste characterisation results – combined households	45
Figure 14: A: Bins used to sort different waste types, B: waste sorting, C&D: low income area waste collection, E&F: high income area waste collection.....	46
Figure 15: Photo A: Glass igloos for glass recycling in Blackwood transfer station, B: glass igloo for glass recycling in Galloway transfer station.	57
Figure 16: Waste management facilities in the MLM area	59
Figure 17: Blackwood transfer station (source, google earth satellite imagery, accessed on 12 March 2020).....	60
Figure 18: Photographs of Blackwood transfer station. Photo A: Signage along the site entrance. Photo B: glass igloos for glass recycling. Photo C: damaged western boundary fence. Photo D: illegally dumping of hazardous waste noted on site. Photo E: guard house, Photo F: ablution facility, Photo G: unchipped garden waste noted on site.....	62
Figure 19: Satellite image of Galloway transfer station (data source: Google Earth, accessed on 12 March 2020)	63
Figure 20: Photographs of the Galloway transfer station. Photo A: Signage. Photo B: skip bins on site and vacant land that is currently not utilised. Photo C: glass igloos for glass recycling is currently full and more glass bottles noted adjacent to the bin. Photo D: mixing of garden and general waste noted. Un-chipped garden waste in the skip bin, Photo F: guard house with ablution facilities.	65
Figure 21: Satellite image of Klip Rivier transfer station (data source: Google Earth, accessed on 12 March 2020)	65
Figure 22: Photo A: Sign boards, Photo B: guard house with ablution facilities, bulky waste and garden waste. Photo C: truck with a back haul for off-loading waste. Photo D: full skip containers, E: ramp where skips are located for dumping, F: mixed garden and general refuse, G: pit toilet that was in use before the site was refurbished.....	67
Figure 23: Photo A: Guard house. Photo B: TLB and a bull dozer both not operational noted on site. Photo C: brick building with site office, staff eating area, change room and ablution facilities. Photo D: skip truck entering facility. Photo E: informal recycling noted on site. Photo F: uncovered waste. Photo G: Height of the waste body. Photo H: Tyres noted on site. Photo I: Informal glass recycling noted. Photo J: Informal PET recycling. Photo K: pedestrian gate in the southern boundary of the site	71
Figure 24: Walkerville landfill site (data source: Google Earth, accessed on 03/12/2005)	72
Figure 25: Photo A. Uncovered waste noted. Photo B: steep waste body. Photo C: incoming building rubble used as cover material. Photo D: incoming building rubble dumped in wet cell. Photo E: stormwater channel. Photo F: exposed waste at the edge of the waste body. Photo G: A prefabricated weighbridge kiosk on site. Photo H: informal recycling occurring on site. Photo I: scavenging occurring on site. Photo J: non-operational bulldozer on site.	75
Figure 26: Satellite image of Vaal Marina landfill site, (data source: Google Earth, accessed on 12 May 2020).....	75
Figure 27: Photo A: Visual impact of site, B: clearing of waste on site, Photos C & D: recyclable material recovered by informal re-claimers on site, Photos E: quarry where cover material is mined from is also used as a wet weather cell. Photo G: powerline traversing the site. Photo H: water	

ponding noted in the wet weather cell. Photo I: TLB in use on site. Photo J: PET recycled from site. Photo K: damaged south western boundary of the fence.	78
Figure 28: Temporary skips site	81
Figure 29: Street bins	81
Figure 30: Illegal dumping hotspots in MLM.....	83
Figure 31: Photo A: Branded compactor truck. Photo B: un-branded compactor truck. Photo C: skip truck. Photo D: other waste collection trucks.....	86
Figure 32: Organisational Structure – Community Services – Waste Management (2019 – 2020).....	88
Figure 33: Organisational Structure – Community Services – Waste Management (2018 – 2019).....	89
Figure 34: Organisational Structure – Community Services – Waste Management (2018 – 2019).....	89
Figure 35: Organisational Structure – Community Services – Waste Management (SC) (2019 - 2020)	90
Figure 36: IWMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA).....	131
Figure 37: Tear sheet of Midvaal LM IWMP PPP advert in the North Star newspaper	165
Figure 38: Midvaal Municipality IWMP PPP advert placed on the Midvaal Municipality Facebook page	166
Figure 39: Midvaal Municipality IWMP PPP advert placed on the Midvaal Municipality Twitter page	167
Figure 40: Midvaal Municipality IWMP report placed on the Midvaal Municipality's website.....	168
Figure 41: Midvaal Municipality IWMP report available from the link on Midvaal Municipality's website	168
Figure 42: The Midvaal Local Municipality Council resolution to approve the 2021 IWMP	169

List of Tables

Table 1: The Waste Act Requirements for an Integrated Waste Management Plan	2
Table 2: Midvaal local municipality largest towns/ settlements (Stats SA, 2011)	6
Table 3: Summary of 2020 NWMS Goals	7
Table 4: Gauteng IWMP 2018-2023 Goals and Objectives	10
Table 5: Goals for the MLM extracted from the 2013 Sedibeng District Municipality IWMP	12
Table 6: Facility inspections undertaken as part of this IWMP	16
Table 7: Stakeholders engaged during the review of this IWMP	16
Table 8: Project Steering Committee Members	Error! Bookmark not defined.
Table 9: Presentations and Workshops undertaken during the review of this IWMP	17
Table 10: Key South African waste legislation	19
Table 11: Key international legislation	20
Table 12: Key Changes to Legislation	21
Table 13: Project Status	23

Table 14: Implementation status of the 2013 IWMP targets	24
Table 15 : 2011 National Waste Management Strategy Objectives	32
Table 16: Population profile	35
Table 17: Language profile	35
Table 18: Household profile (CS, 2016 and Census 2011)	35
Table 19: Education profile (Highest level of education for population aged 20 years and older, CS 2016)	35
Table 20: Access to toilet facilities	36
Table 21: Type of energy used for different household activities	37
Table 22: Households access to refuse services	37
Table 23: Employment status is those aged 15 – 64 (Census 2011)	38
Table 24: Average household income (Census 2011)	38
Table 25: Local municipalities of the Sedibeng District Municipality contributions to the GDP and the average annual economic growth rate (Midvaal IDP, 2014 – 2019)	38
Table 26: Categories of waste weighed and sorted	40
Table 27: Domestic waste stream composition (Results as % of waste stream by weight)	42
Table 28: Waste characterisation results summary	43
Table 29: Description of different categories of plastics	48
Table 30: Plastic characterisation results	48
Table 31: Domestic waste disposal records (tonnes) for the MLM (January 2019 – December 2020, data source GDARD, GWIS sourced 19/02/2021)	49
Table 32: Theoretical calculation of domestic waste produced in the MLM	50
Table 33: Summary of commercial and industrial waste disposal in MLM from 2015 - 2019 (source: SAWIC, accessed 02/03/2020)	51
Table 34: Summary of hazardous waste generated in the MLM that was disposed from 2015 to 2019 (data source - SAWIC; 02/03/2020)	51
Table 35: Summary of hazardous waste disposal in MLM in 2017 - 2019 (data source – SAWIC; 02/03/2020)	52
Table 36: MLM waste profile in 2019 (source: SAWIS, accessed on 16/03/2020)	52
Table 37: Future domestic annual waste generation rates based on projected population growth rate of 3.2% per annum	53
Table 38: SAWIC waste disposal records for MLM (data source, SAWIC, accessed on 09/01/2020)	53
Table 39: Monthly tonnes of general waste treated, landfilled or recycled from 2015 - 2020 (data source, GWIS, accessed 01/03/2021)	54
Table 40: Monthly tonnes of Hazardous waste treated, landfilled or recycled during 2016 – 2020 (data source, GWIS, accessed 01/03/2021)	54
Table 41: Waste collection services in the MLM (data source Stats SA Census 2011 and Community Survey 2016)	55
Table 42: Number of households per waste service (data source Community Survey 2016)	55

Table 43: Midvaal weekly waste collection service	56
Table 44: Midvaal weekly waste collection service	56
Table 45: Summary of waste management facilities in the MLM area	58
Table 46: Blackwood street refuse transfer station landfill site profile	60
Table 47: Galloway Street Refuse Transfer station profile	63
Table 48: Klip Rivier refuse transfer station profile	65
Table 49: Henley on Klip landfill site profile	68
Table 50: Walkerville landfill site profile	72
Table 51: Vaal Marina landfill site profile	75
Table 52: Landfill site details	78
Table 53: Constraints for siting of a landfill site	79
Table 54: Fleet replacement guide by vehicle type	84
Table 55: Waste management fleet	84
Table 56: Waste management organogram	87
Table 57: MLM domestic waste tariff history (per unit) excl. VAT	90
Table 58: Comparison of the domestic waste collection tariff for households in the Midvaal, Emfuleni and Leside local municipalities	91
Table 59: Budgeted and Actual Income and Expenditure for the waste collection services for the 2017/18 financial year	92
Table 60: Budgeted and Actual Income and Expenditure for the waste collection services for the 2018/19 financial year	93
Table 61: Budgeted Income and Expenditure for the for the waste collection service for the 2019/20 financial year	94
Table 62: Summary of the Actual Income and Expenditure for the MLM from the 2016/17 – 2018/19 financial years	96
Table 63: Budget and Expenditure for the management of the landfill sites for the 2018/19 financial year	96
Table 64: Budget and Expenditure for the management of the landfill sites for the 2019/20 financial year	97
Table 65: Comments/ concerns raised through MLM employees interviews	97
Table 66: Gaps identified in the 2013 IWMP (2013)	99
Table 67: Waste management gap and needs	104
Table 68: Waste diversion targets	110
Table 69: Recyclable waste available in the domestic waste stream	110
Table 70: Meyerton Separation at Source Programme Case Study	111
Table 71: Possible waste diversion from landfill in the MLM	112
Table 72: Examples of Goals, Objectives and Target terminology.	113
Table 73: Alignment of MLM Goals with National and Provincial Goals	114

Table 74: MLM waste management objectives and assessment of alternatives	115
Table 75: Implementation Plan	122
Table 76: Details of funding agents	161

1 Introduction

The Midvaal Local Municipality (MLM) is required to develop an Integrated Waste Management Plan (IWMP) as per the requirements of the National Environmental Management Waste Act (59 of 2008) as amended (hereafter referred to as the Waste Act). The IWMP must be endorsed by the Provincial department, Gauteng Department of Agriculture and Rural Development (GDARD), and then incorporated into the municipal IDP.

In terms of the Municipal Systems Act, a municipality must give effect to the provisions of section 152(1) and 153 of the Constitution and must:

- Give priority to the basic needs of the local community
- Promote the development of the local community
- Ensure that all members of the local community have access to at least the minimum level of available resources and the improvement of standards of quality over time.

GIBB Pty Ltd (hereafter referred to as GIBB) has been appointed for the revision of the MLM IWMP.

1.1 Definition of Waste

The Waste Act defines waste as follows:

- a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 to this Act; or
- b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the Gazette, but any waste or portion of waste, referred to in paragraphs (a) and (b), ceases to be a waste—
 - i. once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been re-used, recycled or recovered;
 - ii. where approval is not required, once a waste is, or has been re-used, recycled or recovered;
 - iii. where the Minister has, in terms of section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste; or
 - iv. where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste.

1.2 Contents of an IWMP

The Waste Act outlines the minimum requirements for an IWMP. These requirements have been included in the table below along with a description of how this requirement has been met and details of where in this report that relevant information is located.

Table 1: The Waste Act Requirements for an Integrated Waste Management Plan

Waste Act section no.	Requirement	Section in the IWMP
12(1)(a)	Contain a situation analysis that includes:	
12(1)(a)(i)	A description of the population and development profiles of the area to which the plan related	Section 5.2 Demographics
12(1)(a)(ii)	An assessment of the quantities and types of waste that are generated in the area	Section 5.5 Waste Profile Section 5.6 Waste Generation Section 5.8 Waste Information Systems Section 5.9 Health Care Risk Waste
12(1)(a)(iii)	A description of the services that are provided , or that are available for the collection, minimisation, re-use, recycling and recovery, treatment and disposal of waste	Section 5.10 Waste Services Section 5.11 Waste Recycling Section 5.12 Management of Hazardous Waste Section 5.13 Organic Waste Management
12(1)(a)(iv)	The number of persons in the area who are not receiving waste collection services	Section 5.2 Demographics Section 5.11 Waste Services
12(1)(b)	Within the domain of the municipality, set out how that municipality intends to:	
12(1)(b)(i)	To give effect, in respect of waste management, to chapter 3 of the National Environmental Management Act	Section 7 Goals, Objectives and Assessment of Alternatives Section 8 Implementation Plan
12(1)(b)(ii)	To give effect to the objectives of this Act	
12(1)(b)(iii)	To identify and address the negative impacts of poor waste management practise on health and the environment	Section 5.10 Waste Services Section 6 Gap and Needs Assessment
12(1)(b)(iv)	To provide for the implementation of waste minimisation, re-use, recycling and recovery targets and initiatives	Section 6 Gap and Needs Assessment Section 7 Goals, Objectives and Assessment of Alternatives Section 8 Implementation Plan
12(1)(b)(v)	In the case of a municipal IWMP, to address the delivery of waste management services to residential premises	Section 6 Gap and Needs Assessment
12(1)(b)(vi)	To implement the Republic's obligations in respect of relevant international agreements	Section 3.2
12(1)(b)(vii)	To give effect to best environmental practice in respect of waste management	Section 6 – 8
12(1)(e)	Establish targets for the collection, minimisation, re-use and recycling of waste	Section 7 Objectives and Targets
12(1)(f)	Set out the approach of the municipality for the planning of any new facilities for disposal and decommissioning of existing waste disposal facilities	Section 7 Goals, Objectives and Assessment of Alternatives Section 8 Implementation Plan
12(1)(g)	Indicate the financial resources required to give effect to the plan	Section 8 Implementation Plan Appendix B: Summary of Funding Agencies Applicable to Waste Management Legislation
12(1)(h)	Describe how the municipality intends to	Section 8 Implementation Plan

Waste Act section no.	Requirement	Section in the IWMP
	give effect to its IWMP	
12(1)(i)	Comply with requirements prescribed by the Minister	Section 2 and Section 3.1

1.3 History of Integrated Waste Management Plans in the Midvaal Local Municipality

This is the third generation IWMP for the MLM and this plan will cover the period 2021 – 2026. The first generation IWMP for MLM was developed in 2005 and was subsequently revised in 2013. An IWMP is typically revised every 5 years parallel to the municipal IDP planning process, and to take into cognisance changes in the status quo of waste management and changes in legislation and guidelines related to waste management.

The development of this IWMP is currently out of sync with the MLM IDP cycles. The current MLM IDP covers the period 2014 - 2019. The IDP is however reviewed on an annual basis and all the projects listed in the implementation plan of this IWMP should be included in the next annual review of the IDP to ensure budget is allocated for the implementation of these projects.

1.4 Objectives of an Integrated Waste Management Plan

The aim of an IWMP is to determine the status quo of waste management and identify measures to improve waste management in the municipality. The objective of this IWMP is to present a vision of waste management in the MLM. The majority of the projects identified in this IWMP will be conducted over a five-year timeframe, however some longer term projects have also been identified.

The National Waste Management Strategy of 2020 (NWMS) identifies the primary objective of integrated waste management planning as being to ensure that: “all South Africans live in clean communities with waste services that are well managed and financially sustainable” by

- recognising and addressing the different circumstance and waste management challenges,
- shifting the focus of municipal services from collection and disposal to separation at source and waste beneficiation,
- developing and implementing flexible service delivery approaches that incorporates the informal sector while addressing the local needs,
- guiding public investment and partnerships with the private sector in waste management infrastructure and projects, and
- ensuring that the delivery of waste services contributes to sustainable development.

The NWMS also presents the waste management hierarchy (presented in figure 1 below) which outlines the preferred methods for management of waste.

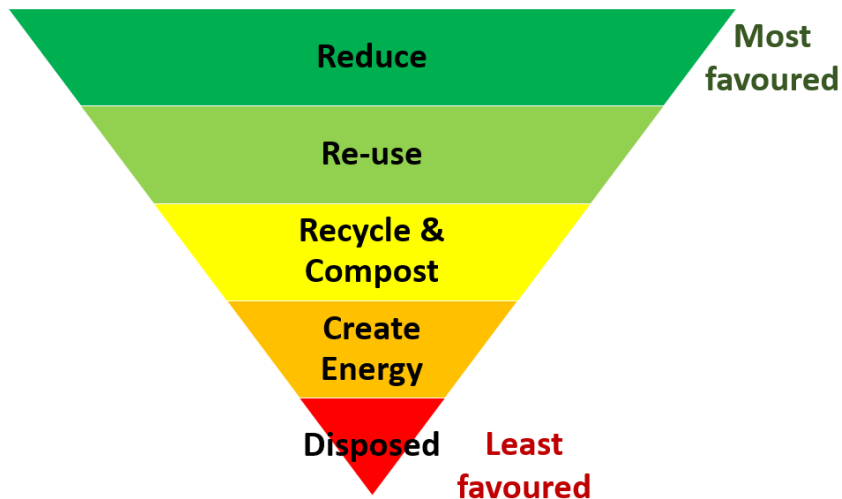


Figure 1: The waste hierarchy as per the National Waste Management Strategy (DEFF, 2020)

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

1.5 Integrated Waste Management Plan Development Process

In addition to the Waste Act, the Department of Environment Affairs (DEA) Guideline for the Development of Integrated Waste Management Plans (IWMPs) was considered when developing this IWMP. This guideline outlines the following planning process.

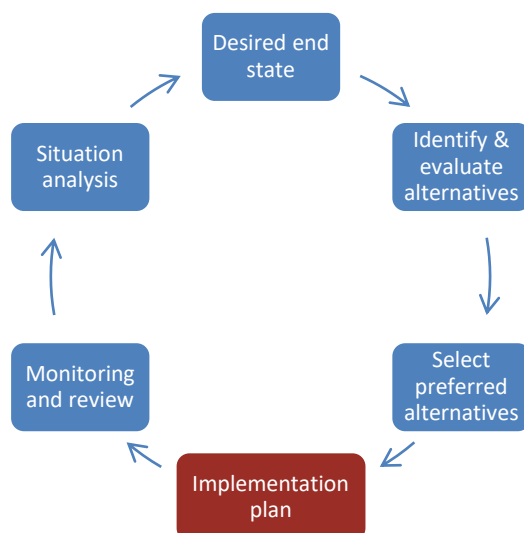


Figure 2: IWMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA)

1.6 Scope of the Integrated Waste Management Plan

This IWMP is limited to the jurisdictional area of the MLM which covers an area of 1,722km² and is composed of 15 wards, the largest being ward 1 which accounts for more than 45% of the MLM area (825km²). The MLM is a category B2 municipality as per the Municipal Structure Act (No 117 of 1998) and one of three local municipalities which fall under the Sedibeng District Municipality (SDM), in the Gauteng Province. The MLM is the largest municipality in the SDM and makes up nearly half of the geographical area of the District (The Midvaal Local Municipality, 2019).

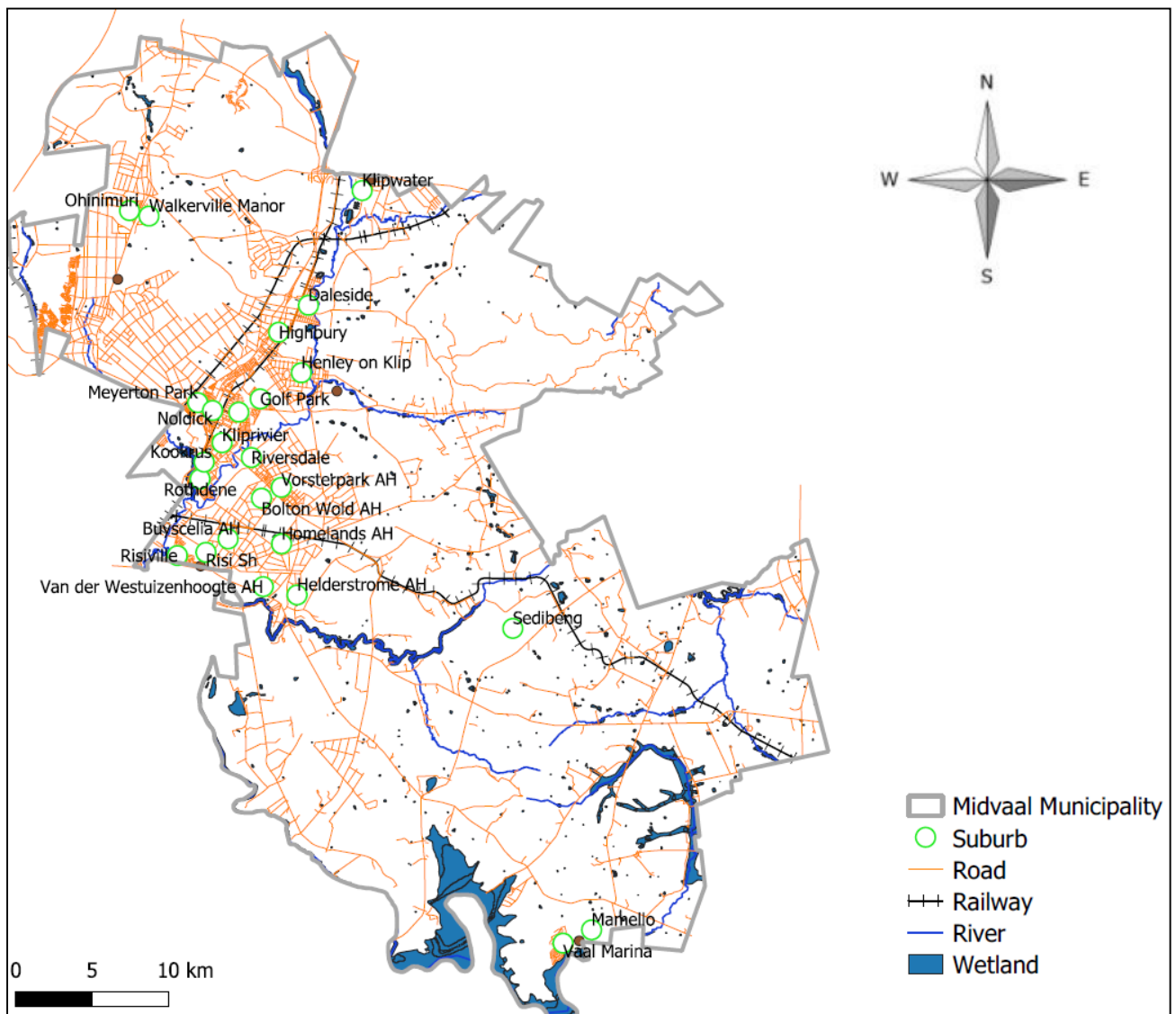


Figure 3: Midvaal local municipality jurisdictional area

The majority (58.0%) of the MLM population is located in the urban area of Meyerton. The population of the MLM is estimated to be 135,156 (Midvaal IDP, 2014 - 2019).

Table 2: Midvaal local municipality largest towns/ settlements (Stats SA, 2011)

Suburb	Total population	% of population
Alberton	339	0.36
Evaton	9,234	9.69
Hartebeesfontein	162	0.17
Mamello	1,175	1.23
Meyerton	55,283	58.01
Midvaal NU	13,566	14.24
Nooitgecht	879	0.92
Randvaal	1,711	1.80
Vaal Marina	701	0.74
Vereeniging	3,077	3.23
Walkerville	9,173	9.63
Total	95,300	100.00

1.7 Context of Roles and Responsibilities

1.7.1 National Government

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

1.7.2 Provincial Government

Provincial governments are tasked with the implementation of the National Waste Management Strategy and national norms and standards, and may set additional, complementary provincial norms and standards. The Waste Act notes that these norms and standards must amongst other things facilitate and advance regionalization of waste management services. The Constitution requires Provincial Government to monitor and provide support to municipalities in the province and to promote the development of local government capacity.

1.7.3 Local Government

The Waste Act 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 manage waste information appropriately.

Local municipalities are also required to maintain separate financial statements, including a balance sheet of the services provided.

1.7.4 Waste Management Officer

The Waste Act requires that all local municipalities appoint a waste management officer (WMO) from its administration who is responsible for co-ordinating waste management in the municipality.

The responsibilities of the WMO of a local municipality are defined in the National Waste Management Strategy (2011) as:

- Manage stakeholders in the implementation of the Waste Act
- Liaise with EMI compliance monitoring activities in the municipality
- Plan and implement the municipal IWMP and subsequent reporting cycles
- Build capacity in relation to Waste Act implementation
- Monitor adherence to norms and standards in the delivery of waste services.

The DEFF's Guideline for designation of WMOs (DEA, 2008) further expands on the role of the WMO for local municipalities.

1.8 Alignment with other Strategic Plans

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

1.8.1 Alignment with National Strategic Plans

(a) National Waste Management Strategy (2020)

The 2020 NWMS has three strategic goals to drive an improvement in waste management in South Africa:

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

These are unpacked further in the table below.

Table 3: Summary of 2020 NWMS Goals

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

Goal	Implementation mechanism
treatment.	- Divert organic waste from landfill through composting and the recovery of energy - Divert construction and demolition waste from landfill through beneficiation - Increase recycling and recovery rates - Increase technical capacity and innovation for the beneficiation of waste
2. All South Africans live in clean communities with waste services that are well managed and financially sustainable.	Waste Collection: - Separation of waste at source by integrating waste pickers into municipal collection services, develop an online training tool for municipal managers and develop a national awareness campaign on recycling and waste management - Safe and environmentally sustainable disposal of hazardous household wastes. Effective Integrated Waste Management Planning: - Provinces and municipalities to develop and implement 5-year IWMPs - Improve collection, reporting and dissemination of information on SAWIS - All local authorities to include provisions for recycling drop-off/buy-back/storage centres in their IWMPs by 2020
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.	- Reduction of littering and illegal dumping due to attitudinal shifts and greater public awareness of the environmental damage caused by waste - Enhanced capacity to monitor compliance and enforce the Waste Act and International Agreements on waste and pollution - Municipal landfill sites and waste management facilities comply with licensing standards

(b) Operation Phakisa: Chemicals and Waste Phakisa

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

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

1.8.2 National Development Plan

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

The NDP sets the following objectives related to waste management:

- An absolute reduction in the total volume of waste disposed to landfill site each year through a national recycling strategy

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

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

1.8.3 Back to Basics

The National Department of Cooperative Governance and Traditional Affairs (COGTA) showcased a new strategy at the Presidential Local Government Summit in 2014. The strategy was titled Back to Basics: Serving our Communities Better.

The strategy identified that although progress has been made with regard to service delivery since 1994 more actions are needed to support, education and where required enforce the government mandate for service delivery.

The Back of Basics programme is centred around five pillars:

1. **Put people and their concerns first** and ensure constant contact with communities through effective public participation platforms
2. **Create conditions for decent living** by consistently delivering municipal services to the right quality and standard. This includes planning for and delivery of infrastructure and amenities, maintenance and upkeep, including the budgeting to do this. Ensure no failures in services and where there are, restore services with urgency
3. **Be well governed** and demonstrate good governance and administration – cut wastage, spend public funds prudently, hire competent staff, ensure transparency and accountability
4. **Ensure sound financial management and accounting**, and prudently manage resources so as to sustainably deliver services and bring development to communities
5. **Build and maintain sound institutional and administrative capabilities**, administered and managed by dedicated skilled personnel at all levels.

The Back to Basics pillars are all applicable to waste management within the municipality.

1.8.4 Alignment with Provincial Strategic Plans

- (a) Gauteng Province Integrated Waste Management Plan 2018

The GPIWMP is centred around 6 goals and 24 strategic objectives.

Table 4: Gauteng IWMP 2018-2023 Goals and Objectives

Goal	Strategic Objectives
Goal 1. Development of Integrated Waste Management Plans	1. All Gauteng Province local municipalities should have approved IWMPs in line with NEM:WA 2008. By 2019, local municipalities should be implementing these IWMPs 2. Ensure complete awareness and understanding of IWMPs 3. Ensuring of timeous review of IWMPs by municipalities within the 5 year cycle
Goal 2. Institutional development, capacity building and integration of waste pickers into the waste management service	1. Municipalities to ensure that all the coordination of waste related matters is with their designated WMO 2. Municipalities to ensure that their waste organogram is reviewed in line with all the legal requirements and relevant guideline documents. Furthermore, competent and skilled workers should be sourced to ensure efficiency in the waste service 3. GDARD to collaborate with municipalities in developing waste awareness and environmental awareness material 4. Municipalities to collaborate with private sector in launching and running a BKB programme 5. Municipalities to integrate and formalize waste pickers into the formal waste management service
Goal 3. Waste Information Management	1. GDARD to continue updating waste management information into GWIS
Goal 4. Alignment with applicable legislation	1. Municipalities to update their waste management By-Laws in line with NEM:WA 2008 2. Municipalities to appoint EMIs 3. Continuous monitoring of waste management facilities in line with the issued WML 4. Municipalities to ensure that waste management facilities are operated in line with the issued WML, the 1998 minimum requirements for waste disposal by Landfill and or/the NEM:WA, 2008 5. Municipalities to ensure that separation of waste at source is implemented
Goal 5. Funding and job creation	1. Municipalities to undertake a full cost accounting exercise for the provision of waste services 2. Municipalities to document financial plans reflecting waste management priorities identified in IWMPs 3. Municipalities to exploit waste as a revenue source through waste management projects/programmes/initiatives 4. Municipalities to ensure radical economic transformation and re-industrialisation of Gauteng through waste
Goal 6. Monitoring selected waste streams	1. Municipalities, GDARD and industries to monitor selected waste stream types (WEEE, HCRW, Tyres and Construction and Demolition Waste and their origin) 2. Municipalities to come up with a system of dealing with household selected waste streams to prevent it from landing in landfill sites 3. Municipalities to identify and establish suitable facilities for selected waste streams within the Province 4. Industries and HCRW generators (hospitals and medical centres) to develop their own IWMPs have regular implementation reviews undertaken 5. GDARD and Municipalities to encourage cleaner and resource efficient production technology for industries

Goal	Strategic Objectives
	6. GDARD and Municipalities to ensure that all generators of selected waste streams comply with the national policies and legislation.

(b) Provincial Strategic Plan 2014 - 2019

The Gauteng Provincial Strategic Plan 2014 – 2019 is built on the vision of “*a radically transformed, modernised and re-industrialised economy in Gauteng*”. Six of the ten pillars have been adopted in the plan outlined in the National Development Plan 2030 which help the province attain its vision.

The six pillars are:

1. Radical economic transformation
2. Transforming the state and governance
3. Modernisation of the public services
4. Modernisation of the economy
5. Re-industrialise Gauteng and South Africa; and
6. Take a lead in Africa’s industrial revolution.

(c) Gauteng Spatial Development Framework 2030 (GSDF)

The Gauteng Spatial development vision of 2030 is the conservation of unbuilt areas of the province for agriculture, agro processing, relaxation and tourism. The GSDF recognises the need for landfill sites with longer lifespans (20 – 30 years) in the majority of the municipalities. Furthermore, limited waste collection services in the low-income areas attributes to pollution and health issues in these communities is identified as an issue in the plan. A significant contribution to the total waste generated in the country comes from the Gauteng Province, therefore there is a huge gap in recycling in this Province.

Five development spatial principles related to waste management were identified:

1. Maintain healthy natural environments and ecosystems
2. Maintain environmental integrity and mitigate or limit stress to the environment
3. Increase the use of natural resources through recycling, limiting transport emission by using zero emission transport and implementing waste reduction measures
4. Create a functional and pleasing, integrated open space system across the province that will add essential cultural services, and enhance other types of ecosystems
5. Protect high-potential agricultural land on the rural-urban fringe to ensure future food security.

(d) Gauteng Green Economy Strategy Framework, 2014 - 2019

In order to radically transform the economy and maximise the potential of the varying sectors, the Province will focus on key priorities. One of the key priorities to be implemented includes innovation driven, knowledge based, smart and green economy. The delivery of this priority

goal will be recognised through collaboration with research institutions to develop an economy that is innovation-driven, knowledge based, smart and green. Programs under the Economic empowerment projects will include establishment of bio digesters, waste to energy projects and industrial waste energy.

1.8.5 Alignment with Regional Strategic Plans

(a) The Sedibeng District Municipality IWMP

The last review of the Sedibeng District Municipality IWMP was undertaken in 2013. Although the district IWMP is currently outdated, it will be considered in the development of the MLM IWMP. Below is a list of strategic goals that were set in the IWMP:

1. Review and implement a waste disposal strategy
2. Ensure that a standard waste disposal service is delivered to the entire District
3. Development of a Waste Information System
4. Develop and implement information dissemination strategies
5. Develop and implement a practical waste minimisation strategy

The goals within the Sedibeng District Municipality IWMP that were applicable to the MLM are included in the table below.

Table 5: Goals for the MLM extracted from the 2013 Sedibeng District Municipality IWMP

Goal 1: Waste disposal infrastructure			
Immediate goals	Short term goals	Medium term goals	Long term goals
Apply for funding through available funding mechanisms for the closure of the Henley on Klip landfill	Proceed with closure application	Conduct site closure	Audit and monitor landfill according to closure conditions
Determine the status of the proposed Walkerville and Vaal Marina landfill WML applications from GDARD	Construct any infrastructure required in terms of the License conditions at the Walkerville and Vaal Marina landfills. Conduct operations according to license conditions	Conduct operations according to license conditions	Continue operations according to license conditions. Audit and monitor landfill site operations
Goal 2: Waste Collection			
Immediate goals	Short term goals	Medium goals	Long term goals
Identify new developments in the municipal area	Implement waste collection services to new developments	Implement waste collection services to new developments	Implement waste collection services to new developments
Identify and compile a map or schedule of serviced and unserved areas within the municipality	Identify various service points for the serviced and unserved areas	Extend services to unserved areas	Update and manage the schedule to ensure all areas are receiving collection services
Budget for and apply for funding through available funding mechanisms in order to conduct a transportation study	Appoint a service provider to conduct a transportation study of the waste collection area	Implement optimum waste collection route as determined in transportation study	Implement optimum waste collection route and make amendments for new developments
Identify indigents that are not receiving waste collection services	Extend free basic waste removal services to indigents	Continue to identify indigents and extend free basic waste removal services	Continue to identify indigents and extend free basic waste removal services
Establish receptacle requirements in all areas within the local municipalities	Determine the funding requirements for receptacles	Implement the receptacle distribution for the identified municipal areas	Continue and extend the receptacle service

Apply for funding through available funding mechanisms in order to conduct a Municipal Services Partnership (MSP) / Section 78 study for waste management services in the municipalities	Conduct MSP / Section 78 study	Implement outcome	
Goal 3: Resource Extension			
Immediate goals	Short term goals	Medium term goals	Long term goals
Personal Resources			
Develop detailed organogram of waste management personnel in terms of the NEMWA requirements	Fill vacant positions and establish positions required for proper waste management	Update organogram and appoint staff in vacant positions	Update organogram and appoint staff in vacant positions
Financial Resources			
Conduct a detailed financial investigation for proper waste management budgeting	Identify shortages in the budget and identify possible funding sources for these shortages and amend budget accordingly. Implement revised budget	Identify shortages in the budget and identify possible funding sources for these shortages and amend budget accordingly. Implement revised budget	Identify shortages in the budget and identify possible funding sources for these shortages and amend budget accordingly. Implement
Review tariffs for waste collection and disposal and identify shortcomings	Implement tariff model (as developed by DEA)	Implement tariff model and amend as required	Implement tariff model and amend as required
Develop strategy for proper revenue collection	Implement revenue collection strategy	Implement and monitor revenue collection strategy	Implement and monitor revenue collection strategy
Equipment Resources			
Review current equipment and identify equipment that needs maintenance and/or replacement	Develop an equipment replacement plan and acquire funding for the implementation of this replacement plan	Replace equipment or extend vehicle fleet as required	Update and amend equipment replacement plan and implement accordingly
Goal 4: Waste Minimisation			
Immediate goals	Short term goals	Medium term goals	Long term goals
Conduct a study to determine whether the following are feasible: - Waste minimisation/recycling - Establishment of composting facilities - Separation at source programs	If feasible , apply for funding through available funding mechanisms for the establishment of waste minimisation infrastructure and equipment	Establish, operate and maintain the waste minimisation infrastructure	Establish, operate and maintain the waste minimisation infrastructure
	If feasible , develop a composting strategy to divert green waste to landfill	Establish a compost recycling plant on the larger town landfill or on the best strategically located landfill	Compost recycling plant fully operational and is operated in a sustainable manner
	If feasible , establish mechanisms for promoting separation at source	Roll out separation at source to 30% of households	Roll out separation at source to 70% of households
Establish Municipal Recycling Forum with stakeholders and hold quarterly forum meetings to co-ordinate waste minimisation in order to encourage growth on the recycling section and to discuss possible initiatives for, or by, entrepreneurs			
Goal 5: Management of Illegal Activities			
Immediate goals	Short term goals	Medium term goals	Long term goals
Develop an Illegal Dumping Management Strategy	Implement Illegal Dumping Management Strategy (for example, place mass containers at identified dumping hot spots)	Implement Illegal Dumping Management Strategy (for example, establish community watch and incentive schemes)	Implement and update Illegal Waste Management Strategy
Clean up illegal dumping areas	Continue cleaning up illegal dumping areas	Continue cleaning up illegal dumping areas	Continue cleaning up illegal dumping areas
Update the by-laws to address the NEMWA requirements	Implement system	Implement system	Implement system
Goal 6: Waste Information System			
Immediate goals	Short term goals	Medium term goals	Long term goals

Establish a Waste Information System (WIS)	Keep proper records of waste quantities and types received at the waste management facilities. Provide information to the District Municipality	Use records for proper planning and decision making	Ensure that the future planning is effectively carried out
Compile a list or database of all industries, private landfills and medical facilities in the municipal area	Compile a list of industry waste management facilities	Ensure that all industrial and medical waste are disposed of in a responsible manner	Ensure that all industrial and medical waste are disposed of in a responsible manner
Goal 7: Education and Awareness			
Immediate goals	Short term goals	Medium term goals	Long term goals
Recruit environmental/ waste education personnel	Develop an education and awareness strategy and training materials to roll out education and awareness campaigns	Continue and revise implementation of education and awareness campaigns in a sustainable manner	Continue and revise implementation of education and awareness campaigns in a sustainable manner
Develop an awareness campaign with regards to waste minimisation and the hierarchy of waste management	Launch awareness campaign in the community, e.g. recycling competition at school level	Amend and continue awareness campaign in order to reach entire community	Amend and continue awareness campaign in order to reach entire community
Develop information dissemination strategies between all stakeholders	Implement information dissemination strategy, for example build community awareness through education	Implement information dissemination strategy, for example communicate with stakeholders on a regular basis in the form of forums or workshops	Implement and amend information dissemination strategy in order to ensure adequate communication between stakeholders
Train waste disposal facility managers / operators to ensure disposal facilities can be operated in accordance with the permit/license requirements.			

1.8.6 Sedibeng District Municipality Waste Management Policy

The Sedibeng District Municipality has a policy, but it was not available for review when this report was drafted.

1.8.7 Alignment with Local Strategic Plans

(a) The Midvaal Local Municipality Integrated Development Plan 2014 – 2019

The Midvaal Integrated Development Plan (IDP) 2014 - 2019 is centred on six promises made by the Mayor:

1. To be youth biased by creating productive activities aimed specifically at the youth
2. To be an open, transparent, honest and responsive government
3. To grow the economy
4. To provide quality and standardised service delivery
5. To create safe communities and environment
6. To fight the demarcation board

Once this IWMP is finalised it will be incorporated into the IDP. As the current IDP covers the period 2014 – 2019 it is anticipated that the IWMP will be incorporated into the next version of the IDP. The incorporation of the IWMP into the IDP is essential in order for budget to be allocated to the projects which will be identified in the implementation plan.

2 *Approach and Methodology*

2.1 Legislated Requirements for Integrated Waste Management Plans

The requirements of the National Environmental Management Waste Act (Act 59 of 2008, as amended) (refer to Table 1) and the DEA Guideline for the Development of Integrated Waste Management Plans were used to guide the development of this IWMP.

2.2 Methodology

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

2.2.1 Integrated Waste Management Plan Review

The 2013 MLM IWMP was reviewed for content and a performance review of the projects listed in the implementation plan was also undertaken.

2.2.2 Literature Review

A review of legislation, strategies and plans were undertaken. This included the following key documents.

- National Waste Management Strategy (2020)
- Gauteng Province IWMP (2018)
- Gauteng Provincial Integrated Waste Management Policy (2006)
- Gauteng Socio-Economic Review and Outlook (2016)
- Sedibeng District Municipality IWMP (2013)
- Sedibeng District Municipality IDP (2017 - 2021)
- Midvaal Local Municipality 2nd Generation IWMP (2013)
- Midvaal Integrated Development Plan (2014 - 2020)
- South African Waste Information Centre (SAWIC) data
- Waste facility permits
- Statistics SA Census 2011 and Community Survey 2016 data

Waste information systems:

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

1. **South African Waste Information System (SAWIS)** – A national waste information system managed by DEFF. Information reported on the SAWIS is publically accessible through the South African Waste Information Centre (SAWIC)
2. **Gauteng Waste Information System (GWIS)** – A provincial waste information system managed by Department of Agriculture and Rural Development

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

2.2.3 Questionnaires

A questionnaire was developed for use when engaging with private companies and industries. The aim of the questionnaire was to capture information on the generation of business, commercial, agricultural and industrial waste with a focus on hazardous waste. A database of industry in MLM was developed based on:

- Companies identified in the project initiation meeting
- Recommendations from the MLM
- Review of members of the Midvaal/Meyerton Business Chamber

2.2.4 Site Visits and Ground-Truthing

A site visit was undertaken in MLM on 20 – 24 January 2020. Details of facilities visited are listed below.

Table 6: Facility inspections undertaken as part of this IWMP

Facility	Date of visit
Galloway Street Transfer Station	21 January 2020
Blackwood Transfer Station	21 January 2020
Henley on Klip Waste Disposal Facility	21 January 2020
Vaal Marina Waste Disposal Facility	23 January 2020
Klip Rivier Transfer Station	23 January 2020
Walkerville Waste Disposal Facility	23 January 2020

2.2.5 Engagements with Stakeholders

The following stakeholders were engaged and interviewed during the visit to the MLM.

Table 7: Stakeholders engaged during the review of this IWMP

Designation	Date	Engagement
Assistant Director: Waste Management	20 & 24 January 2020	Interview & Meeting
Director: Waste and Environmental Management	21 January 2020	Interview
Foreman: Landfill sites	21 January 2020	Interview
Eddie Shabalala: DEFF Local Government Support	24 January 2020	Interview
Manager: Town and Regional Planning	24 January 2020	Interview
Trivania Sudkev	24 January 2020	Interview
Yashin Monileil	24 January 2020	Interview

2.2.6 Project Steering Committee

A project inception meeting was held on 20 and 21 January 2020 during which the project steering committee (PSC) was established. The details of the PSC are presented in the table below.

Table 8: Project Steering Committee Members

Name	Designation	Organisation
Mukhethwa Mudau	Assistant Director: Waste Management	Midvaal Local Municipality
Nono Zandamela	Director: Waste Management	Midvaal Local Municipality
Phethile Kona	Foreman: Waste Disposal Facilities	Midvaal Local Municipality
Janett Seno	DEFF Local Government Support	Sedibeng District Municipality
Eddy Tshabalala	DEFF Local Government Support	Sedibeng District Municipality
Walter Fyvie	Technical Executive	GIBB
Ian Malloy	Project Lead	GIBB
Kate Flood	Technical Lead	GIBB
Ziyanda Makapela	Environmental Scientist	GIBB
Charl Kruger	Environmental Scientist	GIBB

2.2.7 Presentations and Workshops

Since the commencement of the project, 4 presentations for the MLM IWMP were undertaken. These are the:

1. Introduction to the Project and review of the 2013 IWMP
2. MLM IWMP situation analysis workshop/presentation to the PSC and key stakeholders (virtual meeting/presentation)
3. MLM Draft IWMP workshop/presentation to the PSC and key stakeholders (virtual meeting/presentation)
4. MLM Draft IWMP presentation to the municipal technical and waste managers (virtual meeting/presentation)
5. MLM Draft IWMP presentation to the Midvaal Local Municipality Council

Table 9: Presentations and Workshops undertaken during the review of this IWMP

Date	Contents of workshop	Location	No. of attendees	Stakeholders in attendance
20 January 2020	Introduction to the project	Midvaal Local Municipality – Local library boardroom	5	Mukhethwa Mudau Ian Malloy Kate Flood Charl Kruger Ziyanda Makapela
21 January 2020	Review of the previous IWMP implementation status	Midvaal Local Municipality – Local library boardroom	7	Mukhethwa Mudau Nono Zandamela Phethile Khona Ian Malloy Kate Flood Charl Kruger Ziyanda Makapela
13 October 2020	IWMP situation analysis workshop/presentation	Virtual meeting/presentation		Solly Mosidi Mukhethwa Mudau Nono Zandamela Palesa Mathibeli Eddie Tshabalala Ian Malloy Ziyanda Makapela

Date	Contents of workshop	Location	No. of attendees	Stakeholders in attendance
10 December 2020	Draft IWMP workshop/presentation	Virtual meeting/presentation		Solly Mosidi Mukhethwa Mudau Nono Zandamela Dakalo Phaswa Samkelo S Palesa Mathibeli Ian Malloy Kate Flood
02 March 2021	Draft IWMP workshop/presentation	Virtual meeting/presentation		Solly Mosidi Mukhethwa Mudau Ian Malloy Kate Flood
20 April 2021	Draft IWMP workshop/presentation	Midvaal Municipal Offices.		Midvaal Municipality Council

2.2.8 Public Participation Process

The MLM IWMP was made available for a 29-day period from 02-31 March 2021 for the public to comment on the document. The availability of the report was communicated to the public through a newspaper advert in the North Star newspaper, on the municipality's website and social media accounts (Facebook and Twitter). A virtual presentation was proposed for the 17 March 2021, which was communicated in the advert, but no individuals registered for the virtual presentation. A public meeting was therefore not conducted for the public participation process (PPP). Proof of the adverts are available in appendix C.

Due to the covid-19 pandemic the draft IWMP report was not made available as a hardcopy at public locations. The report was made available electronically for review on the municipality's website and the GIBB website. Electronic locations of the IWMP was advertised in the newspaper article and on the municipality's website and Facebook account.

The methodology of the PPP was communicated to the GDARD for approval prior to commencing with the PPP.

No comments were received from the public during the PPP period.

