

Review of the Integrated Waste Management Plan for Blouberg Local Municipality:

Integrated Waste Management Plan

DRAFT

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List of Abbreviations

BLM	Blouberg Local Municipality
DEFF	Department of Environmental Affairs, Forestry and Fisheries
DWS	Department of Water Affairs and Sanitation
EPWP	Expanded Public Works Programme
HCRW	Health Care Risk Waste
IDP	Integrated Development Plan
IWM	Integrated Waste Management
IWMP	Integrated Waste Management Plan
LEDET	Limpopo Department of Economic Development, Environment and Tourism
NEMA	National Environmental Management Act, Act No. 107 of 1998
NEM:WAA	National Environmental Management: Waste Amendment Act, 2014.
NWMS	National Waste Management Strategy

GLOSSARY OF TERMS

Building and demolition waste means waste, excluding hazardous waste, produced during the construction, alteration, repair or demolition of any structure, and includes rubble, earth, rock and wood displaced during that construction, alteration, repair or demolition;

Business waste means waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment or government administration purposes;

Buy-back Centre means a location where discarded materials can be exchanged for money for further transportation to a recycling facility. The price for the waste is determined by the current markets and the quantities of waste.

A landfill working Cell refers to the volume of waste generally placed during one working day and covered on all horizontal surfaces by cover soil;

Communal Waste Disposal Site is the smallest waste disposal site classification with a capacity of less than 25 tonnes per day;

Composting is the controlled aerobic biological decomposition of organic matter, such as food scraps and plant matter, into humus, a soil-like material. Aerobic is the decomposition process in the presence of oxygen;

Constitution means the Constitution of the Republic of South Africa, 1996;

Container as referred to in this document means a disposable or re-usable vessel in which waste is placed for the purposes of storing, accumulating, handling, transporting, treating or disposing of that waste, and includes bins, bin-liners and skips;

Decommissioning in relation to waste treatment, waste transfer or waste disposal facilities, means the planning for and management and remediation of the closure of a facility that is in operation or that no longer operates;

Department as referred to in this document means the Department of Department of Environmental Affairs, Forestry and Fisheries;

Disposal as referred to in this document means the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land;

Disposal Site Airspace or capacity is the total volume of space on a waste disposal site to be filled with waste and cover material;

Domestic waste means waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes;

Environment as referred to in this document means the surroundings within which humans exist and that are made up of -

- (i) the land, water and atmosphere of the earth;
- (ii) micro-organisms, plant and animal life;
- (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and
- (iv) the physical, chemical, aesthetic and cultural properties and conditions

of the foregoing that influence human health and wellbeing;

Extended producer responsibility measures means measures that extend a person's financial or physical responsibility for a product to the post-consumer stage of the product, and includes -

- (a) waste minimisation programmes;
- (b) financial arrangements for any fund that has been established to promote the reduction, re-use, recycling and recovery of waste;
- (c) awareness programmes to inform the public of the impacts of waste emanating from the product on health and the environment; and
- (d) any other measures to reduce the potential impact of the product on health and the environment;

Garden Refuse means waste generated as a result of normal domestic gardening activities, including grass cuttings, leaves, plants, flowers and other similar small and light organic matter, but shall not include tree branches with a diameter thicker than 40 millimetres at any point of its length, domestic waste, bulky waste, construction and demolition waste or any waste generated as a result of commercial garden service activities; General Waste Collection Standards

Gazette, when used in relation to-

- (a) the Minister, means the *Government Gazette*; and
- (b) the MEC, means the *Provincial Gazette* of the province concerned;

General waste means waste that does not pose an immediate hazard or threat to health or to the environment, and includes—

- a) domestic waste;
- b) building and demolition waste;
- c) business waste: and
- d) inert waste;

Groundwater means all waters flowing or existing under the ground surface;

Hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment;

Incineration means any method, technique or process to convert waste to flue gases and residues by means of oxidation;

Industry includes commercial activities, commercial agricultural activities, mining activities and the operation of power stations;

Inert waste means waste that—

- a) does not undergo any significant physical, chemical or biological transformation after disposal;
- b) does not burn, react physically or chemically biodegrade or otherwise adversely affect any other matter or environment with which it may come into contact; and
- c) does not impact negatively on the environment, because of its pollutant content and because the toxicity of its leachate is insignificant;

Integrated Waste Management Plan is a plan which has been compiled to provide the most cost-effective and technically and environmentally acceptable solutions to the total waste management in the municipality. It addresses the situation analysis and offer solutions to ensure responsible waste management. As such it addresses waste generation, waste minimisation and re-use, collection of all waste, disposal infrastructure (disposal facility requirements) and disposal according to environmentally sound practises and within the requirements of relevant legislation and regulations. A plan prepared in terms of Section 12 of the National Environmental Management: Waste Amendment Act, 2014;

Licensing authority means an authority referred to in section 43 and that is responsible for implementing the licensing system provided for in Chapter 5;

Health Care Risk Waste means waste capable of producing any disease and includes but is not limited to the following:

- (a) laboratory waste;
- (b) pathological waste;
- (c) isolation waste;
- (d) genotoxic waste;
- (e) infectious liquids and infectious waste
- (f) sharps waste;
- (g) chemical waste; and
- (h) pharmaceutical waste;

MEC means the Member of the Executive Council of a province who is responsible for waste management in the province;

Minimisation when used in relation to waste, means the avoidance of the amount and toxicity of waste that is generated and, in the event where waste is generated, the reduction of the amount and toxicity of waste that is disposed of;

Minister as referred to in this document means the Minister of the Department of Environment, Forestry and Fisheries;

Municipality means a municipality established in terms of the Local Government: Municipal Structures Act, 1998 (Act No. 117 of 1998);

Municipal Systems Act means the Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000);

National Environmental Management Act means the National Environmental Management Act, 1998 (Act No. 107 of 1998);

Operating Plan consists of drawings, descriptions and other documents regarding the operation of the waste disposal site, placement of waste, building daily cells and lifts, leachate management, waste disposal gas management and all other functions related to the operation of the waste disposal site;

Operator is the person or organisation responsible for the operation of the waste disposal site. The operator may be the owner, another public agency or private contractor;

Own yard is the private or public land on which illegal disposal of waste takes place.

Owner is the person or organisation that owns the property and/or facilities that constitute the waste disposal site;

Pollution has the meaning assigned to it in section 1 of the National Environmental Management Act;

Reclamation is the unauthorised separation of solid waste for recyclable materials and food for human consumption;

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

Re-use means to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles;

Site Feasibility is the initial step in the DEFF permitting/licensing process that establishes the basic site features and general feasibility for a fully permitted/licensed waste disposal site;

Solid Waste is waste of a solid nature generated by a person, business or industry;

Sorting is the authorised separation of solid waste materials for the purpose of recycling or disposal, either at the source of generation or at a solid waste management facility;

Storage means the accumulation of waste in a manner that does not constitute treatment or disposal of that waste;

The Bureau means the Waste Management Bureau established by section 34A;

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

- (a) change the physical, biological or chemical character or composition of a waste; or
- (b) remove, separate, concentrate or recover a hazardous or toxic component of a waste; or
- (c) destroy or reduce the toxicity of a waste,

in order to minimise the impact of the waste on the environment prior to further use or disposal;

Waste means—

(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;

Waste Disposal Classification is a system under the DWAF Minimum Requirements for classifying waste disposal sites according to the type, size of waste stream and its potential for significant leachate generation;

Waste disposal facility means any site or premise used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise;

Waste management activity means any activity listed in Schedule 1 or published by notice in the Gazette under section 19, and includes—

- a) the importation and exportation of waste;
- b) the generation of waste, including the undertaking of any activity or process that is likely to result in the generation of waste;
- c) the accumulation and storage of waste;
- d) the collection and handling of waste;
- e) the reduction, re-use, recycling and recovery of waste;
- f) the trading in waste;
- g) the transportation of waste;
- h) the transfer of waste;
- i) the treatment of waste; and
- j) the disposal of waste;

Waste Management facility is a place, infrastructure, structure or containment of any kind, wherein, upon or at, a waste management activity takes place and includes a waste transfer station, container yard, landfill site, incinerators, lagoons, recycling and composting facilities;

Waste management licence means a licence issued in terms of Section 49;

Waste management officer means a waste management officer designated in terms of Section 10;

Waste management services means waste collection, treatment, recycling and disposal services;

Waste minimisation programme means a programme that is intended to promote the reduced generation and disposal of waste;

Waste transfer facility means a facility that is used to accumulate and temporarily store waste before it is transported to a recycling, treatment or waste disposal facility;

Waste treatment facility means any site that is used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of that waste.

1. INTRODUCTION

The development of an Integrated Waste Management Plan (IWMP) is a requirement for certain organs of state in terms of Section 11 of the National Environmental Management: Waste Amendment Act, 2014 (NEM:WAA) for government to properly plan and manage waste. The compilation of this IWMP will be done in line with the “Guideline for the Development of Integrated Waste Management Plans (IWMPs) (DEA, 2012) and in accordance with Section 12 of NEM:WAA.

The Department of Environment Affairs, Forestry and Fisheries appointed iX Engineers to assist with the review of the IWMP for the Blouberg Local Municipality (hereinafter referred to as “the Municipality”).

The process followed in order to compile the IWMP consisted of two phases, the first consisting of a “Situation Analysis” and the determination of the “Desired End State” for waste management within the Municipal Jurisdiction, the second phase consisting of identifying, evaluating and selecting alternative methods/approaches for achieving the desired end state.

This report, the IWMP, is a concise report including the information collated in the two phases mentioned above and provides the Municipality with a plan on how to manage and improve the waste management service within the municipal area. The Municipality will be responsible for the implementation of the IWMP and the evaluating and reviewing of the plan to ensure that the respective objectives are being met.

2. LEGISLATIVE REQUIREMENTS

THE SOUTH AFRICAN CONSTITUTION, 1996 (ACT 108 OF 1996)

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

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

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

THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT: (ACT NO. 59 OF 2008)

Chapter 3, section 11 of the Waste Act requires that certain organs of state must develop Integrated Waste Management Plans (IWMPs). Section 12 of the Waste Act outlines what the contents of integrated waste management plans should be, whilst section 13 stipulates the reporting mechanisms on the implementation of IWMPs.

In terms of section 11 (4) (a) (ii) of the Waste Act, municipalities must incorporate the approved IWMP in their IDPs as called for by chapter 5 of Municipal Systems Act, 2000 (Act 32 of 2000) (hereinafter referred to as the "MSA"). The MSA Chapter 5, sections 23-37 deals with the process of developing Integrated Development Plans. Section 26 (d) of the MSA states that, a Municipality must give effect to its IDP and conduct its affairs in a manner which is consistent with its IDP. This means that the development and implementation of the IWMP must be aligned with the IDP.

Some aspects of waste are managed by different pieces of legislation such as the National Water Act, (Act 36 of 1998); Hazardous Substances Act, (Act 15 of 1973); Advertising on Roads and Ribbon Development Act (Act 21 of 1940); and the National Health Act, 2003 (Act 61 of 2003).

Other applicable policies and standards including municipal by-laws are listed below which should be considered when developing an IWMP:

REGULATIONS IN TERMS OF THE WASTE ACT:

On 13 August 2012, the Minister of Water and Environmental Affairs, the late Ms Edna Molewa published under section 69(1)(t), (y) (aa) and (ee) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (Waste Act) the National Waste Information Regulations, 2012 in Gazette No. 35583 for implementation on 1 January 2013.

Any person who conducts activities which are listed in Annexure 1 of the Regulations needs to register on the South African Waste Information System at www.sawic.org.za. The purpose of the national waste information regulations, 2012 is to regulate the collection of data and information to fulfil the objectives of the South African Waste Information System (SAWIS) as set out in section 61 of the Waste Act. The Municipality should therefore comply with these regulations and follow the procedure and criteria to register on SAWIS (as required in Section 5 of the Regulations) and submit a quarterly report containing the information as prescribed in Annexure 2 of the Regulations, within 30 days of the end of a reporting period (as required in Section 8 of the Regulations).

Waste Classification and Management Regulations promulgated under the National Environmental Management: Waste Act, 2008 (NEM:WAA) (effective 23 August 2013): The Waste Classification and Management Regulations (WCMR) (developed in terms of section 69 of NEM:WA) will ultimately enable the improved and more efficient classification and management of waste. All wastes that were classified in terms of the "Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste in terms of the Department of Water Affairs" (2nd Edition, 1998; Department of Water Affairs and Forestry) or alternative classifications that were approved prior to the WCMR taking effect, must be re-classified and assessed within three years from the commencement of these Regulations.;

Norms and Standards for the Assessment of Waste for Landfill and the Norms and Standards for the Disposal of Waste to Landfill promulgated under the National Environmental Management: Waste Act, 2008 (NEM:WA) (effective 23 August 2013): The Norms and Standards for the Assessment of Waste for Landfill Disposal and the Norms and Standards for Disposal of Waste to Landfill were also published for immediate implementation. The purpose of the Norms and Standards for the Assessment of Waste for Landfill Disposal are to outline the requirements for the assessment of waste prior to the disposal to landfill and to advice on the total concentration and the leachable concentration threshold limits. The Norms and Standards for Disposal of Waste to Landfill seek to determine the requirements for the disposal of waste to landfill. They stipulate the containment barriers for the different landfill types and list the barrier requirements that must be included in an application for waste management licence for a landfill site or cell.

NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE AMENDMENT ACT 26 OF 2014

The definition of waste was amended in the abovementioned Amendment Act as follows:

"waste" means-

- (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;
- where approval is not required, once a waste is, or has been re-used, recycled or recovered;
- (ii) 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
- (iii) where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste.

The above implies that residue deposits and residue stockpiles falls under the definition of Waste under NEM: WAA and activities which involves these waste streams needs to be licensed under NEM: WAA accordingly. The NEM: WAA licensing procedure will apply to these activities but the Minister of Mineral Resources is the licensing authority where a waste management activity involves residue deposits and residue stockpiles on a prospecting, mining, exploration or production area.

The Waste Management Listed Activities were also amended as part of the abovementioned Act as follows:

Important Definitions	
Importance of definitions	Definitions determine the scope of application of the NEM: WAA and its subsequent Regulations.
Facility	<i>“a place, infrastructure, structure or containment of any kind including associated structures or infrastructure, wherein, upon or at, a waste management activity takes place and includes a waste transfer facility, a waste storage facility, container yard, waste disposal facility, incinerators, lagoons, recycling, co-processing or composting facilities”</i>
Lagoon	<i>“the containment of waste in excavations and includes evaporation dams, earth cells, sewage treatment facilities and sludge farms”</i>

Temporary storage	<i>“a once off storage of waste for a period not exceeding 90 days”</i>
Category A Activities	
Regulation 3	A person who wishes to commence, undertake or conduct a waste management activity listed under this Category, <u>must conduct a basic assessment process set out in the EIA Regulations made under Section 24(5) of NEMA as part of a waste management licence application</u> contemplated in Section 45 read with Section 20(b) of the NEM: WAA.
Category A activities	<p>Storage of waste</p> <p>(1) The storage of general waste in lagoons. (Note: storage of general waste other than in lagoons – refer to Category C [i.e. no licence])</p> <p>Recycling or recovery of waste</p> <p>(3) The recycling of general waste at a facility that has an operational area in excess of 500m², excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.</p> <p>(4) The <u>recycling of hazardous waste in excess of 500kg but less than 1 ton per day calculated as a monthly average</u>, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.</p> <p>(5) <u>The recovery of waste including the refining, utilisation, or co-processing of waste</u> in excess of 10 tons but less than 100 tons of general waste per day or <u>in excess of 500kg but less than 1 ton of hazardous waste per day</u>, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.</p> <p>Treatment of waste</p> <p>(6) The treatment of general waste using any form of treatment at a facility that has the capacity to process in excess of 10 tons but less than 100 tons.</p> <p>(7) <u>The treatment of hazardous waste using any form of treatment at a facility that has the capacity to process in excess of 500kg but less than 1 ton per day excluding the treatment of effluent, wastewater or sewage.</u></p> <p>Disposal of waste</p> <p>(9) The disposal of inert waste to land in excess of 25 tons but not exceeding 25 000 tons, excluding the disposal of such waste for the purposes of levelling and building which has been authorised by or under other legislation.</p> <p>(10) The disposal of general waste to land covering an area of more than 50m² but less than 200m² and with a total capacity not exceeding 25 000 tons.</p>

	<p>(11) The disposal of domestic waste generated on premises in areas not serviced by the municipal service where the waste disposed exceeds 500kg per month.</p> <p>Construction, expansion or decommissioning of facilities and associated structures and infrastructure</p> <p>(12) The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity).</p> <p>(13) The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule.</p> <p>(14) The decommissioning of a facility for a waste management activity listed in Category A or B of this Schedule.</p>
Category B Activities	
Regulation 4	<p>A person who wishes to commence, undertake or conduct a waste management activity listed under this Category, <u>must conduct a scoping and environmental impact reporting process set out in the EIA Regulations made under Section 24(5) of NEMA as part of a waste management licence application</u> contemplated in Section 45 read with Section 20(b) of the NEM: WAA.</p>
Category B activities	<p>Storage of hazardous waste</p> <p>(1) The storage of hazardous waste in lagoons excluding storage of effluent, wastewater or sewage. (Note: storage of hazardous waste other than in lagoons – refer to Category C [i.e. no licence])</p> <p>Reuse, recycling or recovery of waste</p> <p>(2) The <u>reuse or recycling of hazardous waste in excess of 1 ton per day</u>, excluding reuse or recycling that takes place as an integral part of an internal manufacturing process within the same premises.</p> <p>(3) The recovery of waste including the refining, utilisation, or co-processing of the waste at a facility that processes in excess of 100 tons of general waste per day or in excess of 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.</p> <p>Treatment of waste</p> <p>(4) The <u>treatment of hazardous waste in excess of 1 ton per day calculated as a monthly average; using any form of treatment</u> excluding the treatment of effluent, wastewater or sewage.</p>

	<p>(5) The treatment of hazardous waste in lagoons, excluding the treatment of effluent, wastewater or sewage.</p> <p>(6) The treatment of general waste in excess of 100 tons per day calculated as a monthly average, using any form of treatment.</p> <p>Disposal of waste on land</p> <p>(7) The <u>disposal of any quantity of hazardous waste to land</u>. (Note: definition of residue deposits and residue stockpiles as well as distinction between disposal and storage)</p> <p>(8) The disposal of general waste to land covering an area in excess of 200m² and with a total capacity exceeding 25 000 tons.</p> <p>(9) The disposal of inert waste to land in excess of 25 000 tons, excluding the disposal of such waste for the purposes of levelling and building which has been authorised by or under other legislation.</p> <p>Construction of facilities and associated structures and infrastructure</p> <p>(10) The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity).</p>
Category C Activities	
Regulation 5	<p>A person who wishes to commence, undertake or conduct a waste management activity listed under this Category, must comply with the relevant requirements or standards determined by the Minister listed below-</p> <p>(a) Norms and Standards for Storage of Waste, 2013; or</p> <p>(b) Standards for Extraction, Flaring or Recovery of Landfill Gas, 2013; or</p> <p>(c) Standards for Scrapping or Recovery of Motor Vehicles, 2013.</p>
Category C activities	<p>Storage of waste</p> <p>(1) The storage of general waste at a facility that has the capacity to store in excess of 100m³ of general waste at any one time, excluding the storage of waste in lagoons or temporary storage of such waste.</p> <p>(2) The <u>storage of hazardous waste at a facility that has the capacity to store in excess of 80m³ of hazardous waste at any one time</u>, excluding the storage of hazardous waste in lagoons or temporary storage of such waste.</p> <p>(3) The storage of waste tyres in a storage area exceeding 500m².</p> <p>Recycling or recovery of waste</p> <p>(2) The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1000m².</p>