2.2.9 Council Approval

The MLM Council approved the draft MLM IWMP developed for the period 2021 to 2026. The IWMP report was made available to all Council member and was presented to Council on 20 April 2021. Subsequent to this, the Council resolved to approve IWMP and the waste management objectives contained therein. The Council resolution is included in Appendix D.

2.3 Assumptions and Limitations

This situation analysis has drawn information from a number of sources including interviews with the MLM and stakeholders, IWMPs, SAWIC records, GWIS records, MLM records and various literature sources. It is assumed that the information given verbally in interviews and documented information is accurate.

3 Legal Requirements Overview

3.1 South African Legislation

A summary of key South Africa legislation governing waste management is presented in the table below. A more comprehensive summary of South Africa and international waste legislation will be added to the report as **Appendix A**.

Table 10: Key South African waste legislation

Legislation/ guidelines	Summary
Constitution of South Africa (Act 108 of 1996)	Section 24 of the Constitution states that everyone has the right to an environment that is not harmful to their health or wellbeing; and to have an environment protected for the benefit of present and future generations, through reasonable legislative and other measures
White Paper on Integrated Pollution and Waste Management for South Africa (1999)	The White Paper on Integrated Pollution and Waste Management is a subsidiary policy of the overarching environmental management and constitutes South Africa's first policy document focused on integrated waste management. This national policy set out Government's vision for integrated pollution and waste management in the country and applies to all government institutions and to society at large and to all activities that impact on pollution and waste management. The overarching goal of the policy, is integrated pollution and waste management. The intention is to move away from fragmented and uncoordinated pollution control and waste management, towards an approach that incorporates pollution and waste management as well as waste minimisation.
National Environmental Management Act (Act 107 of 1998, as amended)	The objective of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management.
National Environmental Management Waste Act (Act 59 of 2008, as amended)	The act covers a wide spectrum of issues including requirements for a National Waste Management Strategy, IWMPs, definition of priority wastes, waste minimisation, treatment and disposal of waste, Industry Waste Management Plans, licensing of activities, waste information management, as well as addressing contaminated land.
National Pricing Strategy (GN 904 of 2016)	The strategy aims to fund re-use, recovery and recycling of waste through the extended producer responsibility principal.
National Waste Information Regulations (GN 625 of 2013)	These regulations give effect to the South African Waste Information System and specify registration and reporting requirements.
National Domestic Waste Collection Standards (GN 21 of 2011)	These specify methods for how domestic waste should be collected. Consideration is given to an appropriate level of service based on the nature (e.g. rural vs urban) of municipalities

3.2 International Legislation

Table 11: Key international legislation

Legislation/ guidelines	Summary
Basal Convention of the Control of Trans-Boundary Movement of Hazardous Wastes and Their Disposal (1989)	The Basel Convention (1989) is a global agreement which seeks to address the trans-boundary movement of hazardous waste. The convention is centred on the reduction of the production of hazardous waste and the restriction of trans-boundary movement and disposal of such waste. It also aims to ensure that strict controls are in place when any trans-boundary movement and disposal of hazardous waste does occur, and ensures that it is undertaken in an environmentally sound and responsible manner. The key objectives of the Basel Convention are: • To minimise the generation of hazardous wastes in terms of quantity and hazardousness. • To dispose of hazardous waste as close to the source of generation as possible. • To reduce the movement of hazardous wastes. • Locally, draft regulations are being prepared in an effort to control the movement of such waste. In response to the ever growing impact of plastic waste on the environment the Basal Convention was amended in May 2019 to regulate global trade in plastic waste.
Rotterdam Convention (1998)	The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labelling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Parties can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply.
Stockholm Convention	The Stockholm Convention was signed in 2001, South Africa became a party of the convention in 2002 and the convention came into effect in 2004. The Stockholm Convention addresses the management of persistent organic pollutants (POPs), which pose a threat to both health and the environment. Member countries of the convention have agreed to phase out POPs, and prevent their import or export. It imposes restrictions on the handling of all intentionally produced POPs, i.e. identified highly toxic, persistent chemicals. The 12 POPs that have been identified under the convention are aldrin, chlordane, dieldrin, dichloride-diphenyl-trichloroethane (DDT), endrin, Hexachlorobenzene (HCB), heptachlor, mirex, polychlorinated biphenyls (PCBs), toxaphene, dioxins, and furans. DEFF published the National Implementation Plan for the Stockholm Convention of POPs in 2011
London Convention on Prevention of Marine Pollution by Dumping of Waste and Other Matters (1972)	The London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter, 1972, aims to prevent marine pollution by preventing the dumping of wastes such as industrial waste, sewage sludge, dredged material and radioactive waste at sea, as well as incineration at sea. South Africa is a signatory to the convention and the associated 1996 Protocol. This convention and its various protocols were incorporated into the following South African legislation: • Marine Pollution, Prevention of Pollution from Ships Act (Act 2 of 1986), and the regulations concerning the Prevention of Pollution by Garbage from Ships Regulations (GN R1490, published in Government Gazette No. 14000, dated 29 May 1992). • The Dumping at Sea Control Act (Act 73 of 1980).

Legislation/ guidelines	Summary
Montreal Protocol on Substances that Deplete the Ozone Layer (1989)	South Africa is a party to the Montreal Protocol, an international agreement which addresses the phase out of ozone-depleting substances. Regulations to

3.3 Key Changes to Legislation since 2013

The following table presents key changes and updates to waste legislation since the 2013 IWMP.

Table 12: Key Changes to Legislation

Legislation	Key changes
National Norms and Standards for the Storage of Waste (GN 926 of 2013)	New norms and standards to govern the storage of waste. Waste storage facilities no longer require a waste management license. Waste management facilities with the capacity to store in excess of 100m ³ of general waste or 80m ³ of hazardous waste are now required to register in terms of these norms and standard
National Environmental Management: Waste Amendment Act (Act 26 of 2014)	• Substitution and deletion of some definitions • Establish a waste pricing strategy • Establish a waste management bureau • Transitional arrangement for existing industry waste management plans
National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste (GN 1093 of 2017).	These norms and standards were developed to reduce the licensing requirements for low impact waste management activities. The norms and standards are applicable to all facilities where general waste is sorted, crushed, ground, crushed, screened or baled. All facilities where such activities are undertaken need to be registered with the provincial authority. Facilities with an operational area in excess of 1,000m ² need to be registered and comply with all the requirements of the norms and standards.
National Environmental Management Waste Act (GN 1094 of 2017) Amendment to the list of waste management activities that have, or are likely to have, a detrimental effect on the environment.	The list of waste management activities that have, or are likely to have, a detrimental effect on the environment were updated in 2015 to remove low impact activities related to waste management including the sorting, shredding, grinding, crushing, screening and bailing of general waste.
National Pricing Strategy for Waste Management	The key aims of the strategy is to increase the diversion of waste from landfill, reduce the generation of waste and encourage reduction, reuse and recycling of waste. The strategy provides a methodology for setting waste management charges. The strategy identifies three economic instruments for waste management: 1. Downstream instruments – volumetric tariffs (pay-as-you-throw) and waste disposal taxes which would be applied to landfilling or incineration of waste. 2. Upstream instruments – material and input taxes which would apply to virgin materials and hazardous materials, product taxes, advance recycling fees or advance disposal fees, deposit-refund scheme and extended producer responsibility fees. 3. Subsidy-based instruments – recycling subsidies, tax rebates and benefits, capital financing.
3 rd National Waste Management Strategy	The 3 rd generation, 2020 NWMS, presents three strategic goals for improving waste management in South Africa.

4 *Waste Management Performance Review*

4.1 Implementation of 2013 Integrated Waste Management Plan

Goals in the 2013 MLM IWMP were grouped under the following headings:

- Waste disposal Infrastructure
- Waste Collection
- Resource extension
- Waste minimisation
- Management of illegal activities
- Waste information systems
- Education and awareness

A review of the implementation status of each of the goals was undertaken to determine progress made with regards to waste management since the 2013 IWMP.

Goals have been classified as complete, in progress and not commenced, not applicable or to be confirmed. The timeframes for projects have not been considered, for example, if the deadline for a project was 2016, but it was only completed in 2017, it is still listed as complete.

Table 13: Project Status

Status	Description	Immediate goal (1 year)		Short term goal (2 to 3 years)		Medium term goal (3 to 5 years)		Long term goal (5 to 10 years)	
		No. projects	Percentage of projects	No. projects	Percentage of projects	No. projects	Percentage of projects	No. projects	Percentage of projects
Complete	The goal has been achieved	7	25.9%	9	33.3%	7	26.9%	7	28%
In progress	The implementation of a goal is initiated/currently underway but not complete	7	25.9%	8	29.6%	9	34.6%	8	32%
Not commenced	No action has been taken to implement the goal	12	44.4%	8	29.6%	7	26.9%	7	28%
Not applicable	Where a goal is unmeasurable or no longer deemed applicable or the timeframe for the project has not yet passed.	1	3.7%	2	7.4%	3	11.5%	3	12%
Total		27	100%	27	100%	26	100%	25	100%

Table 14: Implementation status of the 2013 IWMP targets

Goal 1: Waste disposal infrastructure (Midvaal)				
	Immediate goals	Short term goals	Medium term goals	Long term goals
Goal 1.1	Apply for funding through available mechanisms for the closure of the Henley-on-Klip landfill	Proceed with closure application	Conduct site closure	Audit and monitor according to closure conditions
Implementation status	Not commenced	Complete	Not commenced	Not applicable
Comment	Funding for the closure of the Henley on Klip landfill site has not been secured. The landfill is currently operating on a closure licence which is valid until 2022	Henley on Klip landfill site was issued with a closure licence valid for 5 years in 2017.	Closure of the landfill site had not commenced. The license requires closures to commence by 2022.	Closure of the site had not yet commenced
Goal 1.2	Determine the status of the proposed Walkerville and Vaal Marina landfill waste management license (WML) applications from GDARD	Construct any infrastructure required in terms of the Licence conditions at the Walkerville and Vaal Marina landfills. Conduct operations according to the licence conditions	Conduct operations according to the licence conditions	Continue operations according to the licence conditions. Audit and monitor landfill site operations
Implementation status	Complete	In progress	In progress	In progress
Comment	The operational licence for the Walkerville waste disposal facility expired in 2017. Vaal Marina was issued with an operational licence in 2014. There is no validity period or closure date stated in the licence	No new infrastructure has been constructed at Walkerville landfill site. At Vaal Marina landfill site a boundary fence has been erected	There is plant on site and waste is covered daily. Vaal Marina landfill – No annual external audits have been undertaken in line with the licence conditions and there are no leachate prevention measures in place. Walkerville – The Walkerville landfill site licence expired in 2017	Vaal Marina landfill- There are 5 boreholes adjacent to the site and they are sampled quarterly. The remaining airspace is estimated to be approximately 8 years, however, no formal airspace determination surveys have been undertaken. External audits were last undertaken in 2016 and GDARD undertakes annual audits
Goal 2: Waste Collection				
	Immediate goals	Short term goals	Medium term goals	Long term goals
Goal 2.1	Identify new developments in the municipal area	Implement waste collection services to new developments	Implement waste collection services to new developments	Implement waste collection services to new developments
Implementation status	Complete	Complete	Complete	Complete
Comment	New developments have been identified and all new developments	According to the Midvaal IDP (2014 - 2019), all new developments within urban areas have access to waste removal services		

	in the MLM receive a weekly collection service.			
Goal 2.2	Identify and compile a map or schedule of serviced and unserved areas within the municipality	Identify various service points for the serviced and unserved areas	Extend services to unserved areas	Update and manage the schedule to ensure all areas are receiving collection services
Implementation status	Complete	Complete	Complete	Complete
Comment	Served and unserved areas have been identified in the MLM.	Served areas receive kerbside collection according to the waste collection schedule in place	According to information supplied by municipal officials, all areas in the municipality receive weekly kerbside collection. The 2016 Community Survey results however, indicate that only 86.8% of households receive weekly kerbside collection service.	According to information supplied by municipal officials, all areas in the municipality receive weekly collection
Goal 2.3	Budget for and apply for funding through available funding mechanisms in order to conduct a transportation study	Appoint a service provider to conduct a transportation study of the waste collection area	Implement optimum waste collection route as determined in the transportation study	Implement optimum waste collection route and make amendments for new developments
Implementation status	Not commenced	Not commenced	Not commenced	Not commenced
Comment	This has not commenced	This has not commenced	This has not commenced	This has not commenced
Goal 2.4	Identify indigents that are not receiving a waste collection service	Extend free basic waste removal services to indigents	Continue to identify indigents and extend free basic waste removal services	Continue to identify indigents and extend free basic waste removal services
Implementation status	Complete	Complete	Complete	Complete
Comment	Indigent households have been identified and those within urban areas receive weekly kerbside collection.	Indigent households have been identified and those within urban areas receive weekly kerbside collection	Indigent households have been identified and those within urban areas receive weekly kerbside collection	Indigent households have been identified and those within urban areas receive weekly kerbside collection
Goal 2.5	Establish receptacle requirements in all areas within the municipality	Determine the funding requirements for receptacles	Implement the receptacle distribution for the identified municipal areas	Continue and extend the receptacle services
Implementation status	In progress	Not commenced	In progress	In progress
Comment	None of the households in the MLM are provided with black bags or bins with the exception of newly built social housing in MLM that received wheelie bins. This is the only area that received wheelie bins from the	The municipality has not taken action towards determining funding requirements for receptacles	Provision for wheelie bins has been made for one of the areas in the municipality	The provision of receptacles is limited to one area in MLM

	municipality. Skip containers are provided for garden waste and rubble around the municipal area in the low income areas.			
Goal 2.6	Apply for funding through available funding mechanisms in order to conduct a Municipal Services Partnership (MSP)/Section 78 study	Conduct MSP/Section 78 study.	Implement outcome	
Implementation status	Not applicable	Not applicable	Not applicable	
Comment				
Goal 3: Resource Extension				
	Immediate goals	Short term goals	Medium term goals	Long term goals
Personnel Resources				
Goal 3.1	Develop detailed organogram of waste management personnel in terms of the NEMWA requirements	Fill vacant positions and establish positions required for proper waste management		
Implementation status	Not commenced	Not commenced		
Comment	The current waste management organogram was last reviewed in 2019. The organogram does not meet the requirements of NEMWA as there is no provision for recycling or waste minimisation staff, or a Waste Management Officer (WMO) position.	There are vacant positions in the current organogram that have not been filled. Furthermore, the waste management organogram needs revision as there are gaps in waste management and there is no designated Waste Management Officer (WMO) in the municipality		
Financial Resource				
Goal 3.2	Conduct a detailed financial investigation for proper waste management budgeting	Identify shortages in the budget and identify possible funding sources for these shortages and amend budget accordingly. Implement revised budget	Identify shortages in the budget and identify possible funding sources for these shortages and amend budget accordingly. Implement revised budget	Identify shortages in the budget and identify possible funding sources for these shortages and amend budget accordingly. Implement revised budget
Implementation status	Not commenced	Complete	Complete	Complete
Comment	The municipality implements a 6% annual increase on waste tariffs. A full cost accounting exercise has not been undertaken	Budget shortcomings have been identified and additional funding sourced from various municipal support grants. Funding was granted by GDARD in 2014 for the establishment of a buy back	Budget shortcomings have been identified and additional funding sourced from various municipal support grants. Funding was granted by GDARD in 2014 for the establishment of a buy back	Budget shortcomings have been identified and additional funding sourced from various municipal support grants. Funding was granted by GDARD in 2014 for the establishment of a buy back

		centre. Additional funds from MIG have been secured for the completion of the buy back	centre. Additional funds from MIG have been secured for the completion of the buy back	centre. Additional funds from MIG have been secured for the completion of the buy back
Goal 3.3	Review tariffs for waste collection and disposal and identify shortcomings	Implement tariff model (as developed by DEA)	Implement tariff model and amend as required	Implement tariff model and amend as required
Implementation status	In progress	Not commenced	Not commenced	Not commenced
Comment	Waste tariffs are updated annually, however they are not informed by a full cost accounting exercise. It can therefore not be determined if the tariffs are cost reflective.	The DEA tariff model has not been implemented and a full cost accounting exercise has not been undertaken	The DEA tariff model has not been implemented and a full cost accounting exercise has not been undertaken	The DEA tariff model has not been implemented and a full cost accounting exercise has not been undertaken
Goal 3.4	Develop strategy for proper revenue collection	Implement revenue collection strategy	Implement and monitor revenue collection strategy	Implement and monitor revenue collection strategy
Implementation status	Not commenced	Not applicable	Not applicable	Not applicable
Comment	A detailed documented strategy for revenue collection was not developed by the municipality.	The strategy was not developed and therefore not implemented.	The strategy was not developed and therefore not implemented or monitored.	The strategy was not developed and therefore not implemented or monitored.
Equipment Resource				
Goal 3.5	Review current equipment and identify equipment that needs maintenance and/or replacement	Develop an equipment replacement plan and acquire funding for the implementation of this replacement plan	Replace equipment or extend vehicle fleet as required	Update and amend the equipment replacement plan and implement accordingly
Implementation status	In progress	In progress	In progress	Not commenced
Comment	The municipality has a fleet replacement policy that provides guidelines with regards to when fleet should be replaced. However, the policy is not implemented appropriately. The fleet coordinator also conducts weekly fleet inspections and schedules vehicles for services and repairs.	The municipality has a fleet replacement policy that provides guidelines with regards to fleet replacement. However, there is no ring fenced budget for the implementation of replacement	New trucks and compactors have been procured on an ad hoc basis since the review of the 2013 IWMP but there remains a huge gap in the waste management fleet	The fleet replacement policy has not been amended or updated since the adoption of the 2013 IWMP
Goal 4: Waste Minimisation				
	Immediate goals	Short term goals	Medium term goals	Long term goals
Goal 4.1	Conduct a study to determine whether the following are feasible: Waste Minimisation/recycling	If feasible, apply for funding through available funding mechanisms for the	Establish, operate and maintain the waste minimisation infrastructure	Establish, operate and maintain the waste minimisation infrastructure

	Establishing of composting facilities	establishment of waste minimisation infrastructure		
Implementation Status	Not commenced	In progress	In progress	In progress
Comment	The municipality has not undertaken a waste minimisation feasibility study since the adoption of the 2013 IWMP	The municipality has secured funding through the MIG and is in the process of developing a buy back centre next to the Galloway transfer station	The MLM is in the process of developing a buy back centre next to the Galloway transfer station.	Operation of the buy back centre has not commenced
Goal 4.2	Conduct a study to determine whether the following are feasible: - Waste Minimisation/recycling - Establishing of composting facilities	If feasible, develop a composting strategy to divert green waste to landfill	Establish a compost recycling plant on the larger town landfill or on the best strategically located landfill	Compost recycling plant fully operational and is operated in a sustainable manner
Implementation Status	Not commenced	Not commenced	Not commenced	Not commenced
Comment	The municipality has not undertaken a waste minimisation feasibility study since the adoption of the 2013 IWMP	The municipality has not developed a composting strategy	This has not commenced. No composting facilities or recycling plans have been developed	No composting facilities or recycling plans have been developed
Goal 4.3	Conduct a study to determine whether the following are feasible: - Waste Minimisation/recycling - Establishing of composting facilities	If feasible, establish mechanisms for promoting separation at source	Roll out separation at source to 30% of households	Roll out separation at source to 70% of households
Implementation Status	Not commenced	In progress	Not commenced	Not commenced
Comment	The municipality has not undertaken a waste minimisation feasibility study since the adoption of the 2013 IWMP	The development of a separation at source strategy is still in the planning phase. Pamphlets for distribution have been developed	No separation at source programs have been rolled out	No separation at source programs have been rolled out
Goal 4.4	Establish Municipal Recycling Forum with stakeholders and hold quarterly forum meetings to coordinate waste minimisation in order to encourage growth on the recycling section and to discuss possible initiatives for or by entrepreneurs			
Implementation status	Not commenced			
Comment	There are no Municipal Recycling Forums in the MLM			
Goal 5: Management of illegal activities				
	Immediate goals	Short term goals	Medium term goals	Long term goals
Goal 5.1	Develop an illegal dumping management strategy	Implement illegal Dumping Management Strategy (for example, place mass	Implement illegal Dumping Management Strategy (for example, establish community watch and incentive schemes)	Implement and update illegal waste management strategy

		containers at identified dumping hot spots)		
Implementation Status	Not commenced	In progress	In progress	In progress
Comment	There is no documented illegal dumping management strategy in place. The MLM does however monitor and map illegal dumping hotspots.	There is no illegal dumping management strategy in place. The municipality only responds to illegal dumping on an ad hoc basis and skip containers were placed in all waste dumping hot spots. All illegal dumping hotspots have been mapped in GIS.	EPWP workers were previously designated as waste rangers and provided with uniforms. They manned all the illegal dumping hot spots from 08h00 to 16h00 and recorded illegal dumping. However, the waste rangers were not administering any fines. This programme has been discontinued	This goal is partially complete as there is no documented illegal waste management strategy in place, however, the municipality responds to illegal dumping on an ad hoc basis
Goal 5.2	Clean up illegal dumping areas.	Continue cleaning up illegal dumping areas	Continue cleaning up illegal dumping areas	Continue cleaning up illegal dumping areas
Implementation Status	Complete	Complete	Complete	Complete
Comment	The municipality cleans up all the illegal dumping hot spots on an on-going basis	The municipality has a designated team for cleaning up illegal dumps. The clean ups are undertaken every Monday	The municipality has a designated team for cleaning up illegal dumps. The clean ups are undertaken every Monday	The municipality has a designated team for cleaning up illegal dumps. The clean ups are undertaken every Monday
Goal 5.3	Update by-laws to address the NEMWA requirements	Draft and promulgate by-laws	Proper enforcement of by-laws	Proper enforcement of by-laws and amend if necessary
Implementation Status	Not commenced	Not commenced	Complete	Complete
Comment	The MLM by laws have not been revised since the adoption of the 2013 IWMP	The MLM by laws have not been revised since the adoption of the 2013 IWMP	Fines for illegal dumping are administered by EMI's and enforced through the municipality's traffic department. They are incorporated in the resident's rates and taxes account	Fines for illegal dumping are administered by EMI's and enforced through the municipality's traffic department. They are incorporated in the resident's rates and taxes account
Goal 5.4	Develop a system for residents to report waste transgressions, for example illegal dumping	Implement system	Implement system	Implement system
Implementation status	Complete	Complete	Complete	Complete
Comment	The municipality has a complaints number that residents can call to report waste transgression. Another way to report is through ward councillors who are also custodians of waste awareness campaigns in their respective wards	The system for reporting waste transgressions is being implemented	The system for reporting waste transgressions is being implemented	The system for reporting waste transgressions is being implemented

Goal 6: Waste information Systems				
	Immediate goals	Short term goals	Medium term goals	Long term goals
Goal 6.1	Establish a Waste Information System (WIS)	Keep proper records of waste quantities and types received at the waste management facilities. Provide information to the District Municipality	Use records for proper planning and decision making	Ensure that the future planning is effectively carried out
Implementation status	In progress	Complete	Not commenced	Not commenced
Comment	The MLM does not have an internal waste information system. Information on tonnage and type of waste disposed at landfill sites is recorded on the DEA spread sheet for capturing on GWIS and SAWIS. Further, a list of illegal dumping hot spots is maintained but there are no reports and the costs for cleaning up illegal dumps is not quantified	All information entering the MLM waste disposal sites is recorded on the DEA spread sheet and submitted to GDARD and GDARD uploads the information onto SAWIS	This has not commenced. There are no documented plans to address waste infrastructure needs	There are no documented plans to address future waste disposal needs. Remaining air space analysis of the landfills has not been formally determined, only estimates based on internal audit findings. Furthermore, there is no ring fenced budget for future waste service needs
Goal 6.2	Compile a list or data of all industries, private landfill and medical facilities in the municipal area	Compile a list of industry waste management facilities	Ensure that all industrial and medical waste are disposed of in a responsible manner	Ensure that all industrial and medical waste are disposed of in a responsible manner
Implementation status	Not commenced	Not commenced	Not Applicable	Not Applicable
Comment	The municipality does not have a database of industries, private landfill and medical facilities in the municipal area	The municipality does not have a database of industry waste management facilities within the municipal area	This goal falls outside the scope of a local municipality as the responsibility for industrial and medical waste lies with DEA	The MLM does not have a hazardous waste landfill site. DEA are responsible for hazardous waste compliance monitoring
Goal 7: Education and Awareness				
	Immediate goals	Short term goals	Medium term goals	Long term goals
Goal 7.1	Recruit environmental/waste education personnel	Develop an education and awareness strategy and training materials to roll out education and awareness campaigns	Continue and revise implementation of education and awareness campaigns in a sustainable manner	Continue and revise implementation of education and awareness campaigns in a sustainable manner
Implementation status	Complete	In progress	In progress	In progress
Comment	Education and awareness is undertaken by DEFF through the District Municipality. Two EMI's who have since resigned were employed	This is undertaken by DEFF as part of the Good Green Deeds strategy launched in March 2019. This is a campaign that seeks to promote a cleaner, greener	This is undertaken by DEFF as part of the Good Green Deeds strategy launched in March 2019. This is a campaign that seeks to promote a cleaner, greener	This is undertaken by DEFF as part of the Good Green Deeds strategy launched in March 2019. This is a campaign that seeks to promote a cleaner, greener

	on a 3 year contract through DEFF and part of their scope of work was environmental education and awareness. The municipality is currently in the process of recruiting new EMI's	environment. The municipality also collaborates with the Letsema DA campaign which covers different topics on all municipal services including waste. There is no documented waste awareness plan.	environment. The municipality also collaborates with the Letsema DA campaign which covers different topics on all municipal services including waste	environment. The municipality also collaborates with the Letsema DA campaign which covers different topics on all municipal services including waste
Goal 7.2	Develop an awareness campaign with regards to waste minimisation and the hierarchy of waste management	Launch awareness campaign in the community, e.g. recycling competition at school level	Amend and continue awareness campaign in order to reach entire community	Amend and continue awareness campaign in order to reach entire community
Implementation status	In progress	Complete	In progress	In progress
Comment	The MLM does not have a documented awareness strategy. On-going waste awareness campaigns are undertaken by the municipality in collaboration with SDM through the Good Green Deeds program. Material for the awareness campaigns is supplied by SDM.	Community and school awareness campaigns are undertaken	Community and school awareness campaigns are on-going	Community and school awareness campaigns are on-going
Goal 7.3	Develop information dissemination strategies between all stakeholders	Implement information dissemination strategy, for example build community awareness through education	Implement information dissemination strategy, for example communicate with stakeholders on a regular basis in the form of forums or workshops	Implement and amend information dissemination strategy in order to ensure adequate communication between stakeholders
Implementation status	In progress	In progress	In progress	In progress
Comment	The MLM undertakes education and awareness campaigns on an on-going basis. There is no documented waste awareness strategy to communicate information to stakeholders	The MLM undertakes education and awareness campaigns on an on-going basis	The MLM undertakes education and awareness campaigns on an on-going basis	The MLM undertakes education and awareness campaigns on an on-going basis
Goal 7.4	Train waste disposal facility managers / operators to ensure disposal facilities can be operated in accordance with the permit/license requirements			
Implementation status	In progress			
Comment	According to information supplied by the municipal officials, licence conditions of all landfills are incorporated in the daily refresher talks to ensure that the facilities are operated in line with their licence requirements			

4.2 Progress towards Compliance with National Waste Management Strategy Goals

A review of the progress in the MLM with regards to the implementation of the 2011 NWMS goals and targets was undertaken as part of the IWMP. Where information was available, an assessment of the compliance with each of the targets was undertaken and documented. A review was undertaken against the 2011 NWMS goals and targets as these targets were used as a guide for the development of the 2013 MLM IWMP.

Table 15 : 2011 National Waste Management Strategy Objectives

Goal	Targets for 2016	Progress to compliance with targets
1. Promote waste minimisation, re-use, recycling and recovery of waste.	25% of recyclables diverted from landfill sites for re-use, recycling or recovery.	The municipality holds no records of recycling occurring within the municipal area by private companies and there are no municipal recycling projects.
	All metropolitan municipalities, secondary municipalities, and large towns have initiated separation at source programmes	Separation at source has not been implemented in the municipality.
	Achievement of waste reduction and recycling targets as set in industry waste management plans (indWMPs) for paper and packaging, pesticides, lighting (CFLs) and tyre industries	The indWMPs for the paper and packaging industry, e-waste, lighting and tyre industries have been submitted to DEFF for adjudication. All of the tyre indWMP have been rejected by DEFF
2. Ensure the effective and efficient delivery of waste services.	95% of urban households and 75% of rural households have access to adequate levels of waste collection services. 80% of waste disposal sites have permits.	91.3% of households have access to a basic refuse removal service (kerbside collection or a communal collection point). - The operational licence for Walkerville landfill site expired in 2017. Henley on Klip is operating on a closure licence and Vaal Marina was issued with an operational licence in 2014, the closure date is not stated in the licence.
3. Grow the contribution of the waste sector to the green economy	69,000 new jobs created in the waste sector. 2,600 additional SMEs and cooperatives participating in waste service delivery and recycling	There are 117 positions in the MLM organogram for waste management, of these, only 71 are filled.
4. Ensure people are aware of the impact of waste on their health, well-being and the environment.	80% of municipalities running local awareness campaigns 80% of schools implementing waste awareness campaigns	- The MLM is running monthly school and community awareness campaigns with a focus on different Environmental topics. A number of waste awareness campaigns were undertaken between February 2018 and February 2019. - MLM also collaborates with the Democratic Alliance led campaign, Letsema. The campaign focuses on numerous issues which includes waste awareness in schools
5. Achieve integrated waste	All municipalities have integrated their IWMPs with their IDPs, and have met the targets set in IWMPs	The previous IWMP projects were incorporated into the MLM IDP

Goal	Targets for 2016	Progress to compliance with targets
management planning.	All waste management facilities required to report to SAWIS have waste quantification systems that report information to WIS	- The MLM met 26.1% of its long term goals, 30.4% medium term goals, 34.8% of its short term goals and 8.7% of the goals that were set are not applicable - All operational municipal waste management facilities in the MLM are reporting to GWIS. The GWIS system is linked to SAWIS.
6. Ensure sound budgeting and financial management for waste services	All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost reflective tariffs	The MLM has not undertaken a full cost accounting exercise to determine the true cost of waste management services.
7. Provide measures to remediate contaminated land.	- Assessment complete for 80% of sites reported to the contaminated land register - Remediation plans approved for 50% of confirmed contaminated sites.	- External airspace determination have not been undertaken for the facilities to determine the remaining lifespan and no closure applications have been undertaken - There are no rehabilitation plans for facilities and no ring-fenced rehabilitation fund.
8. Establish effective compliance with and enforcement of the Waste Act	50% increase in the number of successful enforcement actions against non-compliant activities. 800 environmental management inspectors (EMIs) appointed in the three spheres of government to enforce the Waste Act	- Fines for illegal dumping are administered by EMI's and enforced through the municipality's traffic department. They are incorporated in the resident's rates and taxes account - There are no EMIs in the MLM. According to the organogram, there are two vacant posts.

5 *Situation Analysis*

5.1 Scope and Purpose of the Situation Analysis

The situation analysis is the first step of any IWMP. It is important to note that the situation analysis is a snap shot of the current status of waste management. Due to changes in legislation and on-going operational changes, the situation analysis is constantly evolving. A detailed review of the situation analysis is therefore required at least in line with the five-year review of the IWMP.

The situation analysis addresses all aspects of waste management from waste infrastructure to institutional capacity and funding of waste management services.

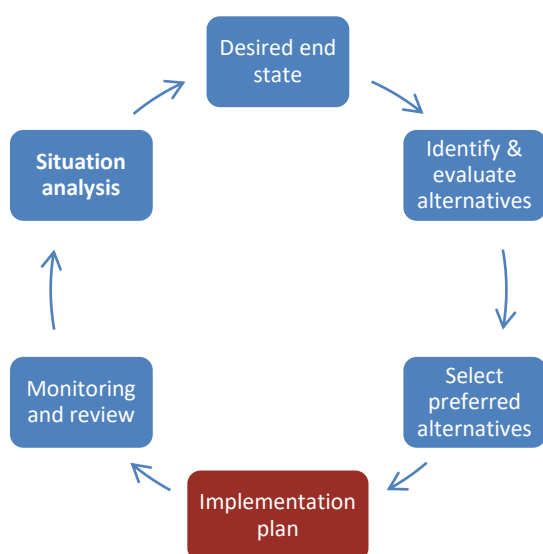


Figure 4: IWMP planning phases – situation analysis

5.2 Demographics

Data presented in the following section has been sourced from the Provincial Profile of the Gauteng Province which was prepared by Stats SA based on the results of the 2016 Community Survey and the Census 2011. All data presented below is from the Community Survey 2016 and the Census 2011, unless specified otherwise.

Population

The population of the MLM between 2011 and 2016 increased by 17.12 % from 95,301 to 111,612 which was a 3.21% annual population increase. This was much higher than the growth of the SDM from 2011 to 2016 as the population increased by 4.5% for this period.

Table 16: Population profile

Municipality	Population			
	Census 2001	Census 2011	CS, 2016	% changes 2011 to 2016
Emfuleni LM	657,949	721,663	733,445	1.63
Lesedi LM	71,868	99,520	112,472	13.01
Midvaal LM	64,271	95,301	111,612	17.12
Sedibeng DM	796,756	916,484	957,528	4.40

Ethnic Profile (Community Survey 2016)

The majority of the population in the MLM is Black African (58.4%). Indian/ Asian is the smallest ethnic group, constituting only 0.8% of the population of MLM.

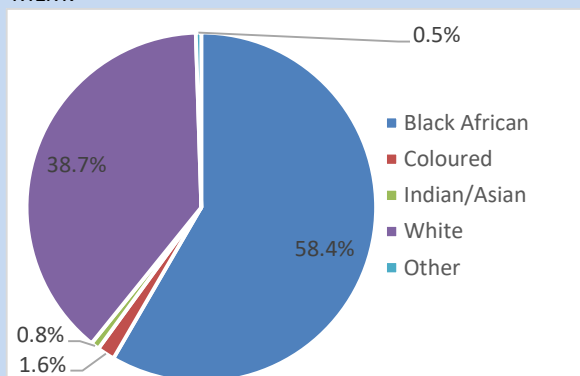


Figure 5: Ethnic profile

Language (Census 2011)

All of South Africa's national languages are represented in the MLM. Afrikaans is the most common home language (30.2%) in MLM followed by Sesotho (27.3%).

Table 17: Language profile

Language	Percentage of population
Afrikaans	30.2%
Sesotho	27.3%
English	13.7%
IsiZulu	11.5%
IsiXhosa	5.2%
Other	2.3%
Sepedi	1.8%
Xitsonga	1.7%
Setswana	1.6%
isiNdebele	0.9%
Sign language	0.6%
Tshivenda	0.5%
SiSwati	0.4%
Not applicable	2.3%

Households

The number of people per household in the MLM in 2011 was 3.2 and in 2016 was 2.9. The number of houses in MLM increased from 95,301 in 2011 to 111,612 in 2016.

Table 18: Household profile (CS, 2016 and Census 2011)

Municipality	Census 2011		CS, 2016	
	No. households	Ave. Size	No. households	Ave. Size
ELM	220,131	3.2	253,488	2.9
LM	29,664	3.4	39,294	2.9
MLM	29,961	3.2	38,046	2.9
SDM	279,756	3.3	330,828	2.9

Education

Table 19: Education profile (Highest level of education for population aged 20 years and older, CS 2016)

Schooling level	% of population
No schooling	7.8
Primary school	6.1
Secondary school	77.1
Higher School	9.1

Only 9.1% of the population of MLM has a higher education and 7.8% of the population have no schooling.

5.3 Type of Housing and Access to Services

Data presented in the following section has been sourced from the Provincial Profile of Gauteng which was prepared by Stats SA based on the results of the 2016 Community Survey.

Type of Dwelling

The majority of residences in MLM are formal dwellings (82.9 %); 0.1% of dwellings are traditional dwelling and 16.6% are informal dwellings.

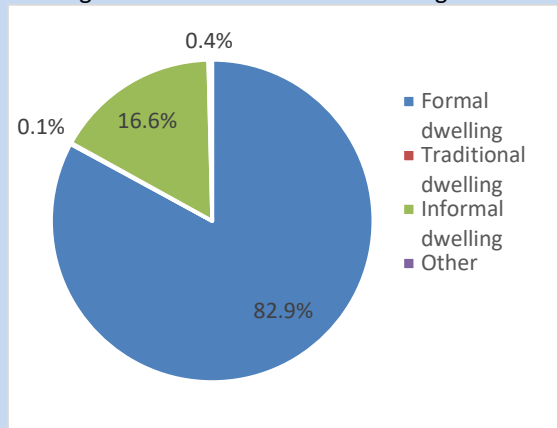


Figure 6: Houses by type of dwelling

RDP/ Government Subsidised Dwelling

A significant portion of households in MLM are either RDP or government subsidised (16.9 %).

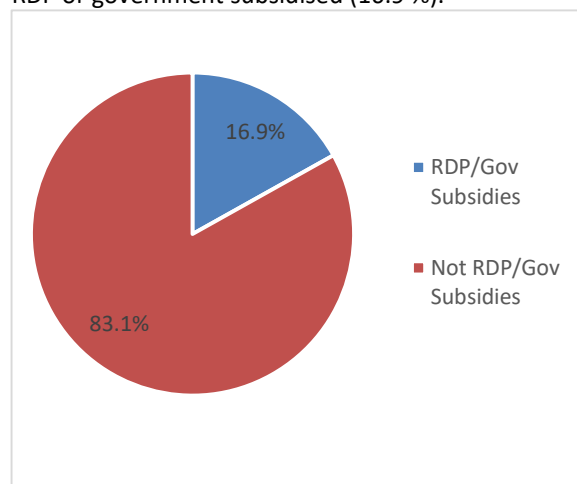


Figure 7: RDP/ government subsidy status of households

Toilet Facilities

The majority of households in MLM have flush toilets which are connected to a municipal sewer system or conservancy/ septic tank.

Table 20: Access to toilet facilities

Toilet facility	No. households	% of households
Flush toilet (connected to a public sewage system)	23,816	63%
Flush toilet (connected to a septic tank /conservancy)	6,429	17%
Chemical toilet	2,092	6%
Pit latrine (with ventilation pipe)	1,027	3%
Pit latrine (without ventilation pipe)	1,826	5%
Ecological toilet/Other	532	1%
Bucket toilet (emptied by municipality)	1,750	5%
Bucket toilet (emptied by household)	76	0%
None	456	1%
Total	38,004	100%

Access to Safe Drinking Water

The majority of households in MLM (95 %) have access to safe drinking water. 2,015 households (5 %) do not have access to safe drinking water.

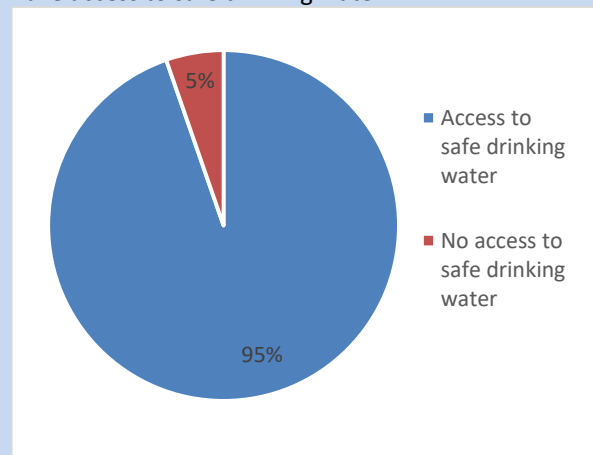


Figure 8: Access to safe drinking water

Access to Electricity

The majority of households in MLM have access to electricity which is used for cooking, light, water heating and space heating.

Table 21: Type of energy used for different household activities

Activity	Energy source used			Total
	Electricity	Other	None	
Cooking	76.5	23.14	0.34	100
Lighting	82.35	17.52	0.13	100
Water heating	79.19	19.76	1.05	100
Space heating	68.60	18.65	12.74	100

Access to Refuse Removal Services

Table 22: Households access to refuse services

Service	Percentage of households
Removed weekly	82.9
Removed less often	1.4
Communal refuse dump	8.2
Communal container	0.1
Own refuse	6.1
No refuse disposal	0.5
Other	0.9

Access to Internet

Only 23% of households have access to the internet.

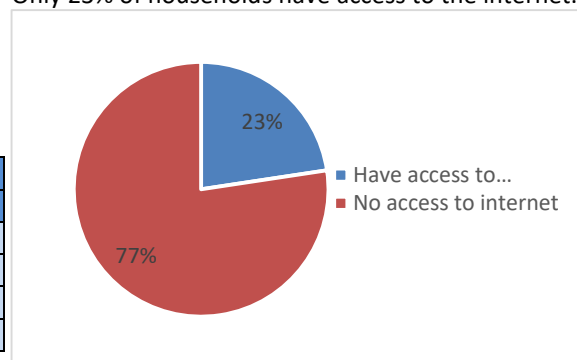


Figure 9: Access of households to the internet

The majority of households in MLM have access to kerbside collection service for refuse.

In 2020, a total of 9513 households (7%) were registered as indigent in the MLM. In 2011, 16,868 individuals (17.7%) were living below South Africa's Food Poverty Line and 21,538 individuals (22.6%) were living below South Africa's Upper-Bound Poverty Line. These Poverty Lines were used to indicate poverty and the poor households in the MLM and South Africa.

5.4 Local Economy

Employment (in those aged 15 – 64)

56% of the population in the age bracket 15 – 64 are employed, 13% are unemployed and 3% are discouraged work seekers. The remaining 29% are not economically active.

Table 23: Employment status is those aged 15 – 64 (Census 2011)

Employment Status	No.	%
Employed	37,336	56%
Unemployed	8,620	13%
Discouraged work seeker	1,939	3%
Not economically active	19,287	29%
Total	67,182	100%

Household Income

Table 24: Average household income (Census 2011)

Average Household Income	% of households
No income	14.5
R1 - R,4800	3.2
R 4,801 - R 9,600	4.9
R9,601 - R19,600	14.8
R19,601 - R38,200	16.4
R38,201 - R76,400	12.4
R76,401 - R153,800	10.3
R153,801 - R307,600	10.9
R307,601 - R614,400	8.3
R614,001 - R1,228,800	3.1
R1,228,801 - R2,457,600	0.7
R2,457,601+	0.5
Total	100.0

5.4.1 Gross Domestic Product

The total gross domestic product (GDP) for the Sedibeng District Municipality (SDM) was R42.7 billion in 2013, of which the MLM contributed R6.52 billion. The MLM however had the highest average annual economic growth for the District, averaging 5.4% between 2003 and 2013. The table below presents the municipal contributions to the SDM GDP and the average annual economic growth rate for each local municipality.

Table 25: Local municipalities of the Sedibeng District Municipality contributions to the GDP and the average annual economic growth rate (Midvaal IDP, 2014 – 2019)

District	GDP (2013)	Share of district municipality GDP	Average annual economic growth rate
Emfuleni	R32.7 billion	76.6%	3.12%
Midvaal	R6.5billion	15.3%	5.4%
Lesedi	R3.5 billion	8.1%	4.3%
Sedibeng	R42.7	100%	

The contributors to the local Gross Domestic Product per Region (GDPR) are as follows:

- 31.5%: Tertiary sector – government, community and social services, infrastructure services
- 66.8%: Secondary sector - manufacturing, wholesale and retail trade, finance and property, etc.
- 1.7%: Primary Sector - agriculture, forestry, fishing, mining and quarrying.

The economic activity by contributing sector is indicated in the pie chart below.

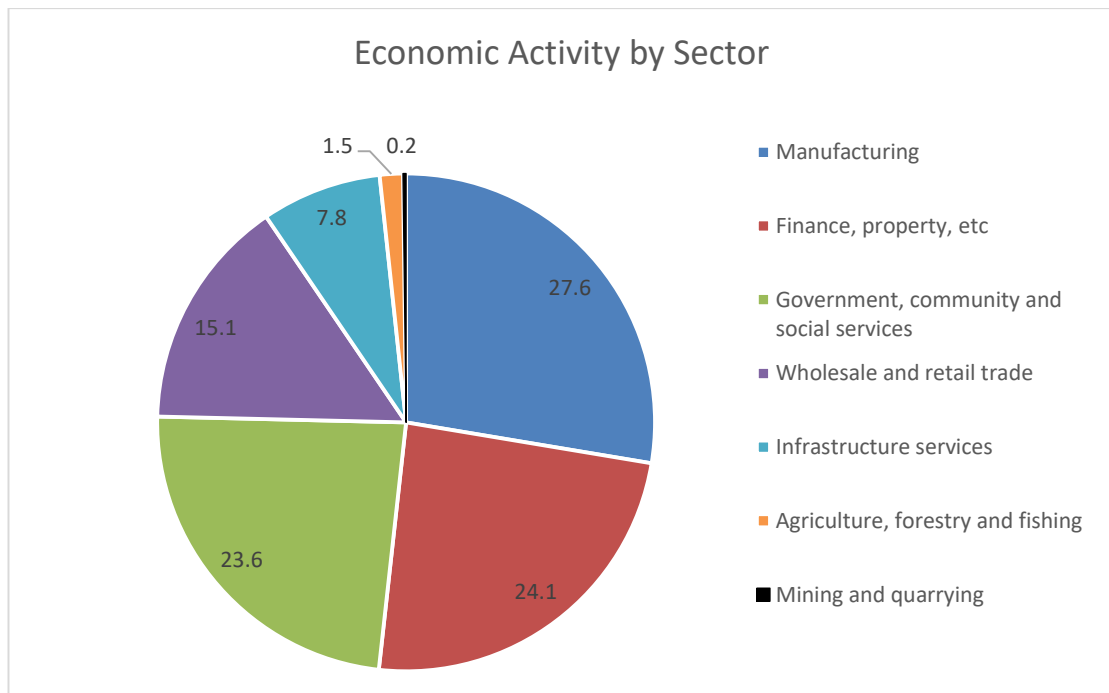


Figure 10: The economic activity by sector for the Midvaal Local Municipality (IDP 2014 - 2019)

According to the Midvaal IDP 2014 - 2019, the municipality has the potential to diversify its economy and grow the manufacturing, tourism, agriculture and construction sectors. This is also emphasised in the spatial development framework where these sectors are were highlighted to have a comparative advantage for development. The diversification of the economy promotes growth within the municipal area and allows the economy to be resilient to negative impacts to any specific sector.

5.5 Waste Profile

5.5.1 Domestic Waste Profile

A waste characterisation exercise was undertaken for the MLM with the aim to determine the profile of domestic waste being disposed of to landfill. The following sections describe how the characterisation was undertaken and the results achieved.

(a) Methodology

Waste was surveyed from a low income area in Meyerton (Bantu Bonke) and a high income area in Meyerton (Helderstroom). Waste was collected from a randomised selection of 9 households in low income area and 8 households from the high income area. All the waste put out for collection at each of these houses was collected to ensure the results were not skewed due to any type of separation of waste types into different bags or containers. Waste was collected in two separate vehicles for the different income areas on the weekly collection day ahead of the collection truck, and transported to Henley on Klip landfill site for characterisation. A total of 12 bags were collected from Bantu Bonke, and 29 bags from Helderstroom.

The sorting team, which consisted mostly of MLM EPWP workers, was trained on identifying the different categories of waste as well as important sorting procedures to minimize the risk of weighing or sorting errors. Pictures and explanation of different waste types were used during the training.

Waste was sorted by hand into 22 different categories of recyclable and non-recyclable waste, including seven categories of plastics. The following categories of waste were weighed individually and recorded.

Table 26: Categories of waste weighed and sorted

Waste Type	Examples
Plastics	
PET 01	Bottles (coke, water), food jars
PE-HD 02	Bottles (milk, shampoo)
PVC 03	Water piping
PE-LD 04	Carrier bags
PP 05	Microwave containers
Polystyrene 06	Take away cartons
Other 07	CDs
Paper & cardboard	
Paper	Office (all colours)
Corrugated cardboard	Brown corrugated packaging boxes
Non-corrugated cardboard	Cereal boxes
Other paper	Glossy magazines
Glass	
E-waste	
E-waste	TVs, PC components, cell phones, cables, clocks, phones, calculators, electrical equipment

Waste Type	Examples
Metal	
Metal	Aluminium, metal, cans, tins, foil
Organics	
Garden waste	Grass cuttings, leaves cuttings, weeds, plants
Food waste	Kitchen waste, food waste, vegetable peelings
Wood waste	wood waste
Hazardous waste	
Health care risk waste	Pharmaceutical waste, medicines (including packaging)
Household hazardous waste	Oil paint, motor oil, pesticides and herbicides, fluorescent lamps
Nappies	
Nappies	Including sanitary towels, baby wipes
Construction & Demolition	
Construction Waste	Construction rubble, bricks
Other	
Fines	Material too small to sort, clothing material

The one-day characterisation means that samples could not account for possible seasonal variation in waste.

(b) Waste Characterisation Results

The results for the domestic waste stream characterisation are presented in the tables and figures below.

Table 27: Domestic waste stream composition (Results as % of waste stream by weight)

Waste Type	Description	Quantity (kg) composition low income	% Composition low income	Quantity (kg) composition high income	% Composition high income	Combined Quantity (kg) composition	Combined % Composition
PET 01	Bottles (Coke, water), food jars	2.20	1.75	6.36	6.16	8.56	3.66
PE-HD 02	Bottles (milk, shampoo)	2.08	1.65	4.83	4.67	6.91	2.95
PVC 03	Water piping	2.50	1.98	0.07	0.07	2.57	1.10
PE LD 04	Carrier bags	7.76	6.16	10.90	10.55	18.66	7.97
PP 05	Microwave containers	4.72		3.10	3.00	7.82	3.34
Polystyrene 06	Take away cartons	0.79	0.63	0.51	0.49	1.30	0.56
Other 07	CDs	1.95	1.55	0.35	0.34	2.30	0.98
Plastics subtotal		17.28	13.71	26.12	25.28	48.12	20.56
Paper	Office (all colours)	3.41	2.71	1.74	1.68	5.15	2.20
Corrugated cardboard	Brown corrugated boxes	3.38	2.68	14.41	13.95	17.79	7.60
Non-corrugated cardboard	Cereal boxes	4.23	3.36	3.42	3.31	7.65	3.27
Other paper	Glossy magazines	2.27	1.80	2.81	2.72	5.08	2.17
Paper & cardboard subtotal	-	13.29	10.55	22.38	21.66	35.67	15.24
Glass subtotal		6.05	4.80	20.15	19.50	26.20	11.19
E-Waste subtotal		0.01	0.01	3.33	3.22	3.34	1.43
Metal subtotal		4.08	3.24	2.58	2.50	6.66	2.85
Organic	Garden waste	14.62	11.60	1.11	1.07	15.73	6.72
Organic	Food waste	19.30	15.32	7.36	7.12	26.66	11.39
Organic	Wood waste	0.84	0.67	3.10	3.00	3.94	1.68
Organics subtotal		34.76	27.59	11.57	11.20	46.33	19.80
Hazardous Waste	Health care risk waste	0.64	0.51	0.58	0.56	1.22	0.52
Hazardous Waste	Household	0.27	0.21	0.19	0.18	0.46	0.20
Hazardous subtotal		0.91	0.72	0.77	0.75	1.68	0.72

Waste Type	Description	Quantity (kg) composition low income	% Composition low income	Quantity (kg) composition high income	% Composition high income	Combined Quantity (kg) composition	Combined % Composition
Nappies		41.70	33.10	4.28	4.14	45.98	19.65
Construction waste subtotal		1.71	1.36	4.42	4.28	6.13	2.62
Other clothing material subtotal		6.21	4.93	7.73	7.48	13.94	5.96
Total		126.00	100.00	103.33	100.00	234.05	100.00

Table 28: Waste characterisation results summary

Waste category	% Composition - Low Income Households	% Composition - High Income Households	% Composition - Combined Households
Plastics	13.71	25.28	20.56
Paper & cardboard	10.55	21.66	15.24
Glass	4.80	19.50	11.19
E-waste	0.01	3.22	1.43
Metal	3.24	2.50	2.85
Organics	27.59	11.20	19.80
Hazardous & HCRW	0.72	0.75	0.72
Nappies	33.10	4.14	19.65
Construction	1.36	4.28	2.62
Other	4.93	7.48	5.96

Waste Characterization Results - Low Income Households

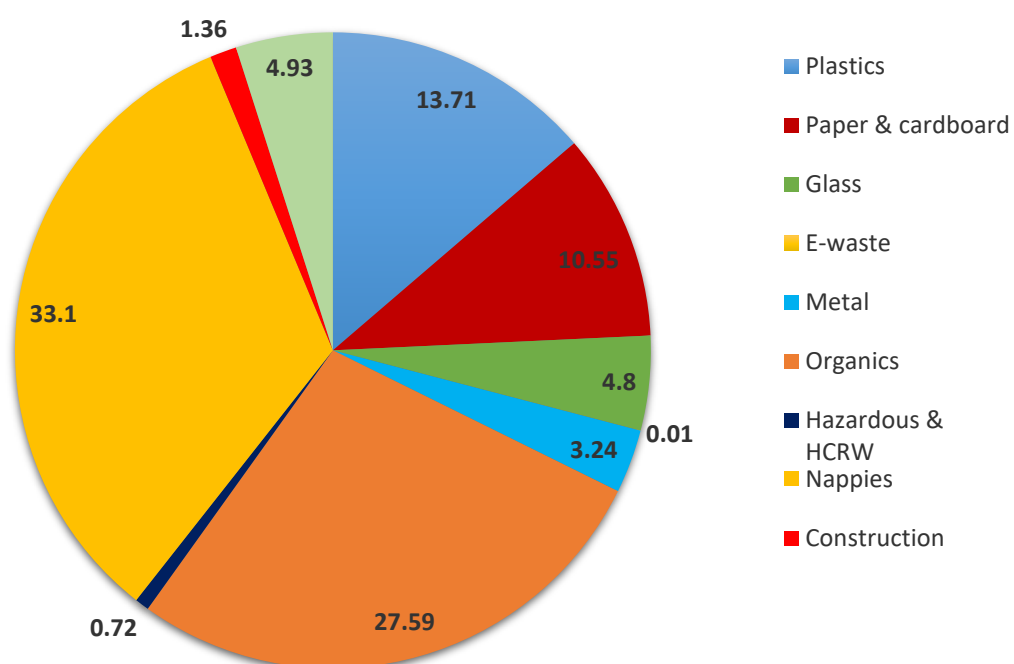


Figure 11: Waste characterisation results – low income households

Waste Characterization Results - High Income Households

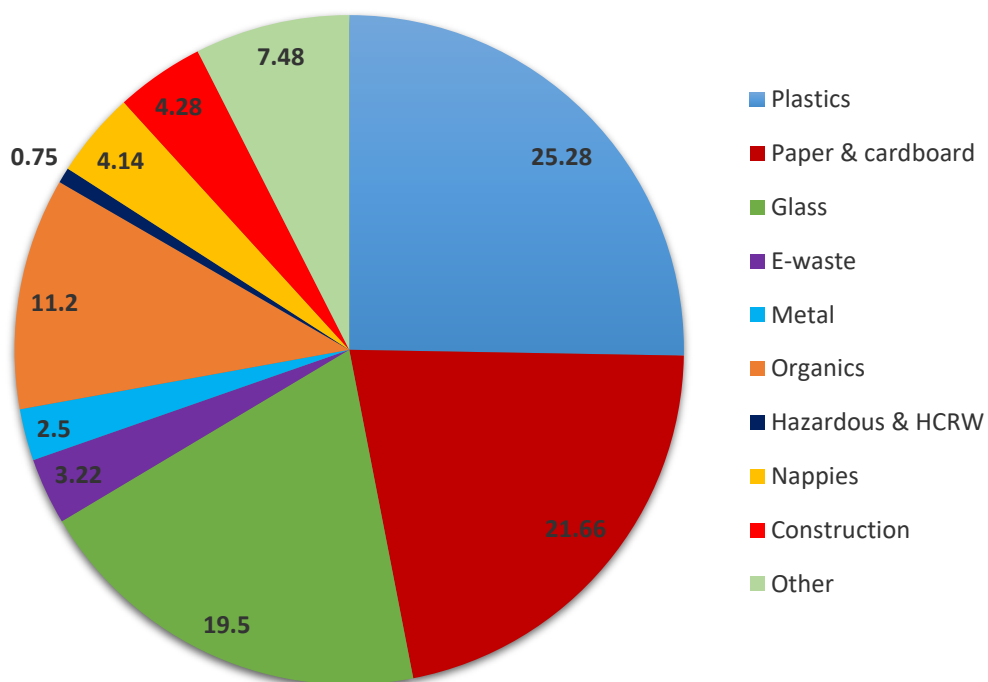


Figure 12: Waste characterisation results – high income households

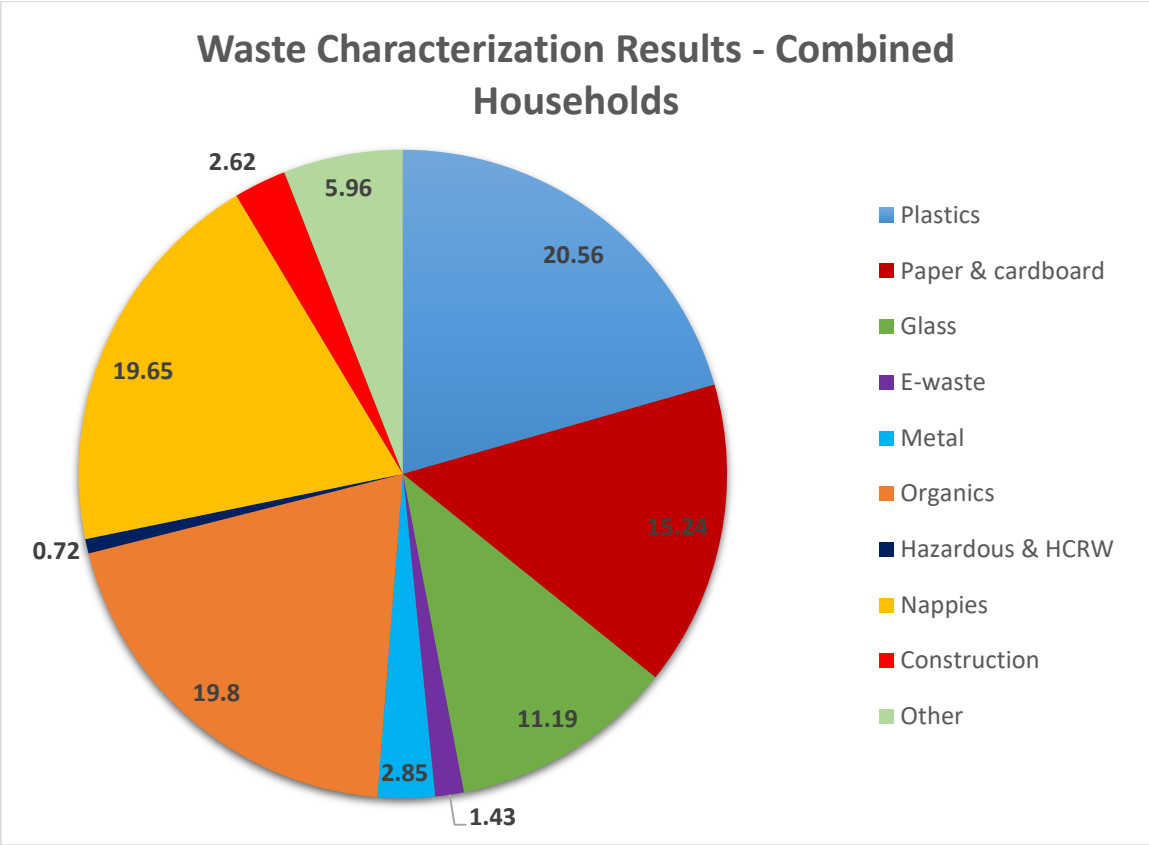


Figure 13: Waste characterisation results – combined households





Figure 14: A: Bins used to sort different waste types, B: waste sorting, C&D: low income area waste collection, E&F: high income area waste collection.

On average the largest category of the domestic waste stream was plastic waste, comprising a total of 20.56% of the waste stream. Plastic waste was composed of 7 different kinds of plastic: Coke or water bottles (3.66%), shampoo or milk bottles (2.95%), water piping (1.10%), carrier bags (7.97%), microwave containers (3.34%), take away cartons (0.56%) and cd's (0.98%). This finding highlights the opportunity for plastic recycling to significantly reduce the volume of waste disposed to landfill. Separation of recyclables at source is required to take full advantage of recycling because contamination can reduce the quality and quantity of recyclable material. A total of 49.84% of the domestic waste stream sample was composed of recyclable materials (paper, cardboard, metal, glass and plastics).

The following observations are made for the different waste types:

(i) Plastics

Plastic waste was the largest category of waste in the characterisations by weight. Details of the different sub-categories of plastic are presented in Section C below. During the waste characterisation, as far as possible organic waste was removed from plastic packaging and placed into the organics bin, however some contamination of plastic may have occurred which would have increased the mass of plastics recorded.

(ii) Paper and cardboard

The majority of this category was composed of corrugated cardboard, consisting of mainly cardboard boxes which made up 7.60% of the total waste stream sample. In total the paper and cardboard category made up 15.24% of the waste sample.

(iii) Glass

Glass accounted for 11.19% of the total waste sample. Glass beverage bottles accounted for most of the glass for the waste sample.

(iv) E-waste

E-waste recorded 1.43% of the total waste sample. E-waste found in the sample included electrical equipment, cables and other e-waste.

(v) Metal

A total of 2.85% of the waste sample was composed of metal. Most of the metal found in the domestic waste stream was empty food tins and drink cans.

(vi) Organics

Organic waste was the third largest category with a total weight of 19.80%. Organic waste was composed of three sub-categories: garden waste (6.72%), food waste (11.39%) and wood waste (1.68%). The low-income area waste sample contained more food waste than the high-income area sample. This difference may be attributed to better awareness in the high-income area to use food waste for compost in their gardens.

(vii) Nappies

Nappies were the second largest category and constituted 19.65% of the total waste sample. This category included used nappies and sanitary towels. There is a notable difference between the low-income area which recorded a mass of 41.7kg and the high-income area with a mass of only 4.28kg.

(viii) Health care risk waste

Health care risk waste was the lowest category with only 0.72% of the total waste sample. HCR waste found in the sample included medicines and empty medicine packaging.

(ix) Construction waste

Construction waste constituted 2.62% of the total waste sample and was largely composed of concrete and bricks.

(x) Other waste

This waste constituted all the fines that could not be sorted. And the total weight was 5.96%. This category gives an indication of the proportion of the domestic waste stream that cannot be composted or recycled because it is mixed organic and non-organic waste. If waste was separated at source, this proportion of fines that are 'lost' out of the compostable / recyclable material could be reduced.

(c) Plastics Waste Stream Characterisation

The plastics fraction of the sample was further separated to better understand the recycling potential for plastics. These were separated into six fractions as shown in the table below.

Table 29: Description of different categories of plastics

SPI Code	Type	Acronym	Examples
1	Polyethylene Terephthalate	PET	Fizzy drink and still water bottles.
2	High density Polyethylene	PE-HD	Milk bottles, juice bottles and some detergent bottles, plastic bags.
3	Polyvinyl Chloride	PVC	Plastic pipes
4	Low density Polyethylene	PE-LD	Bread bags, soft plastic bags, cling wrap
5	Polypropylene	PP	Butter and yoghurt containers, crinkly food wrappers
6	Polystyrene	PS	Take away containers and utensils
7	Other	P7	Cd's

Note: Plastic containers are often labelled with a Society of Plastic Industry code (SPI). These codes were devised in 1988 to aid identification of plastics for recycling purposes. Use of the codes on plastic packaging is voluntary.

The following table presents the plastic characterisation results.

Table 30: Plastic characterisation results

Plastic category	% of the total waste sample	% of total plastic
1 - PET	3.66	17.80
2 - PE-HD	2.95	14.35
3 - PVC	1.10	5.35
4 - PE-LD	7.97	38.76
5 - PP	3.34	16.25
6 - Polystyrene	0.56	2.72
7 – Other plastics	0.98	4.77
Sub-total	20.56	100.00

5.5.2 Hazardous, Business and Industry Waste Profile

To be added based on the outcome of engagement with business and industry.

5.6 Waste Generation

The data below is sourced from GWIS accessed on 19 February 2021. The tonnages of waste recorded on GWIS and SAWIS vary significantly, and this can be attributed to GWIS recording data more frequently than SAWIS. As per the results for the domestic waste characterisation, 49.84% of the domestic waste stream is composed of recyclable material.

5.6.1 Domestic Waste Generation and Disposal

Waste generation varies throughout the year and in the MLM. The data in the table below presents the waste disposal data for 2019 and 2020. A noticeable difference is that waste disposal tonnages decreased from 5,127.7 tonnes per month in 2019 to 3,556.4 tonnes per month in 2020. This is as a result of the covid-19 pandemic and the national lockdown experienced in 2020 causing a decrease in waste generation.

Table 31: Domestic waste disposal records (tonnes) for the MLM (January 2019 – December 2020, data source GDARD, GWIS sourced 19/02/2021)

Month	General waste	Month	General waste
January	4,521	January	4,016
February	4,101	February	4,076
March	12,605	March	5,049
April	4,429	April	2,080
May	5,178	May	1,954
June	3,941	June	2,794
July	5,015	July	2,040
August	4,531	August	4,106
September	4,485	September	5,638
October	4,951	October	5,296
November	4,848	November	3,000
December*	2,927	December*	2,629
Total	61,532	Total	42,677
Ave. per month	5,127.7	Ave. per month	3,556.4

5.6.2 Hypothetical Domestic Waste Generation Rates

This section presents a theoretical calculation of the likely total quantity of waste generated in the MLM using population data and published “per capita” waste generation rates.

The South Africa State of Environmental Report, 2006 (SOER) calculates waste generation volumes per income level as follows:

- Low income 0.41 kg/ person/ day = 149.65 kg/ person/ year.
- Middle income 0.74 kg/ person/ day = 270.1 kg/ person/ year.
- High income 1.29 kg/ person/ day = 470.85 kg/ person/ year.

The SOER figures for waste generation are also used in the Department of Environmental Affairs Guideline for the Development of Integrated Waste Management Plans (IWMPs). The DEFF IWMP guideline also presents the following income brackets:

- Low income R 0 – R 74,999 per year.
- Middle income R 75,000 – R 999,000 per year.
- High income R 1 million + per year.

The MLM income profile was determined based on StatsSA records (Census Data, 2011) and an estimated 2020 population figure of 135,156 people from the 2019/2020 Midvaal IDP was used to calculate the theoretical domestic waste generation tonnages presented in table 32 below:

Table 32: Theoretical calculation of domestic waste produced in the MLM

Waste generation/ income group	Income group	% of population	No. person	Waste generation tonnes/day	Waste generation tonnes/ annum
Low income 0.41kg/person/ day	No income	14.5%	19,598	7.5	2,748
	R1 - R,4800	3.2%	4,325	1.7	606
	R 4,801 - R 9,600	4.9%	6,623	2.5	929
	R9,601 - R19,600	14.8%	20,003	7.7	2,805
	R19,601 - R38,200	16.4%	22,166	8.5	3,108
	R38,201 - R76,400	12.4%	16,759	6.4	2,350
Sub-total			89,473	34.4	12,547
Medium income 0.74kg/person/ day	R76,401 - R153,800	10.3%	13,921	9.7	3,523
	R153,801 - R307,600	10.9%	14,732	10.2	3,729
	R307,601 - R614,400	8.3%	11,218	7.8	2,839
	R614,001 - R1,228,800	3.1%	4,190	2.9	1,060
Sub-total			44,061	30.6	11,152
High income 1.29kg/person/ day	R1,228,801 - R2,457,600	0.7%	946	1.1	417
	R2,457,601+	0.5%	676	0.8	298
Sub-total			1,622	2.0	716
	Total	100%	135,156	66.9	24,414

Based on the above estimation, a total of 66.9 tonnes of domestic waste per day or 24,414 tonnes per year were generated in 2020 within the MLM.

There is a large difference between the reported waste quantities from the GWIS data (Table 31) and the theoretical ones (Table 32). The GWIS data (60,532 tonnes in 2019 and 42,677 tonnes in 2020) is significantly higher than the hypothetical calculations of domestic waste generated in 2020 (24,414 tonnes/annum). Possible explanations of this variation are:

- The income levels of the population were calculated based on Census 2011 data. This data set is 9 years old. There may since have been some change in the representation of the different household income in the MLM.
- Waste is disposed of by residents and businesses of neighbouring municipalities at the MLM landfill sites and transfer stations and this is not recorded as such on GWIS to indicate from which municipality the waste is generated.
- The waste generation categories per income level are not in-line with actual waste generation rates for residents of MLM.
- There is no operating weighbridge at the MLM landfill sites or transfer stations. Waste tonnages are therefore estimated from waste volumes disposed of at the landfill sites. An overestimated volumetric estimation of waste disposed of or an over predicted density of waste type disposed of can increase the tonnage of waste calculated and reported to GWIS.

5.6.3 Business and Industrial Waste Generation

The South African Waste Information Centre (SAWIC) does not present a detailed breakdown of business and industrial waste of the MLM. Business and industrial waste is generally reported under the category “commercial and industrial waste” on SAWIC. The tonnages of

commercial and industrial waste generated from the MLM for the period 2015 – 2019 are provided in the Table 33 below.

Table 33: Summary of commercial and industrial waste disposal in MLM from 2015 - 2019 (source: SAWIC, accessed 02/03/2020)

Year	Waste Tonnes Disposed
2015	No information available
2016	No information available
2017	168.8
2018	No information available
2019	141.5
Total	310.3

5.6.4 Hazardous Waste Generation

A profile of hazardous waste generation in the MLM was developed based on data reported on the SAWIS on the SAWIC website (Department of Environmental Affairs, 2020).

(a) SAWIC Hazardous Waste Records

According to SAWIC records, in 2019, 1,159.1 tonnes of hazardous waste were generated in the MLM. Table 34 below indicates the hazardous waste generated in the MLM from 2015 to 2019. There are no hazardous waste landfill sites in the MLM therefore all hazardous waste generated in the MLM is disposed of in the Emfuleni local municipality surrounding the MLM. According to the SAWIC records, in 2019, 712.2 tonnes of hazardous waste were generated in MLM and was disposed in the Ekurhuleni municipality and 446.9 tonnes of hazardous waste was generated in the MLM and disposed in the Emfuleni municipality. In 2019, a total of 7.5 tonnes of hazardous waste was treated in the MLM and 0.2 tonnes of hazardous waste generated in the MLM was treated in the City of Johannesburg municipality. A total of 1.2 tonnes of hazardous waste which was generated in the MLM was recycled (Department of Environmental Affairs, 2020).

Table 34: Summary of hazardous waste generated in the MLM that was disposed from 2015 to 2019 (data source - SAWIC; 02/03/2020)

Year	Hazardous Waste Disposed (Tonnes)
2015	279.1
2016	138.1
2017	393.3
2018	1,561.0
2019	1,159.1
2020	1,322.2

A breakdown of the hazardous waste type generated in the MLM and disposed of from 2017 to 2019 is presented in the table below (Department of Environmental Affairs, 2020). It is evident from the available information in the table that reporting of hazardous waste disposal has improved from 2017 to 2019.

Table 35: Summary of hazardous waste disposal in MLM in 2017 - 2019 (data source – SAWIC; 02/03/2020)

Waste type	2017		2018		2019	
	Tonnes	Percentage	Tonnes	Percentage	Tonnes	Percentage
Liquid and sludge organic waste	6.6	1.7	-		8.8	0.9
Miscellaneous	-		900.8	57.7	438.5	42.9
Organic halogenated and/or sulphur containing solvents	0.6	0.2	-		-	
Slag: Non-ferrous metal slag	-		9.4	0.6	-	
Sewage sludge unclassified	-		-		9.8	0.9
Solid inorganic waste	385.3	98.0	650.8	41.7	535.0	52.4
Solid organic waste	0.8	0.2	-		21.0	2.1
Waste oils	-		-		8.4	0.8
Total	393.3	100	1,561	100	1,021.5	100

The waste generation profile for the MLM according to the SAWIS and GWIS are provided in the table below.

Table 36: MLM waste profile in 2019 (source: SAWIS, accessed on 16/03/2020)

Waste Type	Data source	Average per year (tonnes)	Average per month (tonnes)	% of waste generated	Management method
General Waste (Municipal waste)	GWIS	70,277.0	5,856.42	67.4%	Disposal at landfill
Municipal waste	SAWIC	17,733.0	1,477.75	17.0%	Disposal at landfill
Green waste	SAWIC	6,521.5	543.46	6.3%	Disposal at landfill
Construction and demolition	SAWIC	9,482.2	790.18	9.1%	Disposal at landfill
Other	SAWIC	248.7	20.73	0.2%	
SAWIC Total	SAWIC	33,985.4	2,832.12		
Total		104,262.4		100.0	

To note from the results from the SAWIS and GWIS is that different waste disposal tonnages were recorded for the same year. GWIS records more than twice the waste disposal for MLM. The significance and relevance of this on waste planning and meeting the NWMS targets are explained in subsequent chapters.

5.7 Future Waste Generation

5.7.1 Future Domestic Waste Generation

An understanding of future waste generation is valuable for waste planning and therefore should be considered in an IWMP. The table below estimates waste generation over a five- and ten-year period from 2020 - 2030. Waste generation rates have been estimated based on historic and anticipated population growth. The annual population growth rate of the MLM from 2011 to 2016 was 3.21%. This same annual population growth rate was used to determine the waste generated in 2025 and 2030.

Table 37: Future domestic annual waste generation rates based on projected population growth rate of 3.2% per annum

Year	Population	Projection of waste generation quantities per annum based on population	Projection based on SAWIS data (tonnes/annum)
2020	126,649	24,414	43,438
2025	148,325	28,593	50,872
2030	173,712	33,487	59,578

5.7.2 Future Business and Industrial Waste Generation

Future business and industrial waste generation is difficult to quantify as it depends on local economic conditions. Waste from businesses such as the health care industry and the food industry should increase with an increasing population.

5.8 Waste Information Systems

Waste data for the MLM is reported onto two different waste information systems

1. South African Waste Information System (SAWIS) – A national waste information system managed by DEFF. Information reported on the SAWIS is publicly accessible through the South African Waste Information Centre (SAWIC). The SAWIS reports waste disposal, recycling, and treatment/recovery for various waste types.
2. Gauteng Waste Information System (GWIS) – A provincial waste information system managed by GDARD. The GWIS reports waste disposal, recycling, and treatment/recovery for general and hazardous waste types.

The following sections present data sourced from each of these systems.

5.8.1 South Africa Waste Information System

The SAWIC records a wide range of waste disposal tonnages for general and hazardous waste generated and disposed per year from 32,495.5 tonnes in 2016 to 123,871.5 tonnes in 2017, in the MLM. This represents a large variation of waste generation per year with minimal logical explanation. The waste tonnages disposed of are also significantly higher than the estimated waste generation rate for the MLM. In 2016, it was calculated that 21,516 tonnes of domestic waste were generated which is much lower than the waste tonnage disposed of per year from 2015 to 2019. The waste disposal tonnages for 2019 and 2020 are more consistent than previous years and closer to the hypothetical waste generation based on the MLM population.

Table 38: SAWIC waste disposal records for MLM (data source, SAWIC, accessed on 09/01/2020)

Year	No. facilities	General waste (tonnes)	Hazardous waste (tonnes)	Total (tonnes)
2015	4	50,217.0	279.1	50,496.1
2016	4	32,357.4	138.1	32,495.5
2017	5	123,478.2	393.3	123,871.5
2018	5	105,314.9	1561	106,875.9
2019	5	34,158.2	1,159.1	35,317.3
2020	5	43,438.0	1,700.6	45,138.5

5.8.2 Gauteng Waste Information System

The Gauteng Waste Information System (GWIS) is the Gauteng Province's waste information system. Monthly tonnages for the disposal of general waste and hazardous waste are shown in the tables below.

Table 39: Monthly tonnes of general waste treated, landfilled or recycled from 2015 - 2020 (data source, GWIS, accessed 01/03/2021)

Month	2015	2016	2017	2018	2019	2020
January	6,560	9,833	9,646	14,135	6,802	5,849
February	6,849	6,588	11,703	14,548	4,274	6,616
March	11,611	2,610	15,694	13,570	15,905	7,804
April	7,472	8,465	10,850	12,916	7,074	2,112
May	10,406	3,114	13,979	16,765	8,058	4,613
June	19,504	3,416	11,381	15,329	6,814	5,639
July	8,698	2,296	16,269	15,205	8,977	6,422
August	9,098	9,848	11,229	15,452	10,178	7,503
September	8,877	5,173	17,965	13,762	7,183	8,406
October	17,196	6,208	15,275	4,090	8,848	7,563
November	7,494	6,821	13,365	3,795	8,528	5,622
December	6,942	4,854	12,317	1,804	5,184	2,629
Total	120,709	69,224	159,674	141,371	97,824	70,779
Average/ month	10,058.9	5,768.8	13,306.1	11,780.9	5,856.3	5,898.3

Table 40: Monthly tonnes of Hazardous waste treated, landfilled or recycled during 2016 – 2020 (data source, GWIS, accessed 01/03/2021)

Month	2016	2017	2018	2019	2020
January	560	477	662	435	643
February	584	590	568	524	412
March	490	467	498	381	729
April	525	330	459	438	25
May	496	516	543	440	349
June	580	450	469	575	437
July	477	488	461	389	426
August	478	502	476	920	422
September	546	438	449	954	385
October	362	491	506	412	408
November	420	525	445	381	0
December	147	180	212	182	0
Total	5,665	5454	5,749	6,031	4,235
Average/ month	472.1	454.5	479	502.6	352.9

5.9 Health Care Risk Waste

The Gauteng Department of Health (GDoH) is responsible for the management of health care risk waste (HCRW) generated in government hospital and clinics. Similarly, private hospitals are responsible for the management of health care risk waste (HCRW) generated in hospitals and clinics. Buhle Waste has been appointed to collect and adequately treat and/or dispose of HCRW collected from government hospital and clinics in the municipality.

5.10 Waste Services

Data regarding the extent of waste services provision were sourced from the 2016 Community Survey and 2011 Census data. According to the 2016 Community Survey 82.9% of households in the MLM receive a weekly kerbside collection service.

The percentage of households receiving a weekly collection service has increased slightly from 82.1% in 2011 to 82.9% in 2016. On a positive note, the number of people who are using 'other' as a waste management option has decreased from 1.2% to 0.9% in 2016.

Table 41: Waste collection services in the MLM (data source Stats SA Census 2011 and Community Survey 2016)

Waste service	Community Survey 2016 (%)	Census 2011 (%)	Census 2001 (%)
Removed weekly	82.9	82.1	50.2
Removed less often than weekly	1.4	1	
Communal refuse dump	8.2	1.9	
Communal container/collection point	0.1	-	
Own refuse dump	6.1	10.6	
No refuse disposal	0.5	3.2	
Other	0.9	1.2	
Total	100	100	50.2

Note: the reporting categories in Census 2001 varied slightly from the reporting categories used in Census 2011 and Community Survey 2016

Table 42: Number of households per waste service (data source Community Survey 2016)

Waste service	Percentage of households	No. of households
Removed weekly	82.9	31,543
Removed less often than weekly	1.4	522
Communal refuse dump	8.2	3,101
Communal container/collection point	0.1	43
Own refuse dump	6.1	2,323
No refuse disposal	0.5	177
Other	0.9	337
Total	100.0	38,046

Based on the 2016 Community Survey data, **82.9%** of households receive a weekly collection service in MLM. Of this total, only 8.2% of households use a communal refuse dump. Waste management staff of the MLM indicated that farmers do not receive a waste collection service and dispose their own waste at landfill sites or transfer stations within the municipality.

Comment on Stats SA data sets

The table above presents two different Stats SA data sets:

1. The 2011 Census data
2. The 2016 Community Survey data

The 2011 Census surveyed all South African households. This data is 10 years old, but it remains the most recent complete census data set for the country.

The 2016 Community Survey data is more recent (2016), however only a sample (8.1%) of South African households were surveyed during this census. The Community Survey was designed to be a representative sample of South African households.

5.10.1 Waste Collection Rounds

Refuse bags are collected weekly from all residential areas. Details of the collection routes are presented in the tables below.

Table 43: Midvaal weekly waste collection service

Waste Collection Programme (Formal and Informal Settlements) – 2018/2019	
Service day	
Monday	Meyerton CBO & Flats, Daleside, De Deur, Golf park, Meyerton Businesses, Peels famr, Balmoral Estates, Meyerton Ext 6, Meyerton Ext 1-4, Drumblade, Homestead Apple Orchards, Meyerton Park, Mamello, Blue saddle ranch, De Deur Businesses, De deur 3, Nooitgedacht, Doornkuil, Plot 60, Roodepoort, De-deur plot 15, Klipview, D E deur – Rowel street, plot 761
Tuesday	Sicelo township, Rissiville, Faraosfontein, Duncanville Ext 3, Meyerton Farms, Rissiville Business, Doornkuil, Buyscelia, Uitgevelen, Sporong, Meydustria, Rissiville bins, Langkuil, Boltonworld, Dustin, Mohlakeng, Sicelo township EXT 1-5, Walkers Fruit Farms, Makokeng, plot 932, Ophir Estates, Plot 147 Buyscelia PLOT 93, Varkfontein, Homelands, Abramskop, Plot 70, Glendonald, Mckay Estates
Wednesday	Meyerton CBD & Flats, Lakeside Estates, Mooilande, Plot 81, Pendale, Meyerton Businesses, Lakeside Ext 3, Rivrepark, Highbury, Chrissiesfontein, 365 IR 5, Ext 1 (Dreimoeg), Vanderwesthuizenhoogte, Valley Settlement, Sherman Park, Savannah City, Vlaklaagte No1, 2,3, 4, Vistrepark, Iron side AH, Badfontein, Beer farm , Keytersrus, Abramskop plot 511, Orange farms, Helderstroom, Foundry (New), Nelsonia, Difateng, Slangfontein, Vischgat Plot 467, Panorama, Boschkop 426ir, Kwa Ben, New Kentucky, plot 33, Bantu Bonke, Koolfontein, Plot 10, Uitvlucht, Welverdiend, Kwa Sithole, Boschkop Plot 243, Vogelfontein, H1 Boschkop Plot 2
Thursday	Kookfontein, Riversdale, Blesboklaagte, Kiprivierswal, Rothdene Business, Riversdale Business, Valsfontein, Henley on Klip, Kookrus, Kundung, Witkop, HOK Bins, Rothdene, Badfontein Plot 4, Witkop Industrial, Highbury Ext 1, Platkoppies, Slangfontein, Sterkfontein Plot 10, Schoongesicht, Boschfontein Plot 41, Boschhoek, Boschfontein Plot 134, Witkoppie, Diepkloof,
Friday	Sybrand van Niekerk, Golfview, Rietspruit, Hartzenbergfontein, Noldick, Walkerville Manor, Boitumelo, Kaelisha new, Bronkhorstfontein, Meyerton Central & Flats, Blignautsrus, Greenvalley, Tedderfield, Meyerton CBD, Walkerville Business, Swartkoppies, Muldersrus, Meyerton Services Lanes, Walkerville, Kliprivier bins, Eye of Africa, Ohenimuri, Gardenvale, Elandsfontein Plot 22, Garthdale, Harold farm, Kliprivier Business, Chicken farm, Driefontein, Kromdraai, Kwa Brown, Kliprivier, Dikhotsaneng

Table 44: Midvaal weekly waste collection service

Vaal Marina: Revised waste collection	
Service day	Area
Monday	Vaal Marina, Vaal View, Mamello
Tuesday	Koppiesfontein
Wednesday	Hartebeesfontein, Vaal Bank, Aloe Fjord, Zoekfontein, Panvallei, Copperville, Vischgat
Thursday	Platkoppie, Blesbokspruit, Goedverwachting, Sterkfontein, Farm 381 and 464 ir, Brakfontein, Grootspuit, Rietfontein, De Kuilen, Boschkop 482 ir, Grootvlei

5.11 Waste Recycling

Recycling of waste is located above create energy through waste recovery and disposal in the waste management hierarchy. The 2020 NWMS sets a target of 40% diversion of waste from landfill by 2025, 55% diversion by 2030 and 70% by 2035. The diversion of recyclable waste forms part of the target waste diversion from landfill.

5.11.1 Separation at Source

Waste awareness pamphlets promoting source separation have been developed, however, no source separation has been implemented to date by the municipality.

5.11.2 Swop Shops

There are no swop shops in operation in the MLM.

5.11.3 Recycling Companies

Ou De Werf Recycling is a local recycling business in Midvaal that recycles ferrous and non-ferrous metal, cardboard, paper and plastic. The business has been in operation since 1993 and collects recyclables from varying sources. The main challenge for the recycling company is the volatile market price of recyclables. An example of this is the market for cardboard. The current price of cardboard dropped to less than half of the original price. Concerns were also raised around informal relcainers trying to sell stolen metal such as copper to scrap metal dealers.

5.11.4 Recycling Drop-Off Facilities

The only municipal recycling drop-off facilities in the MLM are glass recycling bins at both Galloway and Blackwood transfer stations.



Figure 15: Photo A: Glass igloos for glass recycling in Blackwood transfer station, B: glass igloo for glass recycling in Galloway transfer station.

5.11.5 In-House Municipal Recycling

There is in-house recycling occurring at the municipal offices and the recyclables are removed by a private recycling company.

5.11.6 Waste Recycling Records

There are no waste recycling records retained by the municipality.

5.11.7 Future Waste Recycling Facilities

(a) Buy back centre

A buy-back centre is currently under construction next to the Galloway transfer station. The facility is not yet operational. The municipality has concluded the planning for a separation at source pilot study and intends to implement the study. The site is currently a community garden, but buildings have been constructed and the site is fenced.

5.12 Management of Hazardous Waste

There are no hazardous waste treatment or landfill sites in the MLM.

5.13 Organic Waste Management

5.13.1 Legal Drivers for the Diversion of Organic Waste from Landfill

The 2020 NWMS sets a target of 40% diversion of waste from landfill by 2025, 55% diversion by 2030 and 70% by 2035. The diversion of organic waste forms part of the target waste diversion from landfill. In addition, the National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) require a 25% reduction of garden waste to landfill by 2018 and a 50% diversion by 2023.

There are currently no composting facilities, pilot composting programmes or home composting programmes in the MLM.

5.14 Waste Management Facilities

Details of waste disposal facilities in the MLM are presented in this section.

Table 45: Summary of waste management facilities in the MLM area

Status of site	No. sites
Operational landfill site	3
Transfer stations	3
Buy-back centre (in development)	1

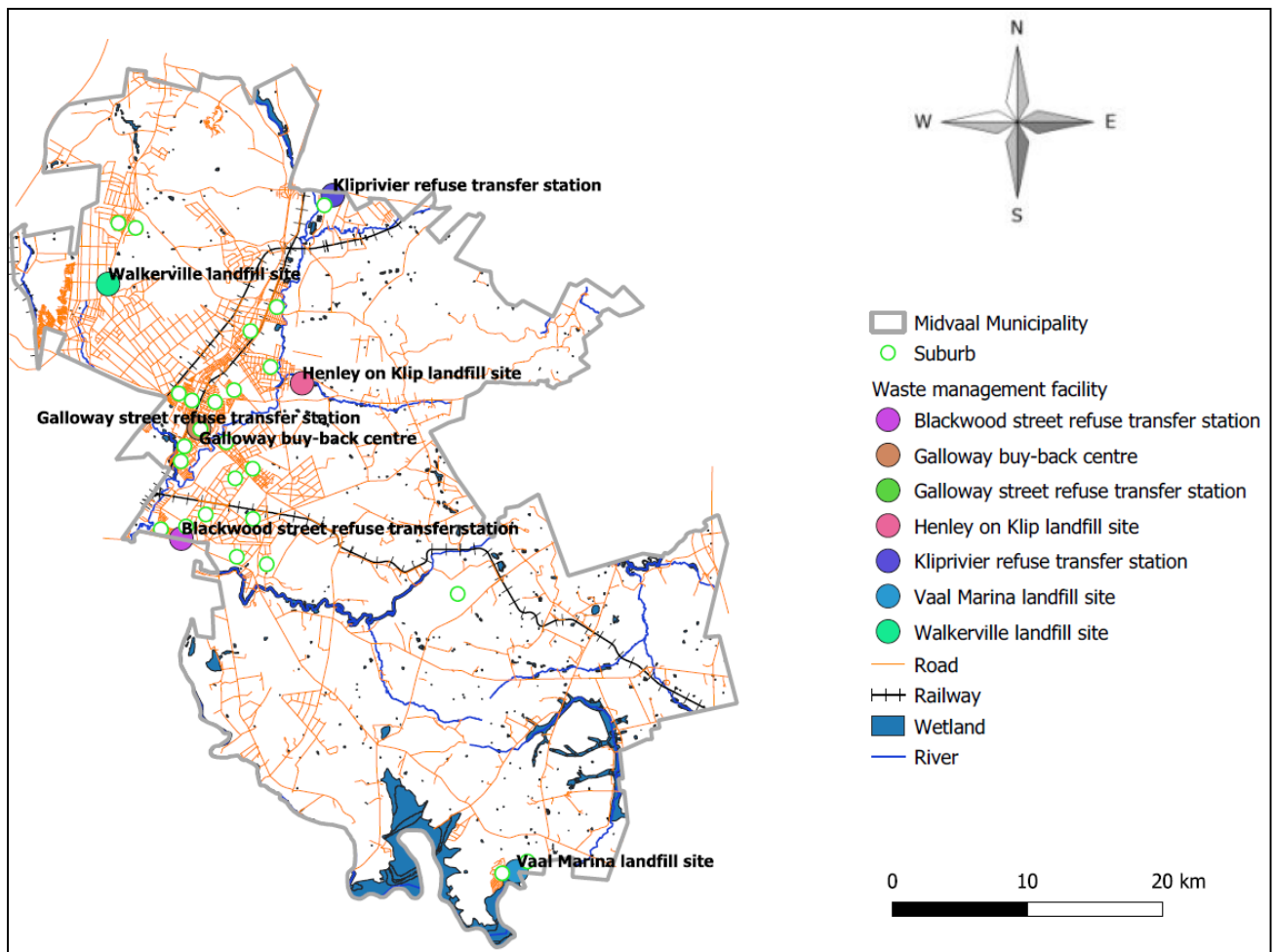


Figure 16: Waste management facilities in the MLM area

5.14.1 Transfer stations

(a) Blackwood refuse transfer station

The Blackwood transfer station is a licenced facility owned by the MLM which accepts garden refuse and building rubble. The site is however only licenced to accept garden waste.



Figure 17: Blackwood transfer station (source, google earth satellite imagery, accessed on 12 March 2020)

Table 46: Blackwood street refuse transfer station landfill site profile

Location	Erf number 32/599-IQ Rissiville Waldrift, 129 Blackwood street, Meyerton, Gauteng
Co-ordinates (entrance of site)	Latitude: 26° 38' 57.86"S Longitude: 27°59'37.71"E
Site classification	G:C:B-
Estimated size of site	10.855 m ²
License status / type	Licensed
License number	12/9/11/L87/3
Anticipated closure date	There is no intention to close the transfer station.
Site Status	Operational
Access	Accessed via an unnamed gravel road
Surrounding land use	Surrounding the Transfer station is: • Open space, • A residential area, • Substation, • And agricultural land
Facilities	Fence: The site is fenced with a diamond razor mesh fence. The western boundary fence is damaged, but the remaining fence is largely intact but needs some repairing in places. Gate: A swing gate is in place but it is damaged. Signage: There are four sign/information boards in place adjacent to the site entrance that contain the site licence conditions and general information about the site. The information is written in two languages (English and seSotho) Guard house/Office: There is a small wooden structure with one window. Inside is a locker, microwave, a heater, fire extinguisher and cupboard. Ablution: Brick building with zinc roof containing one flush toilet. One door and window intact. The site has running water and electricity.

Personnel	There are four staff members on site. One access controller, one operator and two general workers. Three of the staff are permanent and one general worker is on contract.
Plant	There is 1 TLB and 1 front end loader. The front end loader is currently damaged and not in use.
Waste accepted on site	Garden refuse and building rubble is accepted at the transfer station.
Stormwater management	There is no stormwater control at the site.
Recycling	Glass recycling is occurring on site and two glass igloos for glass recycling were noted.
Operating hours	Monday – Friday: 07h30 - 16h00 Weekends and Public Holidays: 07h30 – 15h00
Description of waste management	A large area of unchipped garden waste mixed with wood waste was noted. Building rubble is also temporarily stockpiled at the transfer station. Waste is transported to Henley on Klip Landfill on an hourly basis during business hours.
Waste Information management	Incoming waste is recorded using the DEA information sheet. This information is collated and maintained by the MLM. This information is uploaded onto the GWIS as well.
Challenges	• Illegal dumping of domestic waste on site. Residents access the transfer through the broken fence • Lack of surfacing on the access road to the site and on site • General workers are not always able to monitor where waste is disposed • Residents are not allowed to dump their waste bags at the transfer station but they often refuse to empty waste and leave with their bags • There is only one operational plant on site.