	<p>(4) The scrapping or recovery of motor vehicles at a facility that has an operational area in excess of 500m².</p> <p>(5) The extraction, recovery or flaring of landfill gas.</p>
Transitional provisions	<ul style="list-style-type: none"> • A person who lawfully conducts a waste management activity listed in this Schedule on the date of the coming into effect of this Notice may continue with the waste management activity until such time that the Minister by notice in a Gazette calls upon such a person to apply for a waste management licence. <p>An application for a waste management activity which was listed under the previous Waste Management Activities List Notice which is no longer listed in terms of this Schedule and a decision on such an application is still pending on the date of coming into effect of this Notice, such an application will be considered withdrawn.</p> <p>If a situation arises where waste management activities, listed under the previous Waste Management Activities List Notice, are listed differently under the current list of waste management activities, and a decision on such an application is still pending, such an application will still be processed by the licensing authority in accordance with this Notice, except if it is an application for a waste management activity A 3(11) or waste management activity B 4(7) listed under the previous Waste Management Activity List Notice (i.e. the treatment of effluent, wastewater or sewage).</p> <ul style="list-style-type: none"> • A person who submitted an application for a waste management licence for a waste management activity which is no longer listed in Category A or B but listed in Category C of this Schedule on the date of coming into effect of this Notice, must consider such an application for that activity withdrawn, and must comply with the requirements or standards for that waste management activity. • A person who lawfully conducted a waste management activity that is no longer listed in Category A or B, but listed in Category C of this Schedule, on the date of coming into effect of this Notice, may continue with the waste management activity for the duration stipulated in the permit or waste management licence until the expiry date of the permit or waste management licence where after such a person must comply with requirements or standards for that waste management activity. • An application submitted for a waste management activity A 3(11) or waste management activity B 4(7) listed under the previous Waste Management Activity List Notice (i.e. the treatment of effluent, wastewater or sewage) and

	<p>is still pending on the date of coming into effect of this Notice, such an application will be considered by the relevant licensing authority and will be assessed and decided upon under the previous Waste Management Activities List Notice up to the construction phase of that facility.</p> <ul style="list-style-type: none"> • A person who obtained a waste management licence for waste management activity A 3(11) or waste management activity B 4(7) listed under the previous Waste Management Activity List Notice (i.e. the treatment of effluent, wastewater or sewage) prior to the coming into effect of this Notice, must comply with the waste management licence conditions up to the completion of the construction phase and thereafter must comply with any applicable authorisation or legislation. • A person who submitted an application for a waste management licence for activity A 3(11) or B 4(7) listed under the previous Waste Management Activity List Notice (i.e. the treatment of effluent, wastewater or sewage) and such an application falls outside the revised thresholds for these activities under the NEMA Listing Notices, wherein a decision is still pending on the date of coming into effect of this Notice, must consider such an application withdrawn.
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Waste Pricing Strategy: Firstly, Government is developing a Waste Pricing Strategy which the CSIR has been commissioned to undertake. This draws from international research and practice and presents a range of fiscal options with which the government is now empowered to “catalyse the waste economy”.

These could include fees, incentives, taxes, levies, deposit schemes and the like, which would generate significant revenue. The aim is to increase the value of waste as a resource and to generate a flow of revenue into the treasury that can be pooled and redirected through a new departmental Waste Bureau to deserving projects and programmes that stimulate the waste and recycling economy, divert waste from landfill and create jobs at the same time.

Despite pleas to ring-fence the incoming revenue through fiscal measures, the Department of Environment Affairs is bound by stipulations that any funds arising from taxes must go through Treasury, as it maintains it has the power and is best suited to administer them. Other fiscal means to accumulate funds such as levies, deposit schemes etc. are not however required to go through Treasury.

Private and public sector entities seeking to apply for funds collected must first draw up business plans outlining inter alia how much they want, how they will stimulate the recycling economy and how many jobs will be created in the process.

Waste Bureau: The Waste Bureau was operationalized in 2016, and is still operational. The functions of the Waste Bureau include progressively building capacity to provide specialist support for the development and implementation of Industrial waste management plans and capacity building programmes to support government at national provincial and local government spheres.

EPR looming large: Extended Producer Responsibility (“EPR”), a concept widely accepted by the producers, is looming large in the new government plans as a stick to pressure them to increase recycling diversion from landfill, with the carrot of providing possible funding (on its terms) with which to do so.

The concern is that the government might cause, inadvertently or otherwise, the demise of these long-standing organisations who are directly or indirectly enabling the employment of some 100 000 people, many of them at the lowest and neediest levels of the society.

DRAFT REVISED AND UPDATED NATIONAL WASTE MANAGEMENT STRATEGY, 2019

The draft Government Gazette 42879 (Notice No. 1561) Strategy was published on 3 December 2019 by the DEFF. It is the requirement of the Waste Act to establish the National Waste Management Strategy (NWMS) and to review the strategy every five years. The draft was published to allow for comments. It is therefore not the final strategy. The National Waste Management Strategy (NWMS) and its review builds on the successes and lessons learnt from the implementation of the National Waste Management Strategy since 2011.

The NWMS provides government policy and strategic interventions in the waste sector that are intended to create an enabling environment for the projects identified during the 2017 Chemicals and Waste Phakisa. These projects contribute to the national goals of sustainable economic growth, job creation and social transformation.

The 3rd National Waste Management Strategy was drafted to improve the Circular Economy – an approach to minimising the environmental impact of economic activities by reducing, reusing, recycling and repurposing waste and processing waste as materials to manufacture other products. This minimises the need to extract virgin raw materials and the practice to dispose of waste, and includes all areas of value chain, ranging from product design, production to packaging, distribution, use and disposal.

Municipalities are required to align their IWMPs to the NWMS targets where possible in order to contribute to the attainment of the goals and targets set in the NWMS.

NATIONAL DOMESTIC WASTE COLLECTION STANDARDS, JANUARY 2011

The main purpose of these standards is to redress past imbalances in the provision of waste collection services, whereby it has become imperative that acceptable, affordable and sustainable waste collection services be rendered to all South Africans.

The provision of waste collection services will improve the quality of life of citizens and will ensure that citizens live in a clean and more acceptable environment. The lack of waste collection services or poor-quality waste collection services can result in a number of environmental and human health problems and therefore proper planning is crucial.

NATIONAL POLICY FOR THE PROVISION OF BASIC REFUSE REMOVAL SERVICES TO INDIGENT HOUSEHOLDS

This policy provides for the provision of basic refuse removal for Indigent households. The policy defines basic refuse removal service level as the most appropriate level of waste removal service that should be provided, and this is based on site specific circumstances. Such a basic level of service be it in an urban or rural set-up, is attained when a Municipality provides or facilitates waste removal. The policy further outlines the appropriate levels of service for different settlement densities, frequency of collection and provision of waste receptacles amongst others.

NATIONAL ENVIRONMENT MANAGEMENT ACT, (ACT 107 OF 1998) NEMA

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

It places sustainable development at the centre of every development process that has the potential to have an impact on social, economic and environment whereby it requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves present and future generations.

Basel Convention This convention is an international treaty that controls the transboundary movements and disposal of hazardous waste (excluding the movement of radioactive waste) between nations and in particular to prevent the transfer of hazardous waste from developed to less developed countries.

Montreal Protocol: This protocol is an international agreement to the Vienna Convention for the Protection of the Ozone Layer and is centred on groups of halogenated carbons, which have been shown to play a role in ozone depletion. It provides a timetable on which the production of these substances must be phased out and eventually eliminated.

Rotterdam Convention: This convention is a treaty aimed at promoting shared responsibilities in relation to importation of hazardous chemicals. The responsibilities include the 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. Signatory nations can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged make sure that producers within their jurisdiction comply.

Stockholm Convention: This convention is an international environmental treaty on Persistent Organic Pollutants (POPs) that aims to eliminate or restrict the production and use of POPs

MUNICIPAL SYSTEMS ACT, 2000 (ACT 32 OF 2000)

In terms of Section 25 of the MSA each municipal council must, within a prescribed period after the start of its elected term, adopt a single, inclusive and strategic plan (IDP) for the development of the Municipality. In relation to waste management, the IDP is required to include sectorial environmental plans which would be an IWMP for waste management. In order to ensure proper resource allocation to achieve the targets set out in the Integrated Waste Management Plan (IWMP) it must be aligned with the Integrated Development Plan (IDP) in accordance with sections 27 (2)(b) and 29(3)(a) of the Municipal Systems Act, Act 32 of 2000.

NATIONAL HEALTH ACT, 2003 (ACT 61 OF 2003)

The National Health Act 61 of 2003 provides a framework for a structured uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments with regard to health services; and to provide for matters connected therewith.

Section 32 of the Health Act (Act 61 of 2003) requires provincial Health MECs to assign environmental health functions to district and metropolitan municipalities. The definition of these functions in the Health Act includes environmental pollution control, waste management and water quality monitoring.

As a schedule B function in terms of the Constitution, municipalities are expected to continue to fund and provide the expanded definition of municipal health services (RSA 1996). The assignment and delegation of additional environmental health and management functions has led to recognition in the Health Act of the responsibility of the Provincial sphere to contribute towards meeting the additional financial burden. Many district municipalities are having difficulty in restructuring and implementing the new district-level arrangements envisaged by the Health Act for the financing and management of environmental health functions. Section 34 of the Health Act makes provision for transitional arrangements (RSA 2003) in which local municipalities are required to continue providing the services they provided before the Act, and until such time as a Service Level Agreement (SLA) is in place. In a number of districts, the EHS devolution process has not yet been finalised. District Municipalities cannot raise income from property rates and do not receive equitable share finance for their given environmental health function. It follows then that the Provincial Department of Health is required, through an SLA to assess and make available the resources needed to perform the required environmental health functions. Local municipalities who previously provided environmental health services are expected to continue to provide the finances for these posts which are required to be transferred to the District Level. Additional posts to address newly assigned and delegated functions need to be funded in terms of Section 32 of the Health Act through an SLA which a) describes the services; b) determines the resources that must be made available by the province and those by the municipality and c) sets performance and monitoring standards.

The National Health Act does not address the disposal of health care risk waste as such.

Draft regulations for the control of environmental conditions constituting a danger to health or a nuisance were published in GNR21 of 14 January 2000. In terms of the proposed regulations, registration is required for: concerns that to carry out a scheduled trade, including waste incineration, waste (including HCRW) disposal sites and waste collecting, sorting, treating or processing sites.

3. METHODOLOGY

3.1 Situation analysis

3.1.1 Approach

The following methodology was followed for the situation analysis investigation:

- (i) All relevant records of the Waste Management Section of the Municipality were obtained for the purposes of the study.
- (ii) Relevant officials from the Municipality were interviewed on 3 and 4 February 2020.

- (iii) The 2013 Reviewed Blouberg Integrated Waste Management Plan was studied to gather useful information.
- (iv) All the areas in the study area were visited on the above-mentioned dates to obtain first-hand knowledge of the existing status of the waste management services rendered.
- (v) The Waste Infrastructure in the form of waste disposal sites was inspected during the site visits on the abovementioned date.
- (vi) Copies of the waste disposal site licenses was obtained from the Municipality.
- (vii) Financial information on waste management within the Municipality was obtained from the Final Reviewed IDP Budget 2018-2021.
- (viii) Much of the general information was obtained from the Blouberg Final Reviewed IDP (2019/2020) and Stats SA 2011 data.

3.2 Background

Blouberg Local municipality is a predominantly rural municipality situated to the northwestern boundary of the Republic of South Africa, with Botswana and Zimbabwe. Roads R521 (P94/1 and P94/2) provides a north-south link between Blouberg and Mole mole, Polokwane and Makhado municipality. To the east, the municipality is served by road R523 (D1200) that provides access to the towns such as Mogwadi, Morebeng, Duiwelskloof, Tzaneen and Lephalale. There is another important road (N11) from Mokopane town to Botswana that passes through the municipality, which has the potential to stimulate economy.

Blouberg Local Municipality is situated towards the far northern part of the Capricorn District, bordered by Polokwane on the south, Molemole on the south-west, Makhado on the Northeast, Lephalale on the North-west, with Mogalakwena on the south-west and Musina on the north. As per the new Demarcations Board report (2011), the Municipality covers an area of about 9,248.44km² (this includes the newly incorporated areas). The total population is estimated at 172 601 with the total number of households at 43 747. Average household size is 5.72 (Source: Community Survey, 2016).

3.3 Locality

- The municipality is constituted by 22 wards with ward 20 being the biggest in terms of the size. Increase in the number of wards came because of acquisition of some villages from former Aganang local municipality.

The location of the Municipality is shown on the following Figure 1:

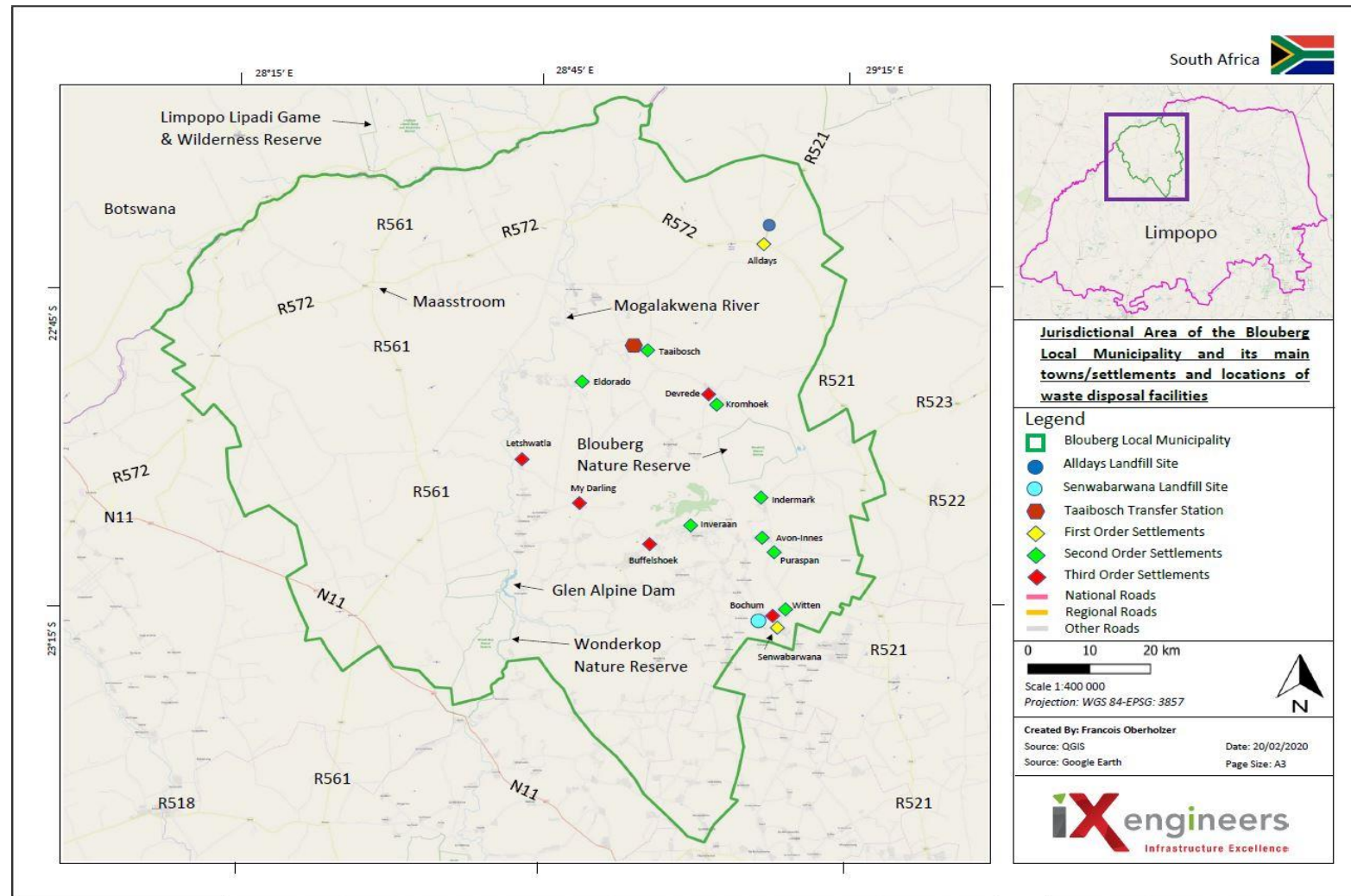


Figure 1: Locality of the Blouberg Municipality and Waste Disposal Facilities

3.4 Study Area

The Municipality consist of 22 wards that differ in size and population. The biggest ward in the Municipality is ward 22, which is predominantly a farming area and few villages. Ward 19 and eighteen host both Senwabarwana and Alldays, which are the two towns with the biggest population.

Senwabarwana is the administrative and economic capital of the municipality while Alldays is the mining town of the municipality. The Blouberg Spatial development framework has identified Senwabarwana and Alldays as the first order settlements, while Eldorado, Indermark, Avon-Innes, Puraspan, Witten, Kromhoek, Taaibosch and Inveraan are the second order settlements.

The third order of settlement is areas such as Letswatla, My- Darling, Buffelshoek, Devrede and Borkum.

Third and fourth order centers are well dispersed throughout the remainder of Municipality

Other major towns in the Blouberg municipality are Laangelagte and Harriswhich. There are only three municipal growth points, which are Senwabarwana, Alldays and Eldorado. Senwabarwana is also the district growth point while Eldorado has been identified as the provincial rural note.

The towns mentioned above can be seen on the locality map in **Figure 1**.

3.5 Demographics

The following demographic information was obtained from the Geographical Survey 2016, STATS SA 2011/2016 and the Final Reviewed IDP/Budget 2019-2020/2021. Demographics can be defined as the most recent statistical characteristics of a population in a given area at a specified time. The most commonly examined demographics include gender, race, age, economic and social status/profile, number of households and their distribution, poverty levels, education and employment status. A greater percentage of the population in the Municipality resides in traditional authority governed areas. According to the IDP 2019/2020, the Municipality has shown a steady increase in the number of households that receive a refuse removal service from the local authority, mainly as a result of the employment of general workers through the EPWP and Community Works Program to assist in cleaning settlements, roads, cemeteries and any other work identified by members of the community as well as the intervention through partnerships with private stakeholders i.e. with the PEACE Foundation. The number of households that do not receive a refuse removal service can in this case also be attributed to farms and informal settlements in rural areas that are remotely located and which are not easily accessible to the Municipality to render a waste removal service. Capacity constraints like lack of resources (financial and human) to roll out the service to the entire municipal area exist.