Figure 18: Photographs of Blackwood transfer station. Photo A: Signage along the site entrance. Photo B: glass igloos for glass recycling. Photo C: damaged western boundary fence. Photo D: illegally dumping of hazardous waste noted on site. Photo E: guard house, Photo F: ablution facility, Photo G: unchipped garden waste noted on site.

(b) Galloway street transfer station

The Galloway transfer station is a licensed facility owned by the MLM for garden waste. The site however accepts building rubble and there is a container placed on site for glass recycling. General waste was also noted in skips during the site inspection.



Figure 19: Satellite image of Galloway transfer station (data source: Google Earth, accessed on 12 March 2020)

Table 47: Galloway Street Refuse Transfer station profile

Location	Galloway Street Refuse Transfer station, Meyerton
Co-ordinates (entrance of site)	Latitude: 26°34'31.82"S Longitude: 28°0'26.84"E
Site classification	G:C:B-
Estimated size of site	4.012m ²
License status / type	Licensed
License number	12/9/11/L86/3
Site Status	Operational
Access	Accessed via Galloway street
Surrounding land use	Residential and business.
Facilities	Fence: The site is entirely fenced with concrete palisade and it's intact all around. Gate: A roller gate is fitted and working adequately Signage: There are three sign/information boards in place adjacent to the site entrance that contain the site licence conditions and general information about the site. The information is written in two languages (English and Sotho) Guard house/Office: Small brick building with windows and doors intact. Burglar bars are fitted on the door and windows. Inside is a fridge, microwave, a television set and a locker in the next room Ablution: In the same building with the guard house. Contains one flush toilet and a hand wash basin. One door and window intact. The site has running water and electricity.
Personnel	There are four permanent staff members on site. One access controller and three general workers. On weekends and public holidays, only 2 staff members and a security guard work.
Plant	No plant permanently on site. A skip truck collects waste from the site every morning and end of day.
Waste Accepted on site	Garden refuse, building rubble, general waste.

Access control and signage	Fenced with a concrete palisade fence Access control signage in place
Stormwater management	The kerbs along the access road on site serve as a stormwater management tool.
Recycling	Glass recycling is occurring on site and a glass igloo for glass recycling was noted.
Operating hours	Monday – Friday: 07h30 - 16h00 Weekends and Public Holidays: 07h30 – 15h00
Estimated remaining life of site	Not applicable as this is a transfer station.
Description of waste management	There's a total of eleven skips available on site. Nine skips are utilised for garden refuse and the remaining two for building rubble. Only one skip container is used at a time and the access controller directs incoming cars to the skip utilised at the time.
Waste information management	Incoming waste is recorded using the DEA information sheet.
Challenges	• Illegal dumping of domestic waste, fluorescent tubes and agricultural waste • Residents bring in their waste contained in plastic bags and they refuse to empty the waste and leave with their bags • One skip is utilised at a time until it reaches capacity to make collection easier for the skip truck. However, residents often don't cooperate with the access controller on site when directed to a working skip.





Figure 20: Photographs of the Galloway transfer station. Photo A: Signage. Photo B: skip bins on site and vacant land that is currently not utilised. Photo C: glass igloos for glass recycling is currently full and more glass bottles noted adjacent to the bin. Photo D: mixing of garden and general waste noted. Un-chipped garden waste in the skip bin, Photo F: guard house with ablution facilities.

(c) Klip Rivier refuse transfer station

The Klip Rivier refuse transfer station is a licenced facility owned by the MLM. The site is operational and accepts general household waste. The site is located in the boundary of the Midvaal and Ekurhuleni municipalities.



Figure 21: Satellite image of Klip Rivier transfer station (data source: Google Earth, accessed on 12 March 2020)

Table 48: Klip Rivier refuse transfer station profile

Location	Erf number 21, Gorthdale AH, Garth view road, Klip Rivier, Gauteng
Co-ordinates (entrance of site)	Latitude: 26°25'15"S Longitude: 28°06'30"E
Site classification	G:C:B-
Estimated size of site	6,033 m ²

License status / type	Licensed
License number	12/9/11/L83/3
Site Status	Operational
Access	From Garth view road and the Boundary road between Ekurhuleni and Midvaal municipalities
Surrounding land use	Residential
Facilities	Fence: The site is entirely fenced with concrete palisade and it's intact all around Access control: A roller gate is fitted and working adequately Signage: There are three sign/information boards in place adjacent to the site entrance that contain the site licence conditions and general information about the site. The information is written in two languages (English and Sotho) Guard house/Office: Small brick building with windows and doors intact. Burglar bars are fitted on the door and windows. Inside is a fridge, microwave, a television set and a locker in the next room Ablution: In the same building as the guard house. Contains one flush toilet and a hand wash basin. One door and window intact. The site has running water and electricity.
Access control and signage	There is one access controller and sliding steel gate, signage is available
Personnel on site	There are three staff members on site. One security guard, one access controller and one general worker. The access controller works Monday to Saturday and the general worker does not work on weekends.
Plant used on site	No plant permanently on site. A skip truck collects waste from site every second day.
Description of waste management	There's a total of nine skips available on site. The access controller directs cars to the skip relevant for waste being disposed
Waste accepted on site	General household waste
Stormwater management	The kerbs along the access road on site serve as a stormwater management tool.
Recycling	There is no recycling occurring on site
Operating hours	Monday – Friday: 07h30 - 16h00 Weekends and Public Holidays: 07h30 – 15h00
Estimated remaining life of site	Not applicable as this is a transfer station.
Waste information management	Incoming waste is recorded using the DEA information sheet.
Challenges	• There is a lot of illegal dumping occurring at the site due to a lack of adequate access control. Skips are accessible twenty four hours and the site is only manned during business hours. When the site is not manned dumping of carcasses and hazardous waste occurs. • The site is situated at the municipal boundary and illegal dumping of waste from Ekurhuleni Metropolitan Municipality residents often occurs • There is a lot of illegal dumping also occurring along the road adjacent to the site as residents often just dump their waste when turned away for bringing unacceptable waste.



Figure 22: Photo A: Sign boards, Photo B: guard house with ablution facilities, bulky waste and garden waste. Photo C: truck with a back haul for off-loading waste. Photo D: full skip containers, E: ramp where skips are located for dumping, F: mixed garden and general refuse, G: pit toilet that was in use before the site was refurbished.

5.14.2 Landfill sites

(a) Henley on Klip Landfill Site

Henley on Klip landfill site is owned by the MLM and is licenced for closure. Closure of the site must commence in 2022. The site accepts general, rubble, domestic and garden waste.

A compliance notice was issued by GDARD for compliance issues at the Henley on Klip landfill site on 11 November 2019. The main non-compliances identified in the compliance notice were:

- Disposal of waste is not in line with the conditions of the Waste Management Licence
- Interested and affected parties were not notified within fourteen days of the receipt of the WML
- Waste was not covered or compacted due to lack of operational machinery
- The site had been burning for an extended period of time
- Failure to notify the department about the fire on site
- Scattered and windblown waste due to lack of cover and compaction
- No external audits were undertaken for the site



Figure 25: Satellite image of Henley on Klip landfill site (data source: Google Earth, accessed on 12 March 2020)

Table 49: Henley on Klip landfill site profile

Landfill Name	Henley on Klip Solid Waste Disposal Site
Location	Portion 1320 – 1323 of the farm Slangfontein 374 IR, Midvaal Local Municipality
Co-ordinates (entrance of site)	Latitude: 26°32'46.55"S Longitude: 28°05'04.08"E
Site classification	G:S:B
License status / type	Licensed for closure. Closure of the site must commence in 2022
Estimated size of site	47.408m ²

License number	Gaut:002/16-17/W0014			
Anticipated closure date	The closure licence is valid until 2022.			
Site Status	Operating on a closure licence			
Buffer	The nearest residential area is approximately 1.5 kilometres to the South of the landfill boundary.			
Access	The landfill is located on Waterford Road and is accessed through a gravel road			
Operating hours	Weekdays – 07h00 – 16h00 Weekends: 07h00 – 15h00			
Surrounding land use	Residential, graveyard and agricultural land			
Facilities	Security shed has a kitchen, toilet and changing room and an office Fence: The site is fenced with a rectangular mesh fence and it's largely intact but needs repairing in places Gates: Two gates are fitted, one roller gate used as the main site entrance and a pedestrian gate in the Southern boundary of the site Signage: An information board was noted in the main road and four sign/information boards are in place along the site entrance that contain the site licence conditions and general information about the site. The information is written in three languages (English, Sotho and Afrikaans) Guard house/Office: There are two buildings at the site, a small brick building with windows and doors intact located immediately at the entrance of the site used as a security shed. The second brick building with offices, staff eating area, kitchen and a storage area is located inside the site. Ablution: There are two flush toilets and a hand washing basin in the main building. The site has running water and electricity.			
Access control and signage	Fenced with a rectangular mesh fence Access control signage in place and the information is in three languages (English, Afrikaans and Sotho)			
Personnel on site	There are ten staff members on site. Six general workers, two access controllers, one operator, and one supervisor. There is also a twenty-four-hour security on site.			
Plant used on site	One TLB and one bulldozer and both are not operational			
Description of waste management	Waste is dumped at the working face and minimal cover is applied over it using spoil and builder's rubble entering the site. There is no operational plant on site to drive over the waste. The height of the waste body seems to have exceeded the permitted height but dumping continues on the working face as there is minimal space around the site to dump elsewhere.			
Waste information management	Incoming waste is recorded using the DEA information sheet.			
Waste accepted on site	The site accepts general, rubble, domestic and garden waste.			
Use of cover material	There is insufficient space on site to mine for cover material, incoming builder's rubble is used as cover material.			
Stormwater management	Sedimentation has filled storm water drains.			
Recycling	There is no formal recycling on site, however scavenging is occurring. Approximately 30 scavengers live at the landfill and they collect glass, plastic and cardboard to sell to recycling companies.			
Estimated remaining life of site	2 years .The site is operating on a closure licence that will expire in 2022			
Compliance status (audit findings, percentage score)		2017	2018	2019
	GDARD audits	-	90.3%	79.9%
	Internal Audits	-	-	92.0%

Challenges

- There is a lack of cover material
- There is no operational plant on site
- There is a shortage of trained access controllers who can record incoming waste.
- The height of the waste body exceeds the permitted height for the site
- Scavengers are present at the landfill
- There is double handling of waste often occurring as a result of the inaccessibility of the working face during inclement weather conditions as the waste body is very steep
- Disposal of waste is not in line with the conditions of the Waste Management Licence
- Waste was not covered or compacted due to lack of operational machinery
- Scattered and windblown waste due to lack of cover and compaction





Figure 23: Photo A: Guard house. Photo B: TLB and a bull dozer both not operational noted on site. Photo C: brick building with site office, staff eating area, change room and ablution facilities. Photo D: skip truck entering facility. Photo E: informal recycling noted on site. Photo F: uncovered waste. Photo G: Height of the waste body. Photo H: Tyres noted on site. Photo I: Informal glass recycling noted. Photo J: Informal PET recycling. Photo K: pedestrian gate in the southern boundary of the site

(b) Walkerville Landfill Site

The Walkerville landfill site is owned by the MLM. The operational licence expired in 2013 and the municipality is in the process of re-applying for a new licence.



Figure 24: Walkerville landfill site (data source: Google Earth, accessed on 03/12/2005)

Table 50: Walkerville landfill site profile

Location	Portion 5 of the Farm Faroasfontein 375 IQ, Midvaal Local Municipality
Co-ordinates (entrance of site)	Latitude: 26°28'53.42"S Longitude: 27°56'28.97"E
Site classification	GSB
License status / type	Not licenced. Operational licence expired in 2017. Licence was issued in September 2013 and should have been renewed by the MLM by September 2017 (within 4 years from date of issue)
License number	Gaut002/10-11/W0016 (expired)
Anticipated closure date	N/A
Estimated size of site	111.518m ²
Site Status	Operating with no licence. Operational licence expired in September 2017
Buffer	The nearest residential area is approximately 150 – 200 meters to the West of the landfill boundary. These residences are across the R82 provincial road.
Access	The landfill is located next to the R82 provincial road. Branching off the R82 is Plantation Road and the landfill is accessed through a gravel road off Plantation Road.
Operating hours	Weekdays – 07h00 – 16h00 Weekends and Public Holidays: 07h00 – 15h00
Surrounding land use	Farmland
Facilities	Fence: The site is entirely fenced with a compact mesh fence Gate: A roller gate is fitted and working adequately

	Signage: There are five sign/information boards on site that contain general information about the site. The information is written in three languages (English, Sotho and Afrikaans) Guard house/Office: Brick building with windows and doors intact with a staff eating area, kitchen and a change room Ablution: There are two flush toilets and a hand washing basin in the main building Weighbridge: A prefabricated weighbridge kiosk is on site. The weighbridge foundations have been installed but the weighbridge is not operational The site has running water and electricity			
Access control and signage	Fenced with a compact mesh fence and a roller gate is fitted. There is access control and signage in place.			
Personnel on site	There are eight (8) staff members on site. One access controller, six general workers and one supervisor.			
Plant used on site	One non-operational bulldozer is available on site			
Description of waste management	Waste is dumped at the working face and minimal cover is applied over it using spoil and builder's rubble entering the site. Incoming builder's rubble is dumped at the wet weather cell and later moved to the working face to apply as cover material over waste. There is no operational plant on site to drive over the waste.			
Waste accepted on site	Building rubble, general and hazardous waste			
Use of cover material	There is insufficient space and lack of operational plant on site to mine for cover material, incoming builder's rubble is used as cover material.			
Stormwater management	Stormwater management is in place on site			
Recycling	There is no formal recycling on site, however scavenging is occurring. Approximately 30 scavengers live at the landfill and they collect glass, plastic and cardboard to sell to recycling companies.			
Estimated remaining life of site	5 years			
Compliance status (audit findings, percentage score)		2017	2018	2019
	GDARD	-	92.3%	-
Challenges	- There is only one inadequately trained access controller working at the site and no PPE has been issued to him - The site is not licenced - There are no operational plant on site - There is limited space in the DEA log book used to record incoming waste and the site is often without the book which leads to inaccurate recording of incoming waste - There is no cover material on site - There is scavenging occurring at the site - The weighbridge is not operational			

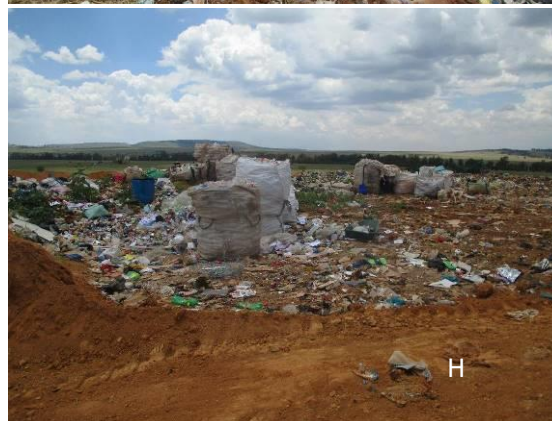




Figure 25: Photo A. Uncovered waste noted. Photo B: steep waste body. Photo C: incoming building rubble used as cover material. Photo D: incoming building rubble dumped in wet cell. Photo E: stormwater channel. Photo F: exposed waste at the edge of the waste body. Photo G: A prefabricated weighbridge kiosk on site. Photo H: informal recycling occurring on site. Photo I: scavenging occurring on site. Photo J: non-operational bulldozer on site.

(c) Vaal Marina Landfill Site

The Vaal Marina Landfill site is a permitted site for the disposal of general dry non – hazardous waste.



Figure 26: Satellite image of Vaal Marina landfill site, (data source: Google Earth, accessed on 12 May 2020)

Table 51: Vaal Marina landfill site profile

Location	Portion 1 of the farm Vaalview 486-IR, Midvaal Local Municipality
Co-ordinates	Latitude: 26°52'23.32"S Longitude: 28°14'30.36"E
Site classification	G:C:B
License status / type	Vaal marina was issued with an operational licence in 2014 and the closure date is not stated in the licence

License number	GAUT:002/09-10/W0035
Estimated size of site	45.485m ²
Anticipated closure date	Vaal marina was issued with an operational licence in 2014 and the closure date is not stated in the licence
Site Status	Operational
Buffer	There is no buffer around the landfill as there is a residential area west and south of the landfill, a wastewater treatment works south and south east of the landfill and a substation south of the landfill. The residences and facilities are within 500 meters from the landfill.
Access	Access to the landfill is off Shark Street in Vaal Marina.
Surrounding land use	There is a wastewater treatment works, residential area, and Eskom substation
Facilities	Fence: The site is fenced with compact mesh fence and it's largely intact but needs repairing in places Access control: A roller gate is fitted and working adequately Signage: An information board was noted in the main road and three sign/information boards on site that contain the site licence conditions and general information about the site. The information is written in three languages (English, Sotho and Afrikaans) Guard house/Office: Brick building with windows and doors intact with a staff eating area, kitchen and a change room Ablution: There are two flush toilets and a hand washing basin in the main building The site has running water and electricity
Access control and signage	Fenced with a compact mesh fence. There is access control signage in place and the information is in three languages (English, Sotho and Afrikaans)
Personnel on site	There are eleven staff members on site. Eight general workers, two operators and one access controller.
Plant used on site	TLB and one UD Nissan 8 tonne truck
Description of waste management	Waste is covered daily with cover material mined from the site. The pit is used as a wet weather cell during inclement weather conditions.
Waste accepted on site	General and dry non-hazardous waste.
Use of cover material	Waste is covered daily with material mined from site and the excavated area is used as a wet weather cell.
Stormwater management	The cut off berms have been infilled with grass
Recycling	There is no formal recycling on site, however scavenging is occurring. Approximately 10 scavengers were at the landfill and they collect glass, plastic and cardboard to sell to recycling companies.
Operating hours	Weekdays: 07h00 – 16h00 Weekends: 07h00 – 15h00
Estimated remaining life of site	Eight years
Challenges	• There is a backlog of waste that needs to be moved to the landfill • The area is inaccessible when wet, however there is a wet cell • There is an Eskom powerline running through the landfill site • The building at the landfill was burnt down on two occasions during service delivery protests by nearby residents • Water ponding noted in the excavated area where cover material is mined from • There is scavenging occurring on site • Impact and visibility of the operations on site is not retained to a minimum • Stormwater channel is infilled with grass • Difficulty in accessing the working face during inclement weather conditions

- No airspace determination audits undertaken on site





Figure 27: Photo A: Visual impact of site, B: clearing of waste on site, Photos C & D: recyclable material recovered by informal re-claimers on site, Photos E: quarry where cover material is mined from is also used as a wet weather cell. Photo G: powerline traversing the site. Photo H: water ponding noted in the wet weather cell. Photo I: TLB in use on site. Photo J: PET recycled from site. Photo K: damaged south western boundary of the fence.

5.15 Landfill site airspace concerns

The following section provides some high-level recommendations and information related to the development of a new landfill site. It is included for information purposes only. A full feasibility assessment is needed to verify the information provided below.

The MLM is currently operating three landfill sites. Details of the sites are presented in the table below.

Table 52: Landfill site details

Site name	Type of license	Date for closure to commence	Estimated remaining airspace
Henley on Klip	Operation towards decommissioning	Decommissioning to commence by 13/03/2022 and the license is only valid until 2022	2 years
Walkerville	None – the site had an operational license which expired on 13/09/2017. A new license application is underway	-	5 years
Vaal Marina	Operational	Not stated in the license	8 years

No airspace determination has been undertaken to confirm the rate of deposition of waste and remaining lifespan based on closure designs and WML specifications. The remaining airspace listed above is based on estimations provided by MLM employees.

It must also be noted that the remaining airspace is based on the current status quo. The 8 years of remaining airspace at Vaal Marina and 5 years at Walkerville will decrease once Henley on Klip landfill site is full in two years. The waste which would usually be disposed of at Henley on Klip would then be disposed of at Walkerville or Vaal Marina.

It is likely that the MLM will run out of landfill sites airspace in the next 4 – 6 years. Without a landfill site the MLM will need to transport waste to an adjacent municipality at a high transportation cost and also pay for disposal. This will greatly increase the operational costs of the waste management service.

5.15.1 Timeframes for the development of a new landfill site

The planning timeframes for a new landfill site can range from 5 to 10 years. The timeframes are largely dependent on the following:

- **Site selection** – a site selection process would need to be informed by a feasibility assessment. A feasibility assessment would assess a number of potential sites and evaluate constraints to development of the sites. This process would involve a desktop and fieldwork study and would require geotechnical and geohydrological studies as a minimum. The criteria which would need to be considered are listed below. A full feasibility assessment can take between 8 – 12 months to complete.
- **Availability of suitable land** – if there is a suitable municipal owned land this can speed up the process. If purchase or transfer of land is required, this can result in delays.
- **Public objections or appeals** – a new landfill site will require a basic assessment and waste management license application. This process alone can take between 12 – 14 months, this is because it can often take a considerable time to obtain approvals by GDARD and the Department of Water and Sanitation (DWS) for the engineering designs and associated specialist studies. If there are objections to the application, then appeals can be submitted. The appeal process for a WML are not legislated.
- **Obtaining funding** - the cost to develop a landfill site depends on the required size of the site but can range between R20 – R60 million for a local municipal site. It is unlikely that the MLM will have funds set aside for the development of a new landfill site. The budget would need to be sourced through a grant or a fund.
- **Appointment of a contractor** – a competent contractor would need to be appointed to construct the landfill site. The municipal procurement process can delay the appointment of a contractor.

5.15.2 Landfill site siting considerations

The following list provides high level considerations for the siting of a new landfill site.

Table 53: Constraints for siting of a landfill site

Feature	Buffer listed in legislation/ guidelines	Legislation/ Source
Surface water resources	No-go (fatal flaw) sites within close proximity to significant surface water bodies (no distance specified)	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Areas characterised by flat gradients, shallow or emergent groundwater	No-go (fatal flaw) – vleis, pans, springs	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Airfields	500m from boundary of airports and airfields	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Runways	3,000m from runways	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Unstable areas	No-go (fatal flaw) – fault zones, dolomitic or karst areas where sinkholes and subsidence are likely	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Low voltage powerline (11 – 88kV)	21m (Eskom servitude: 9 – 11m)*	Eskom (2007). Procedure for vegetation clearance and maintenance within

Feature	Buffer listed in legislation/ guidelines	Legislation/ Source
Medium voltage powerline (132 – 400kV)	30m (Eskom servitude: 15.5 – 27.5m)*	overhead powerline servitudes and on Eskom owned land
High voltage powerline (765Kv+)	40m (Eskom servitude: 40m)*	
Railway tracks	-	-
Telephone line	No buffer specified in legislation	-
Heritage site	No buffer specified in legislation	-
Sensitive ecological areas	No-go areas	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Slope	No-go (fatal flaw) Areas classified by steep gradients where stability of slopes could be problematic	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Groundwater recharge areas	No-go (fatal flaw) Areas of ground water recharge on account of topography and/or highly permeable soils	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Residential areas	No-go (fatal flaw) Areas immediately upwind of residential area in the prevailing wind direction.	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Servitudes	No-go (fatal flaw) areas over which servitudes are held that would prevent the establishment of a waste disposal facility	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
Areas in close proximity to land-uses which are incompatible with landfilling	No-go (fatal flaw) – nature reserves, residential areas, cemeteries	DWAF, 2 nd edition 1998 Minimum Requirements for Waste Disposal by Landfill

In addition to the above considerations, the following are critical when identifying a site for a new landfill site:

- **Proximity to waste generation areas** – a landfill site should be located as close as possible to the area where the majority of waste is generated in order to minimise transportation costs
- **Proximity to existing services** – roads, sewer, water, electricity. To minimise construction costs the landfill site should be located as close as possible to existing services to reduce the length of roads, cables, pipelines etc. which are needed
- **Current and planned surrounding land uses** – a general waste landfill site typically requires a buffer region of 500m – 1,000m this will ‘sterilise’ a large area of land which can then not be used for residential developments, schools etc. in the future.

5.16 Other Waste Management Services

In addition to the provision of a waste collection service and management of waste management facility, the MLM also provides the following services.

5.16.1 Temporary Skips

The MLM uses informal skips for communal waste disposal to extend the waste collection service. The skips are placed in areas where illegal dumping is a concern or in areas where a

skip has been requested by the residents. The skips are not permanent features and are moved by MLM as required. These skips are typically not manned.



Figure 28: Temporary skips site

5.16.2 Street Bins

Street bins are available in the MLM CBD and along the main roads connecting towns.



Figure 29: Street bins

5.16.3 Street Sweeping

Street sweeping is undertaken by the cleansing department.

5.16.4 Removal of Illegal Dumping

Illegal dumping of waste occurs in open spaces across the MLM mainly in low income areas. The usual triggers for illegal dumping are a lack of awareness, open un-utilised land in between houses and lack of enforcement of by-laws. The MLM has a waste collection team that maintains a list of all the illegal dumping hot spots around the municipality and cleaning of dumping hot spots is undertaken every Monday. The MLM also responds to illegal dumping complaints received from the public on an ad hoc basis. The MLM keep a record of illegal dumping hotspots.

EPWP workers previously manned all the illegal dumping hot spots from 08h00 to 16h00 and recorded illegal dumping. The workers were designated as waste rangers but could not administer any fines (i.e. were not certified peace officers). This program has been

discontinued within the MLM. Currently, the municipality has a team that responds to illegal dumping on an ad hoc basis. Further, the municipality's by-laws allow for the administering of fines for illegal dumping and enforcement of the by-laws is implemented. The municipality also has a complaints number that residents call to report waste transgressions (mainly illegal dumping and no collection of waste).

Waste skips were placed at illegal dumping hotspots; however, dumping continues around waste skips. The municipality undertook to remove all the waste skips around the municipality as this did not help to curb illegal dumping and the residents damaged waste skips. Waste skips still remain within the Sicelo Township.

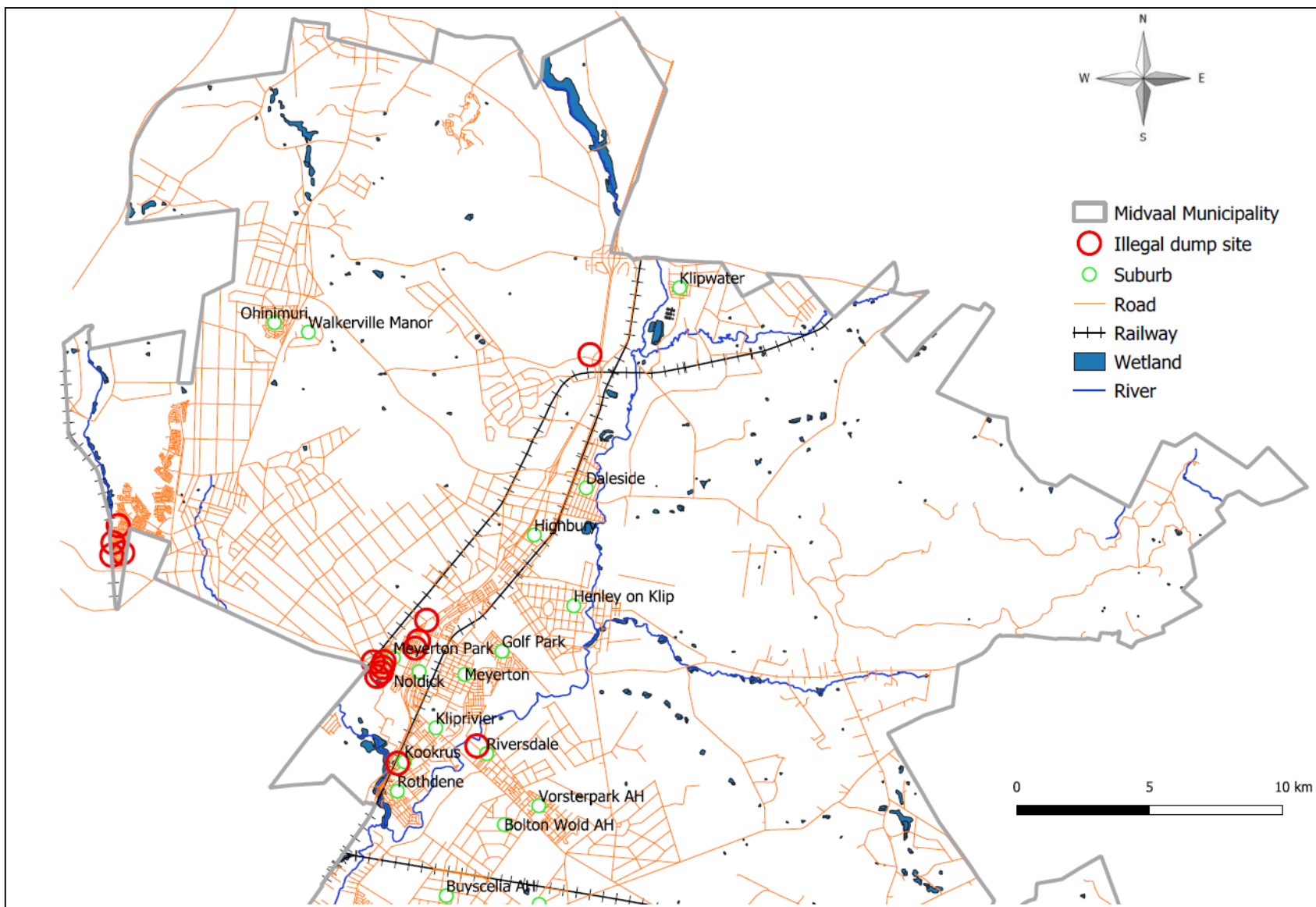


Figure 30: Illegal dumping hotspots in MLM

5.16.5 Waste Awareness Campaigns

The MLM is in partnership with Letsema, which is a Democratic Alliance led campaign which is running monthly school and community awareness campaigns with a focus on different environmental topics. For the past 12 months (February 2018 – February 2019), 34 waste awareness campaigns were undertaken. There are however no detailed records of waste awareness campaigns undertaken. The DEFF led Good Green Deeds campaign is also implemented in the municipality.

5.17 Complaints

The municipality has a complaints number that residents can call to report waste transgression. Another way to report is through ward councillors who are also custodians of waste awareness campaigns in their respective wards.

5.18 Compliance Notices

A notice of intent to issue a compliance notice was issued by GDARD on 11 November 2019 for the Henley on Klip landfill site. The notice was issued due to non-compliance with the waste management license.

5.19 Waste Management Fleet

The waste management fleet is managed by the municipal fleet management department. The MLM's fleet replacement policy is detailed in the table below:

Table 54: Fleet replacement guide by vehicle type

Vehicle make	Replacement time	Replacement km's
Passenger vehicles	5 years	Or 180 000 km's
LDV's	5 years	Or 180 000 km's
Waste truck with compactor	10 years	Or 250 000 km's
Light truck: up to 6 tonnes	8 years	Or 170 000 km's
Trucks: exceeding 6 tonnes	10 years	Or 200 000 km's
Tractors	8 years	Or 12 000 hrs
Loaders	10 years	Or 12 000 hrs
Other specialised vehicles	To be determined	Dependant on usage & condition

At present the refuse collection fleet consists of seven operational compactor trucks and three skip loader trucks. The MLM's waste management fleet is presented below

Table 55: Waste management fleet

No.	Vehicle make	Year purchased	Reg. no.	Mileage (kms)	Condition
Compactor Trucks					
1	Mercedes		SPF383GP	260 309	Fair
2	Mercedes		SPF392GP	327 514	Fair
3	Mercedes		SPF397GP	263 324	Fair
4	Mercedes		BN54NVGP	172 665	Good
5	HINO		CW15ZCGP	126 668	Good

No.	Vehicle make	Year purchased	Reg. no.	Mileage (kms)	Condition
6	QUON UD		DW49BYGP	103 862	Good
7	ISUZU		FH26ZMGP	100 445	Good
Skip loader					
1	HINO		FV48BCGP	102 157	Good
2	UD Truck		PZN356GP	368 734	Fair
3	UD Truck		YJW253GP	238 722	Fair
Loader					
1	Komatsu		BX34XGGP	5 455 hrs	Fair
Tipper					
1	Mercedes		BP27NLGP	224 120	Fair
2	HINO		DC83DDGP	179 806	Good
3	Mercedes		BP27PLGP	188 143	Good
Trucks					
1	UD 3 ton Truck		PYJ571GP	245 603	Good
2	Isuzu 4 ton Truck		DK76BHGP	139 389	Good
3	Isuzu 4 Ton Truck		DK75ZYGP	108 826	
4	New UD Truck		JB00JWGP	4290	Good
Bakkies					
1	Toyota Hilux		TFX408GP	371 604	Good
2	Toyota Hilux		BX33SYGP	274 282	Good
3	Isuzu		CL44CBGP	259 897	Good
3	Kia		CN29KZGP	199 037	Good
4	Nissan Np300		FC61MLGP	133 780	Good
5	Nissan Np300		FC61MPGP	113 263	Good
6	Hyundai		FN85HZGP	81 447	Good
7	Isuzu Drop-Side		DB88LRGP	154 615	
Other Vehicles					
1	Isuzu (Grab-Truck)	2014	FG02GSGP	101 116	Good
2	New Bell TLB		HW36JLGP	819 hrs	Good



A



B



Figure 31: Photo A: Branded compactor truck. Photo B: un-branded compactor truck. Photo C: skip truck. Photo D: other waste collection trucks

5.20 Waste Management By-Laws

5.20.1 Midvaal Local Municipality waste by-laws

A brief review of the MLM waste management by-laws was undertaken as part of the IWMP. This review does not constitute a full legal review and was only undertaken to identify key points and gaps in the by-laws.

The Midvaal local municipality waste management by-laws (2009) are comprehensive and covers the following:

- The establishment and continuous implementation of a waste information system
- The provision of information by a waste generator, service provider or person involved in or associated with the municipal service or any commercial service within the municipal area to furnish information required for the waste information system.
- The duty by the municipality to provide the waste collection service and the obligation of the people of the municipality to pay their rates and tariffs.
- Compulsory use of service and charges
- Liabilities to pay for municipal service
- Conditions for waste removal services, and for the sorting and recovery of waste
- Removal of domestic refuse, garden refuse, hazardous waste, HCRW, bulky waste, industrial waste, builder's rubble and trade refuse.
- Requirements for storage of all waste types and the type of waste permitted to be stored in general waste receptacles
- Requirements for waste transporters
- Disposal of waste and disposal sites
- Ownership of waste
- Licence requirements for waste transporters and licence applications
- Prohibition of littering and dumping of waste
- Authorised officials and designated officers as well as powers of authorised officials
- Compliance notices
- Ownership of waste
- Service of documents and process

- Establishing of tariffs by the municipality and the review of tariffs
- Offences and penalties
- Service delivery arrangements
- Right of entry and inspection waste disposal facilities
- Exemptions
- Limitation of liability for the municipality
- Liaison forums in communities

The following gaps in terms of these by-laws were noted:

- The waste management by-laws are not aligned with the Waste Act and need to be updated
- A fine of R5,000.00 or imprisonment not exceeding 24 months can be issued for illegal dumping or any contravention of the by-laws. The by-laws however, do not contain a schedule of fines. It is important to develop a schedule of fines which vary depending on the type of offence and magnitude of the offence

5.20.2 Sedibeng District Municipality

Sedibeng District Municipality has no updated set of by-laws in place with regards to waste management.

5.20.3 Enforcement of By-Laws

Fines for illegal dumping are administered by peace officers and enforced through the municipality's traffic department. They are incorporated in the resident's rates and taxes account. Both EMI's who were employed by the MLM resigned in November 2019.

5.21 Institutional Management

5.21.1 Waste Management Officer

Mrs Mukhetwa Mudau is the Assistant Director for the waste management department. There is no designated WMO in the municipality.

5.21.2 Organogram

The MLM organogram for waste management and pollution control was last reviewed in 2019. There is a total of 137 positions in the organogram of which 66 are vacant.

Table 56: Waste management organogram

<i>Position</i>	<i>No. positions</i>	<i>No. positions filled</i>
Director: Waste and Environmental Management	1	1
Assistant Director: Waster Management	1	1
Assistant Director: Environmental Management	1	0
Foreman: Cleansing	2	2
Special Worksman: Cleansing	1	1
General Worksman: Waste Management	2	2

Position	No. positions	No. positions filled
Truck Driver: Cleansing	2	2
General Workers: Cleansing	26	6
Heavy Equipment Operator: Cleansing	1	1
Special Worksman: Cleansing	3	3
Team Leader	4	0
General Worksman: Cleansing	3	0
Truck Driver	9	7
General Worker: Cleansing	34	21
Mechanic Fleet Controller	1	0
Admin clerk: Solid Waste Cleansing	1	1
Admin clerk: Environmental Management	1	0
Truck Driver: Cleansing	1	1
Compactor Truck Driver: Cleansing	3	0
General Worker: Cleansing	6	3
General Worker: Cleansing	6	3
Heavy Duty Operator	1	0
Special Worksman: Cleansing	2	2
Team Leader: Street Cleansing	1	0
Accounts Clerk	1	0
Gate Controller	8	7
General Worker: Cleansing	6	3
Truck Driver: Cleansing	3	2
Tractor Driver	2	0
General Worker: Cleansing	4	2
Total	137	71

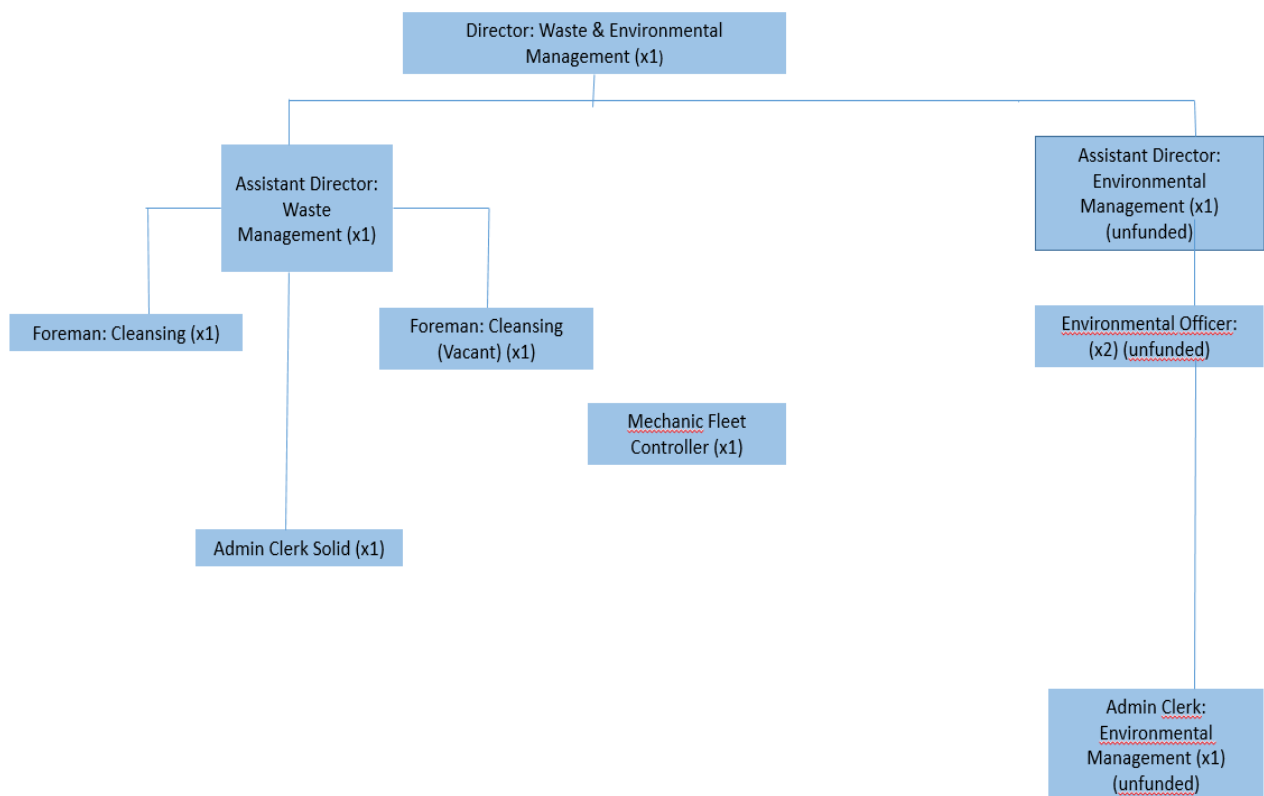


Figure 32: Organisational Structure – Community Services – Waste Management (2019 – 2020)

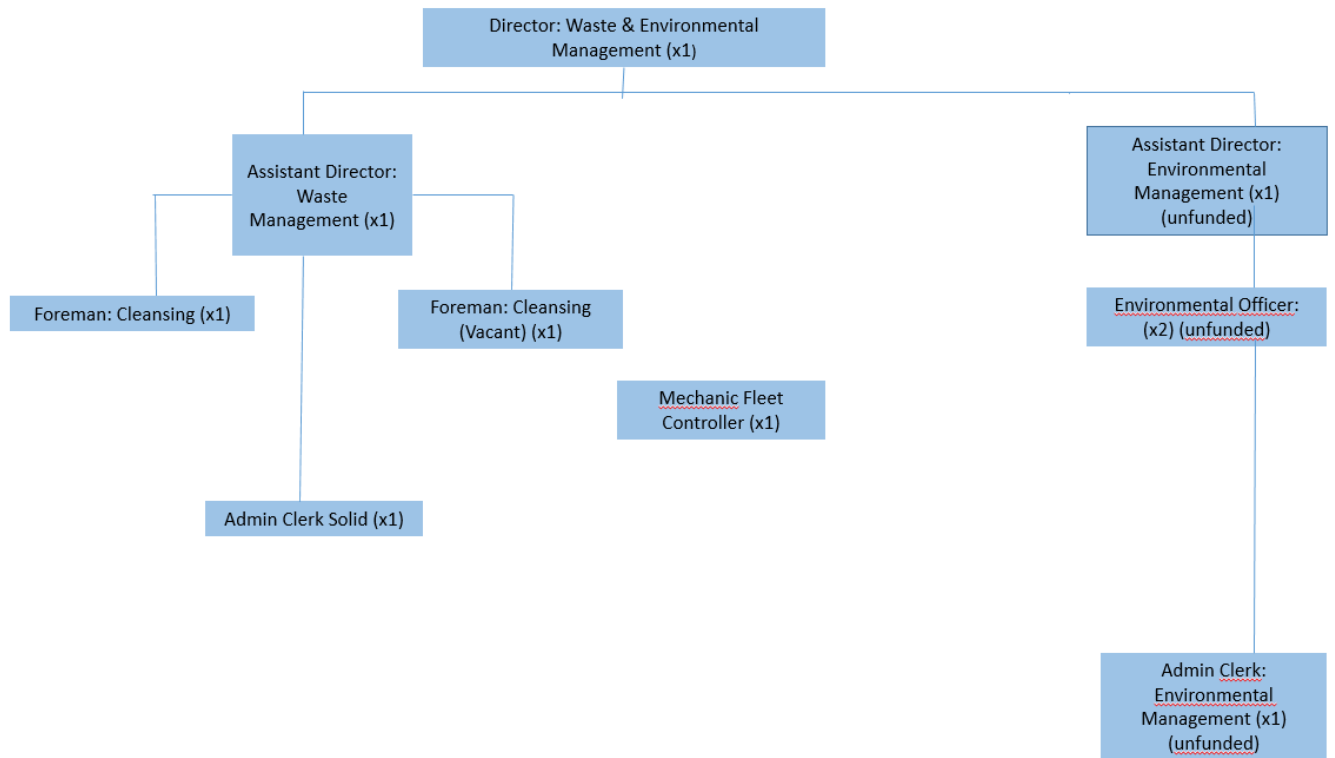


Figure 33: Organisational Structure – Community Services – Waste Management (2018 – 2019)

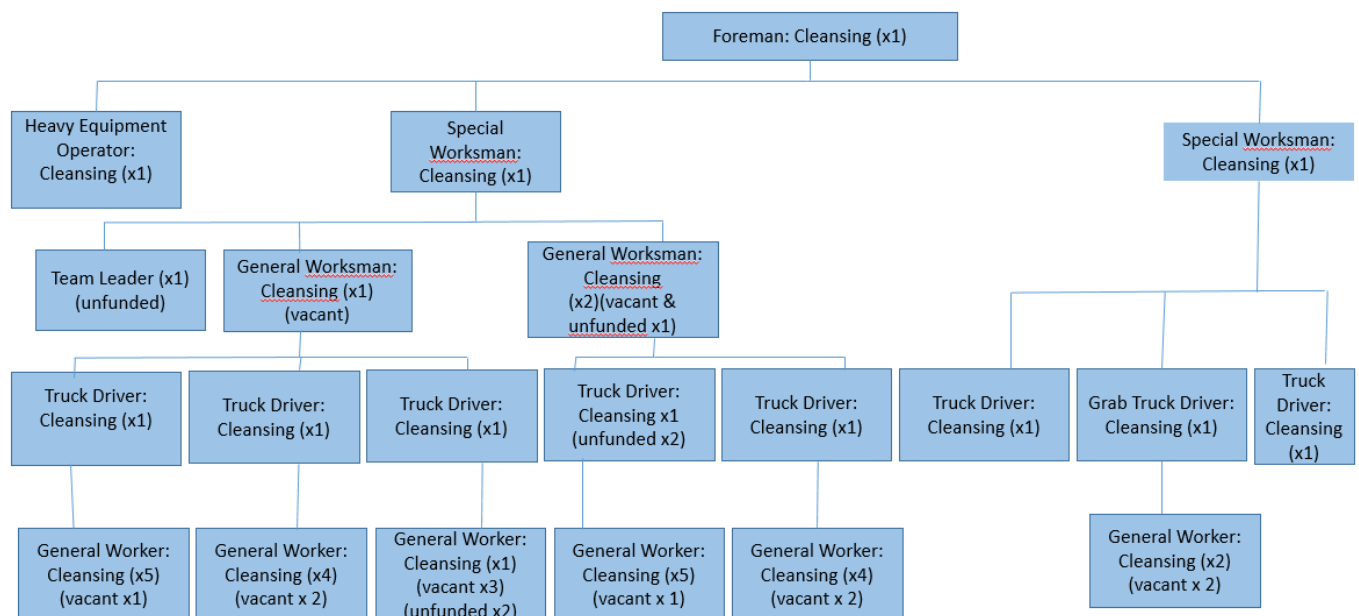


Figure 34: Organisational Structure – Community Services – Waste Management (2018 – 2019)

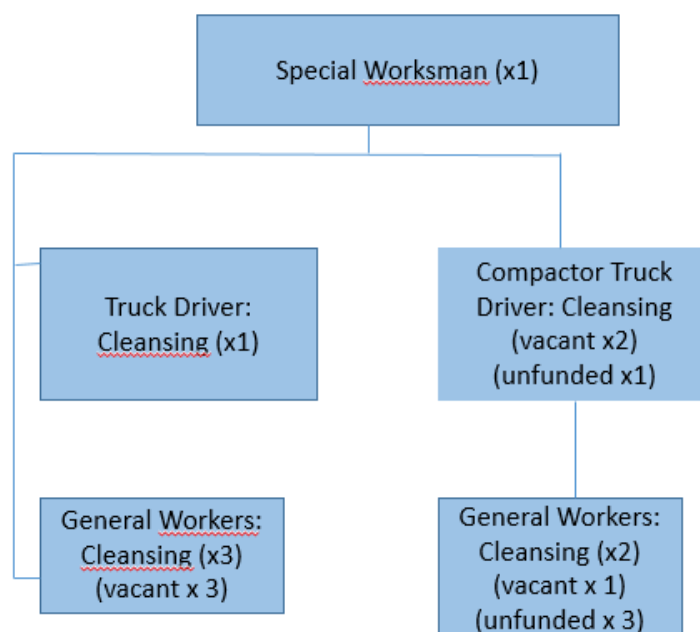


Figure 35: Organisational Structure – Community Services – Waste Management (SC) (2019 - 2020)

5.21.3 Training

The MLMs Human Resources department is responsible for the co-ordination of training. Employees in the waste department receive training based on their existing skills and the needs of the employees. Recent training received includes:

- Training on capturing of waste information on the DEA waste calculator
- Waste management training

5.22 Financial Management

A detailed understanding of the operational and capital costs of waste management is key for ensuing correct financing of waste management. When considering the financing of waste management operational costs, capital costs, recapitalisation costs and rehabilitation costs all need to be considered.