3.5.1 Population

Blouberg as one of the municipalities in the Capricorn district has the second lowest population after Molemole municipality. It contributes only 13% of the district population. Polokwane municipality has the biggest population of 60% followed by Lepelle –Nkumpi municipality.

The population of Blouberg declined from 182 003 in 2000 to 175 352 in 2011, before declining further to 175 753 in 2016. Of the four constituent municipalities of Capricorn District, Blouberg is the only municipality that saw a decline in its population. The amalgamation with Aganang led to an increase in the population starting from 2015 onwards (by 1.2%), but still far lesser than the population of Blouberg alone in 2000. This decline can be attributed to among other things, the low fertility rate, high mortality rate compared to birth rate or the out migration by the economically active population to the industrial centers such as Polokwane and Gauteng to seek better economic prospects. According to Stats SA, the municipality has five national groupings that residing within its area of jurisdiction and they are Black Africans, Colored, Indians and Whites. The majority is Black Africans who constitute 98% of the total population and live in the tribal areas. The female folk are dominant, and the majority is youths.

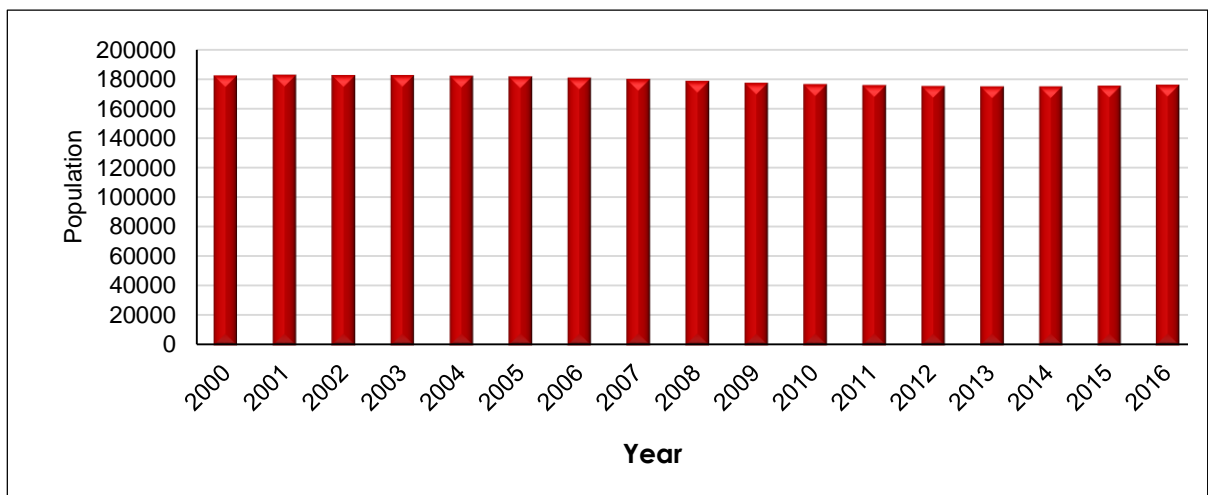


Figure 2: Population in Blouberg

Poverty levels

The report conducted by Statistics South Africa of 2017 has revealed that despite the increase in the social wage sector covering almost 17 million of the population of South Africa poverty has worsened. Almost half of the population lives below the food poverty line. The report went further to mention that there is a gap between the social wage and the amount required to address the food poverty line challenge. The graph illustrates that the Capricorn district and its constituent's municipalities have seen a decline in the number of people living below the food poverty line between the years 2000 and 2016. The number has declined from 92 329 in the year 2000 to 62 913 in the year 2010 before rising to 63 913 in the year 2016.

The Blouberg local municipality has the highest proportion of people living below the food poverty line as compared to the other constituent municipalities.

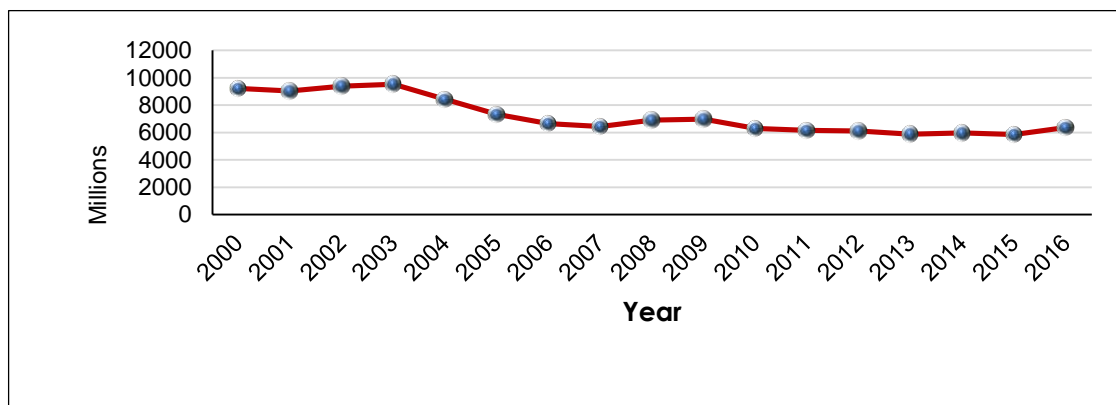


Figure 3: People living below poverty line, 2000- 2016

The report from Stats S.A indicates that the majority of the people with disabilities have a challenge of concentration and memory. 21 297 persons have such a challenge and followed by those with a challenge of communication totaling 19 992 persons.

Those with hearing challenges are totaling 21 182 people while those with the challenge of sight are totaling 33 636 people and those with walking challenges total about 23 585 people.

Table 1: Categories of the various disabilities

Variable	Communication	Concentration	Hearing	Sight	Walking
Some difficulty	2120	3702	3940	7772	3440
A lot of difficulty	1926	2007	1999	5628	2998
Cannot do at all	1845	1677	1260	4449	2162

Variable	Communication	Concentration	Hearing	Sight	Walking
Do not know	526	559	726	3339	1729
Cannot yet be determined	6893	6942	6559	5636	6420
Unspecified	3771	3570	3858	3972	3996
Not Applicable	2840	2840	2840	2840	2840
TOTAL	19921	21297	21182	33636	23585

(Source: IDP 2019/2020)

3.5.2 Population by racial groups

The municipality has five national groupings that residing within its area of jurisdiction and they are Black Africans, Colored, Indians and Whites. The majority is Black Africans who constitute 98% of the total population and live in the tribal areas. The female folk are dominant, and the majority is youths (IDP,2019/2020-Blouberg).

3.5.3 Employment

Limpopo employment levels, which stood at 941000 in 2016, contributes 7% to the total national employment of 15.78 million employed people. The Capricorn district with its employment levels of 267 000 employed people in 2016 constitutes 28.4% to the provincial employment whereas Blouberg employment which comprised 13 655 of employed people in 2016 constituted 5% of the district employment.

The economy of the municipality is growing by 1% annually. The municipality contributes 20% of the district GDP. The unemployment statistics stands at 24% with the youths and women mostly affected. The level of poverty is high and people living under poverty line is 65000. About 13700 people are employed in the formal sector while about 6000 are in the informal sector.

The total employment in the informal sector increased by 8.3% from 3511 people to 4233 between 2000 and 2010 and grew further by 7% to 5946 in 2016. The year on year growth in the informal sector reflects a growing economy that is however not able to accommodate all the economically active population.

The agricultural sector employment trends in Limpopo and the Capricorn district reflects its performance at national level. The sector has been stagnant in the last 16 years and has only

absorbed a few people. In the Blouberg the sector absorbed only 2 823 in 2016 noting that it had absorbed only 2 528 in 2000.

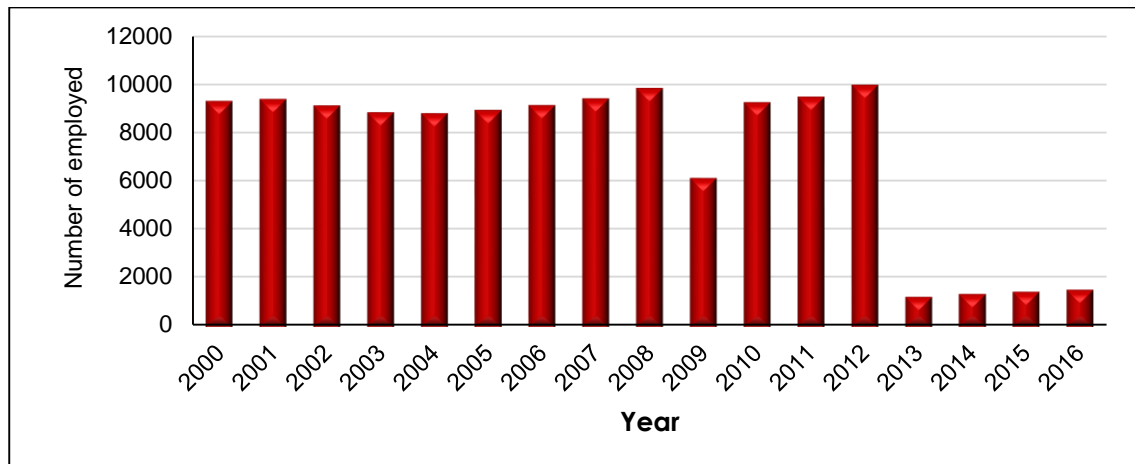


Figure 4: Employment status

The agricultural sector employment trends in Limpopo and the Capricorn district reflects its performance at national level. The sector has been stagnant in the last 16 years and has only absorbed a few people. In the Blouberg the sector absorbed only 2 823 in 2016 noting that it had absorbed only 2 528 in 2000.

a. Employment in informal sector

The total employment in the informal sector increased by 8.3% from 3511 people to 4233 between 2000 and 2010 and grew further by 7% to 5946 in 2016. The year on year growth in the informal sector reflects a growing economy that is however not able to accommodate all the economically active population.

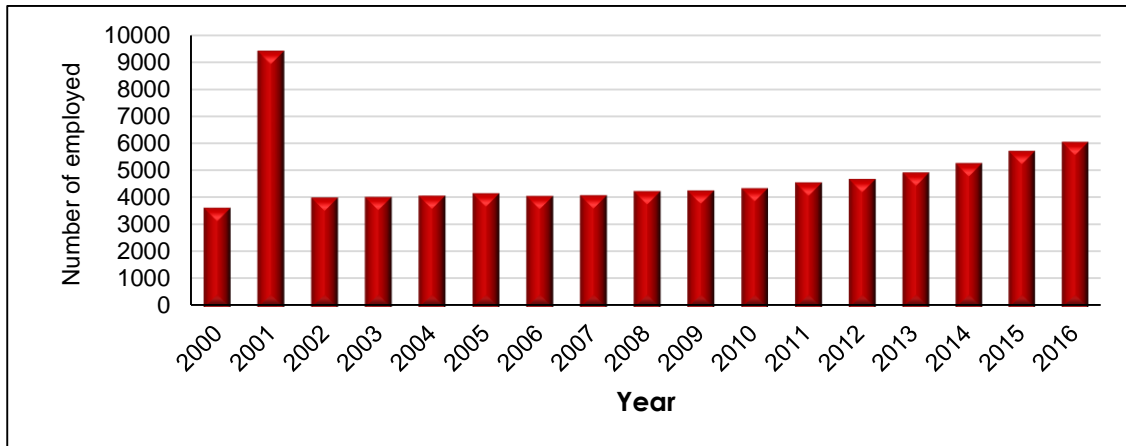


Figure 5: Employment in informal sector

b. Unemployment

Blouberg experienced high unemployment rate in the sector in the early 2000, which averaged 40%. Lepelle- Nkumpi was at 36% while Polokwane and Molemole were at 27% rate compared to the two. However, in 2010 there was a significant decline in unemployment level to an average of 26%. In the municipality, the unemployment level had declined from 37% in 2000 to 22, 6% in 2016. The decline occurred at the same time with the decline in population.

3.5.4 Education

Education levels are directly linked to employment and income levels as well as the community's awareness of good waste disposal practices. The education levels for the municipality are low. Only seventy seven percent (77%) of people attending school are at Pre-Grade 12 level, and a small number of people attend post matric studies. The level of education attained I the Blouberg municipality is illustrated in **Figure 6** below.

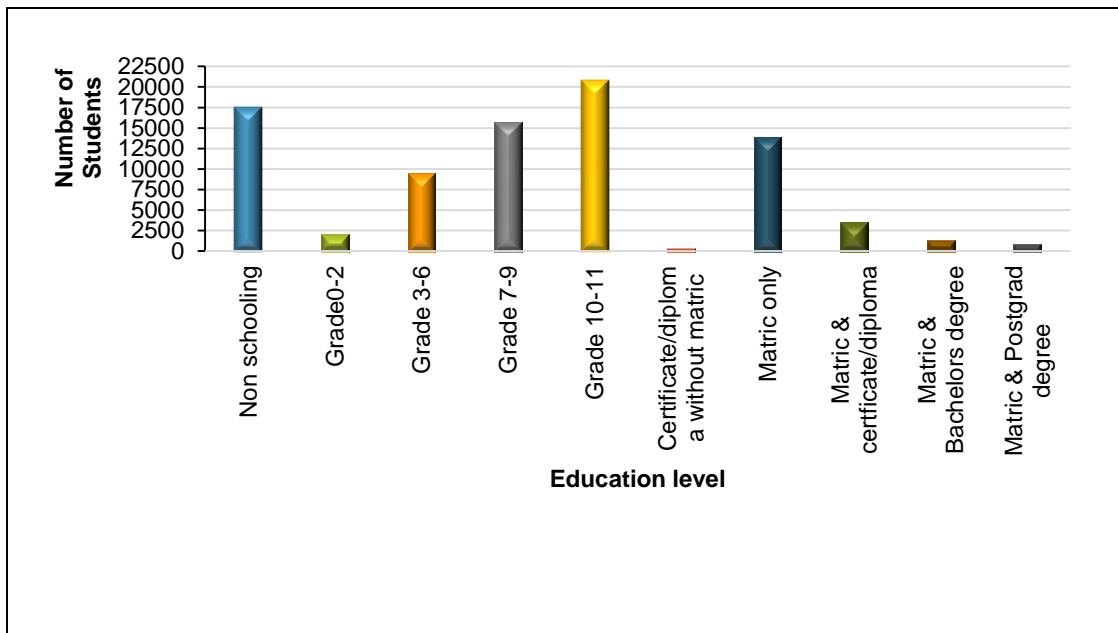


Figure 6: Attained Education (Source: IDP 2019/2020)

3.6 Waste quantities and types

The Municipality must determine the quantities and the types of waste generated in its area of jurisdiction. This involves establishing the current quantities of waste generated, recycled, treated and disposed of. Waste quantities are usually measured by mass (kilograms or tons).

This information was collected from the following sources:

- Municipal Waste officials – 3-4 February 2020
- IDP and municipal records (IDP 2019/2020)
- Waste characterisation (Conducted on 4 February 2020)

3.6.1 Waste Generation

Waste generation quantities can be calculated using the following three methods:

- *Option 1: Weighbridge* - Using a weighbridge the municipality must record the amounts of waste entering its waste disposal facility, by weighing the vehicles at the point of entry and again on the way out. The difference in the mass of the vehicle between the 'in' and 'out' provides the mass of the waste.
- *Option 2: Without a weighbridge* - municipality can estimate the amount of waste generated by using a volume density-based estimation. This requires accurate records.

- *Option 3:* Sampling or conducting a waste stream analysis at a household/Ward level Waste stream analysis or a waste audit can be conducted by selecting a representative sample of an area which should at least comprise of 30 % of the total sample area. In residential areas, these could be households from different Wards in order to ensure inclusivity and representation. Once that is known, the participating households can then be provided with receptacles and these could be different coloured plastic bags such as a black bag for mixed waste and a clear bag for recyclables. The participating households could also be provided with instructions/ training on the objectives of the study, what is required of them and how the audit will be carried out.

The municipality is currently using the Option 1 method mentioned above to determine the waste generation rates for the area. The weighbridges should be regularly calibrated and well maintained to ensure that they are functional to ensure efficient and more accurate billing system for effective monthly billing.

3.6.2 Waste Generation per Capita

The report conducted by Statistics South Africa of 2017 has revealed a decline in the number of people living below the food poverty line between the years 2000 and 2016. Therefore, the estimated waste generation value is taken as 0.41kg per capita per day. The Municipality between 2000 and 2016 had a decline in its population. For the purposes of calculating waste generation figures a zero percent population growth was used. Therefore, the current population figure is estimated at 175,753 (Source: Community Survey 2016 and IDP 2019/2020) with a total waste generation figure of 26 301 tons per annum. The calculation is shown in the following Table 2.

Table 2: Current waste generation figures

Year	Population Growth (%)	Population	Per Capita Waste Generation (kg/ca/day)	Total/Day (ton)	Total/Month (ton)	Total/Annum (ton)	CUM (ton)
2016	0.00%	175753	0.41	72	2192	26301	26301
2017	0.00%	175753	0.41	72	2192	26301	52603
2018	0.00%	175753	0.41	72	2192	26301	78904
2019	0.00%	175753	0.41	72	2192	26301	105206
2020	0.00%	175753	0.41	72	2192	26301	131507

3.6.3 Future Waste Generation Rates and Quantities

With the assumption that the future population growth rates and growth estimates remained constant for the next 10 years and the per capita waste generation rates also remained constant then results would be as follows:

Table 3: Future population figures and waste generation rates

Year	Population Growth (%)	Population	Per Capita Waste Generation (kg/ca/day)	Total/Day (ton)	Total/Month (ton)	Total/Annum (ton)	CUM (ton)
2016	0.00%	175753	0.41	72	2192	26301	26301
2017	0.00%	175753	0.41	72	2192	26301	52603
2018	0.00%	175753	0.41	72	2192	26301	78904
2019	0.00%	175753	0.41	72	2192	26301	105206
2020	0.00%	175753	0.41	72	2192	26301	131507
2021	0.00%	175753	0.41	72	2192	26301	157809
2022	0.00%	175753	0.41	72	2192	26301	184110
2023	0.00%	175753	0.41	72	2192	26301	210411
2024	0.00%	175753	0.41	72	2192	26301	236713
2025	0.00%	175753	0.41	72	2192	26301	263014
2026	0.00%	175753	0.41	72	2192	26301	289316
2027	0.00%	175753	0.41	72	2192	26301	315617
2028	0.00%	175753	0.41	72	2192	26301	341919
2029	0.00%	175753	0.41	72	2192	26301	368220
2030	0.00%	175753	0.41	72	2192	26301	394522
Total for 10 Years (ton)						394522	

The above results show that if the current population and waste generation trend remains constant in the next 10 years the municipality will produce a total of 394 522 tons of waste for which they will have to make provision for in terms of waste disposal site airspace, transport, and personnel.

Note: The above figure does not take into account any possible recycling, reduction or reuse initiative the Municipality is likely to put into place in the near future which could reduce the final disposal to waste disposal site volume.

3.6.4 Waste Type Analysis/Characteristics

The following is a short description of the waste characterisation methodology followed in the execution of the project:

A site visit to the Blouberg Local Municipality was undertaken from 3 to 4 February 2020. The waste characterisation was conducted on 4 February 2020, at the materials recycling shed area adjacent to the Senwabarwana landfill site.

To achieve the waste stream characterisation of the waste generated in the Municipality, the Guideline for the development of Integrated Waste Management Plans (IWMPs) was used.

The methodology applied was as follows:

Samples were collected from three areas within the municipality. The waste stream analysis was calculated by collecting three samples from High, Medium and low-income areas from both sampling areas (85ℓ bin/black bag were used as a standard).

The local municipality was requested to collect the 85ℓ black bags from the above areas and deliver them to a central point for sorting. To ensure that a standard was maintained, 6 bags from each area were used. In some cases.

The black bags were opened, sorted into the different waste fractions and weighed.

For the composition of the waste stream, the waste body was divided into 7 categories that include both recyclable and non-recyclable material. They included builders' rubble, plastics, paper, glass, organic waste, metals (tin), and non-recyclables.

The data was captured for each sample from the low, medium and high-income areas, and related as a total to give a presentation of the total waste stream of the municipality. This will provide an indication of the potential to recycle waste and to divert recyclables from being landfilled.

From the above samples taken, the results were as follows:

High Income areas- Service areas covered- CBD- Business

Table 4: Mass of various waste types – High Income Area samples

Type of waste:	Amount of waste in Kg	Percentage
Paper	5	11%
Plastics	23	53%
Glass	0	0%
Card Boxes	7	16%
Metal (Tins)	2.5	6%
Green Waste	3	7%
builders' rubble	0	0%
Non-recyclables	3	7%
Total	43.5	100%

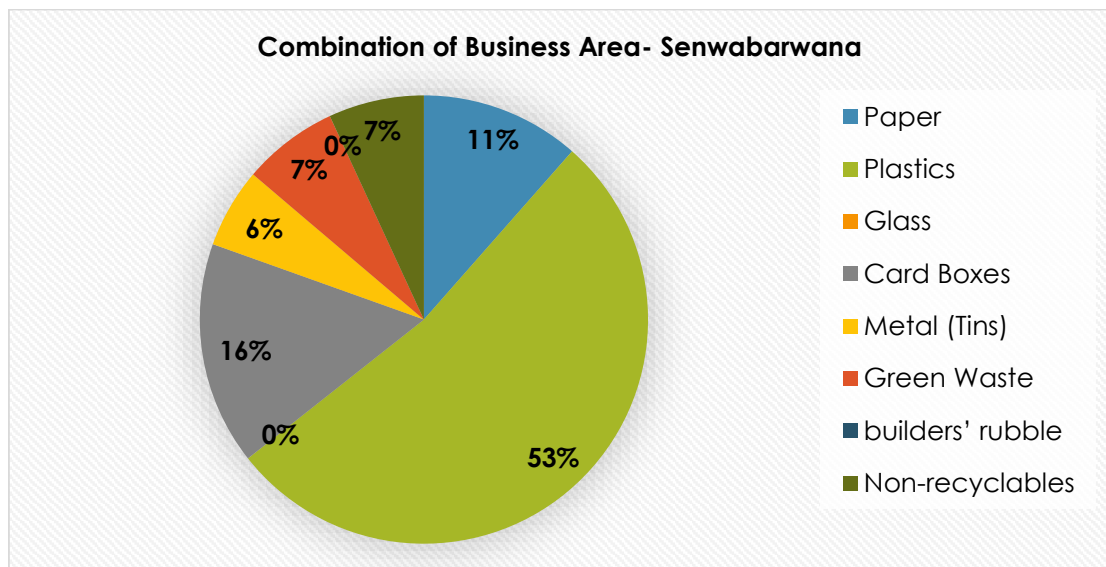


Figure 7: Waste stream summarisation of the High-income areas- CBD- combination Business.

Medium Income areas- Service areas covered- Township, Extension 5 of Senwabarwana

Table 5: Mass of various waste types – Medium Income Area samples

Type of waste:	Amount of waste in Kg	Percentage
Paper	4	6%
Plastics	12.5	20%
Glass	17.5	28%
Card Boxes	6	10%
Metal (Tins)	3	5%
Green Waste	16	26%
builders' rubble	0	0%
Non-recyclables	3.5	6%
Total	62.5	100%

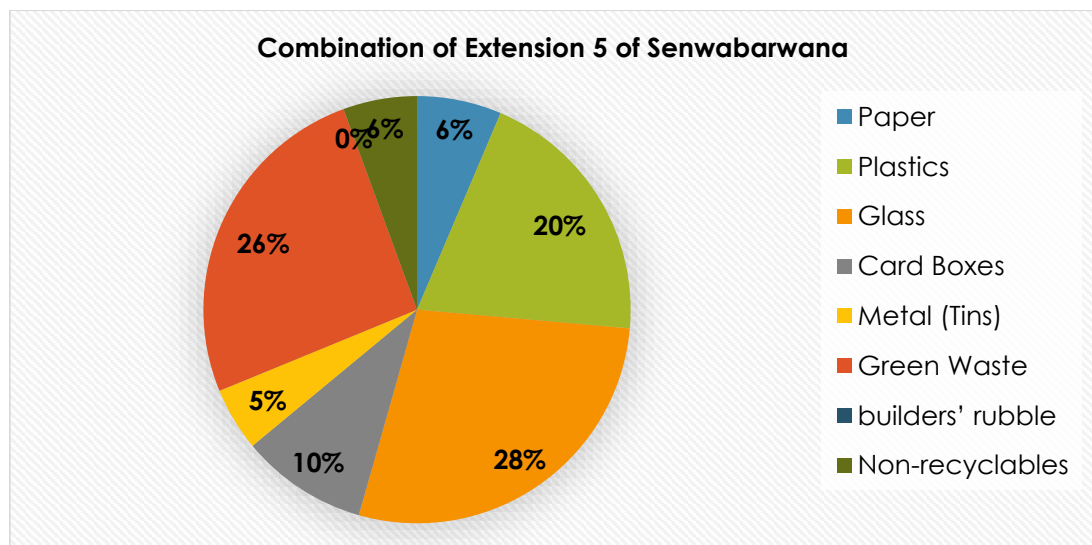


Figure 8: Waste stream summarisation of the Medium-income areas- Township, Extension 5 of Senwabarwana.

Low Income areas- Service areas covered- Phase A- Senwabarwana

Table 6: Mass of various waste types – Low Income Area samples

Type of waste:	Amount of waste in Kg	Percentage
Paper	3.5	6%
Plastics	10	17%
Glass	7	12%
Card Boxes	4	7%
Metal (Tins)	12	21%
Green Waste	18	31%
builders' rubble	0	0%
Non-recyclables	4	7%
Total	58.5	100%

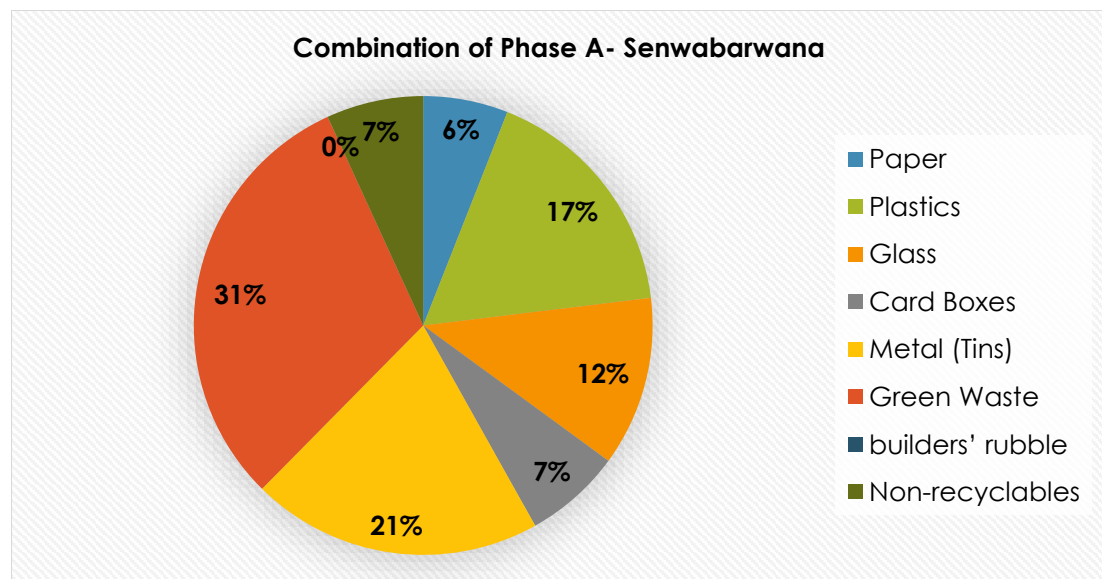


Figure 9: Waste stream summarisation of the Low-income areas- Phase A- Senwabarwana.

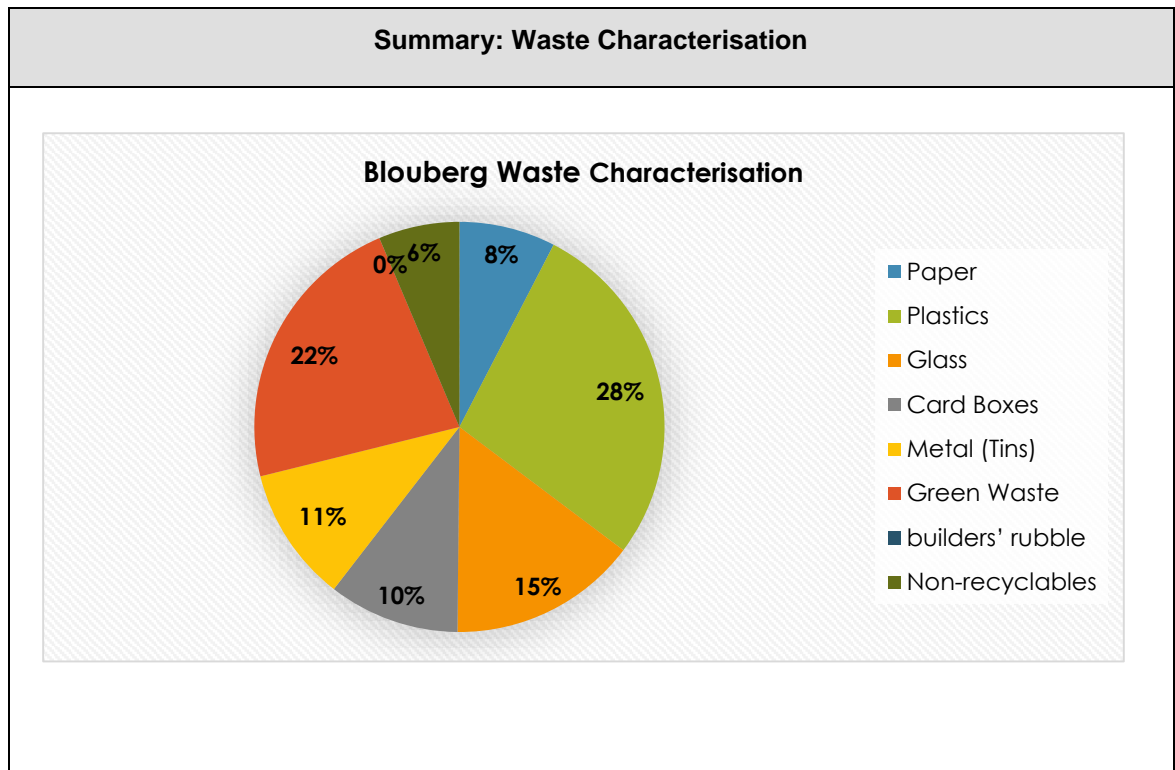


Figure 10: Summary: Waste Characterisation

Figure 10 shows that the typical waste stream for the Municipality consists mainly of plastic material (28%). Green waste (with garden and putrescible waste) is significant as well, which contributes 22% in the waste stream, and builders' rubble being the least of the waste streams (0%). The total amount of recyclables present in the waste body is approximately 71%. It is the responsibility of the municipality to prioritise the packaging stream (paper, plastic and glass), as they also need so see the potential for significant job creation from this material. From the above waste characterisation study, it is evident that a large percentage of waste can be diverted from landfilling.

Please note that the summary provided above represents the characterisation of the waste samples taken on that specific day but could differ from time to time.



Figure 11: Collecting waste from different income areas



Figure 12: Weighing the recyclables after they were sorted into different categories



Figure 13: Sorting waste into recyclable categories in black bags

3.6.5 Industrial and Mining Waste

The Municipality does not collect hazardous, industrial or mining waste. The possibility of hazardous industrial or mining waste disposal on the municipal waste disposal site is therefore irrelevant. During site visits no hazardous, industrial or mining waste was observed on the municipal waste disposal sites. Venetia mine has its own private waste disposal site for the disposal of General Waste, while any hazardous waste is stored for removal and disposal at the Holfontein Hazardous Waste Disposal Site in Gauteng.

3.6.6 Health Care Risk Waste

With regard to this IWMP, the responsibility of the Municipality is to ensure that no HCRW is disposed of on the municipal waste disposal sites.

Helen Franz is the only hospital in the municipality while Ratšhaatšhaa and Blouberg are health centres. During site visit and interviews with staff members, it was mentioned that there are two kinds of wastes that are generated by the Health facilities, namely:

- Solid Waste
- Medical waste

All HCRW is collected by private companies on a monthly basis. Health care risk waste is collected by a private company for disposal in Gauteng. The municipality should be aware of where the HCRW is disposed of in Gauteng and therefore some form of record keeping should be enforced by the municipality.

The general waste produced at the medical facilities is collected by the municipality and disposed of at the existing waste disposal facilities. Personnel at the clinics and hospitals need to be trained to improve waste management and recycling within the clinics and hospitals in the municipal area.

3.7 Recycling, treatment and disposal

3.7.1 Recycling

Currently the Municipality has a partnership with PEACE (Planning, Education, Agriculture, Cooperatives and Environment) Foundation to deal with waste management issues. The foundation is an organisation that focuses at alleviation of poverty in rural areas of South Africa. A recycling buyback centre (in Senwabarwana) was initiated as a community project, to facilitate collection, sorting and selling of waste. At this centre, organic waste is not accepted, only dry solid waste is collected and sorted. This is for the reason to limit potential contamination from wet waste and to prevent potential risk to human health since no measures are in place to mitigate any negative impacts. Collection of waste includes the use of trolleys that are pushed on foot and donkey carts covering an 8km radius (Chisango, 2017). The temporary storage and the collection of waste are important aspects in recycling. Five donkey wagons and 1.5-tonne truck and trailer had been purchased to aid the waste collection process, for the recycling centre (Chisango, 2017). The use of both the donkey wagons and trolleys adds an environmentally friendly aspect to the project as they do not require fuel which contributes to the greenhouse effect and global warming. Municipal collection service system is also used to bring in collected waste from the Senwabarwana dumpsite to the recycling centre. Waste material is sorted according to different types such as paper, plastic and cans and then it is baled to be sold on site. Ablution facilities at

the buyback centre are in good condition. This is important as contamination of the environment and health hazards to human are limited. There are no proper washing facilities for the materials and any materials that require washing. It is required that adequate waste washing facilities are set up. The recycling buyback centre makes use of the donkey carts to collect waste in some of the wards that have a backlog. Waste that is not being collected by the Municipality can be collected by the community itself and brought to the recycling centre in exchange for cash. Recyclable materials collected have increased considerably owing to the use of the carts, and if further implemented on a larger scale, this can even address the problems the Municipality faces in waste collection. All waste collection methods are aimed at increasing waste volumes that can be sold at the center, thereby increasing the viability of the recycling center as a central hub of economic and social development. In the process, jobs are created in the informal waste collection sector and livelihoods are sustained through buying and selling waste.

A Recycling Reduce and Re-Use initiative is being implemented at Alldays and Senwabarwana. Fifty (50) drums have been mounted in both Senwabarwana and Alldays as a form of mitigating littering from the regulated community. Informal reclamation activities are evident on the waste disposal sites. The extent of reclamation is however not known as no records are kept of material volumes removed from the waste disposal sites.

3.7.2 Garden Refuse

Limited volumes of garden refuse were observed at the waste disposal sites. At the Senwabarwana landfill site, the contractor provided weighbridge data that indicates that approximately 120kg of garden refuse is disposed of per month. No volumes could be obtained from the Alldays landfill site and very little of garden waste was observed during the day of the inspection.

3.7.3 Treatment and Disposal

The municipality should keep a record of waste disposal facilities under their area of jurisdiction and should indicate the status of these waste disposal facilities (i.e. whether they are licensed or unlicensed) including treatment facilities for hazardous waste (even if they are owned and operated by the private sector). The municipality is required to ensure that waste is properly managed and disposed of according to waste license conditions. It is also important that municipality must establish the size of its waste disposal facilities; the anticipated lifespan and/ or available airspace, types and quantities of waste disposed, and should take note of whether these are operated in a sound and environmentally acceptable manner. The Municipality has six general workers responsible for the refuse collection, who are complemented by two hundred EPWP participants who are not permanently employed by the municipality.

3.7.4 Waste disposal sites

The Municipality has jurisdiction over two landfill sites in Alldays and Senwabarwana. A waste transfer station at Taaibosch has been completed.

3.7.4.1 Alldays landfill site

The Alldays waste disposal site is permitted/licenced (Permit number B33/2/325/5/P87, dated 5 October 1993) (**Appendix C**). The waste disposal site is experiencing operational problems in varying degrees, but mainly as a result of uneducated personnel as well as interference by uncontrolled reclaiming activities on daily operations. There are two General workers at the Alldays landfill, and no specific operator/contractor designated to operate the landfill. One operator from the Eldorado satellite office assists in this regard.

The areas serviced by the Alldays landfill site are:

- Alldays
- Grootpan
- Longden
- Taaiboschgroet
- Devrede
- Kroemhoek
- Eldorado
- Mmotlana
- Burgerrecht

The site is not covered daily and wind-blown litter, vectors, dust and odours are common concerns.

Provision for the upgrade of the waste disposal (construction of phase 2) was made on the MTERF budget for 2019/2020 for the amount of R15,000,000 through Municipal Infrastructure Grant (MIG). The upgrade will include a weighbridge, proper access control, fencing, ablution facilities, new disposal cells and recycling areas. An updated license application will have to be prepared and submitted to the Competent Authority. The only equipment present on site is one landfill compactor to utilise during site operations which is owned by the municipality. Site personnel should be educated to ensure the proper operation of the Alldays waste disposal site according to license conditions.