5.22.1 Waste Management Tariffs

The MLM implements a 7% annual increase in waste tariffs, however, a full cost accounting exercise has not been undertaken to determine what the tariffs should be.

Table 57: MLM domestic waste tariff history (per unit) excl. VAT

Description	2018/19	2019/20	2020/21	% increase
Meyerton / Risiville, Randvaal / Vaal Marina, Walkerville / De Deur / Savanna City	184.68	197.61	213.62	7.0%
Lakeside Estates / Sicelo/ Bantu Bonke / Savanna Low Cost Housing	92.34	98.81	106.81	7.0%
Resorts in Vaal Marina and Suikerbosrand (Bulk Resorts)	137.03	146.62	158.5	7.0%
From flats and other (res 2, 3 and 4): once per week per residential unit	137.04	146.63	158.5	7.0%

Description	2018/19	2019/20	2020/21	% increase
From agricultural holdings in plastic bags with a conservancy capacity of not more than 0.1 m ³ with a maximum of 6 plastic bags per agricultural holding, once per week	184.68	197.61	213.62	7.0%
From farm portions in plastic bags with a conservancy capacity of not more than 0.1 m ³ with a maximum of 6 bags per agricultural holding, once per week	184.69	197.62	213.62	7.0%
Non-Sectional Title properties containing Living Rooms with shared facilities	37.95	40.61	43.90	7.0%
Replacement of lost/damaged and worn out 240lt bin	1,002.93	1,073.14	1,160.06	7.0%

5.22.2 Benchmark of Municipal Tariffs

The waste collection tariffs charged by the MLM for domestic customers was benchmarked against the municipalities in the Sedibeng district municipality for basic comparison purposes and to determine whether the MLM's tariffs are in line with the tariffs of the municipalities in the district municipality. All municipalities in the district are category B municipalities. The comparison indicated that the MLM has the highest tariff for the domestic waste collection in the Sedibeng District Municipality. The MLM would need to conduct an additional assessment to determine whether the tariffs set by the municipality is sufficient to allow the municipality to provide an adequate waste management, collection and disposal service that will meet the targets of the NWMS.

Table 58: Comparison of the domestic waste collection tariff for households in the Midvaal, Emfuleni and Lesedi local municipalities

Municipality	Monthly tariff for weekly domestic waste collection in 2020/21 (incl. VAT)	Comments	Reference
Midvaal	R245.65 for households, agricultural holdings and farm portions R182.28 for flats and resorts in Vaal Marina and Suikerbosrand R122.83 for lower income households	Tariffs were increased by 8.1% from the previous financial year. Highest for the SDM	Midvaal Local Municipality (undated), Cleansing and Solid Waste Tariffs
Emfuleni	R157.44 - households without wheely bins R200.31 – households with wheely bins R157.44 - Agricultural (farm) properties	Tariffs were increased by 4.5% from previous financial year.	Emfuleni Local Municipality (undated), Tariff register for the 2020/2021 financial year
Lesedi	R156.40 – domestic waste collection R182.28 - flats	Tariffs were increased by 4.9% from previous financial year.	Lesedi Local Municipality (undated), 2020 – 2021 rates and tariffs for municipal rates and services

5.22.3 Equitable Share

Equitable share is a grant from national treasury provided to municipalities to provide basic services to poor households and to assist municipalities with limited resources to perform basic core municipal functions.

For the 2018/19 financial year the equitable share is on average R383.12 per household per month. Of the total allocated equitable share value R80.28 is allocated to waste services. This is split between operations (R72.25) and maintenance (R8.30) (National Treasury, undated).

The Equitable share is calculated based on the number of indigent households per municipality. When indigent registers are out of date municipalities may underestimate the number of indigent households and therefore not receive the full equitable share due to them.

5.22.4 Waste Management Budget, Income and Expenditure

The waste collection service is managed by the Department of Community Services and the landfill sites are managed by the Department of Engineering Services in the MLM. The budgets, income and expenditure for the waste collection service and management of the landfill sites are therefore managed by two different departments in the municipality. This inherently affects how these two services are financially managed in the MLM and inhibits long term waste management planning in the municipality. The financial information (budgets, income and expenditure) are also not collated annually to determine whether the waste management service is holistically breaking even or making a loss.

(a) Waste Management Budget, Income and Expenditure for the waste collection service

A detailed waste management budget, actual income and expenditure for the waste collection service for three financial years are provided in the tables below. Only the budgeted income and expenditure costs for the 2020 financial year are provided as the actual income and expenditure will be determined and consolidated at the end of the financial year.

Table 59: Budgeted and Actual Income and Expenditure for the waste collection services for the 2017/18 financial year

Item	Budgeted Income or Expenditure: 2017/2018	Actual Income or Expenditure: 2017/2018
TOTAL NON-EXCHANGE REVENUE: TRANSFERS AND SUBSIDIES: OPERATIONAL: MONETARY		
NRF Equitable Share: Budgeted amount	R 15,123,827.00	R 15,123,827.00
Expanded Public Works Scheme	R 248,472.00	R 248,472.00
Non-Exchange Revenue: Income	R 15,372,299.00	R 15,372,299.00
SERVICE CHARGES		
Disposal Facilities	R 3,040,722.00	R 1,788,610.62
Refuse Removal	R 1,000,000.00	-R 4,052,527.09
Refuse Removal	R 29,758,120.00	R 31,855,378.05
Waste Bins	R 98,224.00	R 91,379.39
Skip Bins	R 2,025,650.00	R 4,977,529.92
Sub-total: Exchange Revenue: Service Charges	R 35,922,716.00	R 34,660,370.89
Total Income = Exchange revenue: Income + Exchange revenue: Service Revenue	R 51,295,015.00	R 50,032,669.89
EXPENDITURE		
Waste Collection Service		
Outsourced services subtotal (Outsourced services for the waste collection service)	R 3,936,008.00	R 3,393,987.92
Consultant and Professional Services	R 432,929.00	R 0.00

Item	Budgeted Income or Expenditure: 2017/2018	Actual Income or Expenditure: 2017/2018
Contractors (Maintenance) Maintenance / repairs for vehicles	R 3,012,125.00	R 2,390,625.89
Operational Costs (Waste collection bins / Skips)	R 10,029,173.00	R 9,928,235.24
Inventory subtotal (Inventory stores, materials and supplies, Stationery, computer requirements and copy charges)	R 3,122,992.00	R 3,120,177.32
Bad Debts Written Off	R 2,395,549.00	R 2,395,548.56
Depreciation subtotal (Depreciation of collection vehicles and assets owned by the waste department).	R 6,342,315.00	R 6,331,244.14
Governance		
Staff (Employee Related Costs and Remuneration - collections)	R 17,458,265.00	R 16,915,551.68
TOTAL EXPENDITURE (OPERATING EXPENSES)	R 46,729,356.00	R 44,475,370.75
SURPLUS/DEFICIT: TOTAL INCOME - EXPENDITURE	R 4,565,659.00	R 5,557,299.14
GAINS AND LOSSES		
Disposal of fixed and intangible assets	R 0.00	R 46,145.59
Gains and Losses Total	R 0.00	R 46,145.59
SURPLUS/DEFICIT AFTER GAINS AND LOSSES	R 4,565,659.00	R 5,511,153.55
COSTING DETAIL		
Internal billings recoveries - refuse removal	R 2,249,858.00	R 74,100.24
Internal Billings Charges	R 0.00	R 0.00
Total costing charges/recovery	R 2,249,858.00	R 74,100.24
SUMMARY		
Costed revenue: Total Income + Total Costing Charges (Internal Billings Recoveries)	R 53,544,873.00	R 50,106,770.13
Costed Expenditure	R 46,729,356.00	R 44,475,370.75
Costed surplus/deficit before gains and losses	R 6,815,517.00	R 5,631,399.38
Gains and Losses Total	R 0.00	R 46,145.59
TOTAL SURPLUS/DEFICIT FOR THE WASTE MANAGEMENT DEPARTMENT FOR 2017/18: SURPLUS	R 6,815,517.00	R 5,585,253.79

Table 60: Budgeted and Actual Income and Expenditure for the waste collection services for the 2018/19 financial year

Item	Budgeted Income or Expenditure: 2018/2019	Actual Income or Expenditure: 2018/2019
TOTAL NON-EXCHANGE REVENUE: TRANSFERS AND SUBSIDIES		
Non-Exchange Revenue: Income Subtotal - NRF		
Equitable Share: Budgeted amount	R 7,424,507.00	R 7,424,507.00
SERVICE CHARGES		
Disposal Facilities	R 1,244,606.00	R 1,226,043.71
Refuse Removal	-R 3,055,153.00	-R 3,054,199.74
Refuse Removal	R 34,116,732.00	R 35,107,561.47

Item	Budgeted Income or Expenditure: 2018/2019	Actual Income or Expenditure: 2018/2019
Waste Bins	R 26,413.00	R 26,413.20
Skip Bins	R 4,690,390.00	R 4,556,854.84
Exchange Revenue: Service Revenue Subtotal	R 37,022,988.00	R 37,862,673.48
TOTAL INCOME	R 44,447,495.00	R 45,287,180.48
EXPENDITURE		
Waste Collection Service		
Outsourced services subtotal (Outsourced services for the waste collection service)	R 3,799,610.00	R 3,471,591.70
Consultant and Professional Services	R 67,240.00	R 0.00
Contractors (Maintenance) Maintenance / repairs for vehicles	R 3,105,272.00	R 2,768,184.64
Operational Costs (Waste collection bins / Skips)	R 2,341,061.00	R 5,234,517.54
Inventory subtotal (Inventory stores, materials and supplies, Stationery, computer requirements and copy charges)	R 3,868,367.00	R 3,782,803.91
Bad Debts Written Off	R 2,707,864.00	R 2,707,850.87
Depreciation subtotal (Depreciation of collection vehicles and assets owned by the waste department)	R 3,683,572.00	R 3,679,246.35
Governance		
Staff (remuneration - collections)	R 17,557,467.00	R 17,213,213.01
TOTAL EXPENDITURE	R 37,130,453.00	R 38,857,408.02
SURPLUS/DEFICIT	R 7,317,042.00	R 6,429,772.46
GAINS AND LOSSES TOTAL	R 325.00	R 323.54
SURPLUS/DEFICIT AFTER GAINS AND LOSSES	R 7,316,717.00	R 6,429,448.92
COSTING DETAIL		
Internal Billings Recoveries - Refuse Removal	R 2,463,595.00	R 784,890.18
Internal Billings Charges	R 0.00	R 597,364.65
Total Costing Charges/Recovery	R 2,463,595.00	R 187,525.53
TOTAL SUMMARY		
Costed Revenue	R 46,911,090.00	R 46,072,070.66
Costed Expenditure	R 37,130,453.00	R 39,454,772.67
Costed surplus/deficit before gains and losses	R 9,780,637.00	R 6,617,297.99
Gains and Losses Total	R 325.00	-R 323.54
Total income for the waste management dept. for 2020	R 9,780,312.00	R 6,616,974.45

Table 61: Budgeted Income and Expenditure for the for the waste collection service for the 2019/20 financial year

Item	Total Expenditure: 2019/2020
TOTAL NON-EXCHANGE REVENUE: TRANSFERS AND SUBSIDIES	
Non-Exchange Revenue: Income Subtotal - NRF Equitable Share: Budgeted amount	R 8,187,029.00

Item	Total Expenditure: 2019/2020
SERVICE CHARGES	
Disposal Facilities	R 1,331,727.00
Refuse Removal	-R 2,920,194.00
Refuse Removal	R 36,504,903.00
Waste Bins	R 28,262.00
Skip Bins	R 5,018,719.00
Exchange Revenue: Service Revenue: Income Subtotal	R 39,963,417.00
Total Budgeted Income 2020 Income = Exchange revenue: Income + Exchange revenue: Service Revenue	R 48,150,446.00
EXPENDITURE	
Waste Collection Service	
Outsourced services subtotal (Outsourced services for the waste collection service)	R 4,445,249.80
Consultant and Professional Services	R 602.00
Contractors (Maintenance) Maintenance / repairs for vehicles	R 3,289,580.10
Operational Costs (Waste collection bins / Skips)	R 2,074,624.72
Inventory subtotal (Inventory stores, materials and supplies, Stationery, computer requirements and copy charges)	R 2,707,707.00
Bad Debts Written Off	R 135,164.00
Depreciation subtotal (Depreciation of collection vehicles and assets owned by the waste department)	R 3,654,894.55
Governance	
Staff (remuneration - collections)	R 20,444,058.04
TOTAL EXPENDITURE	R 36,751,883.00
SURPLUS/DEFICIT: INCOME – EXPENDITURE	R 11,398,563.00
GAINS AND LOSSES TOTAL - Waste management running cost	R 2,277,862.00
SURPLUS/DEFICIT AFTER GAINS AND LOSSES	R 9,120,701.00
COSTING DETAIL: Total costing charges/recovery (recovery) - Internal billings recoveries - refuse removal	R 2,463,595.00
TOTAL SUMMARY	
Costed Revenue (Primary + Secondary Revenue)	R 50,614,041.00
Costed Expenditure (Primary Revenue)	R 36,751,883.00
Costed Surplus/Deficit before Gains and Losses	R 13,862,158.00
Gains and Losses Total (Losses)	R 2,287,862.00
Total Budgeted Income for the Waste Management Dept. for 2020	R 11,584,296.00

The summary of the actual income and expenditure for the waste collection service provided by the Department of Community Services for the 2016/17 – 2018/19 financial years is provided in the table below. There was a deficit for the waste management department for the 2015/16 and 2016/17 financial years. There was however a surplus for the 2017/18 and 2018/19 financial years. In addition, a surplus of R 11.58 million was budgeted for the MLM for

the 2019/20 financial year. This is very optimistic for waste management in the MLM as the municipality could utilise the surplus funds for waste management activities such as:

- to expand the waste collection service to unserved areas in the MLM,
- initially pilot a separation at source programme and eventually expand this in the MLM,
- the construction of waste drop off centres for general domestic waste and recyclable waste, and
- conduct additional awareness campaigns in the municipality to promote recycling and waste diversion, and to minimise illegal dumping.

Table 62: Summary of the Actual Income and Expenditure for the MLM from the 2016/17 – 2018/19 financial years

	2015/ 16	2016/2017	2017/18	2018/2019
Revenue				
Revenue from Exchange Transactions – Service Charges Waste Management	R 46,647,416.79	R 44,074,114.03	R 50,106,770.13	R 46,072,070.66
Expenditure				
Total Operational Expenditure Budget	R 47,646,711.95	R 46,249,436.38	R 44,475,370.75	R 39,454,772.67
Total Surplus/Deficit	-R 999,355.16	-R 2,175,322.35	R 5,557,299.14	R 6,617,297.99

5.22.5 Waste Management Budget and Expenditure for the management of the landfill sites

A detailed waste management budget and expenditure for the management of the landfill sites for the 2018/19 and the 2019/20 financial years are provided in the table below. These costs and operations are managed by the engineering services department who have budgeted for these costs.

Table 63: Budget and Expenditure for the management of the landfill sites for the 2018/19 financial year

Item	Budget: 2018/2019	Expenditure: 2018/2019
Governance		
Staff (remuneration - landfill sites)	R 6,387,100.00	R 5,675,693.18
Disposal Sites and Transfer Stations		
Outsourced services (Personnel and Labour and Security Services)	R 230,000.00	R 167,750.00
Consultant and Professional Services (I&P GEODETIC CONTROL & SURVEYS)	R 200,000.00	-
Contractors (Maintenance of buildings and facilities)	R 30,000.00	-
Operational Costs (Rehabilitation of landfill sites, hire charges, printing and publications, skills development levy, PPE)	R 6,428,825.00	R 3,035,195.73
Inventory (Materials and Supplies and Stationery)	R 2,000.00	-
Total expenditure for Disposal Sites and Transfer Stations	R 13,250,925.00	R 8,878,638.91

Table 64: Budget and Expenditure for the management of the landfill sites for the 2019/20 financial year

Item	Budget: 2018/2019	Expenditure: 2018/2019
Governance		
Staff (remuneration - landfill sites)	R 8,627,436.00	R 7,409,005.64
Disposal Sites and Transfer Stations		
Outsourced services (Personnel and Labour and Security Services)	R 294,150.00	R 294,149.07
Consultant and Professional Services (I&P GEODETIC CONTROL & SURVEYS)	R 270,000.00	-
Operational Costs (Rehabilitation of landfill sites, hire charges, printing and publications, skills development levy, PPE)	R 22,920,417.00	R 3,288,475.56
Inventory (Materials and Supplies and Stationery)	R 42,000.00	R 40,580.92
Bad Debts Written Off	R 4,300.00	R 5,480.64
Total expenditure for Disposal Sites and Transfer Stations	R 32,158,303.00	R 11,037,691.83

According to the financial statements for 2018/19 and 2019/20 for the management of the landfill sites and the transfer stations, the municipality underspent on the operational costs for the management and rehabilitation of the landfill sites and transfer stations. The majority of the costs that were underspent were for the maintenance and rehabilitation of the landfill sites and transfer stations. This is concerning as the condition of the landfill sites and transfer stations require maintenance and rehabilitation such as the repair of the weigh bridge at the Walkerville landfill, repair of fences and improvement of access control at all landfill sites and transfer stations, lack of operational plant at the landfill sites which has led to no covering or compaction of waste on a daily basis and lack of stormwater control at the landfill sites. In addition, as the municipality's landfill sites are running out of available airspace, the MLM could utilise the underspent budget to commence with planning and developing of a new landfill site in the municipality.

5.23 Waste Employee Interviews

Interviews were undertaken with a range of MLM employees, from general workers to the director for waste services. Comments and concerns raised during the interviews are listed below. These comments are the opinions of the employees and may not be a true reflection of the current situation. The comments/ concerns have been grouped according to common themes.

Table 65: Comments/ concerns raised through MLM employees interviews

Category	Comments
Waste management fleet	- Trucks frequently breakdown, and the turn-around time for repairs and servicing is long - The servicing of the fleet often takes extended periods of time - The plant used on site is old - When back up fleet is used, collection takes longer as workers often have to compact waste manually - Issues about the collection fleet are often left too long before they are attended
Waste collection	The public do not adhere to refuse collection service, bags are not put out on the

Category	Comments
	correct day or time - Dead animals, usually dogs and cats, are put into refuse bags or left out in the street for the refuse collection team - Informal reclaimers tear open bags to access food or recyclable materials, this causes litter - Runners are exposed to dangerous dogs and a few near miss incidents where they were almost bitten by dogs have occurred - Early morning traffic coincides with collection in a busy street. This delay causes a setback on the entire day's work. Often collection has to run on over time - Each household is only allowed 4 waste bags for collection, but residents often exceed this limit and the workers are forced to collect the extra bags failing which the residents call the waste service desk to log complains
Health and hygiene	- The health checks are infrequent - There are no shower facilities available at the depots for general works and truck drivers to use after shifts. Employees therefore have to go home in dirty work clothes - The general workers (waste collectors) are exposed daily to fumes from refuse trucks as they spend a lot of time running behind the truck. What are the health impacts of this in the long terms? - There is no safety inspection to check safety equipment on all the refuse trucks.
PPE	- It often takes a long time to get new PPE - The overalls given to general workers are thin and of poor quality. They do not protect against broken glass in refuse bags - Employees are not given safety glasses. Safety glasses are needed when cleaning trucks - Gloves issued to employees are inadequate to protect against broken glass and other sharp objects in waste bags
Training	Employees do not receive sufficient training. It can be difficult to get a promotion without training
Illegal dumping	- Illegal dump sites are cleaned but repeat dumping occurs - The cost of cleaning illegal dumps is not quantified
Human resource	There is a shortage of staff. MLM is expanding and areas that need to be serviced are increasing but staff complement is not increased

6 Gap and Needs Assessment

This section presents the gaps and needs identified through the situation analysis review.

6.1 Gaps and Needs Identified in 2013 IWMP

The 2013 IWMP identified the following gaps in terms of waste management. Progress to addressing the gap was noted in Table 66 below.

Table 66: Gaps identified in the 2013 IWMP (2013)

Identified gaps	Progress made to address the gaps and implement 2013 targets
1. Avoidance and Minimisation	
Lack of planning for a long-term public education and awareness programme on waste reduction within MLM.	No planning for public education and awareness programs have been undertaken by the municipality since the review of the 2013 IWMP.
Isolated initiatives only focus on the clean-up of illegally dumped waste.	- The MLM in partnership with Letsema, is running monthly school and community awareness campaigns with a focus on different environmental topics. The DEFF led Good Green Deeds campaign is also implemented in the municipality. - The MLM has continued with clean-up campaigns of illegal dumping hotspots and waste awareness training in communities where illegal dumping is common. In addition, the MLM has enforced the by-laws and fined individuals for illegal dumping.
A limited database exists for waste generators, volumes and types.	No progress has been made towards improving the waste database for waste generators, recyclers and recycling companies, volumes and types of waste generated and recycled.
Future housing and industrial developments should be included in the planning of waste management requirements.	There are no documented plans to address the waste disposal needs of future development. Further, there is no ring fenced budget for future waste service needs.
2. Collection, cleansing and transportation	
Refuse collection is currently limited to urban and semi-urban centres and there is no collection in the rural areas.	84% of households in the MLM receive a weekly kerbside waste collection service. The municipality has not been able to significantly extend the waste collection service to unserved areas since the 2013 IWMP review. Households on farms and rural households have minimal access to refuse removal services due to a lack of fleet and access roads that are not well-maintained causing damage collection vehicles over a period of time.
3. Reuse	
There is very limited reuse of the various waste streams despite the potential for reuse based on the waste stream composition.	- The MLM in partnership with Letsema and DEFF have conducted waste awareness campaigns to promote the reuse and recycling of waste. - The municipality has not initiated any programs for the reuse of waste.
4. Recycle	
There are no formal recycling initiatives in the townships, informal settlements and rural areas.	No progress has been made towards addressing this gap. The municipality has not provided support to

Identified gaps	Progress made to address the gaps and implement 2013 targets
	existing recycling companies in the MLM. The municipality has also not developed a database of private recyclers in the MLM. Construction of a buy back centre adjacent to the Galloway transfer station is in the planning phase. The MLM commenced with planning in 2019.
There are no facilities for waste separation at any of the existing waste facilities.	- There are facilities (skip bins) for separation of recyclable waste such as glass and garden waste at the transfer stations. Glass is collected by a private recycler. Garden waste is not composted at present and is disposed of at a landfill site. - The construction of a buy back centre adjacent to the Galloway transfer station is in the planning phase.
Some waste collectors are not registered and enter landfill sites for recycling purposes and are then exposed to a variety of hazards associated with landfills.	No progress has been made towards addressing this gap and informal reclaimers were noted at Henley on Klip, Vaal Marina and Walkerville landfill sites.
5. Disposal	
Most of the existing landfills in the Municipality have limited airspace.	The Henley on Klip landfill site is currently operating on a closure licence which requires closure to commence in 2022. The remaining airspace is 2 years. The remaining airspace at Walkerville and Vaal Marina is 5 and 8 years respectively. No planning for a new landfill site has commenced and planning for the closure of Henley on Klip landfill site has also not commenced.
There is no knowledge regarding the potential quantities of hazardous waste in the landfills.	Waste characterisation provides an estimate of hazardous waste in domestic waste stream. Information on the type of waste entering the landfill site is not accurate as it's only based on assumption.
Illegal dumping and littering occurs in particular around Piel's farm and the Riversdale areas.	Illegal dumping within the Piel's farm and the Riversdale areas still continues.
6. Organogram	
The available vacancies in the waste management department are not populated.	There are vacant positions in the current organogram that have not been filled. The organogram does not meet the requirements of NEMWA as there is no provision for a Waste Management Officer (WMO).
7. Collection, Transportation and Disposal Needs	
Additional collection vehicles i.e. refuse compactors (size will be determined on the amount of waste to be collected in each area).	New trucks and compactors have been procured on an ad hoc basis since the review of the 2013 IWMP but additional fleet is needed in to ensure sufficient vehicles are available to provide a good collection service. Aging fleet continuously break down and affect the day-to-day waste collections.
Additional skip containers, particularly in industrial areas where the current skips are too small for waste disposed. Skips will also be required in high density residential areas, particularly areas prone to informal settlements and backyard dwellings.	Skips have been procured and were placed in industrial areas and high-density residential areas that do not receive a kerbside waste collection service. According to the 2019/2020 IDP, R200,000 has been secured to procure skip bins for wards 8 and 10.
Recycling skips must also be provided in easily accessible areas.	No progress has been made to address this gap. Only glass recycling igloos were noted at the Galloway and Blackwood transfer stations.
Adequate bins will be required for each of the households.	None of the existing households in the municipality were provided with waste bins or waste bags. Residents make their own provision of bins and black bags. A new development with social houses were provided with bins (ward 6).

Identified gaps	Progress made to address the gaps and implement 2013 targets
Plastic bins should also be provided for essential waste separation.	None of the households in the MLM have been provided with bins or bags for waste separation.
Additional recruitment of and training of drivers and general workers.	The municipality has ensured sufficient staff for waste vehicle drivers, landfill plant operators and general workers for waste collection. The MLM offers annual training opportunities and personnel in the waste department receive training based on their existing skills and the needs of the waste department. However, there remains huge training gaps in the waste personnel as there are limited skilled or educated employees in the sector.
Budgetary provision must be made by Midvaal for the acquisition of the above mentioned facilities and training of workers.	The MLM has budgeted for purchasing of additional waste collection vehicles, plant for landfill sites, skip bins for recycling of waste and additional staff to improve the waste collection service and disposal of waste at landfill sites. The MLM, however, needs to ensure additional budget is provided annually to the waste department to purchase additional waste collection vehicles and plant for landfill sites as these frequently break down and negatively affect the waste collection and landfilling. More budget is also required as more staff and skip bins are required to expand the waste collections to unserviced areas in the MLM. Bins or waste bags should also be provided to households for waste storage. Unfilled posts in the waste organogram should be filled and ongoing training should be provided for personnel which requires additional budget as well.
8. Need for intensifying recycling initiatives	
Recycling initiatives in Midvaal are small and not adequately supported.	The MLM has not supported recycling initiatives or companies.
Development of a waste recycling strategy identifying awareness campaigns and recycling programmes targeted at communities, businesses and industries.	The MLM has not developed a waste minimisation strategy. The municipality is however, in the process of developing a buy-back centre adjacent to the Galloway transfer station.
Assist in the establishment of recycling companies.	The municipality has not assisted any recycling companies.
Piloting and establishment of composting projects.	No composting projects have been developed in the municipality.
9. Institutional and organisational needs	
Waste management by-laws The MLM waste management by-laws are out-dated.	No progress has been made since the 2013 review of the IWMP. The current by-laws were last reviewed in 2009.
Infrastructure and equipment Insufficient equipment for the collection of waste and the machinery that is available is prone to frequent breakdowns, further, there is insufficient maintenance or prolonged waiting periods for service at the Municipal workshop and other service providers.	- New trucks and compactors have been procured on an ad hoc basis since the review of the 2013 IWMP, but more waste collection vehicles are needed in order to meet the requirements of an adequate waste management fleet. - The fleet coordinator conducts weekly fleet inspections and schedules vehicles for services and repairs; however, there remains prolonged waiting periods for vehicles and plant servicing and repairs.
Institutional capacity Staff members in the waste management sector are not skilled in waste management. Further, there are unfilled vacancies.	No progress has been made to address this. There remains a significant gap in the skill and education level of the waste staff and there are vacant positions in the current organogram. Further, there is no designated Waste Management Officer (WMO) in the municipality.
Recruitment and training Skilled and trained personnel must be recruited, and an accredited service provider must be appointed to provide training. The current	There remains a huge gap in the skill and educational level of the waste staff and there are no positions in the current organogram that focus on waste minimisation

Identified gaps	Progress made to address the gaps and implement 2013 targets
organisational structures of Midvaal are geared towards waste disposal and not minimisation. There is a need to consider the staffing in accordance with the waste hierarchy.	and recycling. • Training of staff is conducted to assist in personal career growth. Specific training is also needed for staff managing landfill sites and to prioritise waste minimisation.
10. Policy and Planning	
There is a need to have Integrated Municipal Planning and the different departments within the MLM should work in close cooperation. The fragmented approach to municipal operation is resulting in an ineffective institutional structure.	The MLM has had a more integrated approach to waste planning with all departments that influence the waste management to improve waste management in the municipality. The various departments are the waste department that manage the waste collection, staff in the waste department and waste planning, the fleet department that manage and procure waste collection vehicles, technical services who manage the landfill site, the financial department that provide budgets for waste projects.
11. Financial requirements	
The implementation of the IWMP would require sufficient funds and should be done in a phased manner taking cognisance of the MLM priorities at the time. Additional funding sources must be investigated to implement the projects in the IWMP, particularly with, inter alia, the following institutions: DBSA, DEA and donor funding.	• The municipality has secured funding through the Municipal Infrastructure Grant (MIG) for the development of a buy-back centre next to the Galloway transfer station. • Additional budget is required to implement all proposed waste projects to improve waste management, waste collection, landfilling, recycling, implementation of a detailed WIS, including acquiring additional staff and providing training for current staff.
12. Tariff structure	
The structure must be reviewed at regular intervals and updated if necessary. Allocation of waste related funds must go to waste projects and infrastructure.	• This is still a gap in the municipality as the 6% tariff increase implemented annually is not informed by a full cost accounting exercise. • All funds allocated to waste services and which are meant for waste projects are not used to fund waste projects and waste infrastructure and are moved and used by other departments in the municipality.

A number of the gaps identified in the 2013 IWMP have not been addressed over the last seven-year period.

6.2 Gaps and Needs Identified in 2021

During the development of the 2021 MLM IWMP a number of gaps and needs have been identified. Gaps and needs were identified based on interviews with stakeholders, inspections of fleet and facilities, and a review of legislation and best practice guidelines.

Gap and needs have been listed under the following headings:

1. Refuse collection, transportation and disposal needs
2. Waste minimization, re-use, recycling and recovery
3. Organic waste management
4. Hazardous waste management
5. Illegal dumping
6. Waste management facilities
7. Waste management fleet and equipment
8. Waste information management
9. By-Laws and enforcement by-laws
10. Institutional functioning and financial management
11. Future planning
12. Education and awareness

Table 67: Waste management gap and needs

Legislated Requirements/ Best Practice	Gaps	Needs
1. Refuse collection, transportation and disposal needs		
- The NWMS requires 95% of households to have access to adequate levels of waste collection services in compliance with the DWCS. Non-recyclable waste must be collected weekly from households as a minimum. - The National Policy for Provision of Basic Refuse Removal Services to Indigent Households (GN 413 of 2011) requires municipalities to provide free receptacles for waste storage to indigent houses. - The NWMS requires that all municipalities' landfill sites and transfer stations are compliant with their licence conditions.	82.9% of households in the MLM have access to a weekly kerbside collection service and 1.4% of households receive a waste collection service less often than a week. 8.4% of households use a communal dump and 6.1% use their own dump. - Residents in the farms and remote areas have no access to refuse removal services. Collection is limited to urban and semi-urban areas. - None of the households in the municipality are provided with waste bins or black bags with the exception of a new development of social housing. - Only 2 of the 3 MLM landfills are licenced. The operational licence for Walkerville expired in 2013. All transfer stations in the MLM are licenced.	- Provision of waste drop off facilities to service remote communities that are far from the existing waste management facilities. - Identify indigent households and provide receptacles for waste storage. - Ensure that all waste management facilities are licenced.
2. Waste Minimisation, Re-use, Recycling and Recovery		
- The NWMS sets a target of 40% diversion of waste from landfill by 2025, 55% diversion by 2030 and 70% diversion by 2035. - Operation Phakisa sets a target of 50% diversion of municipal waste by 2023. - The NWMS requires all municipalities to include provisions for drop-off/ buy-back centres in their IWMPs. - The Waste Act requires municipalities to put in place measures that seek to reduce the amount of waste generated, and where generated, measures to	- Records of recycled waste tonnages generated in the municipality are not retained by the MLM. Therefore waste diverted from landfills cannot be quantified. - The municipality has drop-off facilities at transfer stations for garden waste and glass. The municipality does not have an operational buy-back centre, swap shops or separation at source programmes for recyclable waste. - The MLM does not have a waste	- The MLM should develop a WIS to record waste collected for recycling. Private companies would need to provide information on a regular basis to MLM. - The quantity of waste being recycled in MLM needs to be increased through: - Completing construction and commencing operations of the buy-back centre. - Rolling out a separation at source programme – the municipality should introduce a two-bag system in a certain area to pilot the separation at source project and then expand this to more areas in the municipality. - Establishing swap shops, provision of recycling bins in public spaces

Legislated Requirements/ Best Practice	Gaps	Needs
ensure that it is re-used, recycled and recovered, treated and disposed of. The 2018 Gauteng Provincial IWMP requires municipalities to exploit waste as a revenue source through waste management projects/programmes and initiatives.	minimisation plan and have not undertaken a feasibility study for any waste minimisation projects in the MLM. There are no municipal recycling projects and the municipality holds no records of recycling occurring within the municipal area by private companies.	and initiating school recycling competitions. - Provision of easily accessible recycling drop-off facilities. - Intensifying waste awareness campaigns in schools and communities. - Formalising of waste reclaimers at the landfill sites. - The MLM should develop a database of all private recyclers in the MLM. Quarterly or bi-annual recycling forum meetings should be held to promote recycling in the MLM. - The MLM should develop a waste minimisation plan and conduct a feasibility study for waste minimisation projects in the MLM.
	No records are available for in-house recycling occurring in MLM offices.	The service provider collecting waste from the municipal offices should provide records of waste volumes collected. A champion (individual) per office is needed to manage the in-house recycling programme.
3. Organic waste management Diversion of organic waste from landfill sites is required in order to reduce negative impacts and meet legislated targets.		
- The NWMS sets a target of 40% diversion of waste from landfill by 2025, 55% diversion by 2030 and 70% diversion by 2035 (this includes organic waste) - The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) – 25% diversion rate of garden waste from landfill by 2018 and 50% by 2023.	- At present all the organic waste collected in the MLM is disposed of at landfill. - The MLM does not have any composting facilities.	- The MLM should develop a composting strategy to divert green waste from landfills. - A composting facility is needed for the MLM and all garden waste collected in the MLM should be redirected from the landfills to this composting site. - A home composting project needs to be piloted in one of the residential areas (Eye of Africa) and expanded into the urban areas of the MLM. - The public should be informed of the benefits of home composting.
4. Hazardous Waste Management Although local municipalities are not responsible for the management of hazardous waste generated by business and industry, they do need to manage hazardous waste generated by households.		
- The National Domestic Waste Collection Standards require municipalities to provide communal collection points for non-mainstream recyclables such as batteries and fluorescent tubes for collection by a private service provider. - The 2020 NWMS sets a target of 10% reduction in hazardous waste in general landfills.	- There are no municipal drop off facilities for household hazardous waste. - There is a lack of awareness of what HHW is. - There is a lack of information available on hazardous waste generated by business and industry.	- Drop-off facilities for HHW are needed at select transfer stations across MLM. These facilities can be igloos or small sealed bins. - Waste awareness campaigns should cover all types of waste and the proper management thereof. - The MLM should develop a hazardous waste database and determine which industries and companies are generating hazardous waste in the MLM. The MLM can prioritise these companies and industries for

Legislated Requirements/ Best Practice	Gaps	Needs
	Access controllers are not adequately trained on how to identify HHW.	awareness training if applicable and ensuring correct disposal of hazardous waste.
5. Illegal Dumping		
	- There is no illegal dumping minimisation plan or strategy for the municipality. - The money spent on cleaning up illegal dumps is not quantified. - Education, awareness and community collaboration	- Dumping of prohibited waste types should be minimised and stopped. - The site should be redesigned and full access control implemented. - Staff should be trained and ensure that mixing of waste types does not occur at the transfer station. Separated garden waste should be composted and recyclable waste should be transported to or collected by a private recycler. - Residents of the MLM should be issued with permits of badges so the staff at the site can only admit residents from the MLM.
6. Waste Management Fleet and Equipment A well-managed and properly equipped waste management fleet is key to provision of waste management services. In addition to a well maintained operational fleet a municipality should also have a backup fleet for use in the event of breakdowns.		
The National Domestic Waste Collection Standards (GN 21 of 2011) requires that all vehicles in the waste management fleet are roadworthy and that waste is transported in closed vehicles.	- The fleet replacement policy is older than 10 years and is not being implemented appropriately. - The waste management fleet not sufficient, and some waste vehicles are old and prone to break downs. - Vehicle servicing times can vary from one week to several months before a vehicle is operational. There are no back-up compactors.	- The fleet replacement policy should be reviewed and subsequently implemented appropriately. - Older vehicles in the operational fleet need to be replaced. The old vehicles can form part of the backup fleet or be sold off. - Turnaround time for vehicle servicing should be improved. - A portion of the waste tariff should contribute to a ring-fenced recapitalisation fund for waste collection fleet and equipment.
7. Waste Information Management In order to effectively plan for waste management services a knowledge of waste generation quantities and types is required.		
7.1 Achieve integrated waste management planning		
- The Waste Act requires that the IWMP is submitted to GDARD for endorsement, it is incorporated into the IDP and that annual reports of the IWMP implementation are undertaken. - The 2020 NWMS sets a target that all LMs develop and implement of 5-year IWMPs and report on	- No annual performance reviews were undertaken on the 2013 IWMP. - The MLM only met 26.1% of its long term goals, 30.4% of its medium terms goals. and 34.8% short term goals from the 2013 IWMP.	- Once the 2021 IWMP is finalised the MLM needs to ensure that annual performance reports are prepared and submitted in line with the Municipal Systems Act (Act 32 of 2000). - All the goals and targets set in the 2020 IWMP must be incorporated into the MLM IDPs and according to their time frames. Where annual budgets are limited, the MLM should implement high priority projects first.

Legislated Requirements/ Best Practice	Gaps	Needs
SAWIS. Implement the targets set in the 2013 IWMP.		
7.2 Waste Generation Records		
The 2020 NWMS specifies that all LMs improve collection, reporting and dissemination of information on SAWIS.	- The waste entering the MLM landfill sites is all recorded as domestic waste. It is therefore not possible to determine how much domestic and how much commercial and industrial waste is generated from these records. - Illegal disposal of hazardous waste at the landfills. - No tonnages are recorded for recycled waste, rubble or green waste in the MLM. - Infrequent waste characterisations undertaken. One was undertaken in 2013 and the next undertaken in 2020 - The MLM has stopped reporting tonnages for the Walkerville landfill site on GWIS and SAWIS.	- The MLM needs to record waste collected from businesses so the split between domestic and business waste can be estimated. - All waste entering the landfill sites should be inspected. Training on the identification of waste types should be provided to access controllers. - The MLM should develop a WIS for recyclable waste, garden waste and rubble. These waste records should be submitted to GWIS. - Encourage registration of private waste generators on GWIS. - Establish a database of hazardous waste generators within the municipality. - Domestic waste characterizations need to be undertaken at least once a year. - The Walkerville landfill needs to resume reporting its waste disposal tonnes on GWIS and SAWIS.
7.3 Waste Information Management		
The 2020 NWMS specifies that all LMs improve collection, reporting and dissemination of information on SAWIS.	- The MLM does not have a WIS for the waste department. - The municipality's waste department does not have a server or program where all the waste information is stored - Poor information management. Historic information is not readily available and is not preserved to ensure that information is available to new staff that replace old staff.	- The MLM should develop a WIS for the waste department and maintain this. The MLM should train staff to maintain the developed WIS. - Develop a centralized server or program for all waste information storage.
8.By-Laws and Enforcement of By-Laws		
In order to effectively regulate waste management a municipality needs to have comprehensive waste management by-laws which are actively enforced.		
	The current waste management by-laws for MLM are out dated and are not aligned	The by-laws need to be reviewed and aligned with the Waste Act and SDM waste by-laws. A schedule of fines needs to be developed with the

Legislated Requirements/ Best Practice	Gaps	Needs
	with the Waste Act. - MLM by-laws are not aligned with SDMs by-laws. - There is no fine schedule in the by-laws. - There are no dedicated waste rangers to enforce waste management by-laws.	review of the waste by-laws. - Waste rangers need to be appointed and trained on the waste management by-laws to enforce the by-laws, particularly for littering and illegal dumping. - EMI's need to be appointed.
9. Institutional Functioning and Financial Management – Organogram and Tariff structure A waste management department needs to have sufficient staff who are appropriately trained, experienced and capacitated to manage the department effectively.		
- The Waste Act requires that a waste management officer is designated for each municipality. - The Waste Act requires municipalities to keep separate financial statements including a balance sheet of services provided.	- The organogram does not meet the requirements of the Waste Act as there is no provision for a Waste Management Officer (WMO) position. - There are no waste management control officers (WMCO) designated for the landfill sites. - Of the 117 positions in the organogram 46 are vacant. - There are currently no EMI's in the MLM. There is, however, provision for 2 EMI's according to the 2019 MLM organogram. - There is an overall lack of skilled staff in the MLM waste department. - The MLM maintains a financial statement for the waste management department; however, a full cost accounting exercise for services provided to determine the true cost of the waste management services was not conducted by the MLM.	- The MLM should designate a WMO in line with the waste management act. - The organogram should be revised to implement the projects identified in this IWMP and vacant positions should be filled. - The MLM should designate WMCO for the landfill sites, EMI's should be designated or appointed, waste rangers should be identified and trained and qualified and skilled personnel should be recruited. - Conduct a full cost accounting exercise for the waste service provided to determine the true cost of services provided. This will allow cost reflective tariffs to be determined.
10. Future 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.		
10.1 Future Waste Disposal Needs		
	There is a lack of airspace determination informed by surveys and therefore a lack	Airspace determinations should be conducted annually for the MLM to know the remaining airspace at landfill sites and to plan accordingly for

Legislated Requirements/ Best Practice	Gaps	Needs
	of understanding the long-term disposal of waste in the MLM and the lack of planning for the development of a new landfill site. • There is a lack of planning for future waste management infrastructure. • There is a lack of budget for the development of a new landfill site • There are no rehabilitation plans for facilities and no ring-fenced rehabilitation fund.	the development of new landfill sites or the diversion of waste from landfill sites • A waste infrastructure masterplan considering landfill sites, transfer stations, recycling facilities, composting facilities drop-off centres and buy-back centres for the MLM needs to be developed and implemented. The master plan should include the site selection process and budget for a new landfill. • Planning for a new landfill site should commence as soon as possible as the remaining airspace for Vaal Marina, Walkerville and Henley on Klip is estimated to be 8 years, 5 years and 2 years respectively. • The MLM should budget for the development a new landfill site and ensure that budget (funds) is available for the development of the landfill site • A portion of the waste tariff should contribute to a ring-fenced rehabilitation fund.
10.2 Future Waste Collection and Budget Needs		
	• There are no documented plans to address future waste collection needs. • There is no ring-fenced budget for future waste service needs. • There are no municipal guidelines which relate to waste management needs of new developments e.g. access for vehicles, allowance for waste drop-off facilities.	• A waste collection plan should be developed by the MLM. The plan should focus on providing a waste collection service to unserved areas • A ring-fenced budget for future waste services needs to be developed. This includes the development of a new landfill site. • A set of guidelines need to developed to ensure waste management needs are incorporated into new residential and commercial developments.
11.Education and Awareness		
	• Lack of education and awareness initiatives for the general public. • Lack of education and awareness initiatives in schools, communities and public spaces.	• The municipality should develop an annual waste awareness campaign schedule and implement this. The schedule can be developed in partnership with the SDM, GDARD and the DEFF where applicable. • The municipality needs to promote a “waste conscious” culture through the use of billboards and other advertising campaigns. • The municipality needs to roll out school competitions on recycling as method to promote waste awareness and recycling.

6.2.1 Actions to meet the 2020 NWMS Targets waste diversion from landfill targets

The 2020 NWMS sets a target of 40% diversion of waste from landfill by 2025, 55% diversion by 2030 and 70% diversion by 2035 for all municipalities. According to the GWIS, in 2020 a total of 42,677 tonnes of waste was disposed of at the landfill sites in the MLM. The table below presents the estimated tonnages of waste to be diverted from landfill to meet the NWMS targets for each five-year period.

Table 68: Waste diversion targets

Year	Diversion target	Waste disposal tonnes estimate (3.2% annual growth rate)	Tonnes of waste to be diverted to achieve NWMS target
2020	N/A	42,677 (according to GWIS)	17,071 – 40% of waste disposed. Used as baseline tonnage
2025	40%	49,981	19,992
2030	55%	58,534	32,194
2035	70%	68,552	47,986

The diversion mechanisms used to achieve these targets will vary depending on the waste stream. The diversion of recyclable, green and C&DW are discussed in the sections below.

(a) Diversion of Recyclables from landfill

To determine the amount of recyclables in the domestic waste stream, the estimated domestic waste generation and the results of the waste characterisation exercise were used. This was done to estimate the amount of recyclables could be diverted from landfill should the municipality commence with a separation at source (S@S) recycling programme.

In 2020, a total of 24,414 tonnes of domestic waste was estimated to be generated in the MLM based on the municipality's population. Based on the waste characterisation results, 51.3% of the domestic waste stream is mainstream recyclable materials. Therefore a total of 12,519.6 tonnes of recyclables are available in the domestic waste stream.

Table 69: Recyclable waste available in the domestic waste stream

Waste category	% Composition (based on mass) (from the waste characterisation exercise)	Mass of waste available in domestic waste stream based on hypothetical waste generated in the MLM in 2020 (tonnes)
Plastics	20.56	5,019.52
Paper & cardboard	15.24	3,720.69
Glass	11.19	2,731.93
E-waste	1.43	349.12
Metal	2.85	695.80
Recyclables subtotal	51.3%	12,519.6
Organics	19.80	4,833.97
Hazardous & HCRW	0.72	175.78
Nappies	19.65	4,797.35
Construction	2.62	639.65

Waste category	% Composition (based on mass) (from the waste characterisation exercise)	Mass of waste available in domestic waste stream based on hypothetical waste generated in the MLM in 2020 (tonnes)
Other	5.96	1,455.07
Total	100.0	24,418.88

One mechanism which can be used to divert recyclable material from the domestic waste stream is a separation at source (S@S) programme. It is unlikely that the MLM would have the resources (financial, fleet and expertise) to immediately launch a S@S programme for all areas in the municipality. In addition, not all households in the MLM would participate in a S@S programme and due to contamination of materials, not all the material collected through the programme would be suitable for recycling. The S@S programme can be extended to businesses and retailers in the MLM that generate recyclables that can be reused or recycled. This can assist the municipality in achieving the waste diversion targets from landfill.

A case study for the implementation of a S@S programme in Meyerton is presented in the table below to indicate the possible tonnages of recyclables that can be collected and diverted from landfill.

Table 70: Meyerton Separation at Source Programme Case Study

Meyerton separation at source programme case study explanation and calculation	Total
Meyerton population in 2011	55,283 people
Meyerton population in 2020 (3.21% annual growth rate)	73,468 people
Number of households in 2020 (average household size in 2016 is 2.9)	25,334 households
Average mass of recyclables collected per household per week/month/year: 3.5 kgs per week, 14 kgs per month and 182 kgs per year (J G Afrika, 2019)	
The average mass of recyclables collected in Meyerton in 2020, assuming 80% of households participate in the programme on average:	3,688.6 tonnes

The MLM should commence with a pilot study S@S programme in an urban area in the MLM to gather information that would be important for the success of such a programme. Important information to gather from the pilot study would be:

- Is the community ready and willing to participate in such a programme (the participation rate by households),
- Is there a service provider, in the MLM preferably, capable to provide a reliable collection service of recyclables,
- What is the true cost of a S@S programme to different communities in the MLM,
- How can the municipality and service provider work together to ensure the success of the programme (is there a suitable sorting facility with required equipment, etc.),
- Is there an end market for the recyclables that will be collected and can the service provider resell these,
- Would the programme be feasible, and
- How can the S@S programme be expanded year-on-year to other areas.

(b) Diversion of organic waste and C&DW from landfill

According to SAWIS, in 2019 a total of 6,521.5 tonnes of garden waste and 9,482.2 tonnes of C&DW was disposed of. The MLM should strive to ensure that all organic waste (specifically garden waste) is diverted from landfill through chipping or composting the garden waste. In addition, all clean C&DW should be diverted from landfill by using it as fill material in construction projects, as cover material at landfill sites or as a source material for the production of bricks. Both the diversion of green waste and C&DW would require additional equipment to be purchased or hired by the MLM (a chipper for garden waste and mobile crusher for C&DW). Additionally, the MLM should engage with private composters to compost the chipped green waste and with private construction companies or municipal engineering departments that could use the crushed C&DW for construction related projects. The diversion of waste from landfill would immediately assist the MLM in extending the lifespan of the landfill sites. It was estimated that the landfill sites in the MLM have approximately 5 - 7 years airspace remaining at their landfill sites. The MLM have not commenced with planning for an additional local or regional landfill site therefore the more waste is diverted from landfills, the longer the lifespan of the MLM landfill sites would be.

To ensure that the MLM achieves the 2020 NWMS goals for the diversion of waste from landfill, the recording of waste tonnages and type of waste disposed of at the landfill sites in the MLM should improve. The improvement in the collection, reporting and dissemination of information on SAWIS was also noted as a target in the 2020 NWMS and should be implemented by the MLM. This will assist the MLM to improve their waste management planning to ensure the waste diversion from landfill targets are achieved in the MLM.

(c) Possible waste diversion from landfill to achieve 40% target by 2025

The possible waste tonnage that could be diverted from landfill based on the 2019 SAWIC waste tonnages for the MLM are provided in the table below. A total of 16,491.8 tonnes of waste can be diverted from landfill should the municipality implement a S@S programme in the municipality (for e.g. in Meyerton) and commence with the diversion of green waste and C&DW from landfill. The MLM would divert 38.6% of waste from landfill based on current waste disposal tonnages and proposed waste diversion programmes and initiatives. By expanding the S@S programme and increasing the diversion of organic waste from landfill, the municipality could achieve the NWMS targets.

Table 71: Possible waste diversion from landfill in the MLM

Waste diversion	Tonnes of waste
Pilot S@S programme in Meyerton with 80% participation rate of households	3,688.8 tonnes - as calculated above
Diversion of 80% of all green waste disposed at landfill through chipping and composting	5,217.2 tonnes – 80% of green waste disposed at landfill in 2019
Diversion of 70% of all C&DW disposed at landfill (used as cover or fill material)	7,585.8 tonnes – 70% of C&DW disposed at landfill in 2019
Total diversion of waste from landfill	16, 491.8 tonnes

7 Goals, Objectives and Assessment of Alternatives

For the purposes of this report we have defined the terms “goals”, “objectives” and “targets” as follows:

Goals: These are high order expressions of the key general outcomes that an organisation wishes to achieve. With regards to waste management, these could include, for example, improved legal compliance, improved institutional functioning, reduced visual impact of waste management, or an increase in waste minimisation. Because these are high order aspirations, goals at a municipal level may often mirror those of provincial or national government.

Objectives: These are lower order statements than goals, and should talk to more specific outcomes. They should however support at least one of the presented goals, and contribute to the realisation thereof.

Targets: Targets are very specific outcomes which, if achieved, would signal achievement of the objective. They indicate a desired level of performance.

The table below presents hypothetical examples of that discussed above.

Table 72: Examples of Goals, Objectives and Target terminology.

Goal	Objective	Target	Activities
Improve legal compliance	Improve the level of compliance in landfill audits	Minimum of 60% compliance	• All landfills to be audited internally annually • All landfills to be audited externally as per license requirements
Increase waste minimisation	Increase recycling	5% annual increase in recycling in the LM	• Collate annual figures of waste recycled in the municipal area • Implement a 2-bag recycling pilot project • Implement a schools recycling programme

7.1 Goals for Midvaal Local Municipality

A total of seven goals were identified for the MLM. The development of these goals has been informed by the situation analysis and gap and needs assessment.

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

7.2 Alignment with National and Provincial Waste Management Goals

The 2020 NWMS and the GIWMP (2018), along with the status quo of waste management within the MLM were used to inform the MLM third generation IWMP goals. The objectives of these three strategies are listed below.

Table 73: Alignment of MLM Goals with National and Provincial Goals

MLM Goals	GPIWMP Goals (2018)	2020 NWMS
Goal 1: Effective waste information management and reporting	Goal 1. Development of integrated waste management plans Goal 3. Waste Information Management	Goal 2. All South Africans live in clean communities with waste services that are well managed and financially sustainable
Goal 2. Improved waste education and awareness		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 3. Improved institutional functioning, financial management and capacity	Goal 2. Institutional development, capacity building and integration of waste pickers into the waste management service Goal 5. Funding and job creation	Goal 1. Prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment: Increase technical capacity and innovation for beneficiation of waste
Goal 4. Provision of efficient and financially viable waste management services	Goal 2. Institutional development, capacity building and integration of waste pickers into the waste management service	Goal 2. All South Africans live in clean communities with waste services that are well managed and financially sustainable
Goal 5. Increased waste minimisation and recycling		Goal 1. Prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment Goal 2. All South Africans live in clean communities with waste services that are well managed and financially sustainable: Separate Waste at Source
Goal 6. Improved compliance and enforcement	Goal 4. Alignment with applicable legislation	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: Enhance capacity to monitor compliance and enforce the Waste Act and International Agreements
Goal 7. Improved future planning	Goal 1. Development of Integrated Waste Management Plans	Goal 2. All South Africans live in clean communities with waste services that are well managed and financially sustainable: Effective Integrated Waste Management Planning

7.3 Objectives and Assessment of Alternatives

The following objectives and alternatives, in context of the aforementioned goals, have been identified for the MLM. The preferred alternatives identified in this section will be taken forward into the implementation plan.

The no-go option (no change to status quo) can be applied to all the actions and targets listed below. The no-go alternative would mean that no change is made and the situation is not improved. The no-go option is not considered as viable as the actions and targets have been identified to improve waste management in the MLM.

Table 74: MLM waste management objectives and assessment of alternatives

Objective	Actions and Targets	Comments on Alternatives
Goal 1: Effective waste information management and reporting		
1.1 Accurate waste information is reported on the GWIS and SAWIC on a regular basis. The MLM is aware of the type and quantity of waste generated in the municipality.	1.1.1 MLM to continue to report on the GWIS and SAWIS.	There are no feasible alternative to this project. The MLM has a legal requirement in terms of the National Waste Information Regulations to report on the GWIS and SAWIS.
	1.1.2 Gate controllers to be stationed at all municipal facilities to record incoming waste types and volumes to estimate waste tonnages disposed at facilities.	The alternative to this project would be to install weighbridges at all municipal facilities. This is not deemed viable for Henley on Klip and Vaal Marina as the remaining airspace is 2 and 8 years respectively. There is a weighbridge in place at the Walkerville landfill site however, it is not operational. The weighbridge software should be procured for Walkerville and weighbridge operated until closure of the site. A weighbridge can also be installed at future waste management facilities. It should however be noted that in terms of the National Waste Information Regulations the MLM is legally required to submit actual waste tonnages (i.e. from a weighbridge) as of August 2017.
	1.1.3 All new gate controllers to undergo GDARD and DEFF waste calculator training prior to commencing work, and all existing gate controllers to undergo refresher training.	There is no feasible alternative to this project. Gate controllers require training to ensure that no prohibited waste types enter the facilities and that correct estimations are made of waste types and volumes entering the site.
	1.1.4 Domestic waste characterisations are undertaken	There is no feasible alternative to this project. Waste characterisations

Objective	Actions and Targets	Comments on Alternatives
	annually. A representative sample is used from different suburbs across the municipality.	are required to determine changes in the domestic waste stream composition due to seasonal changes or influences from recycling and organic waste diversion initiatives.
	1.1.5 Municipality to have a database of all recyclers operating in the municipal area. Records of recycled waste collected by the private service providers to be made available to the municipality.	There is no alternative to this project. The MLM needs to be aware of the recycling occurring in the municipal area.
1.2 The 2020 IWMP is regularly reviewed and the implementation status of project is monitored.	1.2.1 Undertake annual performance reviews of this IWMP, and send reports to SDM and GDARD.	There is no feasible alternative. The MLM is required to undertake annual performance reviews of the IWMP in terms of the Waste Act and submit these reviews to GDARD. These reports should also be submitted to SDM to allow them to track progress on implementation.
1.3 Effective internal management of waste related data.	1.3.1 Develop an inventory of all internal waste related data sets.	There is no feasible alternative to this project. In order to manage information correctly the MLM needs to determine what information is generated related to waste management and to collate this information into a WIS.
	1.3.2 Develop electronic systems for effectively capturing and storing waste data sets e.g., recycling and waste awareness campaigns identified in the above inventory, such that they are readily available.	An alternative to this project could be to develop a manual filing system. This is not recommended as information needs to be readily available in a central location and there is a risk that hardcopy records can be lost. Information stored on electronic systems are also easily transferable when required.
Goal 2: Improved waste education and awareness		
2.1 Waste awareness campaigns are well planned and executed. Sufficient awareness materials are available for the waste awareness campaigns.	2.1.1 Develop an annual waste awareness calendar.	There is no feasible alternative to this project. Waste awareness campaigns needs to be planned to ensure all sectors of society are reached.
	2.1.2 Waste awareness campaigns are to be undertaken by trained and experienced personnel.	There is no feasible alternative to this project. In order for waste awareness campaigns to be undertaken successfully they need to be undertaken by personnel with experience in waste management.
	2.1.3 MLM should engage with SDM to determine what marketing materials the District has and make use of these.	The alternative to this project would be for the MLM to develop their own waste awareness material. This is recommended as awareness materials should be standardised across the District through use of common awareness material and will minimise the costs and efforts needed to develop new awareness campaign material.
	2.1.4 A reporting procedure for all waste awareness campaigns undertaken is put in place to record topics	There is no feasible alternative to this project.

Objective	Actions and Targets	Comments on Alternatives
	covered, audience engaged, number of persons engaged etc., including lessons learnt and follow up tasks to be undertaken.	
2.2 The public, business and industry are informed of what constitutes hazardous waste and how hazardous waste should be managed.	2.2.1 MLM to support the SDM with hazardous waste awareness programmes if the campaigns are undertaken in the MLM.	The alternative to this project would be for MLM to undertake their own hazardous waste awareness programme.
	2.2.2 MLM to undertake hazardous waste awareness programmes with the public with a focus on HHW. Waste awareness campaigns to be undertaken at all schools in MLM.	There is no viable alternative to this project. Alternatives could however be considered in how the awareness campaigns are undertaken e.g. open days vs community meetings.
2.3 Waste awareness campaigns are mainstreamed at schools and all learners are educated on good waste management and recycling practices	2.3.1 Waste awareness campaigns to be undertaken at all schools in MBLM	There is no viable alternative to this project. Alternatives could however be considered in how the awareness campaigns are undertaken e.g. school recycling competitions vs puppets shows
Goal 3: Improved institutional functioning and capacity		
3.1 The Waste Management Department has sufficient well capacitated employees to allow for the waste management function to be actioned effectively and for the IWMP to be implemented.	3.1.1 The waste and environment organogram is to be reviewed to make provision for a Waste Management Officer (WMO) position.	There is no feasible alternative to this project. The MLM has a legal requirement in terms of NEMWA to designate a WMO.
	3.1.2 The Waste and Environment Department's organogram is to be reviewed to determine if sufficient positions are listed to allow implementation of this IWMP. All vacant positions to be filled by qualified and experienced personnel.	The alternative to this project would be to outsource functions covered by vacant positions. This is not deemed as a suitable alternative as the MLM should focus on building expertise internally and the cost to outsource will likely be higher than to appoint employees.
	3.1.3 Dedicated employees for waste education and awareness to be appointed, key performance indicators (KPIs) to be included in their formal job descriptions.	An alternative to this project could be to add waste awareness campaigns to existing employees duties, however there is a risk that the employees may not have time available to adequately perform the additional role.
	3.1.4 Implementation of the IWMP to be added as KPIs to the Waste Manager, the WMO to be designated by the MLM or supervisors performance evaluation criteria.	An alternative could be to not have any KPIs relating to IWMP implementation, but this risks failure to implement the IWMP.
	3.1.5 Training schedule developed with training needs for employees at different levels identified.	There is no feasible alternative to this project. All employees require job specific waste management training.
	3.1.6 Employment of EMI's.	There are no feasible alternatives to this project. The MLM has a legal

Objective	Actions and Targets	Comments on Alternatives
		requirement in terms of the National Waste Act to appoint EMI's.
Goal 4: Provision of efficient and financially viable waste management services		
4.1 The MLM knows the true costs of waste management in the municipality allowing the LM to improve annual budgets and waste management. The municipality to keep separate financial statements including a balance sheet of services provided.	4.1.1 The MLM to undertake a full cost accounting exercise for services provided to determine the true cost of waste management services.	There are no feasible alternatives to this project. In order to ensure that the correct tariffs are being charged to residents a full review of the finances of the waste management system are required. This review needs to consider all costs related to the provision of waste management services including operational costs such as salaries, fuel, consumables, capital costs such as upgrades to waste facilities and construction of new waste facilities and rehabilitation costs for landfill sites.
4.2 Cost reflective tariffs are charged to residents and business.	4.2.1 The waste service tariff reviews are to be informed by a full cost accounting exercise.	There is no feasible alternative to this project. A full cost accounting exercise is needed to determine the actual cost of the waste management function. The MLM will be able to budget more accurately for the waste management service and set tariffs that reflect the true cost of the waste collection service.
	4.2.2 The MLM should implement a manual capturing system and do a review of the services provided to businesses and the tariffs charged to these businesses. The municipality can recover costs for under-billing businesses.	There is no feasible alternative to this project.
4.3 The waste management fleet is sufficient to continue to provide a good waste collection service and there are backup vehicles available when required.	4.3.1 The MLM fleet replacement policy to be reviewed, updated and implemented.	There is no feasible alternative to this project. The fleet replacement policy needs to be implemented appropriately once it has been updated.
4.4 A kerbside collection service is provided to all future residential developments.	4.4.1 MLM waste department to be informed of all future residential, business and industrial developments to ensure there is sufficient fleet available to provide a weekly kerbside collection service.	There is no feasible alternative to this project.
4.5 A total of 75% of rural households to have access to adequate levels of waste collection services.	4.5.1 Establish communal drop off facilities near farms and remote areas that do not receive a waste collection service.	There is no feasible alternative to this project. All residents should have access to a basic service.
4.6 Budget is determined and allocated for the closure and rehabilitation of waste management facilities.	4.6.1 GRAP assessments of the landfill sites are undertaken on an annual basis and an annual contribution is made for the closure and rehabilitation of	There is no feasible alternative to this project as annual GRAP assessments are a legal requirement.

Objective	Actions and Targets	Comments on Alternatives
	the landfill sites.	
Goal 5: Increased waste minimisation and recycling		
5.1 The diversion of recyclables from waste generated is increased.	5.1.1 Roll out a separation at source programme. The MLM should introduce a two-bag system in medium-high income areas in the municipality.	An alternative to this would be easily accessible drop-off facilities for recyclable waste. The public are more likely to participate in a two-bag kerbside collection service as it is easier than having to transport waste to a drop-off facility. A kerbside two-bag collection service will however have financial implications for the MLM.
	5.1.2 Pilot swop shops and buy-back centres in the municipality in low income areas.	An alternative to this would be to add buy back centres to existing transfer stations and new transfer stations/mini drop off facilities.
	5.1.3 Add and manage recycling drop-off facilities to existing transfer stations and new transfer station/ mini drop-off facilities.	An alternative to this would be to pilot a two-bag system. A combination of the two systems will most likely be required as the MLM is not in a position to implement a municipal wide separation at source programme using the kerbside collection method. Drop-off facilities can be added to areas which do not form part of the pilot programme referred to in 5.1.1 or covered by swop-shops in 5.1.2.
	5.1.4 Roll out recycling initiatives in public spaces and schools.	All public sport facilities, offices and schools should have recycling bins.
5.2 The diversion of organic waste from landfill is increased.	5.2.1 Roll out of a home composting programme in the municipality.	An alternative to this is the development of drop-off facilities for food waste at transfer stations and drop-off centres, however as food waste decomposes quickly these bins would need to be emptied regularly. At present there are no municipal composting facilities where food waste can be transported to therefore this option is not deemed as a viable alternative.
	5.2.2 Develop a municipal composting facility or enter into a partnership with an existing composting company to take municipal green waste.	An alternative to this would be to provide all households with home composting bins. The alternative however might not be viable and practical for the MLM.
	5.2.3 Ensure that recycled waste (glass and plastics) and organic waste (garden refuse) separated at transfer stations are taken to existing private recycling facilities or collected by private recyclers.	There is no viable alternative to this project.
Goal 6: Improved compliance and enforcement		
6.1 Littering and illegal dumping is reduced and the by-laws related to waste management issues are enforced.	6.1.1 Review the current by-laws and make provision for a fining schedule	There is no viable alternative to this project.
	6.1.2 Appoint a waste ranger to enforce the by-laws.	An alternative to this project would be to add the waste ranger

Objective	Actions and Targets	Comments on Alternatives
		function to existing employees' functions. There is a risk that existing employees may not have capacity to undertake this role in addition to their existing roles.
	6.1.3 Undertake clean-up campaigns in areas where littering and illegal dumping is prevalent. These can be undertaken in association with local schools, environmental organisations or communities and used as waste awareness campaign.	An alternative to this project would be for the MLM to undertake all clean-up campaigns in-house without engaging the communities. Clean-up campaigns can be used to raise waste awareness so it is not deemed a suitable alternative for the MLM to conduct all clean-up campaigns without involvement from local schools, organisations and communities.
6.2 All waste facilities are operated in accordance with their licenses and licenses are obtained for unlicensed facilities.	6.2.1 Walkerville landfill site to be licenced.	There is no viable alternative to this project. All landfill sites require a waste management license.
	6.2.2 Ensure that all waste management facilities are operated in line with their waste management licences.	There is no viable alternative to this project. The municipality must comply with the conditions of the waste management license.
	6.2.3 All waste facilities to be audited internally and externally at the frequency specified in their waste management license or registration.	There is no viable alternative to this project. Internal and external audits are required by the waste management licenses.
Goal 7: Improved future planning		
7.1 Plans are in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets.	7.1.1 The remaining airspace in the waste disposal facilities is determined annually.	There is no viable alternative for this project. The MLM needs to know the actual remaining airspace of landfill sites to allow them to plan for future waste disposal needs.
	7.1.2 MLM to develop and implement a Waste Infrastructure Masterplan.	There is no viable alternative to this project. The MLM needs to develop and implement a waste infrastructure masterplan to ensure the waste infrastructure needs of the municipality are met. The plan should be reviewed annually to track progress.
	7.1.3 Planning for a new landfill site should commence as soon as possible.	There is no viable alternative for this project as the existing landfills have limited airspace.
	7.1.4 There are no documented plans to address future waste collection needs. A waste collection plan should be developed that focuses on providing a waste collection service to unserved areas.	There is no alternative to this as the MLM should provide a waste collection service to all households in the municipal area.
	7.1.5 There should be a ring-fenced budget for future waste infrastructure needs such as construction of new facilities and rehabilitation of landfill sites.	There is no alternative to this.

Objective	Actions and Targets	Comments on Alternatives
	7.1.6 Obtain budget through funding applications, a grant or a loan, to develop a new landfill site	There is no alternative to this as the municipality needs to develop a new landfill site
	7.1.7 Waste specifications to be developed for all future municipal and private developments (e.g. road widths and provision for drop-off centres).	The alternative to this project would be for all applications to be submitted to the Waste Management Department for comment once the layout plans are complete. The risk in this alternative is that money may be spent on development layouts which would need to be reworked and redesigned based on comments from the Waste Management Department. This is not deemed as a suitable alternative.

8 Implementation Plan

The following section contains an implementation plan. The implementation plan outlines the following per project:

- Project priority
 - High priority projects are indicated as red, medium priority as orange and low priority as yellow.
- Timeframes
- Anticipated budget
- Potential funding sources
- Responsibility for implementation of the project

Projects will be assigned a priority from low to high. While all projects in the implementation plan should be implemented, in the event that budget for waste projects are cut or limited, the high priority projects should be implemented before low priority projects. The rates (budget) provided in the table are 2020/21 estimates and annual increases were based on a 7% increase where applicable. To note that funding sources suggested in the implementation plan are not definite. A list of funding agencies applicable to waste management is provided in Appendix B. The MLM would need to engage with these various agencies and apply for funding for the various projects proposed in the implementation plan where applicable.

Table 75: Implementation Plan

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
Goal 1: Effective waste information management and reporting						
Objective 1.1 Accurate waste information collected and reported to GWIS and SAWIS						
1.1.1	MLM to continue to report on the GWIS and SAWIS system	High	2021 - 2025, Ongoing	Nil. To be undertaken internally	N/A	MLM
1.1.2	Gate controllers to be stationed at all municipal facilities to record incoming waste types and volumes	High	2021 - 2025, Ongoing	No additional budget required as all facilities are currently staffed	N/A	MLM
1.1.3	All new gate controllers to undergo DEFF waste calculator training prior to commencing work, and all existing gate controllers to undergo refresher training.	High	Completed in 2021, and whenever new staff are appointed or designated as gate controllers.	Nil, GDARD offer training free of charge.	N/A	MLM & GDARD
1.1.4	All municipal waste facilities are registered and reporting on the GWIS. The municipality to restart collating and reporting waste disposed at the	High	2021 - 2025, Ongoing	Nil. To be undertaken in-house	N/A	MLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	Walkerville landfill.					
1.1.5	Domestic waste characterisations are undertaken annually. A representative sample is used from different suburbs across the municipality	Medium	2021, and thereafter annually.	Nil if undertaken internally	N/A	MLM
1.1.6	Develop and maintain a WIS for recycle waste in the municipality and collate tonnages of waste recycled per month in the MLM.	High	WIS to be developed in 2021 and maintained thereafter.	Nil if undertaken internally	N/A	MLM
Objective 1.2 The 2020 IWMP is regularly reviewed and the implementation status of project is monitored.						
1.2.1	Undertake annual performance reviews of this IWMP, and submit reports to SDM and GDARD	High	Annually from 2021 -2025. Ongoing	Nil. To be undertaken internally	N/A	MLM
Objective 1.3 Effective internal management of waste related data						
1.3.1	Ensure appropriate systems are in place to capture all waste information and data (e.g. number of waste awareness campaigns, recycling and waste records, staff training requirements and training received, waste collection expansion plans, future infrastructure development, etc.) and ensure this information is stored electronically and uploaded to the central data system.	High	Develop 2021, maintain once developed. Ongoing	Nil. To be undertaken internally	N/A	MLM
Goal 2: Improved waste education and awareness						
Objective 2.1 Waste awareness campaigns are well planned and executed. Sufficient awareness materials are available for the waste awareness campaigns						
2.1.1	Develop an annual waste awareness calendar (to be developed at the beginning of each financial year). Schools in the MLM to be included in the waste awareness campaigns calendar. The MLM awareness schedule can include and be aligned with the SDM and DEFF awareness campaigns and MLM to participate in these campaigns. The awareness campaigns to be co-ordinated by the MLM waste awareness officer.	High	Developed and implemented annually from 2021 - 2025. Ongoing	Nil. To be undertaken internally A travel budget for waste awareness staff. R1,000 per visit for travel costs and awareness materials	N/A	MLM
2.1.2	Employees for waste education and awareness to be designated, and key performance indicators (KPIs) to be included in their formal job descriptions	High	2021 – 2025. Ongoing	Nil if this role is added to existing employees (e.g. environmental officers)	TBC	MLM
2.1.3	Develop waste awareness material or make use of material developed by the SDM.	High	2021 - 2025. Ongoing	Nil. If design of awareness materials can be undertaken internally	N/A	MLM & SDM
Objective 2.2 The public, business and industry are informed of what constitutes hazardous waste and how hazardous waste should be managed						
2.2.1	MLM to support the SDM with hazardous waste awareness programmes	Medium	Commence in 2021	Nil. MLM to fund the cost for	MLM and	MLM & SDM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	with business and industry. These programmes should focus on informing business and industry of making use of hazardous waste companies registered for hazardous waste collection		and assist annually.	advertising, venues and catering for meetings/ workshops. Approximately R6,000 per workshop.	SDM budget	
2.2.2	MLM to undertake hazardous waste awareness programmes with the public with a focus on HHW. Topic to be included with waste awareness campaigns	Medium	2021 - 2025	The budget will depend on the method of implementation e.g. printed materials (cost) vs social media (free), school visits (free) vs public meetings (cost for catering, venue etc.)	MLM budget	MLM
Goal 3: Improved institutional functioning and capacity						
Objective 3.1 The Waste Management Department has sufficient well capacitated employees to allow for the waste management function to be actioned effectively and for the IWMP to be implemented						
3.1.1	The Waste and Environment Department's organogram is to be reviewed. Further, the new organogram should allow for sufficient positions for the implementation of this IWMP.	High	2021	Nil. The review of the organogram can be undertaken internally. Budget will be required to fill the WMO position and other vacancies.	MLM	MLM
3.1.2	A WMO must be designated for the MLM.	High	2021	Nil if the MLM uses an existing waste manager.	MLM	MLM
3.1.3	Implementation of the IWMP to be added as KPIs to the Waste Manager, the WMO to be designated by the MLM and to the supervisors performance evaluation criteria	High	2021	Nil. No budget will be required to identify staff responsibilities and their training needs	N/A	MLM
3.1.4	MLM to implement the training needs of employees identified in 3.1.1 and 3.1.2	High	2021, ongoing annually	The training costs will depend on identified course. An average budget of ~R8,000/ course/person should be allocated. Some courses e.g. GDARD courses will be free of charge	MLM	MLM
3.1.5	EMI's and peace officers to be identified and trained for the enforcement of waste management by –laws	High	Training of EMI's and peace officers from 2021 – 2023. Ongoing when needed	Nil if this role is added to existing employees (e.g. peace officers).	MLM budget	MLM
Goal 4: Provision of efficient and financially viable waste management services						
Objective 4.1 Cost reflective tariffs are charged to local municipalities and businesses						

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
4.1.1	The MLM to undertake a full cost accounting exercise for services provided to determine the true cost of waste management services.	High	Completed by 2022/23.	R100,000 full cost accounting exercise, reviews to be undertaken internally	N/A	MLM
4.1.2	The MLM to develop their waste management budget and annual budgets based on the implementation of this IWMP, and the full cost accounting exercise undertaken.	High	Conducted annually from 2021 - 2025. Ongoing	Internal	MLM	MLM
Objective 4.2 Budget is determined and allocated for the closure and rehabilitation of waste management facilities						
4.2.1	GRAP assessments of Henley on Klip, Vaal Marina and Walkerville landfill sites are undertaken on an annual basis and an annual contribution is made into a vote for the closure and rehabilitation of the landfill sites. GRAP assessments to include airspace calculations.	High	2021 – 2025, undertaken annually	R30,000 for GRAP assessment/ landfill/ annum. R 28,000 for tachometric survey/ landfill/ annum. R20,000 for airspace analysis/ landfill/ annum.	MLM budget	MLM
Objective 4.3 There is sufficient fleet available to provide a reliable collection services and undertake all waste management functions						
4.3.1	The MLM fleet replacement policy to be reviewed and updated.	High	2021	Nil. To be undertaken internally.	MLM budget	MLM
4.3.2	MLM to procure additional fleet and existing fleet to be used as back up or to be replaced.	Medium	2021, ongoing annually	Annual costs based on the vehicle replacement plan. Costs of plant and collection vehicles indicated below. Landfill compactor: R2,500,000.00 Front End Loader: R 1,000,000.00 Tipper Truck: R 900,000.00 Waste collection vehicle (rear end loader compactor truck): R2,500,000.00 Skip Loader: R900,000.00 Light Delivery Vehicle: R 350,000.00	MIG	MLM
Goal 5. Increased waste minimisation and waste diversion from landfill						
Objective 5.1 The diversion of recyclables from waste destined for landfill is increased						
5.1.1	Roll out a separation at source (S@S) programme and this should commence in 2021. The municipality should introduce a two-bag system in one suburb and extend to a new suburb each year.	High	Year 1: Commence with S@S programme as pilot study in MLM.	TBC by the MLM. However, the cost will depend on whether the project is undertaken internally or externally, the methods used to collect the	MLM budget	MLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
			Year 2: 5% of households receive S@S service (± 2,330 households). Year 3: 10% of households receive S@S service (± 4,661 households). Year 4: 15% of households receive S@S service (± 6,991 households). Year 5: 20% of households receive S@S service (± 9,321 households).	recyclables, if the MLM or service provider have facilities, equipment and collection vehicles, the required staff, etc. The costs provided below are estimates costs based on the study by the Western Cape government on S@S programmes (DEADP, 2019). The costs for a class B municipality using separate vehicles to collect the recycles would be approximately R280 per household per annum. Therefore, a S@S for: Year 2: 2,330, households would cost R652,400.00 Year 3: 4,661 households would cost R1,305,080.00 Year 4: 6,991 households would cost R1,957,480.00 Year 5: 9,321 households would cost R2,609,880.00		
5.1.2	Pilot swap shops in the municipality.	Medium	2021 - 2025	R30,000 to establish each swap-shop (shipping container and basic equipment) R180,000 per annum (R15,000 per month) to provide stock for the swap shop. Operating budget to reassessed at the beginning of each financial year.	MLM budget	MLM
5.1.3	Add and operate recycling facilities to existing transfer stations	Medium	2021 – 2025	R100,000 per transfer station per year to purchase. Equipment will depend on needs of transfer station.	MLM budget	MLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
				Examples are • skip bins for cardboard, plastic, • bottle banks for glass and plastic (igloos), • and recycling bins (Once off costs). Facility 1 in 2022 – Galloway street transfer station Facility 2 in 2024: Blackwood transfer station Facility 3 in 2025: Kliprivier transfer station.		
5.1.4	Expand the in-house recycling programme to all MLM offices, appoint a champion (representative) per office and collect data on the programme	High	2021	Nil. To be undertaken internally	N/A	MLM
5.1.5	Establish a clean MRF or a waste separating facility at the Henley on Klip landfill site (infrastructure already in place at the landfill) The MLM landfills' airspace is nearly full and the municipality plans to develop or be part of a regional landfill model with neighbouring municipalities. For this reason, the MLM would need a transfer station and MRF to divert as much waste from landfilling and reduce costs for transporting waste long distances. The Henley on Klip landfill site has a large storage building that is unused and can be converted into a MRF. The landfill also has a ramp and storage areas for skips that can be used for the transfer station and the disposal of waste by the public. Should this facility at the Henley on Klip landfill no longer be usable, the MRF equipment can be moved to a new facility once constructed. This makes the establishment of a MRF or waste separating facility a feasible option for the MLM.	Medium	Phase 1: 2021 (planning and feasibility phase) Phase 2: 2022/23 (Implementation)	R15 million to upgrade the facility to a clean MRF and for equipment. R8 million to upgrade the facilities to be used for the transfer station and for equipment.	MIG	MLM
5.1.6	Development of mini transfer station with recycling drop-off facilities in remote areas that do not receive waste collection	Medium	2023	R3,000,000 – R4,000,000/ facility	MIG	MLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
5.1.7	Appoint a service provider to crush the C&DW	Medium	Crushing of to C&DW to commence 2024-25	R8,500,000 to purchase a crusher	TBC	MLM
Objective 5.2 The diversion of organic waste from landfill is increased						
5.2.1	Roll out home composting programme in the municipality This programme is labour intensive based on initial and ongoing training that is needed for households and is more an educational tool as the volumes diverted are small. The municipality can use the results from this programme to motivate more people to participate in this programme and practice organic waste diversion from landfill and minimise the possible their	Low	2023 - 2025 2023: pilot study - 40 households 2024: 80 households 2025: 100 - 200 households based on success of home composting programme.	R600/ household for composting bin. Total budget to be determined based on target number of pilot households. 40 bins: R24,000.00 80 bins: R48,000.00 100 bins: R60,000.00 200 bins: R120,000.00	MLM budget	MLM
5.2.2	Conduct a composting feasibility study for the MLM	High	2021-2022	R300,000	MLM	MLM
5.2.3	Construct a composting facility in future waste disposal facility (size of the composting facility to be informed by a feasibility study) <i>The municipalities in the Sedibeng District Municipality have commenced with discussion to develop a regional landfill site for the municipalities in the District. The MLM indicated that the location of the landfill might be in a neighbouring municipality due to concerns of available land. The MLM therefore need the composting facility and MRF to divert as much waste as possible – reduce transportation tonnages</i>	High	2023-2025	Compost facility – less than 10 tonnes per day: R5-8 million. Compost facility – more than 10 tonnes per day: R20-30 million	MIG	MLM
5.2.4	Develop organic waste diversion strategies for all landfill sites and transfer stations <i>Currently all green waste is separated at transfer stations and drop-off facilities but are going to landfill. The municipality needs to identify opportunities and strategies to divert this green waste from landfill. These should be documented in an organic waste diversion plan.</i>	High	2021	Nil. To be undertaken internally	MLM Budget	MLM
Goal 6. Improved compliance and enforcement						
Objective 6.1 All waste facilities are operated according with license conditions						

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
6.1.1	The MLM to undertake internal audits of all waste management facilities as required by facility licenses/ registrations	High	2020 – 2025, annually	Nil. To be undertaken internally	N/A	MLM
6.1.2	All relevant MLM employees to be trained on auditing principles to allow them to undertake internal audits	Medium	2021	Nil. If training undertaken by GDARD	MLM budget	MLM
6.1.3	External audits to be undertaken of all waste management facilities in accordance with license/ registration requirements. External audits to include topographical surveys and airspace determination (while the sites are operational) <i>To note the costs indicated are estimated for 2021. Approximately 7% should be added to the costs annually for budgeting purposes.</i>	High	2021 - 2025	External audit: R30 000/landfill site/annum Groundwater sampling and monitoring report: R25,000/landfill site/annum Gas monitoring and report: R20,000/landfill site/annum R28,000 for tachometric/topographical survey/landfill/ year. R10,000 for airspace analysis/ landfill/ annum.	MLM budget	MLM
Walkerville Landfill Site						
6.1.4	MLM to apply for a licence for the site	High	2021/22	R1,800,000 (includes EIA/WML application, geohydrological investigation, monitoring boreholes and WUL application).	MLM budget	MLM
Vaal Marina and Henley on Klip						
6.1.5	Landfill site licenses to be amended to remove unsuitable conditions. Extend the date by which closure must commence	High	2021	Nil. To be undertaken internally	N/A	MLM
6.2 The MLM refuse removal and public nuisance by-laws are updated and enforced						
6.2.1	The refuse removal and public nuisance by-laws should be updated and aligned with the Waste Act.	High	2021/22	Nil, for revision. Excludes the costs for gazetting.	MLM budget	MLM
6.2.2	Dumping hotspot register to be developed and maintained	High	2022 onwards	Nil. To be undertaken internally	MLM	MLM
6.2.3	Cleaning up of illegal dump sites (dumping hotspots to be revamped and utilised as recreational areas).	Medium	2022, onward	TBC by the MLM (annual costs for collecting and cleaning illegal dumping hotspots)	MLM	MLM
Goal 7. Improved future infrastructure planning						
7.1 Plans are in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets						
7.1.1	MLM to develop guidelines for future developments to ensure that	Medium	2021	Nil. To be undertaken internally	N/A	MLM

No.	Action	Priority	Timeframe	Budget	Funding source	Responsibility
	consideration is given to waste management plans e.g. road widths, provision of drop-off facilities.					
7.1.2	MLM to develop a waste infrastructure master plan. This should include waste disposal (regional and local) and recycling facilities. This plan should also consider whether these facilities should be regional or local (develop to serve more than one LM or just the MLM). The masterplan will identify sites for new facilities, develop concept designs and high-level costings.	High	2021/22	R500,000	MLM	MLM
7.1.3	Based on the recommendations of the waste infrastructure masterplan, the MLM to conduct a feasibility study for the design and development of a new landfill site. The study will include site selection for the landfill, identification of land for the landfill, environmental screening and licencing, an engineering preliminary design, and bill of quantities.	High	2021/22	R700,000 <i>(this can be a split cost with the municipalities who will be involved with the development and use of the regional landfill site)</i>	MLM	MLM
7.1.4	MLM to develop a waste collection expansion plan to provide a waste collection service to unserved areas. The MLM to implement this plan and update the plan annually based on implementation of the plan	High	2021	Nil, to be developed in-house.	MLM	MLM
7.1.5	The MLM to develop a ring-fenced budget for future waste service needs	Medium	2023	TBC <i>Would be calculation of what municipality budgets for waste management. Would be informed by the GRAP and infrastructure masterplan.</i>	MLM	MLM

9 Monitoring

The IWMP planning cycle developed by DEA includes monitoring and review as one of the six planning stages.

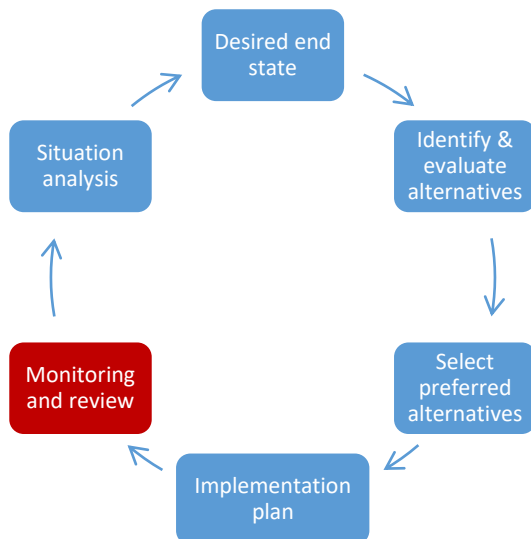


Figure 36: IWMP planning phases as per the Guideline for the Development of Integrated Waste Management Plans (DEA)

Section 13 (3) of Waste Act notes the requirement in Section 46 of the Municipal Systems Act (32 of 2000) for municipalities to compile annual performance reports. Section 13 also specifically requires that progress reports must consider implementation of the IWMP including:

- (a) the extent to which the plan has been implemented during the period;
- (b) the waste management initiatives that have been undertaken during the reporting period;
- (c) the delivery of waste management services and measures taken to secure the efficient
- (d) delivery of waste management services, if applicable;
- (e) the level of compliance with the plan and any applicable waste management standards;
- (f) the measures taken to secure compliance with waste management standards;
- (g) the waste management monitoring activities;
- (h) the actual budget expended on implementing the plan;
- (i) the measures that have been taken to make any necessary amendments to the plan;

These annual reviews should culminate in a formal review report which should be made available to GDARD.

A full review of the IWMP should be undertaken in 2026, however intermediate reviews may also be required if the status quo of waste management changes significantly before 2026.

10 References

- CSIR (2012) The formal South African waste sector (2012) It's contribution to the economy, employment and innovation
- Department of Environmental Affairs (2006) The State of Environmental Report
- Department of Environmental Affairs (2020) National Waste Management Strategy
- Department of Environmental Affairs (2011) National Waste Management Strategy
- Department of Environmental Affairs and Development Planning (undated) Integrated Waste Management Planning (IWMP) A Guide for Waste Management Planning. Volume 1: Conducting a Status Quo Analysis
- Department of Environmental Affairs and Development Planning (2018) Waste Awareness Strategy
- Department of Water Affairs and Forestry (1998) 2nd edition 1998 Minimum Requirements for Waste Disposal by Landfill
- Eskom (2007). Procedure for vegetation clearance and maintenance within overhead powerline servitudes and on Eskom owned land
- International Solid Waste Association (2013) Underground Solutions for Urban Waste Management: Status and Perspectives
- Midvaal Local Municipality IDP, (2014 - 2019). Midvaal Local Municipality Final Integrated Development Plan 2019/2020
- Sedibeng District Municipality (2019) 2019/2020 Draft Second Review of the Fourth-Generation Integrated Development Plan (IDP)
- Midvaal Local Municipality (2013) Midvaal Municipality Integrated Waste Management Plan (2nd Generation) (Final Draft Report)
- Gauteng Province (2018) Gauteng Province Integrated Waste Management Plan
- Developing Integrated Solid Waste Management Plan (2009) (Vol 1), Waste Characterization and Quantification with Projections for Future
- Gauteng Strategic Plan 2014 - 2019
- Department of Environmental Affairs (2018) South Africa State of Waste. A Report on the State of the Environment. First Draft Report. Department of Environmental Affairs, Pretoria
- Department of Environmental Affairs (undated) Guidelines for the Development of Integrated Waste Management Plans (IWMPs)
- Department of Environmental Affairs (2009) National Environmental Management Waste Act (Act 59 of 2008)
- National Treasury (undated) Website Annexure to the 2018 Budget Review. Explanatory Memorandum to the Division of Revenue
- Statistics South Africa (2016) Community Survey 2016 Technical Report
- Western Cape Department of Environmental Affairs and Development Planning (2019) A Guide to Separation of Waste at Source
- U.S. Environmental Protected Agency Office of Resource Conservation and Recovery (2016). Volume-to-Weight Conversion Factors

Web references

Web reference 2. National Treasury, 2018 Division of Revenue Bill Schedules and Annexures in Excel Format

<http://www.treasury.gov.za/documents/national%20budget/2018/2018%20Division%20of%20Revenue%20Bill%20Schedules%20and%20Annexes%20in%20Excel%20format.xlsx> accessed on 05 November 2018

<http://sawic.environment.gov.za/?menu=81> accessed on 04/03/2020

Appendix A: Waste Legislation

Introduction

South Africa has a host of legislated acts, policies and guidelines relating to waste management, the most significant of these being the newly promulgated National Environmental Management: Waste Act (58 of 2008) which is now the country's central piece of legislation dealing with waste management. There are also certain relevant international conventions to which South Africa subscribes. This section discusses these acts, policies, guidelines and conventions thereby providing a context to waste policy and legislation. Where applicable it highlights aspects of these acts and policies which apply specifically to the local government authorities.

This section is not exhaustive but presents the broader legislative framework and highlights the more important aspects thereof.

International conventions

Basel Convention on the control of trans-boundary movement of hazardous wastes and their disposal

The Basel Convention (1989) is a global agreement which seeks to address the trans-boundary movement of hazardous waste. The convention is centred on the reduction of the production of hazardous waste and the restriction of trans-boundary movement and disposal of such waste. It also aims to ensure that strict controls are in place when any trans-boundary 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 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 trans-boundary movements of hazardous wastes and their disposal, setting out the categorization of hazardous wastes and the policies for their disposal between member countries. South Africa accedes to this convention and implements its provisions.

The key objectives of the Basel Convention are:

- To minimise the generation of hazardous wastes in terms of quantity and hazardousness.
- To dispose of hazardous waste as close to the source of generation as possible.
- To reduce the movement of hazardous wastes.
- Locally, draft regulations are being prepared in an effort to control the movement of such waste.

The most significant provisions of the Convention relate to the ban on certain importations and exportations; illegal traffic, bilateral, multilateral and regional agreements and the control system of the Convention.