The status of the Alldays Waste disposal site is summarised below in Table 7 and depicted visually in the subsequent photo gallery (Figure 14 to 21):

Table 7: The status of the Alldays Waste disposal site

Position of site:	22°38'58" S 29°7'4"E
Permit/License:	Yes (B33/2/325/5/P87, dated 5 October 1993)
Year issued:	1993
Classification of site:	Class G
Type of Operation (end – tip, trench, cell):	No proper method followed – haphazard disposal
Estimated size of site:	10Ha
Evidence of waste being burnt on site	Yes
Estimated remaining life of site:	At least 15 years, new cell will be constructed
Separation of fresh and contaminated water:	No
Groundwater monitoring:	No
Estimated Volumes per day, week or month:	Approximately 72 tons per day, estimated, weighbridge not operational.
Is cover material available?	No
Reclamation activities on site	Yes
Is the drainage sufficient?	No
Is there access control?	Yes
Is the site fenced?	Yes
Does the site have a sufficient buffer zone?	Yes
Type of equipment utilised on site:	1x Landfill Compactor, 1 x tractor
Operating hours:	No noticeboard to indicate operating hours, open during daytime (7:00am - 5pm- Monday to Sunday) with full time security
Site facilities, i.e. ablutions, guard house:	Yes (Admin Office, Weighbridge control house and Waste drop off area).

Estimating cost for closure:	No estimate regarding closure exists. There is currently no savings plan in place for the closure of the site.
Savings plan for closure:	



Figure 14: Alldays Waste disposal site entrance







Figure 15: Guard house at Alldays waste disposal site



Figure 16: Weighbridge control house and non-operational weighbridge at waste disposal site



Figure 17: Reclaimers on waste disposal site

	
<p>Figure 18: Haphazard disposal of waste</p>	<p>Figure 19: Haphazard disposal of waste</p>
	
<p>Figure 20: Admin Block at waste disposal site</p>	<p>Figure 21: Waste drop off area</p>

3.7.4.2 Senwabarwana landfill site

The Senwabarwana waste disposal site is licenced (Licence 12/4/10 – B/10/C4, dated 24 April 2013) (**Appendix D**). The site is operated by a contractor (Ingwe Waste Management), who is responsible for maintaining and managing the landfill site, on a 36-months period contract. The contractor reports on the status of the Senwabarwana landfill site on a monthly basis. The reporting entails potential issues that may arise in the day-to-day operation of the site. Areas serviced by the landfill site are: Senwabarwana, Borkum witten, Avon, Puraspan, Indermark and Inveraan.

The landfill site includes a recycling shed, which is operated by 2 private companies, namely, Ntshabeleng Waste Management and Green valley. The landfill site personnel consist of:

- 2 Gate controllers
- 2 Site controller/supervisor
- 1 Spotter
- 1 Weighbridge operator
- 2 General workers

The status of the Senwabarwana disposal site is as follows:

Table 8: The status of the Senwabarwana disposal site

Position of site:	23°16'28" S and 29°05'60"E
Permit/License:	Yes (12/4/10-B/10/C4)
Year issued:	2016
Classification of site:	Class G:M:B- (Class B)
Type of Operation (end – tip, trench, cell):	Cell method
Estimated size of site:	20 Ha
Evidence of waste being burnt on site	Yes
Estimated remaining life of site:	40 years
Separation of fresh and contaminated water:	Yes
Groundwater monitoring:	Yes
Estimated Volumes per day, week or month:	Approximately 268 tons per month. (Approximately 6.5 tons of this volume is being recycled monthly)(Ref: Monthly weighbridge report)
Is cover material available?	Yes
Reclamation activities on site	Yes
Is the drainage sufficient?	Yes
Is there access control?	Yes
Is the site fenced?	Yes

Does the site have a sufficient buffer zone?	Yes
Type of equipment utilised on site:	1x Landfill Compactor Water tanker Tractor TLB Tipper Truck
Operating hours:	7:00 am-5pm- Monday to Sunday
Site facilities, i.e. ablutions, guard house:	Yes (Admin Block, Weighbridge control house, guard house, Recycling shed and Ablution facilities).
Estimating cost for closure:	No estimate regarding closure exists. There is currently no savings plan in place for the closure of the site.
Savings plan for closure:	



Figure 22: Senwabarwana waste disposal site entrance



Figure 23: Rates information signage at Alldays waste disposal site



Figure 24: Weighbridge and weighbridge control house at waste disposal site



Figure 25: Recycling shed at the waste disposal site



Figure 26: Reclamation activities at the waste disposal site



Figure 27: Green waste at waste disposal site

	
<p>Figure 28: Administration Block at waste disposal site</p>	<p>Figure 29: Working Phase at the disposal site</p>
	
<p>Figure 30: Leachate dam of the disposal site</p>	

3.7.5 Transfer Stations

The Municipality has a waste transfer station at Taaibosch (22°50'26.142"S 28°53'42.132"E). The transfer station is not yet operational, and the designs of the site are not adequate for the designated purpose. Facilities such as water and electricity are available, however, the design does not include an off-ramp to offload waste and there are no skip bins. A waste management team is not in place and there are no waste removal trucks/ equipment to service the transfer station. With the current design of the transfer station, it would be ideal to upgrade the transfer station to rather be used as a Materials Recycling Facility. The upgrade of the current transfer station will require a large number of resources and additional equipment to be fully utilised as transfer station and materials recycling facility, thus an increase in costs. Alternatively, the

transfer station can be used as a materials recycling facility on its own in the interim, since lesser capital will be required.

The transfer station is designed to service the following areas:

- Grootpan,
- Longden,
- Taaiboschgroet
- Devrede,
- Kroemhoek,
- Eldorado,
- Mmotlana,
- Burgerrecht



Figure 31: Taaibosch Waste disposal site entrance



Figure 32: Guard house at Taaibosch waste disposal site



Figure 33: Ablution facilities at Taaibosch Transfer Station



Figure 34: Vandalised Fence at Taaibosch Transfer Station



Figure 35: Vandalised Fence at Taaibosch Transfer Station



Figure 36: Illegal disposal of waste at waste Taaibosch Transfer Station



Figure 37: Under roof shed area at transfer station

3.8 Status of waste collection services

3.8.1 Service Area and Refuse Collection

The Blouberg Municipality is rendering a waste collection service in ten settlements on a weekly basis while the towns of Alldays and Senwabarwana receive the service on a daily basis.

The table below reflects the ward waste removal service that is rolled out with the existing backlogs:

Table 9: Ward Waste Removal Service rolled out with the existing backlogs

Ward	Available	No of Households	Backlog in terms of Villages within the ward
1	0		11
2	0		7
3	0		6
4	0		9
5	0		7
6	0		5
7	0		6
8	1 Dilaeneng	1021	6
9	0		6
10	1 Avon up to Dikgomo	2979	0
11	0		6
12	1 Indermark up to Dikgomong	2136	0
13	2 (Burgerught and Motlana)	554	5
14	0		7

Ward	Available	No of Households	Backlog in terms of Villages within the ward
15	2 (Kromhoek and Devrede)	3650	0
16	0		5
17	2 (grootpan and Longden)	1200	6
18	2 (Taaibosch and Alldays)	2967	0
19	Senwabarwana Town, Desmond Park Extension 5, Witten	4037	0
20	0	0	8
21	0	0	10
22	0	0	5
Total	14	18544 of 41416 households	109 (24679 households)

The table 10 below reflects Ward Waste Removal Service Roll out in the Municipality.

Table 10: Ward Waste Removal Service Roll out in the Municipality

Ward	Available	No of Households	Backlog in terms of Villages within the ward
1	1 (Raweshi), including mining area	165	10
11	1 (Machaba)	1670	0
16	1 (Eldorado)	1234	7

Ward	Available	No of Households	Backlog in terms of Villages within the ward
19	2 (Senwabarwana Town, Desmond Park Extension 5, Witten)	4037	0
21	1 (Tolwe)	156	9
Total		5762 households	

Source: IDP 2019/2020

The Municipality has capacity constraints that involves lack of resources (financial and human) to roll out the service to the entire municipal area. Available pant and personnel are not enough to render the service for all areas.

Blouberg Municipality renders the refuse removal service in 18 settlements with the, households serviced standing at **18 544 (45%)**. The backlog is **22 872 (55%)**. Challenges are funding for roll out of the refuse service to all settlements.

3.8.2 Service and Receptacles provided

The Municipality makes use of a black bag system as receptacles within the municipal area. The service provided is summarised below in Table 11 per region along with detail of the structuring of each region.

Table 11: Service provided for Alldays Local Municipality

Settlement	Receptacles	Frequency of Service	Availability of Landfill
Senwabarwana	Refuse bags and Concrete bins in the CBD area	Daily	Yes, but not fully compliant
Alldays	Refuse bags	Daily	Yes, but not fully compliant
Dilaeneng	Refuse bags	Weekly	None
Witten	Refuse bags	Weekly	None
Machaba	Refuse bags	Weekly	None

Settlement	Receptacles	Frequency of Service	Availability of Landfill
Marobyane	Refuse bags	Weekly	None
Indermark	Refuse bags	Weekly	None
Ga-Makgato	Refuse bags	Weekly	None
De Vrede	Refuse bags	Weekly	None
Ga-Mamadi	Refuse bags	Weekly	None
Modimonthuse	Refuse bags	Weekly	None
Sebalamakgolo (Grootpan)	Refuse bags	Weekly	None

3.8.3 Frequency of street cleansing

The frequency of street cleaning and cleaning of public toilets is indicated in Table 12 below:

Table 12: Street cleaning services in Blouberg Local Municipality

Area	Frequency of street cleansing	
	Frequency of service: Households	Frequency of service: Businesses
Town: litter picking:	2-3 times a week	Weekly
Town: Street sweeping	2-3 times a week	Weekly

3.8.4 Collection Needs

Blouberg Municipality renders the refuse removal service in 18 settlements with the, households serviced standing at 18 544 (45%). The backlog is 22 872 (55%). Challenges are funding for roll out of the refuse service to all settlements.

This is due to remote locations of household and poor infrastructure limiting the municipality's ability to service all areas.

3.8.5 Equipment

The correct type and numbers of vehicles which is required to effectively deliver waste management services is a major contributing factor for the Municipality to ensure operative and efficient waste service delivery.

There is a total number of 4 vehicles at the Waste Depot of the Municipality. Of the 2 compactor trucks, only 1 of these vehicles is operational, while the other is faulty. Table 13 provides details

of the specific vehicles that Municipality uses for its daily operational waste management requirements. It is evident that the vehicles required for waste service delivery are not performing optimally as many of the vehicles requires service and maintenance.

Table 13: Waste vehicles used in the Municipality

Type	Make	Registration Number	Condition of vehicle
Waste Compactor	Nissan UD90	BVM 392 L	Old
Waste Compactor	Nissan UD90	DGS 882 L	Old
Tractor	Massey Ferguson (2000)	CPH 621 L	Old

According to the vehicle's registration number, it seems as if the vehicles are older than 14 years and will have to be replaced in the near future. The Municipality owns all equipment and vehicles listed above and all vehicles are maintained and serviced by the Municipal workshop.

The Municipality has a few waste management vehicles but is in a severe shortage of equipment for both collection and waste disposal site operation. There is only one landfill compactor and one tractor at the respective landfill sites (Alldays and Senwabarwana landfill site). The Municipality is responsible for the maintenance of their own vehicles. Other equipment used at the Senwabarwana landfill site is owned by the appointed contractor and all in good condition.

Based on the above assessment of the vehicle fleet, the Municipality should compile a vehicle replacement plan to ensure that future planning for the replacement of the vehicles is done at the appropriate time. The actions to be taken by the Municipality to address the collection fleet for service delivery and compile a vehicle replacement plan will be addressed in Phase II of this study i.e. compiling the draft IWMP.

Below illustrates some of the vehicles used within the Municipality (Figure 38-43) below:



Figure 38: Rear End Loader used for waste collection within the Municipality



Figure 39: Tipper Truck used for site operations at the waste disposal site



Figure 40: Landfill Compactor at Senwabarwana waste disposal site



Figure 41: Landfill Compactor operational at Senwabarwana waste disposal site



Figure 42: Tractor with cart used within the Municipality



Figure 43: Water tanker used at the disposal site

3.9 Financing for waste management

The Municipal Systems Act, Act no. 32 of 2000 (Chapter 8, ss73-86A) requires that municipalities must ensure proper budgeting in order that they are able to deliver on their Constitutional mandate with regards to the provision of waste services. In order for a Municipality to successfully implement its IWMP, it is important to establish the current available resources in terms of finance; human resources, technical skills to deliver on the Municipality's mandate and to implement the goals and targets contained in the plan i.e. development of by-laws and lastly, funding for operational and maintenance costs for equipment for the effective delivery of waste services and establishment of waste disposal facilities. Further, financial management/budgeting is key as it will assist in identifying future resource needs i.e. if there is an increase in the number of households requiring waste collection services what additional resources will be required to deliver the service.

Funding mechanisms that are currently being utilized in the Blouberg municipality for waste management other the allocation on the municipal budget include equitable shares and incentive grants.

3.9.1 Current Tariff Structure for Waste Collection

The Municipality provides a refuse collection function and owns a fleet of refuse compactors in this regard. The mechanical workshop also maintains the municipal fleet.

The tariff structure for the waste collection function is as follows:

Table 14: Waste Collection Tariffs

Item	Current Tariff	Revised Tariff
Residential Refuse (per month) for one removal per week	R40.00	R42.50
Business refuse (big businesses)	R 1,690.00	R 1,791.50
Bulky refuse (building refuse excluded) refuse that cannot be stored in or taken out scribed plastic bag due to its	R 848.00	R 899.00

Item	Current Tariff	Revised Tariff
mass or size per load or a portion thereof per month		
Bulky refuse. Daily collection of industrial bins supplied by the municipality.	R 190.00 per industrial bin.	R 201.50
Removal of rubble. (per load as prescribed or to be billed with water & lights accounts end of month)	R 1,060.00	R 1,124.00
Bona fide sport clubs for one removal per week	R 132.50	R 140.50
Refuse dumping per week	R 588.00	R 623.50
Garden refuse removal arising from normal gardening activities e.g. moving of lawns, sweeping- on request, after prepayment of amount for a load	R 465.00	R 493.00
Garden refuse removal arising from normal gardening activities e.g. moving of lawns, sweeping- refuse stickers per bag	R 93.00	R 99.00
Clearing of erven is as a tender price tendered plus 15% admin cost, on request, payable to the owner of the site	R 638.00	R 676.50

Item	Current Tariff	Revised Tariff
Refuse removal (Government) Businesses (medium) i.e. Surgeries	R 1,690.00	R 1,91.50
Survivalist Businesses (Small) sewing, welding, salons.	R 848.00	R 899.00
Refuse removal in Schools	R 350.00	R 371.00
	R 848.00	R 899.00

All refuse removals services have increased by 6% in July 2019. The escalation is due to the economic conditions

Refuse removal tariffs are cost reflective and tariff increases are basically incremental, based on the required revenue to cover the costs and contribute towards the rates revenue.

Currently, the municipality is experiencing challenges collecting tariffs for waste collection, and there are no strategies in place to facilitate the collection of tariffs.

The final approved budget for 2018/2019, 2019/2020 and 2020/2021 for standard waste collection services is as follows:

Table 15: 2018/19, 2019/20 and 2020/2021 Revenue budget for standard waste collection

Revenue (Waste Management)	2018/19 (R)	2019/20 (R)	2020/21 (R)
Service Charges	534,000.00	742,000.00	786,520.00

The municipality has a limited revenue base, because the majority of the inhabitants are indigents. Therefore, the municipality is grant dependent.

3.9.2 Indigent Household Waste Collection

The Municipality has adopted a Free Basic Services Policy for 2019/2020, to commence on 1 July 2019 (see **Appendix A**).

According to this Policy indigents registered receive a Free Basic Refuse removal service that is 100% subsidised on collection of refuse. The service entails a waste collection service at least once per week or the removal of a bulk refuse container placed within an area.

Households earning a joint income of not more than **R 3 560** per month (proof of pay slips/copy of recent bond statements required), qualifies for free basic services in terms of the policy.

3.9.3 Budget Waste Management: Refuse Removal

The budget for refuse removal for 2019/2020 up to 2021/2022 is as follows:

Table 16: Budget: Refuse Removal

Activity	2019/2020	2020/2021	2021/2022
Waste Management: Refuse removal	534,000	742,000	786,520
Inter: Received Waste Management	50,000	53,000	56,180

Source: Final Reviewed 2019/2020 IDP/Budget

3.9.4 Three Year Capital Works Plan Expenditure

This section provides a picture of the capital investment projected for Medium Term Revenue and Expenditure Framework (MTREF). This provides ward residents with an opportunity to clearly see the progress of capital infrastructure works in the ward. (provided only for waste management related projects)

Table 17: Capital Expenditure Budget: Infrastructure

Project Name	Settlement	Implementing Agent/Funder	Budget	Department
Landfill site	Alldays	BLM	R1,500,000	Technical Services
Upgrading of Transfer Station	Taaibosch	BLM	R100,000	Community Services

3.10 Organisational and institutional matters

The organizational structure or organogram in order to determine the available human resources to deliver waste services is attached in **Appendix B**.

The organogram highlights the number of available staff under each section such as staff to perform management duties, planning, waste collection, recycling and disposal, and enforcement etc. Further an organizational structure could potentially be used to evaluate gaps in areas where there are new functions that must be performed in order to fulfil the Waste Act's requirements. From the organogram it is clear that capacity is required to fulfil all waste management and enforcement matters.

The Waste and Environment staff falls under the Community Services directorate.

Waste management staff should be properly trained to carry out their duties and their performances should be monitored periodically.

3.11 Legal matters

3.11.1 Legal Compliance

The municipality's current legal compliance pertaining to waste collection and their disposal facilities is shown on the following table.

Table 18: Legal compliance for the waste management facilities

Waste Management Facility	Licensed / Permitted	Operated according to license conditions or minimum requirements
Alldays Waste disposal site	Yes	Non – compliance
Senwabarwana Waste Disposal Site	Yes	Yes

The Alldays waste disposal site is currently not being operated according to the license conditions, therefore does not comply fully with the applicable legislation and steps will have to be taken to correct this.

3.11.2 Municipal By-Law Pertaining to Waste

The Municipality does not have a set of by-laws pertaining to waste management. DEFF has developed a waste model by-law which the municipality can refer to. By-laws needs to be compiled to set local waste service standards for waste separation, compacting of waste, management and disposal of solid waste, amongst others. The local standards must be aligned

with any provincial and national norms and standards where these exist. The Municipality may also require transporters of waste to register on a list of waste transporters.

In assessing the National Environmental Management: Waste Act, it was evident that clear responsibilities are assigned to each sphere of government in relation to waste management activities.

The following section describes how the by-laws must be drafted according to Chapter 4 Part 6 of NEM: WAA and how the strategic priorities for the disposal of waste needs to be implemented in terms of the regulatory framework provided by NEM: WAA. Chapter 4 Part 6 of NEM: WAA prohibits the unauthorised disposal of waste and requires that where there is no household waste collection service the waste must be disposed of in the most environmentally and economically feasible manner. Section 26(1)(b) requires that waste disposal must be explicitly authorised and accomplished without polluting the environment or harming human health and well-being.

In terms of Section 68(1) of NEM: WAA a maximum penalty of R10,000,000 or a jail sentence of up to 10 years can be imposed for unauthorised waste disposal, depending on the severity of the impact on health and the environment.