The Basel Convention contains specific provisions for the monitoring of implementation and compliance. A number of articles in the Convention oblige parties (national governments which have acceded to the Convention) to take appropriate measures to implement and enforce its provisions, including measures to prevent and punish conduct in contravention of the Convention.

Rotterdam Convention

The Rotterdam Convention was held in September 1998 to promote shared responsibilities in relation to importation of hazardous chemicals. One of the key provisions is the Prior Informed Consent procedure, which lists information on hazardous chemicals in Annex III. It became legally binding for its parties in 2004. The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labelling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Parties can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to

make sure that producers within their jurisdiction comply. From this convention a PIC circular is distributed every six months giving updated information on the listed chemicals, member compliance and sources of supporting information.

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, i.e. identified highly toxic, persistent chemicals.

The 12 POPs that have been identified under the convention are aldrin, chlordane, dieldrin, dichloride-diphenyl-trichloroethane (DDT), endrin, Hexachlorobenzene (HCB), heptachlor, mirex, polychlorinated biphenyls (PCBs), toxaphene, dioxins, and furans. Of the aforementioned substances, two are still used in South Africa today (DDT and PCBs), although their use is restricted under the 'Fertiliser Act' as administered by the Department of Agriculture. The above list of chemicals is relevant, especially where there is any management of obsolete and banned pesticides.

South Africa negotiated the continued use of DDT, as it has proved critical in the fight against malaria, and PCBs will be phased out as the electrical appliances that contain them become obsolete.

In 2005 South Africa, at the Reduce, Reuse and Recycle Ministerial Conference, became one of 7 countries to sign an agreement for the African Stockpile Programme, a project aimed at recovering and the appropriate disposal of obsolete pesticides. With funding (\$1,7million) from the World Bank, government began implementing the programme.

The country is also developing guidelines for the implementation of the Globally Harmonised System of Classification and Labelling of Chemicals. The funding was for the disposal of obsolete pesticides as part of the African Stockpile Programme. The department has begun implementing this programme throughout the country. Further work on training workers to handle chemicals was rolled out.

By mid-2007, a pilot project for the collection of all obsolete pesticides possessed by farmers in the Limpopo Province had begun, and this involved, amongst others, identification of collection points and collection of obsolete pesticides within the province. These stocks were further consolidated from various collection points to a central collection point and ultimately safeguarded and shipped to Holfontein Waste Disposal Site for temporary storage. The inventory of pilot project stocks has been undertaken. About 100 tons of labelled and unlabeled stocks of obsolete pesticides have been collected through this pilot project. The pilot project is expected to serve as a benchmark for the roll-out of projects in other provinces.

However, as the amount of obsolete pesticide stocks collected from the Limpopo pilot project is significantly higher than what was anticipated, it has become apparent that the remaining funds in the World Bank African Stockpile Programme budget will not be sufficient for national rollout of the programme. The African Stockpile Programme Project Management Unit has had numerous deliberations in an effort to come up with a sustainable solution for management of pesticides in the country

London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matters

The London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter, 1972, aims to prevent marine pollution by preventing the dumping of wastes such as industrial waste, sewage sludge, dredged material and radioactive waste at sea, as well as incineration at sea. South Africa is a signatory to the convention and the associated 1996 Protocol.

This convention and its various protocols were incorporated into the following South African legislation:

- Prevention of Pollution from Ships Act (Act 2 of 1986), and the regulations concerning the Prevention of Pollution by Garbage from Ships Regulations (GN R1490, published in Government Gazette No. 14000, dated 29 May 1992).
- The Dumping at Sea Control Act (Act 73 of 1980).

The primary responsible agency is the DEAT Sub Directorate of Marine and Coastal Pollution Management who issue permits for dredge spoils and sinking of old vessels. It occasionally issues permits for ships in trouble, typically grounded, to release their cargo into the sea.

Local Agenda 21

Agenda 21 is a comprehensive document for global action on the environment and sustainable development, to take the world into a more sustainable 21st century. It is probably the most important document to be adopted by the UN Conference on the Environment and Development (UNCED) at the Rio de Janeiro Summit in June 1992. The 40 chapters covered a wide range of issues including the atmosphere, oceans, land resources, poverty, etc.

It was important for each nation to develop its own local Agenda 21, in order to translate and interpret the principles of sustainable development to local areas. Local Agenda 21 focuses on developing partnerships involving the public, private and community sectors that together can resolve urban environmental management problems and strategically plan for long term sustainable environmental management.

One of the key features of sustainable development is the requirement to integrate economic and environmental factors into all decision making processes. Applications of these criteria to waste management require a new emphasis on resource and energy conservation, ensuring that supplies of raw materials, sources of energy and the quality of the physical environment can be maintained. Agenda 21 initiatives are considered to be an essential vehicle for the implementation of various aspects of the IWMP.

The key goals of Agenda 21 are:

- Sustainable development.
- Eradication of poverty.
- Elimination of threats to the environment.
- To ensure a sustainable environment.
- Creation of sustainable job opportunities.

The focus of the IWMP is to strive to attain the above goals in all facets thereof. The following seven key activities require attention in order to satisfy Local Agenda 21.

(a) Activities within the Local Authority

(i) Garnering local political support

- Information sessions and workshops.
- Reports and presentation to committees.
- Physical involvements in projects.

(ii) Managing and improving local authorities own environmental performance.

- Corporate commitment.
- Staff training and creating awareness.
- Environmental management systems.
- Budgeting for environmental processes.
- Policy integration across all sectors.

(iii) Integrating sustainable development aims within local authorities' policies and activities

- Economic development.
- Tendering and purchasing.

- Tourism and visitor strategies.
- Health strategies.
- Welfare, equal opportunities and poverty strategy.
- Focused environmental services.

(b) Activities within the wider community

(iv) Awareness raising and education

- Support for environmental education.
- Awareness-raising events.
- Visits and talks.
- Support for voluntary groups.
- Publication of local information.
- Press releases.
- Initiatives to encourage behavioural change and practical actions.

(v) Consulting and involving general public

- Public consultation processes.
- Interaction with NGO's/forums.
- Focus groups.
- Feedback mechanisms

(vi) Forging partnerships with other interest groups and activities, such as:

- Meetings, workshops and conferences.
- Working groups/advisory groups.
- Round table discussions.
- Comprehensive Urban Plan.
- International and regional partnerships.

(vii) Measuring, monitoring and reporting on progress toward sustainability

- Environmental monitoring.
- Sustainability indicators.
- Targets.
- Environmental Impact Assessments.
- Strategic Environmental Assessment.

South African Legislation

Constitution of the Republic of South Africa

The South African Constitution (Act 108 of 1996) is the supreme law of South Africa. Any law or conduct that is inconsistent with it, is invalid, and the obligations imposed by it must be fulfilled. Therefore, as such, all law, including environmental and waste management planning must consider compliance with the Constitution of South Africa.

The Constitution contains a Bill of Rights, set out in Sections 7 to 39. The Bill of Rights applies to all law and binds the legislature, the executive, the judiciary and all organs of state. A provision of the Bill of Rights binds a natural or a juristic person if, and to the extent that it is applicable, taking into account the nature of the right and the nature of the duty imposed by the right.

Section 24 of the Constitution guarantees everyone the right to:

An environment that is not harmful to their health or wellbeing; and to have an environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:

- Prevent pollution and ecological degradation.
- Promote conservation. and
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic or social development.

The environmental rights (section 24), is strengthened by other relevant fundamental rights, such as the rights of access to information and administrative justice.

(c) National and Provincial authority competence

General obligations imposed by the constitution on national and provincial government institutions are adjudicated, as the Constitution establishes an administrative framework for all organs of state. The national and provincial governments are concurrently entitled to legislate on matters stipulated in Schedule 4 of the Constitution. Both spheres of government have legislative competence over areas that will impact on management in the natural/urban interface, like environment, disaster management, nature conservation and pollution control, and would therefore also frame related matters such as waste management. It should also be noted that the Constitution contemplates the assignment, from national Government to the provinces, of functions that would normally be the exclusive preserve of the former.

Subsection 24(b) of the Constitution relates to the constitutional imperative requiring government to enact appropriate environmental law reform legislation. This led to the promulgation of the National Environmental Management Act (Act 107 of 1998, NEMA) and the National Water Act (Act 36 of 1998) amongst others. More specifically to the objective of this framework is the National Environmental Management: Waste Act, which was recently enacted.

Important to the development of a local integrated waste management strategy and plan is that in accordance with Section 155(6) of the Constitution each provincial government must establish municipalities in its province and, by legislative or other measures, must –

- (1) provide for the monitoring and support of local government in the province; and
- (2) promote the development of local government capacity to enable municipalities to perform their functions and manage their own affairs.

Furthermore in according to Section 155(7) the national government and the provincial governments have the legislative and executive authority to see to the effective performance by municipalities of their functions in respect of matters listed in Schedules 4 and 5, by regulating the exercise by municipalities of their executive authority referred to in section 156 (1).

(d) Local authority competence

National and provincial government are both obliged, by legislative and other measures, to support and strengthen the capacity of municipalities to manage their affairs, to exercise their powers and perform their functions within the individual municipal jurisdiction. This responsibility is covered in Chapter 7:

In terms of section 152 of the Constitution the objects of local government are to:

- Provide democratic and accountable government for the local community.
- Ensure the provision of services to communities in a sustainable manner.
- Promote social and economic development.
- Promote a safe and healthy environment. and
- Encourage the involvement of communities and community organisations in the matters of local government.

A municipality must in terms of section 153 structure and manage its administration and budgeting and planning processes to give priority to the basic needs of the community and participate in national provincial development programmes.

National and provincial government are also obliged to assign to a municipality, by agreement and subject to any conditions, the administration of matters listed in the relevant parts of Schedules 4 and 5 and any other matter which would be most effectively administered locally, provided that the municipality has the capacity to administer it. A municipality has the right to exercise any power concerning a matter reasonably necessary for, or incidental to, the effective performance of its functions.

Those areas of the urban/natural interface zone that fall within the legislative and jurisdictional competence of provincial or local authorities (for example a road reserve or urban areas that border a park) fall to be regulated by those authorities. The Constitution aims to co-ordinate the different levels of government and the management of the issues which the public institutions constituted or confirmed by them are charged with governing. This requires co-operation on the part of different organs of state. The above statements become pertinent to waste management as it sets the context of the administrative activities convened at the Local government level. In addition, related to local government in terms of section 152(1)(d) of the constitution, one of the objectives of local government is “to promote a safe and healthy environment”.

Municipalities are further charged with making, administering and enforcing by-laws for the effective administration of the matters of which they have the right to administer. Any bylaw that conflicts with national or provincial legislation is deemed invalid. In accordance with Section 160(4) no bylaw may be passed by a Municipal Council unless all the members of the Council have been given reasonable notice; and the proposed by-law has been published for public comment. Furthermore, in accordance with Section 162 no bylaw may be enforced unless it has been published in the relevant official provincial gazette and the bylaw must be accessible to the public.

National Environmental Management Act

The National Environmental Management Act (Act 107 of 1998) commonly known as “NEMA” gives effect to the “Environmental Right” of the Constitution and is South Africa’s overarching framework for environmental legislation. The objective of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management.

NEMA sets out a number of principles that aim to implement the environmental policy of South Africa. These principles are designed to serve as a framework for environmental planning, as guidelines by which organs of state must exercise their functions and to guide other laws concerned with the protection or management of the environment.

The principles include a number of internationally recognized environmental law norms and some principles specific to South Africa. These core principles include:

- Accountability.
- Affordability.
- Cradle to Grave Management.
- Equity.
- Integration.
- Open Information.
- Polluter Pays.
- Subsidiary.
- Waste Avoidance and Minimisation.
- Co-operative Governance.
- Sustainable Development.
- Environmental Protection and Justice.

Chapter 2: Sections 3 to 6 of NEMA, make provision for the establishment of the Committee for Environmental Co-ordination. The objective of the committee is to promote the integration and co-ordination of environmental

functions by the relevant organs of state and in particular to promote the achievement of the purpose and objectives of environmental implementation plans and environmental management plans.

Chapter 5: Sections 23 to 24 of NEMA is designed to promote integrated environmental management and provide tools for integrating environmental activities. Environmental management must place people and their needs at the forefront of its concerns, and serve their physical, psychological, developmental, cultural and social interests equitably. . This chapter of NEMA requires any activity that can potentially impact on the environment, socio-economic conditions and cultural heritage require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by the law with authorising, permitting or otherwise allowing the implementation of an activity. Development must be socially, environmentally and economically sustainable. Sustainable development therefore requires the consideration of all relevant factors, some of which include the following:

- The disturbance of ecosystems and loss of biological diversity is to be avoided, or, minimised and remedied.
- The pollution and degradation of the environment are to be avoided, or, minimised and remedied.
- Waste is to be avoided, or, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
- A risk-averse and cautious approach is to be applied.
- Negative impacts on the environment and on the people's environmental rights must be anticipated and prevented, and where they cannot be altogether prevented, must be minimised and remedied.

Section 24(5) of NEMA was enacted through the promulgation of the Environmental Impact Assessment (EIA) Regulations published in 2006 and revised in 2010. The construction of facilities or infrastructure including associated structures or infrastructure for the recycling, re-use, handling, temporary storage or treatment of general waste and hazardous waste, were originally listed in these regulations and therefore required either a Basic Assessment or a Scoping and EIA Process to be followed depending on specific listed criteria. However, the above mentioned waste activities have now been repealed and instead require a license application under the Waste Act.

Chapter 7: Sections 28 to 30, imposes a duty of care in respect of pollution and environmental degradation. Any person who has caused significant pollution or degradation of the environment must take steps to stop or minimise the pollution. Where an incident occurs that is potentially detrimental to the environment, the person who is responsible for the incident or the employer must, within 14 days of the incident, report to the Director-General, provincial head of department and municipality. The relevant authority may specify measures to address the problem and remediate the area within 7 days. The Acts also attach consequences for breaching the duty of care, namely that government authorities are empowered to issue directions and to remediate the situation and recover costs where the directions are not complied with.

Chapter 8: Sections 35, provides that the Minister and every MEC and municipality may enter into an environmental management co-operation agreement with any person or community for the purpose of promoting compliance with the principals laid down in NEMA. Environmental Co-operation Agreements may contain an undertaking by the person or community concerned to improve the standards laid down by law for the protection of the environment and a set of measurable targets and a timeframe for fulfilling the undertaking.

Chapter 9 allows the Minister to make model By-Laws aimed at establishing measures for the management of environmental impacts of any development within the jurisdiction of the municipality, which may be adopted by the municipality as By-Laws. Any municipality may request the Director-General to assist it with its preparation of By-Laws on matters affecting the environment and the Director-General may not unreasonably refuse such a request. The Director-General may institute programmes to assist municipalities with the preparation of By-Laws for the purposes of implementing this Act.

Environment Conservation Act

The Environment Conservation Act (Act 73 of 1989) (ECA) predates the Constitution and, although many sections have already been repealed, certain sections are still in place.

The objectives of the ECA are to provide for the effective protection and controlled utilisation of the environment. Several sections of the ECA were repealed through the enactment of NEMA and certain responsibilities were assigned to the provinces.

The Waste Act has repealed sections of the ECA dealing with waste management. More specifically these repealed sections are:

- 19: Prohibition of littering. This is now dealt with under Section 27 of the Waste Act.
- 19A: Removal of litter.
- 20: Waste Management. This section dealt with permitting of waste facilities, but is now replaced by Chapter 5 (Sections 43 – 59) of the Waste Act.

Waste management, more specifically with regard to landfill disposal site permitting and related matters, was until its recent repeal through the Waste Act, coordinated and controlled under Section 20 of the ECA, as follows.

In order to implement section 20 of the ECA, DWAF previously issued the above mention permits subject to specified conditions stipulated in the DWAF Minimum Requirements: Waste Management Series.

- 24: This section provided the framework for waste regulations to be formulated. This issue is now covered by Chapter 8, Part 1 (Regulations) (Sections 69 – 71) of the Waste Act.
- 24A, 24B and 24C: Similarly these sections which dealt with regulations regarding littering, products, and procedures for making regulations respectively are now addressed by Chapter 8, Part 1 of the Waste Act.
- 29: Sections (3) and (4), which deal with Offences and Penalties have been substituted by the Waste Act.

Despite the fact that the Waste Act repeals section 19, 19A, 20, 24, 24A 24B, and 24C of the ECA, it should be noted that in accordance with Section 80(2) of the Waste Act, any regulations or directions made in terms of these repealed sections of the ECA, remain in force and are considered to have been made under the Waste Act.

National Environmental Management: Waste Act

(a) Overview

The National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA) was promulgated on 01 July 2009, marking a new era in waste management in South Africa (with the exception of a number of sections which will be brought into effect at dates still to be gazetted). The act covers a wide spectrum of issues including requirements for a National Waste Management Strategy, IWMPs, definition of priority wastes, waste minimisation, treatment and disposal of waste, Industry Waste Management Plans, licensing of activities, waste information management, as well as addressing contaminated land.

However, South African waste management legislation is still fragmented. Mining; radio-active waste; disposal of explosives; and disposal of animal carcasses, which are covered by specific other regulations is not addressed by the act. The Waste Act does however constitute South Africa's overarching primary waste legislation.

(b) Objectives of the Waste Act

The National Environmental Management: Waste Act's objectives are -

To protect health, well-being and the environment by providing reasonable measures to -

- Minimising the consumption of natural resources.
- Avoiding and minimising the generation of waste.
- Reducing, re-using, recycling and recovering waste.
- Treating and safely disposing of waste as a last resort.
- Preventing pollution and ecological degradation.
- Securing ecologically sustainable development while promoting justifiable economic and social development.
- Promoting and ensuring the effective delivery of waste services.

- Remediating land where contamination presents, or may present a significant risk of harm to health or the environment. and
- Achieving integrated waste management reporting and planning.
- To ensure that people are aware of the impact of waste on their health well-being and the environment.
- To provide for compliance with the measures set out in paragraph (a) and
- Generally, to give effect to section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being.

The Chapters and topics of the Waste Act are as follows:

Chapter 1 - Interpretation and Principles

Chapter 2 - National Waste Management Strategy, Norms and Standards

Chapter 3 - Institutional and Planning Matters

Chapter 4 - Waste Management Measures

Chapter 5 - Licensing of Waste Management Activities

Chapter 6 - Waste Information

Chapter 7 - Compliance and Enforcement

Chapter 8 - General Matters.

(c) Roles and Responsibility

The Act establishes a national framework for waste planning, regulation and management with roles for all spheres of government, specifically:

- National government is tasked with establishing a national waste management strategy, including norms, standards and targets. National norms and standards may cover all aspects of the waste value chain, from planning to service delivery. Of particular importance from an intergovernmental perspective are the powers of national government with respect to norms and standards for:
- The regionalization of waste management services.
- Tariffs for waste services provided by municipalities, including providing for tariffs to be imposed to provide for waste management infrastructure or facilities and ensuring that funds obtained from the provision of waste services are used for the delivery of these services.
- Provincial governments are tasked with the implementation of the national waste management strategy and national norms and standards, and may set additional, complementary provincial norms and standards. The Waste Act notes that these norms and standards must amongst other things facilitate and advance regionalization of waste management services.
- Local governments are required to ensure the universal and sustainable delivery of services, subject to national and provincial regulation. In particular, they are required to maintain separate financial statements, including a balance sheet of the services provided.

The table below lists sections of the act which make specific demands on Local (municipal) government: Tasks falling under sections of the act which have yet to be enacted have not been listed. While certain sections of the text are taken verbatim from the Act, interpretation has been added.

Tasks required by governmental entities in terms of NEM:WA.

TOPIC	SECTION	REQUIREMENT
General duty	3	The state must put in place measures that seek to reduce the amount of waste generated, and where waste is generated, ensure that it is re-used, recycled and recovered in an environmentally sound manner.
Waste service standards	9 (1) & (2)	A municipality must deliver waste management services, including waste removal, storage and disposal services in adherence to the national and provincial norms and standards (section 7 and 8 of the Act); whilst: • Integrating the IWMP and IDP • Ensuring access to services • Ensuring affordable service delivery

TOPIC	SECTION	REQUIREMENT
		Ensure effective and efficient Sustainable and Financial management
	9 (3)	The Municipal may furthermore set local standards: - For separating, compacting and storing waste - Management of solid waste, i.e.: Avoidance, Minimisation, Recycling - Coordination of waste to relevant treatment or disposal facilities - Litter control
Designation of Waste Management Officers	10(3)	The Municipality must designate in writing a waste management officer from its administration to be responsible for coordinating matters pertaining to waste management in that municipality
Integrated Waste Management Plans	11 (4) & (7)	- The Municipality must submit an IWMP to the MEC for approval (response from the MEC must be given within 30 days) - Include the approved IWMP into its IDP - Follow the consultative process in section 29 of the Municipal Systems Act (separately or as part of IDP)
	12	Contents for IWMP's, includes: - A situational analysis - a plan of how to give effect to the Waste Act - municipal waste management and services obligations - prioritisation of objectives - setting of targets - planning approach to any new disposal facilities; and - Financial resourcing.
	13	An annual performance report prepared in terms of section 46 of the Municipal Systems Act must contain information on the implementation of the municipal IWMP.

(d) Industry Waste Management Plans

For industries, the Waste Act states that either the Minister or the relevant provincial MEC may under certain conditions and by written notice or by notice in the Gazette require a person or industry to prepare and submit an Industry Waste Management Plan.

(e) Waste Licensing for listed Activities

The Minister has subsequently gazetted (on 03 July 2009) GN No. 718 (Gazette No. 32368) and 719 (Gazette No. 32369) which present a Waste Management Activity Lists describing those waste activities, and thresholds, which require authorisation before they are undertaken. This list was amended in 2013 (Gazette No 921 of 2013) and again in 2017 (Gazette No, 1094 of 2017). The Waste Act Schedule 1 (Section 19) identifies activities which require a waste management licence. Activities include:

- Recycling and recovery.
- Treatment of waste.
- Disposal of waste on land.
- Construction, expansion or decommissioning of facilities and associated structures and infrastructure.

Either a Basic Assessment or Scoping and Environmental Impact Assessment (EIA) process is to be carried out with regards to acquiring a licence as stipulated in the environmental impact assessment regulations made under section 24 (5) of the Waste Act).

(f) Integrated Waste Management Planning

The Waste Act also places considerable emphasis on the development of an integrated waste planning system, through the development of interlocking Integrated

Waste Management Plans (IWMPs) by all spheres of government and specified waste generators. This planning system is the primary tool for cooperative governance within the sector. While the requirement for these plans is new for national and provincial governments, and for waste generators, this is not the case for local governments who had been able to voluntarily prepare such plans within their Integrated Development Plans (IDPs). IWMPs are mandatory for national and provincial government and specified waste generators, but the situation for local government is made a little more ambiguous by the Constitutional assignment of concurrent powers to provincial and local governments in this respect, with only limited authority assigned to national government.

(g) Norms, standards, tariffs and financial Management Systems

Other focal areas of the Waste Act include provisions for the development of norms and standards, tariffs and financial management systems. These powers all largely repeat existing national or provincial powers that are provided for in other legislation. The key change is that the Minister of Environmental Affairs now assumes these powers in terms of the Act, although concurrently with other authorised Ministers notably in Local Government and Finance portfolios.

Certain sections of the act have yet to be enacted, including the following:

- Section 28 (7), which makes allowance for of a person, category of person or industry to compile and submit an industry waste management plan for approval to the MEC, without being required to do so by the MEC.
- Section 46, which allows the licensing authority to require an applicant seeking a waste management licence to appoint an independent and qualified person to manage the application.

National Environmental Management: Air Quality Act

The National Environmental Management: Air Quality Act (39 of 2004) requires that appropriate consideration must be given to the emissions arising from waste management practices, processes and procedures. Many facets of waste management are associated with atmospheric emissions, for example, waste transportation is associated with carbon dioxide released from vehicles, and methane and carbon dioxide which are released from landfill sites.

The Air Quality Act was published in the Government Gazette on 24 February 2005 and came into effect in September 2005. This Act, amongst others, provides for the implementation of a National Framework, of national, provincial and local ambient air quality and emission standards and air quality management plans. These implementations are currently in progress.

Atmospheric Pollution Prevention Act

Prior to the Air Quality Act coming into full effect, the control of atmospheric emissions of noxious, hazardous and nuisance causing materials was controlled by the Atmospheric Pollution Prevention Act (APPA) (Act 45 of 1965) and its amendments. The administration of the APPA has been assigned to the Air Pollution Control Department under the Department of Environmental Affairs & Tourism.

Those sections addressing the management of dust are of importance for landfill site management. Sections 27 – 35 state that industries should adopt the “best practicable means” for preventing dust from becoming dispersed or causing a nuisance. The act also empowers owners or occupiers present in the vicinity of the source of dust/nuisance to take or adopt necessary steps or precautions against the nuisance. Where steps have not been prescribed, owners must adopt the “best practicable means” for the abatement of the nuisance. Should any person/s such as for example, waste management service providers, not comply with the necessary steps to prevent owners/occupiers from the effects of dust, the person/s may be liable to pay a dust control levy to the minister.

National Water Act

The National Water Act (Act 36 of 1998) is South Africa's overarching piece of legislation dealing with water resource management. It contains a number of provisions that impact on waste management, including:

- Ensuring the disposal of waste in a manner, which does not detrimentally impact on water resources.
- Managing the discharge of waste into water resources.

The Act allows the Minister to make regulations for:

- Prescribing waste standards, which specify the quantity, quality and temperature of waste that may be discharged or deposited into or allowed to enter a water resource.
- Prescribe the outcome or effect, which must be achieved through management practices for the treatment of waste before it is discharged or deposited into or allowed to enter a water resource.
- Requiring that waste discharged or deposited into or allowed to enter a water resource be monitored and analysed according to prescribed mechanisms.

Occupational Health and Safety Act

The purpose of the Occupational Health and Safety Act (OHSA) (Act 85 of 1993) and associated regulations is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

A sound waste management strategy and planning must take into account the safety of persons involved in the practical implementation thereof, with reference in particular to any waste services carried out by municipal officials; and waste service providers and their employees.

Core to OHSA are the principles and core duties of employers and employees as legislated in Sections 8, 9 and 14 thereof.

Section 8(1) stipulates that "Every employer shall provide and maintain, as far as is reasonable practicable, a working environment that is safe and without risk to the health of his employees".

Section 9(1) stipulates that "Every employer shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health or safety." Subsection (2) imposes a similar duty on every self-employed person.

Section 14(a) imposes a duty on every employee at work to take reasonable care for the health and safety of himself and of other person who may be affected by his acts or omissions. An employee is also required to co-operate with his employer concerning his duties in terms of the Act and to obey health and safety rules and procedures laid down by his employer.

In addition the OHSA further protects workers with regard to Hazardous Chemical Substances through specific regulations. Asbestos regulations deal with specific asbestos containing waste management.

It is likely that the OSHA also places an obligation on the Municipality, to ensure that service providers maintain compliant Health and Safety procedures. This would be relevant in the case of outsourced, waste management functions.

Health Act

The Health Act (Act 63 of 1977) focuses on the promotion of the health of the people and the provision of processes to enable this objective to be achieved. Sections 20, 34 and 38 of the Act are relevant to waste management.

Section 20, requires authorities to take lawful and reasonable practical measures to maintain their areas in a hygienic and clean condition to prevent an unhealthy environment for people.

Sections 34 and 38 of the act authorise the National Minister of Health to make regulations, which may directly impact on waste management.

Hazardous Substances Act

The Hazardous Substances Act (Act 15 of 1973) governs the control of substances that may cause ill health or death in humans by reason of their toxic, corrosive, irritant, flammability or pressure effects. The Act provides for the regulation of the storage, handling, labelling and sale of Group I, II, and III hazardous substances. A license is required for an operation that stores, handles and sells Group I substances. Section 29(1) of the Act regulates the disposal of the empty containers, which previously held Group I substances.

No national, local provincial or local municipal regulations have been promulgated under the Act for the on-site management of Group II hazardous substances.

The relevance of the Act with regard to waste management is captured as certain waste types may be categorised into the various groupings under the Act as noted above.

National Road Traffic Act

The United Nations (UN) recommendations on the transport of dangerous goods have been used to produce sections of the National Road Traffic Act (Act 93 of 1996). In addition, and in terms of other regulations published under the Act, certain South African Bureau of Standards (SABS) Codes of Practice have been incorporated as standard specifications into the National Road Traffic Regulations (GNR 1249 of 13 November 2001). These codes have been based on the UN recommendations, also known as “The Orange Book” and the associated European Agreement concerning the International Carriage of Dangerous Goods by Road Regulations.

The codes of practice so incorporated include e.g. the following:

- SANS 10228:2006 Edition 4.00: The identification and classification of dangerous goods for transport.
- SANS 10229-1:2005 Edition 1.00: Transport of dangerous goods - Packaging and large packaging for road and rail transport Part 1: Packaging.
- SANS 10229-2:2007 Edition 1.00: Transport of dangerous goods - Packaging and large packaging for road and rail transport Part 2: Large packaging.
- SANS 10232-1:2007 Edition 3.00: Transport of dangerous goods - Emergency information systems Part 1: Emergency information system for road transport.
- SANS 10232-2:1997 Edition 1.00: Transportation of dangerous goods - Emergency information systems Part 2: Emergency information system for rail transportation.
- SANS 10232-3:2007 Edition 3.00: Transport of dangerous goods - Emergency information systems Part 3: Emergency response guides.
- SANS 10232-4:2007 Edition 1.01: Transport of dangerous goods - Emergency information systems Part 4: Transport emergency card.
- SANS 10233:2001 Edition 2.00: Transportation of dangerous goods - Intermediate bulk containers.

The transportation of all waste products should adhere to the above where applicable, noting that certain waste/ refuse may be categorised as dangerous goods.

Advertising on Roads and Ribbon Development Act

The Advertising on Roads and Ribbon Development Act (Act 21 of 1940) regulates, amongst other things, the depositing or discarding of waste near certain public roads, and the access to certain land from such roads. To the extent as outlined in Proclamation 23 in Government Gazette 16340 of 31 March 1995, the administration of this Act has been assigned to the provinces. In terms of section 8 of the Act, no person shall within a distance of 200 metres of the centre line of a public road deposit or leave outside an urban area, so as to be visible from that road, a disused vehicle or machine or a disused part of a vehicle or machine or any rubbish or any other refuse, except in accordance with the permission in writing granted by the controlling authority concerned. The controlling authority may remove any object or substance referred to found on a public road and may recover the cost of the removal from the person who deposited or left such object or substance there.

When any person has deposited or has left any object or substance in contravention of the above, but not on a public road, the controlling authority concerned may direct the person in writing to remove or destroy that object or substance within such period as may be specified in the direction. If the person fails to comply with that direction, the controlling authority may cause the object or substance to be removed or destroyed and may recover from the said person the cost of the removal or destruction. The preceding provision do not apply to any object or material which has been or is being used for or in connection with farming, or to soil excavated in the course of alluvial digging: provided that this sub-section shall not permit the deposit or leaving of any article or material on a road.

Waste Tyre Regulations

The Waste Tyre Regulations were first published as Government Notice R.149 on 13 February 2009 and came into effect on 30 June 2009. These regulations were amended in 2016 in General Notice R. 1493 of 2016. The latest Waste Tyre Regulations (R1064 of 2017) were published on 29 September 2017 and came into effect immediately. The purpose of the legislation is to regulate the management of waste tyres by providing for the regulatory mechanisms. The regulations apply uniformly in all provinces in South Africa and affect waste tyre producers, waste tyre dealers, waste tyre stockpile owners, landfill site owners and tyre recyclers.

In summary, the regulation:

- Defines a waste tyre as a new, used, re-treaded, or un-roadworthy tyre, not suitable to be re-treaded, repaired or sold as a part worn tyre and not fit for the original intended use.
- Prohibits management, recycling, recovery or disposal of a waste tyre at any facility or on any site, unless such an activity is authorised by law.
- Prohibits recovery or disposal of a waste tyre in a manner that may or may potentially cause pollution or harm to health.
- Prohibits purchase, sale or export of waste tyres unless authorised.
- Prohibits disposal of a waste tyre at a waste disposal facility, two years from the gazetted date, unless such a waste tyre has been cut into quarters; and prohibits disposal of tyres in five years; unless these are shredded.
- Provides regulations in terms of tyre producers, tyre dealers and tyre stockpile owners, particularly regarding waste stockpile abatement and waste tyre storage.

Asbestos Regulations

On 28 March 2008, the Minister of Environmental Affairs and Tourism published as Government Notice R.341 of 2008 entitled "Regulations for the prohibition of the use, manufacturing, import and export of asbestos and asbestos containing materials" under Section 24B of ECA (thus now the Waste Act). This would have implication for phasing out of asbestos containing material, which may therefore result in higher quantities of asbestos waste.

Mineral and Petroleum resources Development Act

The objective of the Mineral and Petroleum resources Development Act (No. 28 of 2002), amongst others, is to give effect to section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development.

Municipal Structures Act

The main objective of Local Government: Municipal structures Act (Act 117 of 1998) is to provide for the establishment of municipalities in accordance with the requirements relating to categories and types of municipality, to provide for an appropriate division of functions and powers between categories of municipality, to provide appropriate electoral systems and to provide for matters connected therewith.

The functions and powers of municipalities are set out in Chapter 5 of the Act, with a municipality having the functions and power assigned to it in terms of sections 156 and 229 (dealing with fiscal powers and functions) of the constitution.

Municipal Systems Act

As intended by the Constitution, Waste management services such as refuse collection, removal, transportation and disposal is generally the responsibility of local municipalities.

Municipal Systems Act (Act 32 of 2000) with respect to the Local Government Municipal Systems Act (MSA) defines a municipal service as follows:

“A serviced that a municipality in terms of its powers and functions provides or may provide for the benefit of the local community irrespective of whether

(a) Such a service is provided, or to be provided, by the municipality through an internal mechanism contemplated in section 76 or by engaging an external mechanism contemplate in section 76; and

(b) fees, charges or tariffs are levied in respect of such a service or not.”

Chapter 8 Section 73 - 82 outlines certain general duties on municipalities in relation to the municipal service as highlighted below.

In terms of section 75(1), a municipality must give effect to the provisions of the Constitution and must:

- Give priority to the basic needs of the local community.
- Promote the development of the local community.

Ensure that all members of the local community have access to at least the minimum level of available resources and the improvement of standards of quality over time.

In terms of section 75(2), municipal services must – be equitable and accessible; be provided in a way, which promotes the prudent, efficient and effective use of available resources and the improvement of standards of quality over time; be financially sustainable; be environmentally sustainable, and be regularly reviewed with a view to upgrading, extension and improvement.

Section 74 regulates tariff policy in respect of municipal services. A municipality is obliged to adopt and implement a tariff policy on levying fees for municipal services. A municipality's tariff policy must reflect at least the following principles:

- People who use municipal services must be treated equitably in the application of tariffs.
- In general terms, what individual users pay for services should be in proportion to their use of the services.
- Poor households must have access to at least basic services. Different ways of providing for this are suggested, for example lifeline tariffs and subsidisation.
- Tariffs must reflect the costs reasonable associated with providing the service for example capital, operating, maintenance, administration and replacement costs and interest charges.
- Tariffs must be set at levels which allow the service to be financially sustainable.
- In appropriate circumstances, surcharges on tariffs may be allowed.
- Special tariffs may be set for categories of commercial and industrial users in order to promote local economic development.
- The economical, efficient and effective use of resources must be promoted, as well as the recycling of waste and other appropriate environmental objectives
- Any subsidisation of tariffs should be fully disclosed.

Section 78 prescribes the process which municipalities must follow when they decide through which mechanism to provide a municipal service in their areas. There are particular provisions, which a municipality must comply with when it provides a municipal service through a service delivery agreement with what the MSA terms “external mechanisms”.

The MSA contains extensive provisions pertaining to public participation. In particular, the community has the right to contribute to decision-making processes by its municipality. A municipal council must establish appropriate mechanisms, processes and procedures to enable residents, communities and stakeholders in the municipality to participate in the local affairs. It is pertinent to reiterate that waste management services as provided by the municipality is an integral part of local affairs.

As such municipalities’ mechanisms must provide for:

- The receipt, processing and consideration of petitions and complaints lodged by residents, communities and stakeholders in the municipality.
- The receipt, processing and consideration of written objections and representations with regard to any matter to which it is required to invite public comment.
- Public meetings of residents, on a ward or any other basis.
- Public hearings by the council and its committees when appropriate.
- Surveys among residents when appropriate and the processing and publication of the results.

Development Facilitation Act

The Development Facilitation Act (Act 67 of 1995) provides specific principles for:

- Land development and conflict resolution.
- Controls on land occupation.
- Recognition of informal land-development practices.

These principles are set out in sections 3 and 4 of the Development Facilitation Act and form the basis for most of the integrated development plan. Chapter one of the Development Facilitation Act sets out principles which affect all decisions relating to the development of land.

This means that whenever a municipality, a development tribunal, a Member of the Executive Council (MEC) or any other authority is considering an application for the development of land, they must make sure that their decision is consistent with these principles. Any integrated development plan must, in terms of the Local Government Transition Act, be based on these principles too.

The Development Facilitation Act’s principles form the basis of integrated development planning - in particular the land-development objectives. In terms of section 2 of the Act, the general principles which are set out in section 3 of the Act include:

- Policy, administrative practice and the law should promote efficient and integrated land development in that they:
- Promote the integration of the social, economic, institutional and physical aspects of land development.
- Promote integrated land development in rural and urban areas in support of each other.
- Encourage environmental sustainable land development practices and processes.
- Members of communities affected by land development should actively participate in the process of land development.
- Policy, administrative practice and laws should encourage and optimize the contributions of all sectors of the economy (government and non-government) to land development so as to maximize the Republic’s capacity to undertake land development.
- Laws, procedures and administrative practice relating to land development should:
- Be clear and generally available to those likely to be affected thereby.
- In addition to serving as regulatory measures, also provide guidance and information to those affected thereby.

-
- Be calculated to promote trust and acceptance on the part of those likely to be affected thereby.
 - Give further content to the fundamental right set out in the constitution.
 - Policy, administrative practice and laws should promote sustainable land development at the required scale, in that they should, inter alia, promote sustained protection of the environment.
 - Policy, administrative practice and law should promote speedy land development.
 - Each proposed land development area should be judged on its own merits and no particular use of land, such as residential, commercial, conservation, industrial, community facility, mining, agricultural or public use, should in advance or in general, be regarded as being less important or desirable than any other use of land.
 - A competent authority at national, provincial and local government level should co-ordinate the interests of the various sectors involved in or affected by land development so as to minimize conflicting demands on scarce resources.

The Physical Planning Act

The objective of the Physical Planning Act 125 of 1991 is to provide for the division of the country into regions and to promote regional development. Policy plans consist of broad guidelines for the future physical development of the area and restrictions are placed on the use of land in the area to which the plan relates. Local authorities are required to develop urban structure plans for their areas of jurisdiction.

Promotion of Administrative Justice

The purpose of the Promotion of Administrative Justice Act ("PAJA") (Act 3 of 2000) is principally to give effect to the right to administrative action that is lawful, reasonable and procedurally fair; and to the right to written reasons for administrative action as contemplated in section 33 of the Constitution; and to provide for matters incidental thereto.

Administrative law governs the relationships between public bodies, and between public and private bodies and/or individuals. Many activities which affect the environment, including certain waste management activities, require authorisation from a public body. Because environmental conflicts may arise during the authorisation process from the exercise of administrative decision-making powers, administrative law principles are of particular relevance to environmental law generally, and specifically in the context of the environmental authorisation requirements stipulated by the provisions of section 24 of the NEMA read with its subordinate legislation regulating environmental impact assessment (or "EIA").

Promotion of Access to Information

Promotion of Access to Information, (Act 2 of 2000) is closely linked to the notion of administrative justice is the right of access to information. Without access to information, a person may be unable to determine whether or not his or her right to just administrative action (or to an environment not harmful to human health or well-being or, for that matter, any other Constitutional right) has been infringed. The purpose of the Promotion of Access to Information Act ("PAIA") is to give effect to the Constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected therewith.

National Policies and Guidelines

White Paper on Environmental Waste Management

The White Paper on Environmental Management was published in 1998. This policy sets out government's objectives in relation to environmental management, how it intends to achieve its objectives, and to guide government agencies and organs of state in developing strategies to meet their objectives.

The policy document is an overarching policy framework that refers to all government institutions and to all activities that impact on the environment. The policy states that government will allocate functions to the institutions and spheres of government that can most effectively achieve the objectives of sustainable development and integrated environmental management. This would include the allocation of certain functions to the municipal sphere of government. Where appropriate, provincial and local governments are to develop their own legislation and implementation strategies in order to address their specific needs and conditions within the framework of the policy.

White Paper on Integrated Pollution and Waste Management

The White Paper on Integrated Pollution and Waste Management (1999) is a subsidiary policy of the overarching environmental management and constitutes South Africa's first policy document focused on integrated waste management. This national policy set out Government's vision for integrated pollution and waste management in the country and applies to all government institutions and to society at large and to all activities that impact on pollution and waste management.

Integrated pollution and waste management is defined as 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. Waste management is to be implemented in a holistic and integrated manner and extend over the entire waste cycle from cradle-to-grave and will include the generation, storage, collection, transportation, treatment and the final disposal of waste.

The overarching goal reflected in the policy, is integrated pollution and waste management. The intention is to move away from fragmented and uncoordinated pollution control and waste management, towards an approach that incorporates pollution and waste management as well as waste minimisation.

Within this framework, the following strategic goals apply:

- Effective institutional framework and legislation.
- Pollution and waste minimisation, impact management and remediation.
- Holistic and integrated planning – the intention is to develop mechanisms to ensure that integrated pollution and waste management considerations are integrated into the development of government policies, strategies and programmes as well as all spatial and economic development planning processes and in all economic activity.

The strategic mechanisms include the following:

- The incorporation of integrated environmental management principles and methodologies in spatial development planning as it relates to pollution and waste management.
- Making timeous and appropriate provision for adequate waste disposal facilities.
- Developing management instruments and mechanisms for the integration of pollution and waste management concerns in development planning and land allocation.
- Developing appropriate and agreed indicators to measure performance for inclusion in Environmental Implementation Plans and Environmental Management Plans as provided for in the National Environmental Management Act.
- Participation and partnerships in integrated pollution and waste management governance.
- Empowerment and education in integrated pollution and waste management.
- Information management.
- International co-operation.

National Waste Management Strategy

The first NWMS was published in 1999 by the then DEAT and the then DWAF. It was the first strategy for addressing South Africa's waste management challenges. The strategy effectively defines South Africa's vision for waste management highlighting themes such as "cradle to grave" management of waste products and the waste management hierarchy which encourages waste disposal only as a last resort.

The NWMS was been revised in 2011 in line with Chapter 2, Part 1, of the Act which requires the establishment of a NWMS within two years of the Act coming into effect. Significant changes include the addition of “remediation” to the waste management hierarchy, and the consolidation of what was previously many different action plans into a single action plan.

The 2011 strategy defines eight strategic goals with a number of targets, as presented in the table below. The NWMS strategy is currently under review and is anticipated to be gazetted in 2019.

Goals and targets of the NWMS (2011)

Goal	Description	Targets 2016
Goal 1	Promote waste minimisation, re-use, recycling and recovery of waste.	25% of recyclables diverted from landfill sites for re-use, recycling or recovery. - All metropolitan municipalities, secondary cities and large towns have initiated separation at source programmes. - Achievement of waste reduction and recycling targets set in Industry IWMPs for paper and packaging, pesticides, lighting (CFLs) and tyre industries
Goal 2	Ensure the effective and efficient delivery of waste services.	95% of urban households and 75% of rural households have access to adequate levels of waste collection services. 80% of waste disposal sites have permits.
Goal 3	Grow the contribution of the waste sector to the green economy.	69 000 new jobs created in the waste sector 2 600 additional SMEs and cooperatives participating in waste service delivery and recycling
Goal 4	Ensure that people are aware of the impact of waste on their health, well-being and the environment.	80% of municipalities running local awareness campaigns. 80% of schools implementing waste awareness programmes.
Goal 5	Achieve integrated waste management planning.	- All municipalities have integrated their IWMPs with their IDPs, and have met the targets set in IWMPs. - All waste management facilities required to report to SAWIC have waste quantification systems that report information to WIS.
Goal 6	Ensure sound budgeting and financial management for waste services.	All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost reflective tariffs.
Goal 7	Provide measures to remediate contaminated land.	- Assessment complete for 80% of sites reported to the contaminated land register. - Remediation plans approved for 50% of confirmed contaminated sites.
Goal 8	Establish effective compliance with and enforcement of the Waste Act.	50% increase in the number of successful enforcement actions against non-compliant activities. 800 EMIs appointed in the three spheres of government to enforce the Waste Act.

The overall objective of this strategy is to reduce the generation of waste and the environmental impact of all forms of waste and thereby ensure that the socioeconomic development of South Africa, the health of the people and the quality of its environmental resources are no longer adversely affected by uncontrolled and uncoordinated waste management.

The internationally accepted waste hierarchical approach was adopted of waste prevention/minimization, recycle/reuse, treatment and finally disposal. The strategy outlines the functions and responsibilities of the three levels of government and where possible, firm plans and targets are specified. Action plans have been developed for reaching all of the eight goals.

Polokwane Waste Summit Declaration

During September 2001 a national waste summit was held at Polokwane, in the Northern Province. It was attended by key stakeholder groupings in the waste field in order to jointly chart a way forward in terms of national waste management. The resultant Polokwane Declaration includes a vision and goal for the management of all waste, i.e. domestic, commercial and industrial:

Vision – To implement a waste management system that contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy and commitment of all South Africans for the effective reduction of waste.

Goals - To reduce waste generation and disposal by 50% and 25% respectively by 2012 and develop a plan for zero waste by 2022

Key actions in the Polokwane Declaration include the following:

- Implement the National Waste Management Strategy.
- Develop and implement legislative and regulatory framework.
- Waste reduction and recycling.
- Develop waste information and monitoring systems.

Local Government Turnaround Strategy

Cabinet approved the Local Government Turnaround Strategy (LGTAS) on the 3 December 2009 in Pretoria. The LGTAS recognised that each municipality faces different social and economic conditions and has different performance levels and support needs. Thus a more segmented and differentiated approach was required to address the various challenges of municipalities. In addition cabinet recognised that the problems in Local Government are both a result of internal factors within the direct control of municipalities as well as external factors over which municipalities do not have much control. (Department of Cooperative Governance and Traditional Affairs, Dec 2009.)