Section 27(1) of NEM: WAA provides regulatory instruments focused specifically on littering. It stipulates that private land owners that provide public access to their property must provide suitable receptacles for litter and ensure that it is disposed of (in an authorised manner) before it becomes a nuisance. This is reinforced by Section 27 (2), which prohibits littering of public places by individuals.

In terms of Section 68(2) a maximum fine up to R5,000,000 or imprisonment for up to 5 years can be imposed for littering offences, depending on the severity of the offence.

The waste disposal and anti-littering measures provided in NEM: WAA must be implemented through the aligned by-laws and should be enforced by local law enforcement agencies. These measures should be seen as providing the minimum requirements that need to be implemented in terms of the by-laws.

Proper provision for monitoring, compliance, and enforcement, as well as the role of the Municipal Waste Management Officers (WMOs) should be described in the existing draft by-laws. Their duties should be limited to the regulatory aspects of NEM: WAA, whilst service-delivery should be fulfilled by other waste management personnel.

The responsibilities of the WMO in the Municipality will be as follows:

- Stakeholder management in relation to implementation of NEM: WAA.
- Liaison with Environmental Management Inspector (EMI) compliance monitoring activities in the Municipality.

- Municipal and local IWMP: alignment of planning and reporting cycles.
- Capacity building in relation to NEM: WAA implementation.
- Monitoring adherence to norms and standards in the delivery of waste services.

Chapter 7 of NEM: WAA addresses compliance and enforcement matters and stipulates the powers of the Minister in relation to the NEM: WAA provisions for:

- Preventing and remedying the effects of pollution.
- Rectifying contraventions of NEM: WAA.
- Obtaining a high court interdict against any person contravening the NEM: WAA.

Chapter 7, Section 66 of the Act provides for Waste Impact Reports which can be requested by EMLs in cases where a contravention of the Waste Act is suspected and by WMOs where a review of a waste management license is undertaken.

Section 67 of NEM: WAA lists provisions of NEM: WAA which constitute an offence if not complied with. The penalties for the offences are listed in section 68 of NEM: WAA, as mentioned earlier in this section of the report.

Section 6(1)(e) of NEM: WAA requires that the National Waste Management Strategy provides approaches for securing compliance with the provisions of NEM: WAA, including “monitoring of compliance”. Effective capacity to undertake compliance monitoring and the concomitant action where required is essential for the achievement of the objectives of NEM: WAA.

Chapter 7 of the National Environmental Management Act, 107 of 1998 (NEMA) provides for Environmental Management Inspectors (EMIs) to be designated by the Minister and MECs. EMLs are situated at all three levels of government. A key principle to inform the allocation of responsibilities is that an institution cannot police itself. A principle specifically relevant to the Municipality is that in circumstances where the NEM: WAA act regulates or controls issues that are typically covered by the by-laws and that fall within the competence of the local Municipality (e.g. public nuisance/cleansing), these issues needs to be dealt with by the Local Municipality.

The Department of Environmental Affairs, Forestry and Fisheries will develop norms and standards which will be promulgated in terms of Section 7(1) of the Waste Act. The by-laws can refer to these norms and standards which will address norms and standards for the operation, maintenance and reporting requirements for general waste disposal sites that will be built on the existing Minimum Requirements for Waste Disposal by Waste disposal site guidelines.

The Municipality should take cognisance of the indigent policy on the provision of free basic services. Reference to the criteria for qualification should be set out in the by-laws.

Chapter 4 of the National Domestic Waste Collection Standards can be incorporated into the amended by-laws. It addresses separation at source, collection of recyclable waste, receptacles, bulk containers, communal collection points and frequency of collection.

3.11.3 Illegal Dumping

Illegal dumping occurs within the entire municipal area. Lot of littering occurs in the town of Senwabarwana around the CBD mainly because much business activities are taking place there. The Department of Environmental Affairs has trained officials to enforce both by-laws and Environmental Acts around the municipal jurisdictional area, which will ease the situation of non-compliance by the regulated community.

The Municipality has to collect this waste at an unnecessary cost. The Municipality does not have the resources or budget to collect this waste. No strategies to prevent illegal disposal is currently in place.

The Municipality should budget for the purchasing of mass containers/waste skips to place in strategic places and open spaces where illegal dumping is regularly occurring and clean these skips at the local waste disposal site when filled. If illegal dumping still occurs next these skips people must take photos of the offender, where the offender should then be fined, and the ethical person/photographer should be awarded.

It is quite evident that littering and illegal dumping are some of the most common problems in South Africa affecting all provinces. Ineffective waste management practices can affect the well-being of the affected communities and this can be further exacerbated by the increased illegal dumping and littering.

The waste management hierarchy forms the basis for the Waste Act that is given effect through the National Waste Management Strategy (NWMS). Goal 4 of the NWMS is to ensure that people are aware of the impact of waste on their health, well-being and the environment. In addition, implementing the waste management hierarchy requires a shift in consciousness, attitudes and behavioural inclinations of businesses, organisations and households. Awareness raising thus is a critical component to ensure that people are aware of the impact of waste on their health, well-being and the environment.

The DEFF has realized that more efforts are needed if the environment is to be protected from pollution and has decided on a national Good Green Deeds to mobilise every citizen. The aim of the Good Green Deeds is to promote environmental actions that take into consideration sustainable living practices. Therefore, this programmes is the perfect basis to fight the environmental degradation and ensure that our country is free from litter and illegal dumps. The programme is about keeping public spaces clean and tidy.

The Municipality has recognised the need for education and awareness of the people regarding this practice.



Figure 44: Illegal dumping in Taaibosch

3.12 New and future developments

The number of wards and settlements have increased due to 2006 and 2016 Municipal Demarcation process respectively, that has resulted in some villages demarcated into Blouberg Municipality. In the year 2006 the government approved the decision by the municipal demarcation board to incorporate settlements of Vivo, Tolwe, Maastroom, Swaartwater Baltimore Uitkyk No 1 which were in the Makhado Local municipality, Lephalale and Aganang Local municipality (Notice 642, Gazette 1314, December 2006). The disestablishment of Aganang Local Municipality in 2016 resulted in the following villages demarcated into Blouberg Local Municipality; Burgwal, Coopers park, Mankgodi, Terrebrugge, Leokaneng, Pinkie, Sebotse, Rosencrantz, Ngwanallela, Mamehlabe, Boslagte and Prospect.

Project linked houses have been constructed to benefit poor households. A total number of 3640 houses have been constructed to date, in various areas. 140 of the Desmond Park houses are not complete. So, the total figure is 3500 totally complete houses. The municipality is experiencing a challenge of poor workmanship and incomplete work done by some developers. The problem is prevalent in ward 15 ,14 and 05.

4. REVIEW OF THE PREVIOUS IWMP

The previous IWMP for Blouberg Municipality was reviewed. The recommendations from the 2014/15 IWMP of Blouberg Municipality was studied and is displayed in a table below to authenticate that those recommendations were implemented, partially implemented or not implemented.

Table 19: Review of previous IWMP

Recommendation	Implemented	Partially implemented	Not Implemented	Comments
Waste disposal site infrastructure: <ul style="list-style-type: none"> Alldays Senwabarwana 		X		The Alldays waste disposal site is licensed but needs upgrading through license amendment. The Senwabarwana waste disposal site has been completed and put into operations.
Waste Collection Services		X		From no waste collection service in 2004, a waste collection service has been implemented, but backlogs exist.
By-law: <ul style="list-style-type: none"> By-laws 			X	Blouberg LM does not have a set of Waste Management By-laws should be developed.
Equipment Vehicles <ul style="list-style-type: none"> Vehicle Replacement Plan should be developed Replace old vehicles with new vehicles 		X		2 compactor collection trucks and 2 tractors for waste collection. No Vehicle Replacement Plan is in place.
Human Resources <ul style="list-style-type: none"> Personnel Organogram 		X		Vacant positions to be filled and new posts/positions to be created to supplement the waste management staff.

Waste Minimisation Strategies <ul style="list-style-type: none"> Any recycling strategies Any composting strategies 		X		Buyback Centre established and recycling facility at the Senwabarwana landfill. Composting area dedicated for green waste at Senwabarwana landfill, site, although no composting takes place yet.
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5. GAPS AND NEEDS ANALYSIS

After reviewing the 2014/15 IWMP of Blouberg Municipality, certain needs pertaining to the waste disposal service in the Municipality were identified that requires attention. These needs are summarised below.

A number of gaps and needs (Gaps Analysis and Needs Assessment below) are immediately apparent concerning waste management in the municipality. Foremost of these are the challenges presented by the new Waste Act (Act 59 of 2008) and the NWMS 2011.

Below are the headings for the identified gaps and needs in Blouberg LM:

- Legislation and Regulatory Issues
- Institutional and Organizational Needs
- Waste Collection & Municipal Service Delivery Issues
- Waste Minimization and Recycling initiatives
- Technical and Operational Issues
- Waste Management in the Municipality
- Waste Treatment and Disposal Issues
- Waste Management Education and Awareness
- Financial Resources
- Waste Information Management

Table 20: Gaps and Needs: Blouberg Municipality

ISSUES	GAPS AND NEEDS	RECOMMENDATION
5.1 Issues relating to Legislation and Regulations		
5.1.1 National Waste Management Strategy	<p>The Goals and Objectives of the NWMS are not applied with the BLM (Section 3.2):</p> <ul style="list-style-type: none"> • Compliance with licensing standards (Alldays). • No recycling- Alldays 	<ul style="list-style-type: none"> • The obligations and responsibilities as applied to the BLM must be reviewed.
5.1.2 By-Laws	<ul style="list-style-type: none"> • There are no bylaws to manage waste management activities at the Blouberg Municipality 	<ul style="list-style-type: none"> • It is essential that the municipality gazettes by-laws with the following waste management focus areas: <ul style="list-style-type: none"> ○ Provision of access to municipal waste services in areas previously un-served. Free Basic Refuse Removal (FBRR) policy should be considered. The municipality will need to determine in a Phased and Prioritized manner how to include other areas on this service (see also Waste Act Section 9(2) c). ○ The establishment of a waste information system (as per the Waste Act) should be considered. ○ There should be clear description of different waste types and the requirements for the general management the waste in business, residential, industrial, and

ISSUES	GAPS AND NEEDS	RECOMMENDATION
		<p>health care risk facilities in the municipality (to promote separation at source, recycling etc. and to develop municipal standards).</p> <ul style="list-style-type: none"> ○ Obligations for Waste generator (i.e. storage of waste do's and don'ts etc.) ○ Liability to pay for waste services rendered to householders. ○ Bylaw requirements for the transportation and transfer of waste in line with national norms. ○ Provision to control illegal dumping and abandoned articles in Bylaws.
5.1.3 Waste Act	<ul style="list-style-type: none"> • The municipality does not have bylaws related to waste (Refer to Section 9.1 and 9.5 of the Waste Act). 	<ul style="list-style-type: none"> • Municipalities must develop and implement Waste Management Bylaws (See Section 9.1 and 9.5 of the Waste Act).

ISSUES	GAPS AND NEEDS	RECOMMENDATION
	<ul style="list-style-type: none"> There are currently no standards for the management of waste in the municipality (Refer to Section 9.3 of the Waste Act). 	<ul style="list-style-type: none"> The municipality must either set local standards or adopt provincial / national norms and standards for the following activities – <ul style="list-style-type: none"> For the separation, and storage of solid waste collected by the municipal service or disposed of at a municipal waste disposal facility; For the management of solid waste disposed of by the municipality or at a waste disposal facility owned by the municipality, (including avoidance and minimization of the generation of waste and the re-use, recycling and recovery of solid waste); The directing of solid waste that is collected as part of the municipal service or that is disposed of by the municipality or at a municipal waste disposal facility to specific waste treatment and disposal facilities; and Local standards in respect of the control of litter. Develop a standard to inform how recyclable waste from Lodges or Game Camps is handled (including the

ISSUES	GAPS AND NEEDS	RECOMMENDATION
		<p>temporary storage, and removal of recyclable waste).</p> <ul style="list-style-type: none"> Local standards for special events such as soccer matches/community events at any of the proposed or existing sports fields/community halls or centres.
	<ul style="list-style-type: none"> The municipality must review and develop an IWMP (Refer to Section 12.1 of the Waste Act). 	<ul style="list-style-type: none"> The municipality will need to adopt and implement the IWMP and incorporate / adopt these findings in to the municipal IDP for implementation. The municipality will need to report annually on the implementation of the IWMP as specified in Section 13.3 of the Waste Act, and in the prescribed manner as laid out in the Act.
	<ul style="list-style-type: none"> Resources responsible for all matters relating to waste management are available at the municipality, however, the requirements of the Waste Act regarding the designation of a Waste Officer still requires 	<ul style="list-style-type: none"> The municipality will need to designate a responsible Waste Officer from the waste department to be responsible for provisions in line with Waste Act Requirements. This is to include the coordination of waste activities as described in the Act.

ISSUES	GAPS AND NEEDS	RECOMMENDATION
	implementation (See Section 10.3 of the Waste Act).	<ul style="list-style-type: none"> Appropriate ongoing training should be given to low level and high-level waste personnel.
	<ul style="list-style-type: none"> The municipality does not provide containers for the recycling of waste materials (Section 23.2 of the Waste Act). 	<ul style="list-style-type: none"> The municipality must provide containers for the recycling of waste materials (Section 23.2 of the Waste Act). Areas to consider for recycling include: <ul style="list-style-type: none"> Alldays Senwabarwana Second order settlements Third order settlements The above areas are the major towns whereby the population is the most dense Public areas and institutions such as schools and municipal/government centres should have recycling stations.
5.1.4 Municipal Rates	<ul style="list-style-type: none"> A very small proportion of the municipal population reportedly pays rates. This will affect the level of service delivered to the public from the municipality and the ability of public to pay for waste services. 	<ul style="list-style-type: none"> The municipality will need put in place strategies to increase the levies and rates base. The municipality is to consider the implementation of a FBRR system. This should be linked with the municipality's indigent register for those households that cannot afford to pay for this waste service.
	<ul style="list-style-type: none"> The municipality does not provide a waste service to the 	<ul style="list-style-type: none"> Investigate the possibility of FBRR / Food for Waste programs

ISSUES	GAPS AND NEEDS	RECOMMENDATION
	majority of the municipality (especially traditional areas).	
5.1.5 Blouberg IDP	<ul style="list-style-type: none"> The existing IDP forum meetings used to plan development in the municipality are a useful municipal platform to integrate development planning needs. However, there is a need to provide a platform where other National / Provincial institutional development planning (i.e. Department of Public Works construction of schools, clinics, hospitals, prisons etc.) can be filtered down to the municipality especially in terms of where these development initiatives will require some waste service delivery. 	<ul style="list-style-type: none"> It is critical that there is a continuous planning process for new housing developments in the municipality such that service providers like waste, water and sanitation are brought on board early on in the planning process for these developments. Provision for waste management to be discussed at these meetings is to be made.
5.2 Waste Collection & Municipal Service Delivery Issues		
5.2.1 Alldays	<ul style="list-style-type: none"> The Alldays landfill site should be upgraded to comply with the permit/license conditions, thereby regular compacting and covering of waste. The existing cell should be closed and rehabilitated and a new cell be established, designed in accordance with the National Norms and Standards. 	

ISSUES	GAPS AND NEEDS	RECOMMENDATION
	<ul style="list-style-type: none"> The contractor to be appointed should take responsibility for the operation of the weighbridge and regular calibration as well as any recycling activities on site. Recycling should be formalised, and records kept for recycling material. 	
5.2.2 Senwabarwana	<ul style="list-style-type: none"> Continue to operate the Senwabarwana landfill site in accordance with the licence conditions 	<ul style="list-style-type: none"> Provision for transfer station (temporary waste storage for later disposal to landfill) in the vicinity of Inveraan/Indermak/Puraspa to serve the secondary settlements.
5.2.3 Taaibosch	<ul style="list-style-type: none"> There are no skips available in the town centre. 	<ul style="list-style-type: none"> Provide skips and a skip loader truck in the town as well as the surrounding low-cost areas. The transfer station should be upgraded to include a MRF The fence should be repaired where interruptions are present Purchase 1 skip loader vehicle to service transfer station/s.
5.3 Technical and Operational Issues		
5.3.1 Staff and Fleet	<ul style="list-style-type: none"> Lack of supervisor at Alldays landfill site 	<ul style="list-style-type: none"> Supervisor personnel needed at the landfill
	<ul style="list-style-type: none"> Shortage of general workers who assist with waste 	<ul style="list-style-type: none"> There is a need to formalise employment of the general workers

ISSUES	GAPS AND NEEDS	RECOMMENDATION
	collection, street sweeping at the municipality	
	<ul style="list-style-type: none"> Insufficient number of trained staff in waste and environmental issues 	<ul style="list-style-type: none"> The municipality has a Waste Officer that coordinates all activities related to waste management in terms of the Waste Act. An EMI (Environmental Management Inspectorate (who will be an environmental enforcing official) must be trained and designated by the municipality.
	<ul style="list-style-type: none"> Only one compactor truck is in good condition. 	<ul style="list-style-type: none"> Additional drivers required for expansion to existing transport fleet. The Blouberg Local municipality needs to ensure that a full staff compliment is maintained to provide a waste service to the community. Any shortfalls in the number of staff will affect Waste Service delivery to the public. Increase number of vehicles. Second truck needs to be purchased. Strategies for an efficient, affordable and sustainable waste collection system is needed to fully utilize the fleet resources that they have and need to have.
5.4 Waste Management in the Municipality		

ISSUES	GAPS AND NEEDS	RECOMMENDATION
5.4.1 Public Transport Facilities	<ul style="list-style-type: none"> For the bus and taxi rank line of business, it should be kept in mind that these activities are also magnets for formal and informal trade activities, which in themselves generate a varied composition of wastes. Therefore, the municipality must also make adequate provision for a waste service at these public transport facilities. 	<ul style="list-style-type: none"> Register / formalise informal traders to increase responsibility for management of waste. Waste collection service, provision for a skip or other waste mechanism should be made.
5.4.2 Building and Construction waste	<ul style="list-style-type: none"> This includes building rubble from construction and spoil material from road construction and other activities in the municipality. 	<ul style="list-style-type: none"> Where this occurs, construction waste is to be used as cover at the landfill site. Illegal dumping to be discouraged. Building material may be accepted for free at landfill to offset lack of cover material
5.4.3 Recycling, Reuse, Recovery and Waste Minimization Initiatives	<ul style="list-style-type: none"> The municipality does not have any recycling policy for either its municipal staff or for the municipality as a whole. 	<ul style="list-style-type: none"> The municipality needs to consider the implementation of a policy to govern recycling, waste minimization, and reuse activities.
	<ul style="list-style-type: none"> Domestic waste at all the landfill sites was observed to contain large amounts of recyclable material despite the recycling activities. This 	<ul style="list-style-type: none"> Recovery operations for plastic and paper at the landfill site / recycle centre need to be improved to increase the

ISSUES	GAPS AND NEEDS	RECOMMENDATION
	included plastics and paper grades.	amounts of recyclable materials recovered from the landfill site.
	<ul style="list-style-type: none"> General waste at households was observed to contain a large amount of recyclable material. This included plastic and paper grades. 	<ul style="list-style-type: none"> Recovery of recyclable materials needs to be encouraged at homes and business focal sources. This will reduce the amounts of recyclable waste to landfill site. Public education campaigns required to promote and educate on benefits of recycling. Municipality needs to consider additional public-private initiatives to encourage waste recycling and reuse. This could include promoting recycling of waste in outlying settlement areas and having these removed initially by the municipality. Eventually this activity could be contracted out or 'sold' to a private recycler. The municipality needs to conduct a detailed study to understand the percentages of recyclable materials that form a part of the general waste stream from residential and business areas. This study should also consider what system to employ for removal of these wastes from residential areas to central areas in the municipality, and hence sale to other areas.