The LGTAS identifies the internal factors related to for example the following:

- Quality of decision-making by Councillors.
- Quality of appointments.
- Transparency of tender and procurement systems and levels of financial management and accountability.
- Levels of financial management and accountability.

The external factors relate to:

- Revenue base and income generation potential.
- Inappropriate legislation and regulation.
- Demographic patterns and trends.
- Macro and micro-economic conditions.
- Undue interference by political parties and weaknesses in national policy.
- Oversight and Inter-Governmental Relations.

Ultimately the aim of the LGTAS is to:

- Restore the confidence of the majority of our people in our municipalities, as the primary delivery machine of the developmental state at a local level.

- Re-build and improve the basic requirements for a functional, responsive, accountable, effective, and efficient developmental local government.

The LGTAS sets out five strategic objectives with associated key interventions. Probably most relevant in the context of waste management is the first objective, i.e. to *“Ensure that municipalities meet basic needs of communities. This implies that an environment is created, support provided and systems built to accelerate quality service delivery within the context of each municipality’s conditions and needs”*.

Interventions to achieve the various objectives include better organisation by National Government and improved support and oversight from provinces in relation to Local Government. Furthermore municipalities are to reflect on their own performance and tailor-made turnaround strategies, while all three spheres of governments should improve inter-governmental relations. Also, political parties are to promote and enhance institutional integrity of municipalities and a social compact on Local Government where all citizens are guided in their actions and involvement by a common set of governance values.

In terms of the LGTAS an immediate task is for agreements to be reached with each province on the roll-out programme to establish different provincial needs and capacities, which will guide how municipalities are to be supported to prepare and implement their own tailor-made turnaround strategies that must be incorporated into their IDPs and budgets (by March 2010). Key stakeholders and ward committees were to be mobilised early in 2010. By July 2010, all municipalities were to be in full implementation mode of the national and their own Turn-around Strategies. (Department of Cooperative Governance and Traditional Affairs, Dec 2009.)

Minimum Requirements Documents; Department of Water Affairs and Forestry

The DWAF Minimum Requirements: Waste Management Series were formulated in the form of guideline documents as a joint venture between DWAF and the Department of Environmental Affairs and Tourism (DEAT).

The objective of the Minimum Requirements is to establish a framework for standards for waste management in South Africa. The former DWAF published the second edition of the Minimum Requirements series in 1998, consisting of the following three documents:

- Document 1: Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste.
- Document 2: Minimum Requirements for Waste Disposal by Landfill.
- Document 3: Minimum Requirements for Monitoring at Waste Management Facilities.

The third edition was released in draft form in 2005, but only Document 1 (DEAT, 2005) has been finalised.

The Minimum Requirements provide applicable waste management standards or specifications that should be met, as well as providing a point of departure against which environmentally acceptable waste disposal practices can be assessed. The objectives of setting Minimum Requirements are to:

- Prevent water pollution and to ensure sustained fitness for use of South Africa’s water resources.
- Attain and maintain minimum waste management standards in order to protect human health and the environment from the possible harmful effects caused by the handling, treatment, storage and disposal of waste.
- Effectively administer and provide a systematic and nationally uniform approach to the waste disposal process.
- Endeavour to make South African waste management practices internationally acceptable.
- Ensure adherence to the Minimum Requirement conditions from the permit applicant, before a waste disposal site permit is issued.
- Promote the hierarchical approach to waste management, as well as a holistic approach to the environment.

The series formed the basis for the permitting process that had been required in terms of Section 20 of the ECA. The requirements, standards and procedures covered in the series had generally been included as permit

conditions, thereby becoming legally binding on the permit holder. In addition to requirements for the establishment and operation of a landfill site, the permit holder was generally required to operate, maintain and attend to the closure of a waste disposal site in compliance with the permit conditions, as well as in accordance with the guidelines set out in the Minimum Requirements documents. Note that an EIA must be conducted prior to the establishment of waste disposal facilities. However, the above mentioned waste activity has now been repealed and instead requires a license application under the Waste Act.

The third edition was released in draft form in 2005, but only Document 1 (DEAT, 2005) has been finalised.

National Policy for Basic Refuse Removal Services to Indigent Households

The National Policy for the Provision of Basic Refuse Removal Services to Indigent Households (GN No. 34385) was published in the Government Gazette in June 2011.

The purpose of this policy is to ensure that indigent households have access to at least a basic refuse removal (BRR) service.

This Policy aligns to existing relevant legislation, as in accordance to 74 (2)(c) of the Municipal Systems Act, 2000 (Act No. 32 of 2000) poor households must have access to at least basic services and section 9 (2) of NEMWA (Act 59 of 2008) which stipulates that each municipality must exercise its executive authority and perform its duty in relation to waste services, including waste collection, waste storage and waste disposal, by (c) ensuring access for all to such services.

The objectives of the policy are to identify households that can be enrolled for the BRR service, establish bylaws to enforce tariff policies that will support the BRR service and to raise awareness within the municipality with regard to correct handling of domestic waste for BRR and the need to minimize waste and recycle.

Implementation plans include each municipality:

- declaring specific localities as the recipients of basic refuse removal services;
- maintaining “accurate and updated” registers of indigent people;
- taking action in the event of malpractice;
- integrating basic refuse removal into “basic indigent policies”;
- designating the administration of the policy to the “most appropriate department”; and
- raising awareness.

The policy includes a “grid of responsibilities” for each sphere of government and a policy monitoring and evaluation plan. According to the grid of responsibilities, national government will take responsibility for building capacity at provincial and municipal level, with provincial government determining municipal capacity and assisting district municipalities in “drawing up guidelines”.

National Policy in Thermal Treatment of General and Hazardous Waste

The Thermal Waste Treatment of General and Hazardous Waste Policy was gazetted (GN No. 32439) for public comment on 30 January 2009 and published under the Waste Act on 24 July 2009. The policy presents the Government’s position on thermal waste treatment as an acceptable waste management option in South Africa. It also provides the framework within which incineration and co-processing treatment technologies of general and hazardous waste should be implemented in the country.

All Government Departments across the different spheres of government must consider this policy in their decision making on matters pertaining to thermal treatment of waste.

The policy presents objectives which vary thematically. These consider the integration of thermal waste treatment into the integrated waste management system. Schedules one to four provide guidelines on the following:

- (a) Air Emission Standards – Waste Incineration

Listed air emission standards for general and hazardous waste incinerators, brought into operation subsequent to the final gazetting of this policy, to be complied with until the formalisation of The Minimum Emission Standards in terms of Section 21 of the National Environmental Management: Air Quality Act of 2004.

(b) Air Emission Standards – AFR Co-Processing

The Minimum Emission Standards for Alternative Fuels and Raw Materials (AFR) co-processing is currently in the process of being formalised in terms of Section 21 of the National Environmental Management: Air Quality Act of 2004. In the interim this policy constitutes the air emission standards for all cement kilns co-processing AFR.

(c) Waste Excluded from Co-Processing

Listed types of waste that are not allowed to be received, stored, handled or co-processed in cement kilns.

(d) Conditions of Environmental Authorisation

Any cement plant co-processing general or hazardous waste as alternative fuels and/or raw materials, and any dedicated general and/or hazardous waste incinerator must have the relevant approvals from the competent authority. This schedule includes notes on operational management, air quality management, waste management and monitoring and reporting.

National Waste Information Regulations

The National Waste Information Regulations came into effect on 01 January 2013.

These cover registration of persons who conduct certain waste management activities and their duty to keep records. Annexure 1 of the regulations lists activities including recovery and recycling, treatment and disposal of waste for which the person conducting the activity must register in terms of GR 625 of 2012. The municipality has a duty in terms of waste disposal to land (as well as operating waste recycling or treatment facilities) to report waste types and quantities in accordance with these regulations to SAWIC on a quarterly basis. Amendments to the National Waste Information Regulations were released for public comment in July 2018 (GN 701 of 2018), the major change in the regulations was the requirement for waste transporters to register. Other proposed changes to the regulations were a decrease in the allowable reporting timeframes from the closure of a reporting period from 60 days to 30 days and registration and reporting thresholds recovery of hazardous waste being decreased from 500kg to 100kg a day.

National Policy for the provision of basic refuse removal services to indigent households

The National Policy for the provision of basic refuse removal services to indigent households as published for general information in notice 413 of Government Gazette No. 34385 on 22 June 2011 was developed in response to the constitutional requirement that all households should have access to basic services regardless of their income level, as well as the adoption of a free basic services in 2001.

This Policy aligns to existing relevant legislation, as in accordance to 74 (2)(c) of the Municipal Systems Act, 2000 (Act No. 32 of 2000) poor households must have access to at least basic services and section 9 (2) of NEMWA (Act 59 of 2008) which stipulates that each municipality must exercise its executive authority and perform its duty in relation to waste services, including waste collection, waste storage and waste disposal, by (c) ensuring access for all to such services.

Implementation plans include each municipality:

- Declaring specific localities as the recipients of basic refuse removal services.
- Maintaining “accurate and updated” registers of indigent people taking action in the event of malpractice.
- Integrating basic refuse removal into “basic indigent policies.”
- Designating the administration of the policy to the “most appropriate department.”

-
- Raising awareness.

The policy includes:

- A “grid of responsibilities” for each sphere of government.
- A policy monitoring and evaluation plan.

According to the grid of responsibilities, national government will take responsibility for building capacity at provincial and municipal level, with provincial government determining municipal capacity and assisting district municipalities in “drawing up guidelines”.

National Domestic Waste Collection Standards

The National Domestic Waste Collection Standards (notice 21 of Government Gazette 33935, 21 January 2011) published under the National Environmental Management: Waste Act (Act No. 59 of 2008) came into effect on Tuesday, 1 February 2011.

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

The standards covers the levels of service, separation at source (between recyclable and non-recyclable materials), collection vehicles, receptacles, collection of waste in communal collection points, and most importantly the frequency of collection. Non-recyclable material such as perishable food waste must be collected at least once a week and recyclable material such as paper, plastic, glass etc. must be collected once every two weeks. Municipalities have a choice to provide different types of bins taking into consideration the type of vehicles they use; however, they must be rigid and durable to prevent spillage and leakage.

The development of the standards took into consideration the existing innovative practices at local government level across the country and seeks to build on what has already been achieved whilst emphasizing a need to separate recyclable and non-recyclable domestic waste and the protection of human health and the environment.

National Norms and Standards for Assessment of Waste for Landfill Disposal

The National Norms and Standards for Assessment of Waste for Landfill Disposal (GR635, 23 Aug 2013) require the assessment of waste prior to disposal at landfill. The assessment of waste before disposal must include identification of the total and leachable concentrations of different chemicals. The concentration of chemicals determines the classification of the waste which in turn dictates the type of disposal site where the waste can be disposed of.

Waste Classification and Management Regulations

The Waste Classification and Management Regulation (GR635, 23 Aug 2013) aims to address the management of different waste categories. The regulations stipulate the requirements for the transport storage and treatment of different waste types. A list of requirements for record keeping by waste generators is also included in the regulations with the aim of improving and standardising record keeping. The regulations also detail the process to be followed when motivating why a listed waste management activity does not require a waste management license.

National Norms and Standards for Disposal of Waste to Landfill

The National Norms and Standards for Disposal of Waste to Landfill (GR636, 23 Aug 2013) specify minimum engineering design requirements for landfill sites. The design requirements vary depending on the type of waste to be disposed of at the site.

Landfill sites are designed to comply with one of four designs (Class A – Class D). The landfill design classes vary in the types of liner used. Class A landfill sites require multiple linings and leachate collection systems whereas a Class D landfill site is much simpler in design requiring only a 150 mm base preparation layer. Different classes of landfill are required for different types of waste.

National Norms and Standards for the Storage of Waste

The National Norms and Standards for the Storage of Waste (GN 926, Nov 2013) specify the minimum requirements for waste storage facilities in the interest of protection of public health and the environment. The standards aim to ensure that waste storage facilities are managed according to best practise and to provide a minimum standard for the design and operation of new and existing waste storage facilities.

Hazardous waste storage facilities should be located in areas zoned as industrial, where waste storage facilities are located in residential areas a buffer of at least 100 m must be assigned to the site. General waste storage facilities must be located in an area that is easily accessible by the public.

The standards also specify design requirements for waste storage facilities, these include:

- Access roads
- Signage at the entrance of the facility in at least three official languages applicable to the areas the facility is located in. The sign must indicate:
 - The risk associated with entering the site.
 - Hour of operation.
 - Name, address and telephone number of the person responsible for the operation of the facility.

The standards also require that waste is separated at source into recyclables and non-recyclables.

A new condition for the management of waste storage facilities is the requirement for bi-annual internal audits and biennial external audits

National standards for the extraction, flaring or recovery of landfill gas

The National standards for the extraction, flaring or recovery of landfill gas (GN 924 of 2013) aims to control the extraction, flaring and recovery of gas at landfills or recovery facilities to minimise harmful impacts to people and the surrounding environment. The standards require, in planning phase, that an assessment of environmental risks and impacts that are associated with the proposed activities is compiled, and that Environmental Management Plan is compiled to mitigate these risks. The standard contains a set of standard procedures for handling and maintaining of equipment for construction, operational and decommissioning phase. The standard also covers training, emergency response, monitoring and reporting, general requirements and transitional arrangements.

National standards for scrapping or recovery of motor vehicles

The National standards for scrapping or recovery of motor vehicles (GN 925 of 2013) puts forth minimum requirements for the design, construction and upgrading of a motor scrapping facility. The design must consider: sensitive environments; drainage systems; storage and operational areas for off-loading, dismantling, liquid waste, shredding, dispatching parts and recyclables. Specific design requirements are set out for different operational areas. Minimum requirements are given for the operational phase including vehicle dismantling, solid waste management, and liquid waste management. Minimum requirements in the decommissioning phase focus on the compilation of a rehabilitation plan for the facility and disposal of contaminated wastes. The standard also covers training, emergency response, monitoring and reporting, general requirements and transitional arrangements.

National norms and standards for sorting, shredding, grinding, crushing, screening of waste

The National norms and standards for sorting, shredding, grinding, crushing, screening of waste (GN 1093 of 2017) require all waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) less than 100m² in size to register with the competent authority and provide details including the location, types of waste processed, and civil design drawings of the facility as set out in Section 4 of the standard.

The standards require all waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) more than 100m² in size register with the competent authority as set out in Section 4 of the standard, as well as comply with requirements for the location, design, construction, access control and signage. Operational requirements in Section 8 of the standard address management of operational impacts such as control of hazardous substances, air emissions, discharging of wastewater, noise and odour emissions. The standard also covers training, emergency response, monitoring and reporting, general requirements, requirements during the decommissioning phase and transitional provisions.

Local Strategy and Policies

Municipal By-laws

Chapter 7 of the South African constitution: Section 156 provides that a municipality may make and administer by-laws for the effective administration of matters which it has the right to administer and that (section 151) it shall not be in conflict with national or provincial legislation.

This is further supported in the municipal systems act (Act 32 of 2000), Chapter 3: section 11 for a municipality to exercise executive authority within its boundaries to implement applicable by-laws. Section 75 of the MSA provides for the municipal council to adopt by-laws to give effect and enforce its tariff policy.

The Draft Municipal Sector Plan (Notice 182 of Government Gazette 34167) was published by the Minister for public comment on the 30 March 2011. Section 3.3.9.5 motivates that the enforcement of municipal waste by-laws is required to address ineffective collection systems through the enforcement of available resource-based controls which will improve the situation at community level. Enforcement should further be placed with a dedicated section with trained Environmental Management Inspectors in line with Chapter 7 of the National Environmental Management Act, 1998 (Act107 of 1998)

Appendix B: Summary of Funding Agencies Applicable to Waste Management Legislation

There are various South Africa and international agencies as well as governmental organisations which provide funding for waste management projects. A summary of some of these agencies is provided below. This list should not be considered as exhaustive and is included for information purposes.

Table 76: Details of funding agents

Fund Name	Funding Agency	Qualifying Recipients	Purpose and type of projects funded (waste specific)	What is funded/ not funded	Funding cycle
South Africa					
The Green Fund	DEA with DBSA as implementing agent	Municipalities	Sustainable waste management and recycling	Project development and / or investment in green projects and programmes; Capacity building. All funded.	
The Cooperative Incentive Scheme (CIS)	Department of Trade & Industry	Primary co-operatives	Feasibility assessments, business, manufacturing etc. project up to a maximum value of R350,000	Business Development; Technology improvements, Machinery, commercial vehicles, infrastructure (electricity, boreholes etc.)	
DBSA Development Fund	DBSA	Municipalities, state-owned enterprises, public-private partnerships, public-public partnerships and private sectors	Physical, social and economic infrastructure projects. DBSA's goal is to improve the quality of life of the people of the region.	Municipal operations, maintenance and capacity building.	
The Jobs Fund	Government Technical Advisory Committee (GTAC)	Public, private and non-governmental organisations	Activities that significantly contribute to job creation. Minimum funding requests are R10 million	- Enterprise development - Infrastructure investment - Support for work seekers Institutional capacity building	
Expanded Public Works (EPWP) Incentive Grants.	National Department Public Works (DPW)	Municipalities	Labour intensive work, including waste and environmental projects.	Salary payments for temporary workers. Workers must not be paid less than R50/day	Annual
Municipal Infrastructure Grant (MIG)	National Treasury	Municipalities	All infrastructure related needs	Physical infrastructure	
Infrastructure Finance Corporation Limited (INCA)	Corporate Social Investment (CSI)	Municipalities	All infrastructure related needs	Capacity building, socioeconomic development and infrastructure projects	
Small Enterprise Finance	Department of Small	Qualifying SMMEs and Co-	For social development and	Financial products and	Ongoing

Agency (SEFA)	Business Development	operatives	to advance the human rights of women	services provide to the following sectors: • Services • Manufacturing • Agriculture • Construction • Mining Green industries	
National Empowerment Fund (NEF)	National Empowerment Fund (NEF)	Black entrepreneurs	Support Broad-Based Black Economic Empowerment (BB-BEE)	Various	Ongoing
National Youth Development Agency (NYDA)	National Youth Development Agency (NYDA)	Formal and informal businesses, co-operatives	Youth development	Individual grants awarded to formal and informal businesses that are in start-up or development phase of their business	Ongoing
International					
Austrian Development Coordination	Austrian Embassy	Civic, community and local government structures	Capacity building of civil, community and local government structures.	Empowerment of civil society, poverty reduction needs of children and people with disabilities	Ongoing
British Foreign & Commonwealth Office Global opportunity fund (FCO Global Opportunity Fund)	British Embassy	Partners from civil society. NGO's and others.	Support of the country's specific developmental needs. Government affiliated social development initiatives.	Depends on nature and merit of application	Ongoing
French Development Aid	French Agency for Development	Various, including municipalities	Development of basic infrastructures and essential services	Infrastructure, water connections, sanitation.	
Development cooperation	German Technical Cooperation (GTZ)		Rural development, social development, environment and climate change.	Various. Depends on nature and merit of application	Ongoing
Tirelo Boscha, Public Service Improvement Facility	Belgium Development Agency (BTC South Africa) Hosted by SA Dept. of Public Service and Administration	All government departments, their implementing agencies and non-state actors involved in public service delivery.	Any public service delivery related projects, particularly research and pilot projects focusing on public service delivery.	Implementation costs including fees, travel costs, supplies. Infrastructure costs are not funded.	Application windows open approximately annually.
Overseas Development Assistance	Japan International Cooperation Agency (JICA)	Governments and their agencies.	Various including community development, environment,	Various	Ongoing

			infrastructure projects		
Development cooperation	Swedish International Development Cooperation Agency (SIDA)	Municipalities	Various including economic and environmental partnerships.	Grants, training and technical assistance.	Ongoing
Turkish International Cooperation and Development Agency (TIKA)	Turkish Embassy	Municipalities	Economic and social development	Grants for various needs, including financing infrastructure and construction projects.	Ongoing
Abu Dhabi Fund for Development	UAE Embassy	Municipalities	Economic and social development in developing countries. Financing for development projects.	Various	Ongoing
UNDP Small Grants Programme and other UNDP and partner funds.	United Nations Development Programme.	Municipalities	Enhancing service delivery, economic development, sustainable development, and enhancing social services.	Various	Ongoing
USAID	US Agency for International Development	Municipalities	To develop health, economic growth, education and democracy.	Various	Ongoing
European Investment Bank (EIB)	Corporate Social Investment (CSI)	Public and private sector investments, and mixed public-private ventures	Under an agreement with the South African Government, it finances: • Productive investment • Infrastructure, including municipal infrastructure Assisting development in South Africa	Provides finance and expertise for projects supporting innovation, SMEs, infrastructure and climate action	Ongoing

Appendix C: Public Participation Process



PROUDLY MIDVAAL

MIDVAAL

Hoopsweep-Rapport

Rapport – [Styl "r"], Franse woord wat verwys na 'n verhouding waar 'n harmonie van interpretasie of "verstaan" heers.



Deur Raadsheer Phil C Pretorius,
Hoopsweep: Midvaal Plaaslike Munisipaliteit

Die naderende plaaslike verkiesings het alle politieke partye in rep en roer. Dit is reeds uitgespel na Oktober 2021 en daar is geringsaamlik dat die regering oorweeg om dit selfs verder uit te stel na 2022. Volgens wet moet dit egter in 2021 plaasvind aangesien dit binne 'n sekere tydperk vanaf die laaste plaaslike verkiesing moet wees. Om dus die verkiesing nog langer uit te stel sal 'n aanpassing in die Nasionale Konstitusie benodig, wat baie moeilik en dus ook baie onwaarskynlik is.

Verkiesings in Suid-Afrika is in twee siklusse verdeel: Nasionaal & Provinsiaal vs. Distrik en Plaaslik (Munisipaal). Elk het 'n vyf jaar termyn wat ongesinkroniseerd hardloop. Dit beteken dat die Nasionale verkiesing in 2019 weer in 2024 sal

plaasvind terwyl die Plaaslike verkiesing van 2021 dan weer in 2026 op die kaarte is.

Daar is egter voorstelle dat die twee verder gesinkroniseer moet word wat beteken dat ons slegs eenkeer elke vyf jaar vir Nasionaal, Provinsiaal en Munisipaal sal stem. Aan die voorkant is dit dalk wys omrede dit baie sal bespaar op mannekrag en onkosse. Aan die anderkant is dit dalk nie 'n goeie idee om die Nasionale-, Provinsiale- en Plaaslike regerings almal gelyktydig te vervang nie. Al bly 'n sekere party in beheer is daar gewoonlik 'n verandering in leierskap en publieke verteenwoordigers, wat die kontinuitet van al drie vlakke van regering dan gelyktydig in risiko plaas. Die Nasionale verkiesing behels die stem vir 'n regerende party en President terwyl die Provinsiale stembrief die Premier en Provinsiale regering bepaal.

Die verkose publieke verteenwoordigers word hier onderskeidelik verkies as Lid van die Parlement (LP of MP in Engels) en Lid van die Provinsiale regering (LPR of MPL in Engels).

Die Plaaslike verkiesing stem vir die distrik en die plaaslike munisipaliteit. Die distrik, in ons geval, beteken Lesedi (Heidelberg), Midvaal en Emfuleni (Vereniging en Vredetripark) wat bekend staan as die Sediberg Distrikmunisipaliteit. Hierdie munisipaliteite stem dan vir die wyksradelede en Proportionele Verteenwoordigende Raadslede (PRs) om saam die Munisipale Raad te vorm.

Hierdie aantal setels word bepaal volgens die aantal inwoners in die munisipaliteit en in Midvaal is dit tans 'n totaal van 29 (15 wyke en 14 PRs).

Jou stem is jou reg en al is 'n "wegblystem" 'n vorm van protes, word jou stem

dan indirek 'n voordeel vir die stekste party. Dit maak dus sin om eerder vir die party te stem wat jou die meeste aanstaan (niemand is perfek nie) om skandale te versterk dat jy 'n invloed het in die bestuur van jou munisipaliteit. Daar is talloos gevalle waar een of twee stamme die raadslid en dus ook die reger van die munisipaliteit bepaal het. Dit is hoekom regering se konstitusies voortdurend maak vir die opskiet van 'n munisipaliteit of selfs 'n kaartspel om die finale wenner te bepaal wanneer daar 'n gelyke uitslag is.

Maak seker dat jy jou reg uitroep en stem vir jou kandidaat.

Trotse Midvaal Groete
Web: www.midvaal.gov.za
Facebook: Midvaal Local Municipality
en Midvaal News Network
Tel: 0861 643 8225
MyMidvaal App

Distinguishing between a legal stokvel and an illegal Pyramid or Ponzi scheme

Don't be swindled out of your hard-earned savings and investments.

According to the National Stokvel Association of South Africa (NASASA), there are roughly \$10 000 active stokvel groups consisting of over 11 million South Africans, collecting an estimated R50 billion annually. Nearly 40% of South Africa's adult population are members of a stokvel.

Recently there has been an increase in illegal pyramid schemes or Ponzi schemes, which continue to pop up around South Africa. These schemes defraud

many unsuspecting South Africans of their hard-earned money, with the promise of fast financial returns every year. It is critical that South Africans are able to tell the difference between a stokvel and an illegal pyramid and/or Ponzi scheme.

A stokvel is defined as a savings or investment society in which a group of people agree to save money together for a defined purpose, by way of contributing a fixed amount of money over a specific period of time. Originally stokvels were known as "stock fairs" dating back to the 19th century by English settlers in the

Eastern Cape as a rotating cattle auction. This was an in person gathering, and attendance was key for participation. The foundation of such a culture was trust.

This financial vehicle has since evolved into a unique financial system created within communities by members and for members, built on need, trust and a common goal for financial liberation.

The stokvel market has grown remarkably and, over time, the types of stokvels have increased significantly from rotational, grocery, investment, burial right down to social stokvels. Stokvels have become a key financial vehicle that many people rely on, amassing revenue in the billions.

The increasing numbers, financial potential and popularity of stokvels has resulted in scammers trying to swindle stokvel groups out of their hard-earned savings and investments by posing as a lucrative investment scheme or some other form of financial breakthrough opportunity. Scammers often pose as legitimate stokvels, investment schemes or property stokvels but in reality, are nothing more than get rich quick schemes in the form of a Ponzi or pyramid scheme.

"At NASASA, we want to educate on, protect and preserve this financial system which is a legitimate means for many to achieve financial stability and wellbeing," says Mziyane Mthali, Chief Executive Officer at NASASA.

It is important to NASASA to ensure that members of stokvels are protected from scammers, this can only be done through education and awareness, by ensuring that members are always able to distinguish between a legitimate stokvel and an illegal Ponzi or pyramid scheme.

The most known and popular mechanisms which scammers use are pyramid schemes and Ponzi schemes. Being able to identify these scams is key to safeguarding yourself from them.

A pyramid scheme requires its members to recruit other people as members and the few top-level members recruit newer members, who pay upfront costs, to those who enrolled them.

In fact, money simply exchanges hands with no real economic activity or products attached and is just a smoke screen to hide the pyramid scheme. Significant returns are derived from the recruitment of people, with the majority of financial

return being made by the top tier people through administration fees charged to new recruits.

With a Ponzi scheme, members are promised huge returns within a short period of time and are based on fraudulent investment management services, which are disguised as legitimate business investments.

Members contribute money to the "portfolio manager" who promises them a high return. When those members want their money back, they are paid out with the incoming funds contributed by participants who join at a later stage. By merely transferring funds from one client to another, there is no real investment product at all.

In terms of a legitimate and sustainable savings vehicle, a stokvel works because many people find it easier to save when they do it in a group. A stokvel member knows where his/her money is kept and when and how much will be paid out. Furthermore, most stokvel members know each other and have a genuine and enduring relationship, based on trust.

It is vital that South Africans know and are able to distinguish financial scams from stokvels and legal saving vehicles from illegal schemes.



Illustration photo



Midvaal Local Municipality
PO Box 9, Meyerton, 1960
Tel: 016 360 7400
Fax: 016 360 7519
www.midvaal.gov.za

Midvaal Local Municipality Draft Integrated Waste Management Plan (3rd Generation)

Midvaal Local Municipality invites the public to review and comment on the 3rd generation Integrated Waste Management Plan (IWMP). The IWMP covers the period 2021 – 2026 and defines the municipality's vision, objectives and targets for waste management.

The report will be made available electronically as follows:

- Via e-mail request to imalloy@gibb.co.za
- Via WhatsApp request to 061 491 1736
- Midvaal Municipality website: www.midvaal.gov.za
- GIBB's website: <http://projects.gibb.co.za/MidvaalIWMP>

Virtual Public Meeting
A virtual presentation is planned at 17:00 on 17 March 2021. To register, send an email or WhatsApp to the contact below.

Public review, commenting period and submission of comments
The IWMP will be available for review for a period of 30 days from 02 – 31 March 2021. Comments on the IWMP can be submitted to the email address below. Comments received will be included in the final IWMP.

GIBB Public Participation Office
Mr Ian Malloy
Email: imalloy@gibb.co.za
Tel: 061 491 1736



Figure 37: Tear sheet of Midvaal LM IWMP PPP advert in the North Ster newspaper



Midvaal Local Municipality

@midvaallocalmunicipality · Government Organization

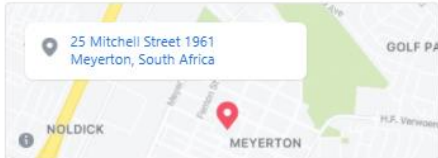
[Contact Us](#)

[midvaal.gov.za](#)

[Home](#)
[Reviews](#)
[Videos](#)
[Photos](#)
[More](#)

[Liked](#)
[Message](#)

About



25 Mitchell Street 1961
Meyerton, South Africa

Midvaal Local Municipality is an administrative area in the Sedibeng District of Gauteng in South Africa. The name is due to its geographical location - Midvaal lies halfway between Johannesburg/East Rand and the Vaal/Vereeniging area.

11,365 people like this

11,904 people follow this

2,101 people checked in here

<http://www.midvaal.gov.za/>

016 360 7400

[Send Message](#)

complaints@midvaal.gov.za

Open Now
7:30 AM - 4:00 PM

Government Organization

Followers of the Midvaal FB feed should respect one another's varied views and foul language will not be tolerated. Such comments will be deleted and users will be banned from the page.

Suggest Edits

Is this the correct category for Midvaal Local Municipality?

Community Center



Midvaal Local Municipality

5m ·

Click on the following link to access the draft report for submission of comments:
<https://www.midvaal.gov.za/.../public-information-and...>



Midvaal Local Municipality
PO Box 9, Meyerton, 1960
Tel: 016 360 7400
Fax: 016 360 7519
www.midvaal.gov.za

Midvaal Local Municipality Draft Integrated Waste Management Plan (3rd Generation)

Midvaal Local Municipality invites the public to review and comment on the 3rd generation Integrated Waste Management Plan (IWMP). The IWMP covers the period 2021 – 2026 and defines the municipality's vision, objectives and targets for waste management.

The report will be made available electronically as follows:

- Via e-mail request to imalloy@gibb.co.za
- Via WhatsApp request to 061 491 1736
- Midvaal Municipality website: www.midvaal.gov.za
- GIBB's website: <http://projects.gibb.co.za/MidvaalIWMP>

Virtual Public Meeting
A virtual presentation is planned at 17:00 on 17 March 2021. To register, send an email or WhatsApp to the contact below.

Public review, commenting period and submission of comments
The IWMP will be available for review for a period of 30 days from 02 – 31 March 2021. Comments on the IWMP can be submitted to the email address below. Comments received will be included in the final IWMP.

GIBB Public Participation Office
Mr Ian Malloy
Email: imalloy@gibb.co.za
Tel: 061 491 1736



[Like](#)
[Comment](#)
[Share](#)

Figure 38: Midvaal Municipality IWMP PPP advert placed on the Midvaal Municipality Facebook page

Explore

Settings

Thread

Midvaal Municipality

@MidvaalLM

Midvaal Local Municipality invites the public to review and comment on the 3rd generation Integrated Waste Management Plan (IWMP). The IWMP covers the period 2021 – 2026 and defines the municipality's vision, objectives and targets for waste management.

Midvaal Local Municipality Draft Integrated Waste Management Plan (3rd Generation)

Midvaal Local Municipality invites the public to review and comment on the 3rd generation Integrated Waste Management Plan (IWMP). The IWMP covers the period 2021 – 2026 and defines the municipality's vision, objectives and targets for waste management.

The report will be made available electronically as follows:

- Via e-mail request to imalloy@gibb.co.za
- Via WhatsApp request to 061 491 1736
- Midvaal Municipality website: www.midvaal.gov.za
- GIBB's website: <http://projects.gibb/MidvaalIWMP.co.za>

Virtual Public Meeting
A virtual presentation is planned at 17:00 on 17 March 2021. To register, send an email or WhatsApp to the contact below.

Public review, commenting period and submission of comments
The IWMP will be available for review for a period of 30 days from 02 – 31 March 2021. Comments on the IWMP can be submitted to the email address below. Comments received will be included in the final IWMP.

GIBB Public Participation Office
Mr Ian Malloy
Email: imalloy@gibb.co.za
Tel: 061 491 1736

10:10 am · 11 Mar 2021 · Twitter for Mac

1 Retweet

2 Likes

Reply

Retweet

Like

Share

Midvaal Municipality @MidvaalLM · 11 Mar

Replying to @MidvaalLM

Click on the following link to access the draft report for submission of comments:
midvaal.gov.za/index.php/reso...

1

2

1

Share

Search Twitter

New to Twitter?

Sign up now to get your own personalized timeline!

Sign up

Relevant people

Midvaal Municipality

@MidvaalLM

Follow

This is the official account of the Midvaal Local Municipality, which has been rated the best performing municipality in Gauteng.

Trends for you

Trending in South Africa

Nonku

Politics - Trending

Karma

78.5K Tweets

Trending in South Africa

Ayanda

4,169 Tweets

Trending in South Africa

Telkom

2,215 Tweets

Trending in South Africa

Thuli

2,812 Tweets

Show more

Terms of Service

Privacy Policy

Cookie Policy

Ads info

More ...

© 2021 Twitter, Inc.

Figure 39: Midvaal Municipality IWMP PPP advert placed on the Midvaal Municipality Twitter page

Page 167

Rev 06/July 2021

Midvaal Local Municipality IWMP

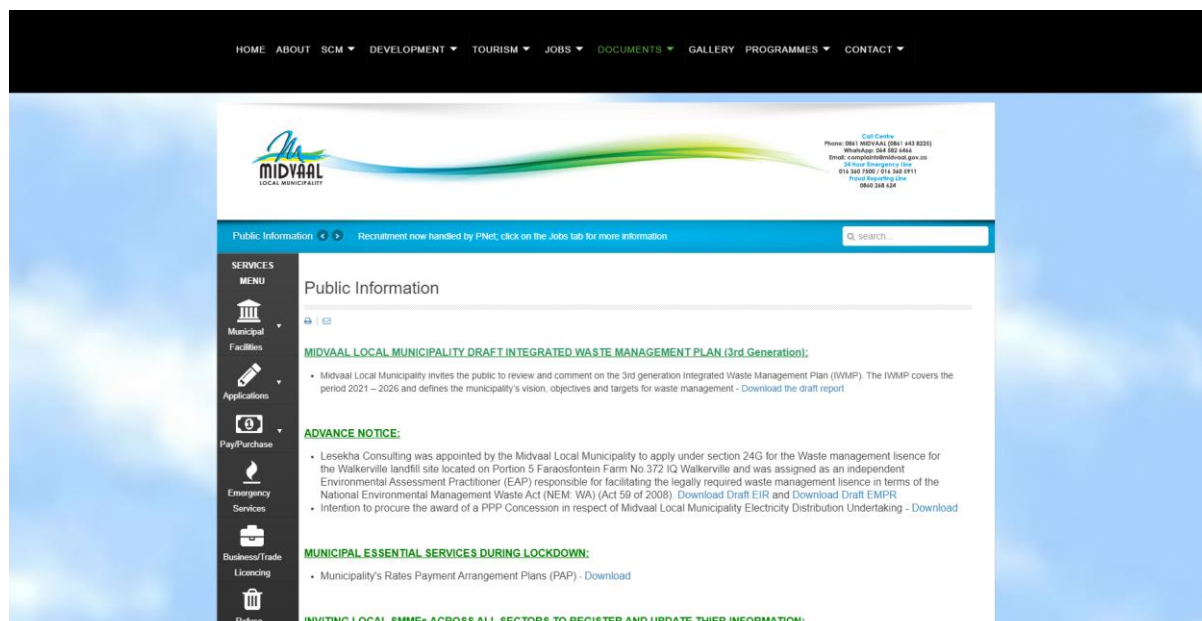


Figure 40: Midvaal Municipality IWMP report placed on the Midvaal Municipality's website

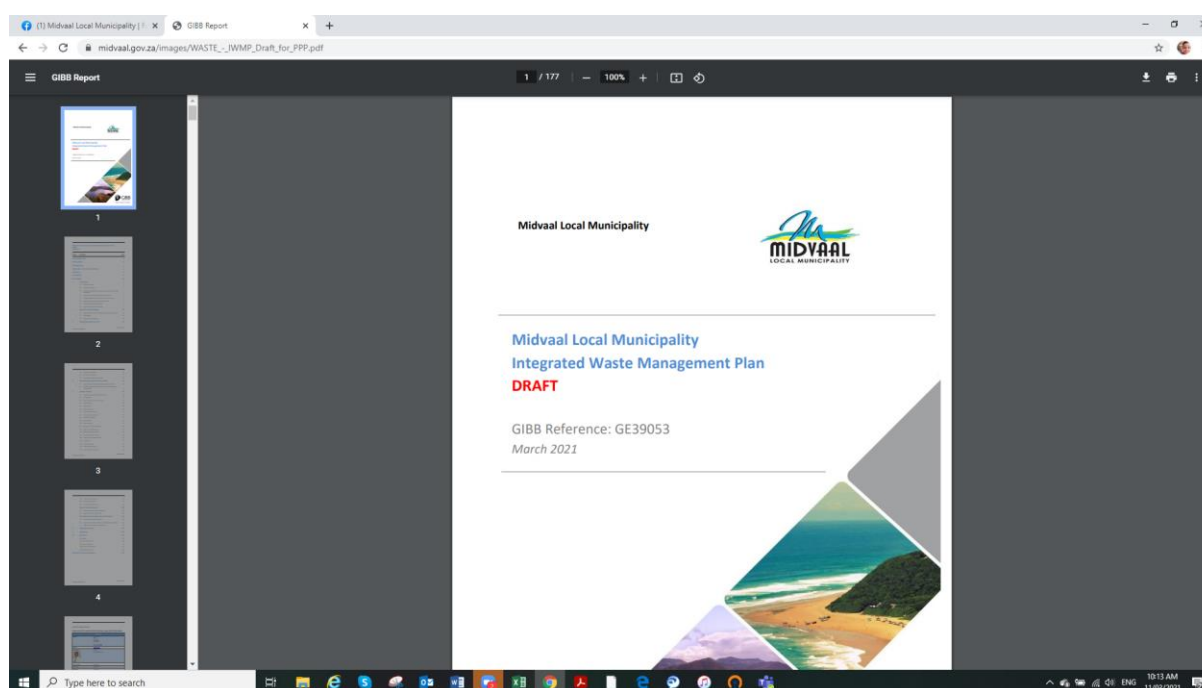


Figure 41: Midvaal Municipality IWMP report available from the link on Midvaal Municipality's website

Appendix D: Midvaal Local Municipality Council Resolution to approve the 2021 IWMP

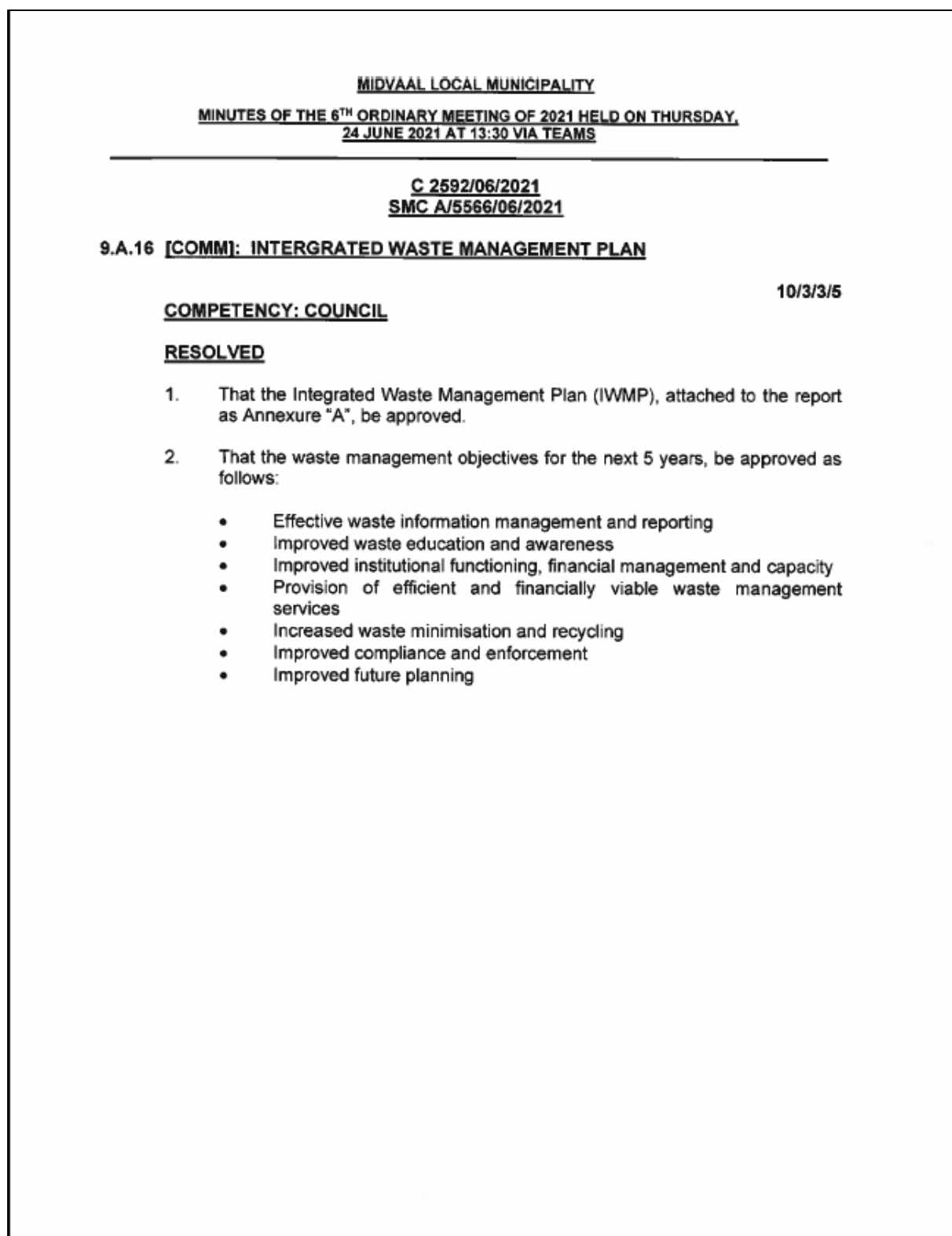


Figure 42: The Midvaal Local Municipality Council resolution to approve the 2021 IWMP

Document Control and Disclaimer

FORM IP180_B



CLIENT : Midvaal Local Municipality

PROJECT NAME : Midvaal Local Municipality Integrated Waste Management Plan **PROJECT No.** : GE39053

TITLE OF DOCUMENT : Midvaal Local Municipality Integrated Waste Management Plan: Draft

ELECTRONIC LOCATION : \\els-cluster\projects\GE39053 EN8IM Midvaal IWMP\03_Project Management Plan Design\G_Document Management - Reports\6 Final IWMP\Midvaal Municipality IWMP Final.docx

Approved By Project Executive		Reviewed By	Prepared By
ORIGINAL	NAME Kate Flood	NAME Ian Malloy and Kate Flood	NAME Ziyanda Makapela
DATE 16/03/2020	SIGNATURE 	SIGNATURE 	SIGNATURE 

Approved By Project Executive		Reviewed By	Prepared By
REVISION 1	NAME Walter Fyvie	NAME Kate Flood	NAME Ziyanda Makapela and Ian Malloy
DATE 12/06/2020	SIGNATURE 	SIGNATURE 	SIGNATURE 

Approved By Project Executive		Reviewed By	Prepared By
REVISION 2	NAME Walter Fyvie	NAME Ian Malloy	NAME Ziyanda Makapela and Ian Malloy
DATE 20/11/2020	SIGNATURE 	SIGNATURE 	SIGNATURE 

Approved By Project Executive		Reviewed By	Prepared By
REVISION 3	NAME Walter Fyvie	NAME Kate Flood	NAME Ian Malloy
DATE	SIGNATURE	SIGNATURE	SIGNATURE

02/03/2021			
------------	---	---	---

Approved By Project Executive		Reviewed By	Prepared By
REVISION 5	NAME Walter Fyvie	NAME Kate Flood	NAME Ian Malloy
DATE 28/04/2021	SIGNATURE 	SIGNATURE 	SIGNATURE 

Approved By Project Executive		Reviewed By	Prepared By
REVISION 6	NAME Walter Fyvie	NAME Kate Flood	NAME Ian Malloy
DATE 15/07/2021	SIGNATURE 	SIGNATURE 	SIGNATURE 

This report, and information or advice, which it contains, is provided by GIBB (or any of its related entities) solely for internal use and reliance by its Client in performance of GIBB's duties and liabilities under its contract with the Client. Any advice, opinions, or recommendations within this report should be read and relied upon only in the context of the report as a whole. The advice and opinions in this report are based upon the information made available to GIBB at the date of this report and on current South African standards, codes, technology and construction practices as at the date of this report. Following final delivery of this report to the Client, GIBB will have no further obligations or duty to advise the Client on any matters, including development affecting the information or advice provided in this report. This report has been prepared by GIBB in their professional capacity as Consulting Engineers. The contents of the report do not, in any way, purport to include any manner of legal advice or opinion. This report is prepared in accordance with the terms and conditions of the GIBB contract with the Client. Regard should be had to those terms and conditions when considering and/or placing any reliance on this report. Should the Client wish to release this report to a Third Party for that party's reliance, GIBB may, at its discretion, agree to such release provided that:

- GIBB's written agreement is obtained prior to such release, and
- By release of the report to the Third Party, that Third Party does not acquire any rights, contractual or otherwise, whatsoever against GIBB and GIBB, accordingly, assume no duties, liabilities or obligations to that Third Party, and
- GIBB accepts no responsibility for any loss or damage incurred by the Client or for any conflict of GIBB interests arising out of the Client's release of this report to the Third Party.