ISSUES	GAPS AND NEEDS	RECOMMENDATION
	<ul style="list-style-type: none"> There are no accurate records of the quantities of waste generated in different areas of the municipality. It is therefore not possible to set recycling, reuse, recovery and minimization targets. 	<ul style="list-style-type: none"> An accurate method of recording waste dropped off at the landfill sites needs to be established (weighbridge at the landfill) the existing Alldays site.
5.4.4 Existing Initiatives-Buy back centre	<ul style="list-style-type: none"> For the majority of BLM, there is no existing waste minimizing initiative except for the Buy-back centre in Nthabeleng. 	<ul style="list-style-type: none"> The municipality must encourage such waste scheme and find ways to formalise recycling. Schools should also participate in such schemes and can be incentivized by things that can motivate them (i.e. soccer balls, books etc.). BLM should also investigate ways to involve other departments/organisations (including food retail stores). These can provide much needed support.
5.5 Waste Treatment and Disposal Issues		
5.5.1 Alldays Landfill Site	<ul style="list-style-type: none"> Waste Treatment and Disposal Issues 	<ul style="list-style-type: none"> External and Internal audits need to be conducted.
5.5.2 Illegal Dumping	<ul style="list-style-type: none"> Illegal dumping is reported to be a problem in various areas within the municipality. 	<p>The following General Provisions to apply to areas where illegal dumping takes place.</p> <ul style="list-style-type: none"> Measures to counter act illegal dumping to be considered (instituting waste collection service in affected area,

ISSUES	GAPS AND NEEDS	RECOMMENDATION
		<p>developing bylaws, law enforcement activities, education and awareness).</p> <ul style="list-style-type: none"> • Providing a waste collection service in areas previously not serviced. • Public Awareness (Reduce Reuse Recycle) via schools, shopping centres, pension pay-out points. • Public private initiatives - Clean up campaigns including those organised with religious organisations, recycling forums. • Sign posting areas where frequent dumping occurs. • Identifying known hot spots. • Policing / managing known dumping hot spots.
5.5.3 General Landfill Provisions		<ul style="list-style-type: none"> • An accurate method of record keeping needs to be implemented at the landfill site. This will assist in providing more accurate information on waste disposal for the municipality and assist in planning additional infrastructure requirements. • Daily and weekly cover requirements as specified in the Minimum Requirements Series must be enforced for the landfill site. • A more stringent level of control of people disposing of waste on site needs to be enforced such

ISSUES	GAPS AND NEEDS	RECOMMENDATION
		<p>that waste is only disposed of in designated areas of the landfill site. This will also prevent having waste that remains uncovered for periods because it was disposed of away from the working face.</p> <ul style="list-style-type: none"> • There is a need for more comprehensive control to prevent the illegal disposal of HCRW at the landfills. • Education of public including medical practitioners is essential. • Additional education of staff working at the landfill site is also required to enforce what types of waste will or will not be accepted on site. • Daily compaction of the waste is required to control litter, rodents, dust control and odour. • Landfill site needs to be signposted.
5.6 Waste Management Education, Campaigns and Awareness		
5.6.1 Educational Awareness, Schemes and Campaigns	<ul style="list-style-type: none"> • Waste campaigns are not strongly encouraged at schools. 	<p>Schools should be at the forefront in waste minimisation and waste management campaigns as they will help practise measures adopted in their homes and as they grow up</p> <ul style="list-style-type: none"> • Introduce incentives for schools to partake in campaigns and waste management schemes

ISSUES	GAPS AND NEEDS	RECOMMENDATION
		<ul style="list-style-type: none"> Recycling drives that encourages the learners to bring recyclables to schools Provision for recycling stations
	<ul style="list-style-type: none"> Municipality 	Build capacity and raise the skill profile of the trained staff <ul style="list-style-type: none"> Develop and implement a communication and public awareness programme Develop, implement and Promote inter-municipal waste information workshops Ensure that the public and private sectors understand their specific roles and cooperate and participate in the waste management issues
	<ul style="list-style-type: none"> General Public 	<ul style="list-style-type: none"> Change the historical mind-set around illegal dumping and littering Establish successful awareness campaigns and organisations Ensure a high level of commitment and understand from both the public and industry to strive for a clean environment
5.7 Financial Resources		
5.7.1 Waste Budget	<ul style="list-style-type: none"> Lack of funds for waste related services 	<ul style="list-style-type: none"> Develop and implement payment tariff system

ISSUES	GAPS AND NEEDS	RECOMMENDATION
		<ul style="list-style-type: none"> Develop sound budgeting (including proper financial management) for waste services Look to external funding from other organisations and institutions
5.8 Waste Information Management		
5.8.1 Waste Information System	<ul style="list-style-type: none"> Lack of waste information collection, capturing and recording system 	<ul style="list-style-type: none"> Develop a Municipal Waste Information System
	<ul style="list-style-type: none"> Lack of information management and dissemination systems 	<ul style="list-style-type: none"> Collect information on environmental impact and resources in general

6. PERFORMANCE OF THE MUNICIPALITY

The Municipality has increased the service delivery to all households and to indigents in the municipal area. With regard to the waste disposal sites in the municipal area, the municipality has performed well with the authorisation of the Senwabarwana waste disposal site. The municipality is still experiencing staff shortages and shortages of equipment to render a sustainable waste management service in the Municipality. With regards to the Alldays landfill, the waste disposal site is currently not being operated according to the license conditions, therefore does not comply fully with the applicable legislation and steps will have to be taken to correct this. In summary the Municipalities' performance can be seen as progressive but simultaneously there is room for improvement.

7. DESIRED END STATE

7.1 Introduction

Seven focus areas have been identified for the compilation of the IWMP for the Local Municipality. Based on the Gaps and Needs identified in the previous section, a Desired End State has been identified for each of the seven focus areas.

It is important to align the Desired End State in accordance with the National Waste Management Strategy. The official hierarchy adopted in the Government waste management hierarchy, in order of preference, is as follows:

- Waste avoidance
- Waste minimisation
- Waste re-use
- Waste recycling
- Waste treatment
- Waste disposal

It is important that there should be a target date by which these municipal strategic priorities are to be attained within the five years from the date the IWMP has been approved. The following timeframes are suggested for the strategic priorities:

- Immediate: 1 year
- Short-term: 2 to 3 years
- Medium term: 3 to 5 years
- Long term: 5 to 10 years

7.2 Safe and proper disposal of waste

This section relates to the development, upgrading and legal compliance of the waste disposal infrastructure. This includes the identification of new infrastructure required, the licensing of existing unlicensed facilities, upgrading of the current infrastructure as well as the improvement of waste management practices. Table 21 below provides the Desired End State for Waste Disposal Infrastructure in the Municipality.

Table 21: Desired End State for Safe and Proper Disposal of Waste

GOAL 1: ENSURE THE SAFE AND PROPER DISPOSAL OF WASTE			
Implementation Strategies			
Immediate	Short term	Medium term	Long term
<p>Ensure that the necessary staff have the correct level of training to perform their roles (including managing waste disposal site according to the license conditions).</p> <p>Supervisor at the Alldays landfill should be appointed order to manage the waste disposal site according to the license conditions.</p>	<p>Continue operation according to license conditions</p>	<p>Continue operation according to license conditions.</p>	<p>Continue operation according to license conditions.</p>
<p>Taaibosch Transfer Station to be upgraded.</p>	<p>Amend design to include Ramp method, include skips and Materials Recycling facility</p>	<p>Proper maintenance and operation</p>	<p>Proper maintenance and operation</p>
<p>Identify shortcomings with regards to the operational requirements.</p>	<p>Resolve the identified operational shortcomings.</p>	<p>Audit and monitor waste disposal site operations.</p>	<p>Continue operation according to license conditions.</p>
<p>Conduct feasibility study to determine whether it is feasible to construct a waste transfer station in the vicinity of Inveraam/Indermak/Puraspa to</p>	<p>If feasible, secure funding for the construction of a waste transfer station in the</p>	<p>Operate waste transfer station according to Norms and</p>	<p>Continue operations according to Norms and</p>

GOAL 1: ENSURE THE SAFE AND PROPER DISPOSAL OF WASTE			
Implementation Strategies			
Immediate	Short term	Medium term	Long term
serve the secondary settlements.	vicinity of Inveraan/ Indermak/ Puraspa to serve the secondary settlements.	Standards for the storage of waste. Proper maintenance	Standards for the storage of waste. Proper maintenance

7.3 Effective and efficient delivery of waste service

The shortcomings in the available waste collection infrastructure have been identified. This will involve possible waste receptacles, new developments, unserved areas and route planning. Table 22 below provides the Desired End State for Waste Collection in the Municipality.

Table 22: Desired End State for Waste Collection

GOAL 2: PROVIDE THE EFFECTIVE AND EFFICIENT DELIVERY OF WASTE SERVICES			
Implementation Strategies			
Immediate	Short term	Medium term	Long term
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 (including indigents).	Extend waste services to ensure that all households receives a waste collection service by 2024.	Update and manage the schedule.
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 service.
Apply for funding through available funding mechanisms in order to conduct a Municipal Services Partnership (MSP) / Section 78 study, to outsource waste collection services in certain areas of the municipality.	Conduct MSP / Section 78 study.	Implement outcome.	

7.4 Sufficient resources to provide an effective waste management service

This area involves the identification of shortcomings in the personnel, financial and equipment resources and development of strategies to ensure that the requirements are satisfied. The existing financial resources are analysed and new structures and strategies are developed. Table 23 below provides the Desired End State for Resource Extension in the Municipality.

Table 23: Desired End State for Resource Extension

GOAL 3: ENSURE SUFFICIENT RESOURCES TO PROVIDE AN EFFECTIVE WASTE MANAGEMENT SERVICE			
Implementation Strategies			
Immediate	Short term	Medium term	Long term
<i>Personnel Resources</i>			
Review existing organogram of waste management personnel in terms of the NEM: WAA requirements.	Fill vacant positions and establish positions required for proper waste management. Create new posts to extend resources.	Update organogram and appoint staff in vacant positions.	Update organogram and appoint staff in vacant positions.
Develop strategic planning for waste management is the BLM.	Compile a staff training program to ensure that staff are trained to the correct level to handle waste management services.	Implement the necessary strategic planning for fleet, transfer station and waste related infrastructure throughout the identified areas in the BLM.	Implement the necessary strategic planning for fleet, transfer station and waste related infrastructure throughout the entire BLM.

Financial Resources

Conduct a detail 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.
Review tariffs in terms of the tariffs policy which must adopted in terms of section 74 of the Municipal Systems Act.	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 revenue collection strategy.	Implement revenue collection strategy.

Equipment Resources

Review current equipment and identify equipment that needs maintenance and/or replacement. Purchase skip loader vehicle to service transfer station/s Identify shortages of equipment to render a sustainable waste management service.	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.
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7.5 Waste minimisation

This section involves the identification of specific waste minimisation strategies. This can include separation and collection at source, privatisation of reclamation activities and development of collection points throughout the area. Table 24 below provides the Desired End State for Waste Minimisation in the Municipality.

Table 24: Desired End State for Waste Minimisation

GOAL 4: PROMOTE WASTE MINIMISATION, RE-USE, RECYCLING AND RECOVERY			
Immediate	Short term	Medium term	Long term
<p>Conduct a study to determine whether the following are feasible:</p> <ul style="list-style-type: none"> Investigate feasibility for additional buy-back centre in second order settlements. Implementing separation at source <p>Education and awareness campaigns.</p>	<p>Apply for funding through available funding mechanisms for the development of a recycling/buy-back centre if feasible in second order settlements.</p>	<p>Operate and maintain the recycling/buy-back centre.</p> <p>Establish cooperatives.</p>	<p>Operate and maintain the recycling/buy-back centre.</p> <p>Establish cooperatives.</p>
	<p>If feasible, establish mechanisms for promoting separation at source.</p> <p>Waste minimisation and recycling initiatives at schools, clinics, and other government/municipal centres or buildings.</p> <p>Co-operation of local/private recycling companies to participate in waste recycling in BLM</p> <p>A target of 25% reduction of domestic and commercial waste (only recyclables) streams disposed to landfill</p>	<p>Roll out separation at source to 30% of households.</p>	<p>Roll out separation at source to 70% of households.</p>

7.6 Compliance with legislative requirements

This relates especially to illegal dumping activities within the municipal area. This involves identification of possible illegal dumping hot spots, development of clean up and anti-dumping campaigns, possible revision of by-laws as well as revision of collection strategies. Table 25 below provides the Desired End State for the Management of Illegal Activities in the Municipality.

Table 25: Desired End State for Management of Illegal Activities

GOAL 5: ENSURE THE DEVELOPMENT OF LEGISLATIVE TOOLS TO ENFORCE THE WASTE ACT AND OTHER APPLICABLE LEGISLATION			
Implementation Strategies			
Immediate	Short term	Medium term	Long term
Develop waste management by-laws to address the NEM: WAA requirements.	Draft and promulgate by-laws.	Proper enforcement of by-laws.	Proper enforcement of by-laws and amend if necessary.
Develop a system for residents to report waste transgressions, for example illegal dumping.	Implement system.	Implement system.	Implement system.
Ensure compliance by medical facilities and funeral parlours in the municipal areas.	Audit and implement corrective action	Audit and implement corrective action	Audit and implement corrective action
Minimise illegal dumping and littering through providing disposal and collection points in high traffic areas, providing education, and thereafter enforcing by-laws.	Develop and enforce a penalty system for illegal dumping activities.	Regular (weekly) waste collection service for 50% of households (including indigents).	Regular (weekly) waste collection service for 100% of households (including indigents)

7.7 Waste information system

This section covers the need for effective record keeping and development of a Waste Information System (WIS) as well as the sharing of available information and the co-operation of the various stakeholders within the Municipality. Table 26 below provides the Desired End State for Waste Information System in the Municipality.

Table 26: Desired End State for Waste Information System

GOAL 6: WASTE INFORMATION SYSTEM TO ACHIEVE WASTE MANAGEMENT PLANNING			
Implementation Strategies			
Immediate	Short term	Medium term	Long term
Maintain Waste Information System (WIS).	Keep proper records of waste quantities and types received at Senwabarwana and Alldays waste disposal sites. Provide information to District Municipality.	Use records for proper planning and decision making.	<ul style="list-style-type: none"> Ensure that the future planning is effectively carried out. Register and report in SAWIS.
	To have a fully operational Waste Information Management System in place, including any domestic, commercial and industrial database, finances and up-to-date information. Such a system can be used for current operations as well as future planning purposes.	Review Waste Information Management System	
Update and Maintain database of industries, private waste disposal sites and medical facilities in municipal area.	Monitor and ensure that all industrial and HCRW is disposed of in a responsible manner.	Monitor and ensure that all industrial and HCRW is disposed of in a responsible manner.	Monitor and ensure that all industrial and HCRW is disposed of in a responsible manner.

7.8 Education and awareness

This section addresses the need for education and awareness campaigns to be launched with regards to proper waste management. This can take place on a community and on a more strategic level between stakeholders. Table 27 below provides Desired End State for Education and Awareness in the Municipality.

Table 27: Desired End State for Education and Awareness

GOAL 7: ENSURE THAT PEOPLE ARE AWARE OF THE IMPACT OF WASTE ON THEIR HEALTH, WELL-BEING AND THE ENVIRONMENT			
Implementation Strategies			
Immediate	Short term	Medium term	Long term
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 awareness campaign with regards to waste minimisation and hierarchy of waste management.	Launch awareness campaign in community, e.g. recycling competition at school level. Good green Deeds need to be implemented as it was launched by the President on March 2019 through intensive clean ups to address illegal hot spots.	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 regular basis in form of forums or workshops.	Implement and amend information dissemination strategy in order to ensure adequate communication between stakeholders.

8. STAKEHOLDER PARTICIPATION

It is a legal requirement in terms of section 72 & 73 of the Waste Act and Chapter 4 of the Municipal Systems Act that when developing and/or reviewing IWMP, Stakeholder Consultation be done properly as stipulated. The methodology that had been taken over the past years was to place an advert calling for public participation in a local newspaper and local public areas, all the stakeholders gather under one roof and make inputs and raise questions/concerns/inputs into the document.

In light of the COVID-19 lockdown and rules it is however a problem since no meeting gatherings is to be held, also cross provincial border travelling and flying is still restricted and might remain so for some time. It is important however that consultation takes place with authorities (local, district and provincial) as well as the public. The municipality, through their Waste Management Officer (WMO) must identify key stakeholders/database to send correspondence to; e.g. ward councillors, key government departments, key industries. Given the pandemic, it the municipality was advised to look at ways to conduct the public participation process and to comply with the lockdown regulations to ensure the safety of all participating stakeholders.

At this stage the draft IWMP is made available to all possible stakeholders from the municipality's database to invite or raise comments. The WMO can also assist to advertise and/or make the draft IWMP document available on municipal platforms such as the municipality's Facebook page, municipal website, newsletters etc.

Comments on the draft IWMP were invited to be submitted by 31 May 2020.

9. GOALS AND OBJECTIVES

The following sections outline the goals and targets identified and the possible alternatives for each.

9.1 Waste Disposal Infrastructure

Goal 1: Improve and develop infrastructure to comply with legislative requirements and municipal needs.

Targets:

1. Ensure that all the landfill sites in the Municipality are licensed and comply with legislative requirements.

9.1.1 Target 1: Ensure that all the landfill sites in the Municipality are licensed and comply with legislative requirements

As indicated in the “Situation Analysis Report”, the Municipality has jurisdiction over two waste disposal sites namely the Alldays and Senwabarwana waste disposal sites. The Municipality also has a transfer station at Taaibosch. The transfer station is however not yet operational, and the designs of the transfer station is not adequate for the designated purpose.

The **Alldays waste disposal site** is permitted/licenced (Permit number B33/2/325/5/P87, dated 5 October 1993). The waste disposal site is experiencing operational problems in varying degrees, but mainly as a result of uneducated personnel as well as interference by uncontrolled reclaiming activities on daily operations.

The site is not covered daily, and wind-blown litter, vectors, dust and odours are common concerns.

Provision for the upgrade of the waste disposal (construction of phase 2) was made on the MTERF budget for 2019/2020 for the amount of R15,000,000 through Municipal Infrastructure Grant (MIG). The upgrade will include a weighbridge, proper access control, fencing, ablution facilities, new disposal cells and recycling areas.

A new waste management license application will have to be prepared and submitted to the Competent Authority (Limpopo Department of Economic Development, Environment and Tourism – LEDET).

The only equipment present on site is one landfill compactor to utilise during site operations which is owned by the municipality.

The **Senwabarwana waste disposal site** is licenced (Licence 12/4/10 – B/10/C4, dated 24 April 2013). The site is operated by a contractor (Ingwe Waste Management), who is responsible for maintaining and managing the landfill site, on a 36-months period contract. The contractor reports on the status of the Senwabarwana landfill site on a monthly basis. The reporting entails potential issues that may arise in the day-to-day operation of the site.

The landfill site includes a recycling shed, which is operated by 2 private companies, namely, Ntshabeleng Waste Management and Green valley. The landfill site personnel consist of:

- 2 Gate controllers
- 2 Site controller/supervisor
- 1 Spotter
- 1 Weighbridge operator
- 2 General workers

The site is reasonably well operated and equipped with a weighbridge to record incoming waste volumes. Garden refuse is disposed of in a dedicated area, but no composting takes place. It is recommended that green waste be composted, which can be sold off to generate an income for the municipality or alternatively the compost can be used at the municipality's premises (parks, sportfields etc).

The site should continue to be operated in accordance with its license conditions and monitored and audited as required. Penalties should be enforced on the appointed contractor should any license conditions not be adhered to with regard to operational matters.

The **transfer station at Taaibosch should be upgraded** to include ramps and skips, from where waste can be transferred to the Alldays landfill. The existing fence is vandalised and should be repaired to control access to the site. Equipment i.e. a 6m³ skip loader truck and skips need to be purchased to put the transfer station into operation. An underroof shed area makes provision for a recycling / sorting / buy-back facility at the transfer station.

Alternative:

1. Investigate the feasibility for establishing a transfer station vicinity of Inveraan/Indermak/Puraspa to serve the secondary settlements.
2. Privatisation of disposal operations at the Alldays landfill site.

Alternative 1: Investigate the feasibility for establishing a transfer station vicinity of Inveraan/Indermak/Puraspa to serve the secondary settlements.

Regionalisation seems to have become the trend of the future when it comes to waste management. Regionalisation can be defined as a licensed centralised waste management facility that receives waste for treatment, handling, and final disposal from multiple collection points over an entire municipal area. The trend of regionalisation has become popular in recent years due to a large number of local municipalities having trouble managing their landfill sites in a responsible and environmentally friendly way. The problems municipalities are faced with when it comes to waste management are various and may differ from municipality to municipality. Some of these could include amongst other, numerous unlicensed landfill sites, poor site designs, poor management of landfill sites, lack of expertise and knowledge, lack of capital, lack of staff, lack of skills, disinterest in waste management, improper planning etc. The list could go on.

The answer to some of the problems could be to establish one regional landfill site instead of many smaller ones scattered around the region. This would allow for some ease in the management of one large site instead of numerous smaller sites.

If the regionalisation study shows that the municipality should establish a regional landfill there would be an advantage in terms of the management and financing of the waste management facilities in the area.

If the regionalisation option is shown to be feasible the regional landfill should be upgraded and developed to cater for the entire regions waste disposal requirements. To assist in the management and transportation of the waste to the regional landfill small bulk transfer stations and/or drop-off facilities should be developed at the selected areas and waste should be transported to the regional landfill via bulk skips and long-haul transport.

Alternative 2: Privatisation of disposal operations at the Alldays landfill site

In order to establish the feasibility to privatise the management of the Alldays landfill site within the Municipality, a Section 78 service delivery assessment should be conducted. A Section 78 (S78) assessment is a process required by the Municipal Systems Act (2000) to assess potential service delivery mechanisms for the provision of a municipal service. The S78 assessment is a strategic decision-making process that may have long term service delivery implications. The purpose of a S78 assessment for waste management services is to select the most appropriate service delivery mechanism(s) that will ensure access to efficient, affordable, economical and sustainable waste management services at the landfills. The Municipality has however already made the decision to outsource the operations, and therefore the Section 78 study is regarded not necessary.

Analysis for alternative no 1:

The following calculations will show a basic analysis of the capital and operational cost of the two alternatives i.e. landfill development vs. regionalisation, for the development of landfill infrastructure within the municipal area. This calculation was done for a 10-year period. For the purpose of the calculation a generic operating cost of R57/ton for waste management and R3/km/ton for waste transport was used with a CPIX of 5%. For the purpose of this analysis, the existing Senwabarwana landfill and existing Alldays landfills will be regarded as the regional landfills for the Blouberg Municipality with the waste being transferred from the Taaibosch transfer station to the Alldays landfill and from the proposed Inveraan/Indermak/Puraspa transfer station to the Senwabarwana landfill site, should the latter be proved to be feasible. The Alldays landfill site is too far from Senwabarwana landfill and for this reason two landfills are proposed to serve as regional landfill sites for the Blouberg municipality.

The Capex and Opex cost for Landfill development is as follows:

Table 28: Cost calculation for landfill development in Inveraan/Indermak/Puraspa and Taaibosch

Capex				
Landfill	Inveraan/Indermak/Puraspa	Taaibosch		Sub-total
Licensing and Construction	R 15,000,000	R 15,000,000		R 30,000,000
Landfill equipment (Landfill Compactor)	R 1,465,000	R 1,465,000		R 2,930,000
			Sub-total	R 32,930,000

Opex				
Operation of both landfills R/ton	Total (t/a)	Operating cost/t	Sub-Total	CPIX
Year 1 to 5	R 26,301	R 57	R 1,499,157	5%
Year 6 to 10	R 26,301	R 73	R 1,913,346	
		Sub-total	R 3,412,503	

For the purpose of the regionalisation calculation the transport distances between the landfill sites and transfer stations were taken as follows:

Table 29: Cost Transport distances between Alldays and Taaibosch and Senwabarwana and Inveraan/Indermak/Puraspa

Transport Distances				
Alldays	to	Taaibosch	41	km
Senwabarwana	to	Inveraan/Indermak/Puraspa	30	Km

In order for a regionalisation option to be feasible the transport from a transfer station to a landfill should not exceed 50km from experience. From the above figures it can be seen that the distances from Alldays to Taaibosch and Senwabarwana to the proposed transfer station in Inveraan/Indermak/Puraspa is within the allowable feasible distance.

The Capex and Opex cost for regionalisation is as follows:

Table 30: Cost calculation for regionalisation (Transfer Station at Taaibosch and Inveraan/Indermak/Puraspa

Capex				
Landfill (10-year period)	Senwabarwana and Alldays	Taaibosch	Inveraan/Indermak /Puraspa	Sub-total
License, upgrade and develop	R 15,000,000			R15,000,000
Transfer Station		R 1,000,000	R 1,800,000	R 2,800,000
Skip Loader truck	R 2,100,000			R 2,100,000
6m ³ skips @ R 13,300 per skip		R 133,000	R 79,800	R 212,800
			Sub-total	R 20,612,800

Note:

- 1 x skip loader each to service Taaibosch and Inveraan/Indermak/Puraspa @ R1,300,00 per skip loader truck
- 10 x 6 m³ skips at Taaibosch transfer station @ R13,300/skip
- 6 X 6 m³ skips at Inveraan/Indermak/Puraspa transfer station @ R13,300/skip
- Licensing, upgrade cost for Alldays landfill only

Opex Waste Management				
Operation of landfill R/ton	Total (t/a)	Operating cost/t	Sub-Total	CPIX
Year 1 to 5	26,301	R 57	R 1,499,157	5%
Year 6 to 10	26,301	R 73	R 1,913,346	
		Sub-Total	R 3,412,503	
Opex Waste Transport				
Transfer Station	Distance (Return Trip) (Km)	R/Km/Ton (year 1 to 5)	Estimated Waste (t/a)	R/km/ton
Year 1 to 5				
Taaibosch	41	R 3	2,190	R 269,370
Inveraan/Indermak /Puraspa	30	R 3	548	R 49,320
Year 6 to 10				
Taaibosch	41	R 4	2,972	R 466,552
Inveraan/Indermak /Puraspa	30	R 4	744	R 85,460
			Sub-Total	R 870,702
			Sub-Total	R 4,283,206

The following table shows the result from the cost analysis of the two options:

Table 31: Result of the comparison for the costs of the two systems over a 10-year period.

Total for Landfill Development	R 36,342,503
Total for Regionalisation (Transfer Stations / Drop-off facility at Taaibosch and Inveraan/Indermak/Puraspa)	R 24,896,006

From the result it can be concluded that the regionalisation option (i.e. the upgrade of the transfer facility in Taaibosch and the establishment of a transfer station in Inveraan/Indermak/Puraspa area respectively) will be more feasible for the municipality than to develop landfills in each of these areas. It was assumed that the skip loader trucks can be hosted at a depot in Alldays and Senwabarwana respectively.

Analysis for alternative no 2:

A Section 78 (S78) assessment will cost the Municipality an estimated R 600,000.00 per study. The cost – benefit of privatisation of the municipalities' landfill site operations can only be determined after the study has been completed. Because a decision was already made to privatise the operations at the Alldays and Senwabarwana landfill sites, such studies is not necessary to budget for.

The benefits of privatisation of the Alldays and Senwabarwana landfill site operations could include:

1. Reduced operating cost of landfill sites,
2. Reduced capital expenditure for the Municipality in terms of plant and equipment procurement,
3. Reduced operational expenditure in terms of salaries,
4. Improved operation of landfill sites.

9.1.2 Legal requirements/framework

All waste disposal facilities should be licensed in terms of Section 45 of NEM: WAA. The upgrading of the Alldays landfill site will have to be accompanied by a license application or amendment to the existing permit/license to allow for the establishment of new cells, as well as additional activities i.e. recycling and treatment (composting) on site.

Transfer stations do not have to be licensed in terms of Section 45 of NEM: WAA if the facilities have a capacity to store less than 100m³ of general waste at any one time. The transfer station at Taaibosch and proposed transfer station at Inveraam/Indermak/Puraspa will fall outside the parameters of the listed activities in Schedule 1 of NEM: WAA. The transfer stations should however be operated in accordance with the National norms and Standards for the Storage of Waste, promulgated in Government Gazette Notice No. 926 of 29 November 2013.

9.1.3 Resources and finances

- Municipal Budget
- Municipal Infrastructure Grants or Special Municipal Infrastructure Fund.
- National Government three-year cycle and business plans have to be submitted and funds made available to District Municipalities.

9.1.4 The implications should there be lack of action on the strategic goal 1

If goal 1 is not implemented, the municipality will experience environmental impacts associated with landfilling such as the contamination of underground water resources, poorly run waste disposal facilities posing health and safety challenges to workers and reclaimers.

9.2 Waste Collection

Goal 2: Provide effective waste collection.

Targets:

1. Extend service delivery to all areas within the Municipality and extend service delivery to all indigent populations where possible.
2. Effectively plan to extend service delivery to any new developments within the Municipality.
3. Conduct a transportation study to identify and optimise collection routes and number of service points.
4. Establish receptacle requirements within the Municipality and supply the receptacles to residents in order to optimise collection efforts.

9.2.1 Target 1: Maintain current service delivery to all areas within the Municipality and extend service delivery to all indigent populations where possible

The Blouberg Municipality is rendering a waste collection service in ten settlements on a weekly basis while the towns of Alldays and Senwabarwana receive the service on a daily basis.

The rural/traditional areas however do not receive a regular waste removal service and they need to be incorporated in the waste removal service. New developments are also planned where refuse collection will have to be rendered in future.

The Municipality should ensure that all households have access to a waste collection service by 2024. According to the 2019/20 IDP a backlog of 2469 households exist which need to be included in the waste collection service.

The financial implications of the free basic refuse removal service to indigents should be determined to ensure that the cost shortfall not covered by the Equitable Share is budgeted for accordingly by the Municipality.

9.2.2 Target 2: Effectively plan to extend service delivery to any new developments within the Municipality

The Municipality should include new developments for the provision of a waste collection and disposal service. As indicated in the Situational Analysis Report, the number of wards and settlements have increased due to 2006 and 2016 Municipal Demarcation process respectively. The backlogs in terms of villages within the wards are indicated in **Table 5** below:

Table 32: Backlogs in waste removal service in terms of villages in the wards

Ward	Available	No of Households	Backlog in terms of Villages within the ward
1	0		11
2	0		7
3	0		6
4	0		9
5	0		7
6	0		5
7	0		6
8	1 Dilaeneng	1021	6
9	0		6
10	1 Avon up to Dikgomo	2979	0
11	0		6
12	1 Indermark up to Dikgomong	2136	0
13	2 (Burgerught and Motlana)	554	5
14	0		7
15	2 (Kromhoek and Devrede)	3650	0

Ward	Available	No of Households	Backlog in terms of Villages within the ward
16	0		5
17	2 (grootpan and Longden)	1200	6
18	2 (Taaibosch and Alldays)	2967	0
19	Senwabarwana Town, Desmond Park Extension 5, Witten	4037	0
20	0	0	8
21	0	0	10
22	0	0	5
Total	14	18544 of 41416 households	109 (24679 households)

It is essential that that the future residential and business area expansion are catered for in terms of refuse removal. This will allow the Municipality to, at an early stage, determine the possible costs involved and therefore will be able to adjust their budget accordingly. This will allow the Municipality to service the new areas when they are developed.

Alternative:

1. Privatised waste collection for new or rural unserviced developments.

Analysis for alternative no 1:

Although the privatisation of waste collection will work well with mid and high-income developments, low income developments will not be able to cater for this requirement. Since most households in the Blouberg municipality has a low income, the municipality will have to allow for the planning and extension of the current collection capacity.

Waste Collection in the villages can be done in the form of a PPP with SMME's with all waste disposed of at the local landfills or existing/proposed local transfer stations. The community-

based contractor service managed by Tedcor, as example, is such a service, and consideration could be given to appoint such a contractor.

Tedcor offers a domestic waste collection service on behalf of municipalities. All refuse that is put out on collection days is removed. The service includes a door-to-door collection services, removal of illegal dumping, street cleaning and litter picking.

To provide the service, Tedcor would appoint members of the local community where the service is rendered to become community contractors. To be a contractor, one need to live in the area where the service is being rendered, has a relevant drivers' license, being able to read and write as well as having some leadership skills. Tedcor would then assist them in setting up their business and provide them with ongoing support in order for them to provide a quality service.

The service area is then normally divided into an economically viable number of households per community contractor and the areas are normally serviced once a week. The service provided includes the following:

- Domestic Removal: All refuse is removed from each household once per week.
- Garden Refuse: All garden refuse that is placed in bags or tied in bundles is collected weekly with the household refuse.
- Street Cleaning: Street and all public open spaces are cleaned on a weekly basis.
- Litter bins: Litter bins are cleaned during the collection rounds.
- Illegal dumping: Is removed weekly. All efforts are undertaken to prevent illegal dumping through educational programmes and interaction with the community.

In addition, the Blouberg Municipality can introduce a community participation program where people in the rural areas/villages play an active part in refuse collection and removal. Residents can be supplied with black bags, which once filled can be taken to strategically located centralized areas/drop off facilities/transfer stations, which is accessible to the Municipality's' waste collection vehicles. Members of the community with transportation can load these bags and transport it to these for a small fee. The Municipality can collect all waste from these areas at the existing/proposed transfer station/drop-off facilities (existing Taaibosch transfer station and proposed transfer station in Inveraan/Indermak/Puraspa).

The placement of skips in strategic places or "illegally dumping hot spot areas", as well as notice boards to try and prevent further illegal dumping in these areas once cleaned. These skips need to be accessible to children and needs to be established at a level for children to reach the top.

9.2.3 Target 3: Conduct a transportation study to identify and optimise collection routes and number of service points

Transportation is an expensive component in the waste management cycle due to high fuel prices and vehicle wear and tear. Although it may seem to be a cost saving by reducing the number of trips required to transport the same volume of waste, overloading of vehicles increases wear and tear.

It is proposed that the Municipality conduct a transportation study to identify and optimise the waste transport system. Simple logical systems can be put in place (e.g. effective use of available infrastructure and resources). Larger municipalities might find optimisation models useful to determine the most cost-effective transportation systems.

Alternative:

1. Alternative vehicle and transport options.

Analysis for alternative no 1:

Looking at alternative more efficient and cheaper transport systems is encouraged, especially where such alternatives already exist and there will be no additional capital costs required to establish them. This could for example be one of the outcomes of the route optimisation study.

9.2.4 Target 4: Establish receptacle requirements within the Municipality and supply the receptacles to residents in order to optimise collection efforts

The three main aspects of collection services are:

- The waste receptacles,
- Collection frequency, and
- Position of receptacles.

9.2.4.1 Waste Receptacles

There are a number of waste receptacles that can be used such as 85 litre bins, 240 litre trolley bins, skip containers, etc. The receptacle will be dependent on the volume of waste generated at the collection point, the type of waste, the type of collection vehicle and the cost of the service to the community. In densely populated areas such as larger cities, the 240-litre wheelie-bin system is fairly common. This is due to the fact that there is generally more waste in these areas requiring larger waste receptacles. These wheelie-bins are emptied mechanically into the collection vehicle. There is however a cost implication since these containers are fairly expensive and costs

must somehow be recovered, usually directly influencing the cost of the service. It is however a once off capital cost which might be weighed against the continuously monthly cost of bin liners.

The most commonly used system is the black bag system. Usually a bin liner (black bag) is placed in an 85-litre container (dustbin) and used for disposal purposes. The bag is then removed from the bin and placed on the sidewalk for collection. Bags can be picked up by hand and dropped into the collection vehicle.

In more rural areas almost any type of receptacle is used, depending on how formal the collection system is. In some rural or less affluent areas skip containers are placed at strategic points. The community may then be responsible to bring their waste and dispose of it in the skip containers from where it is collected. The level of co-operation from the community usually determines the success of such a system.

For commercial collection, i.e. restaurants, shops, etc., a vast number of receptacles is used. In most instances the type of receptacles is determined by the type and volume of waste disposed of as well as the type of service rendered. In smaller towns the municipality usually renders the service and they provide the receptacles. In larger towns there are sometimes private contractors collecting waste from commercial collection points.

It is recommended that the Municipality investigates the option to standardise to best use and supply the selected receptacles to the different communities within the Municipality. The cost of the supply of the receptacles should be carried by the individual property owner to defray the financial burden on the Municipality and to ensure that the individual owners take care of their receptacles.

The following must be considered when selecting suitable receptacles:

1. **Cost:** Wheelie bins are more costly than plastic bags but have a longer lifespan.
2. **Size:** The size of the receptacle will be determined by the bulk (volume) of non-recyclable waste generated by an average household in a certain area. The frequency of collection must be considered, as frequencies less than once a week become a health hazard in South African climatic conditions. The maximum size of receptacles for a household is therefore set at 240l.
3. **Pollution:** Plastic bags create an additional source of pollution if not re-used and/or recycled.
4. **Compatibility:** The receptacles must be compatible with the type of collection vehicle. In areas where wheelie bins will be feasible, wheelie bins must be phased in as and when transport vehicles that are currently not compatible with wheelie bins are replaced. However, compactor trucks may not be the best method of collection for mixed recyclables, nor for the collection of non-recyclables with low compaction potential.

5. **Handling:** The receptacles must be easy to handle by the household and the Service Provider/Municipality and must be easy to clean and have no sharp edges. However, some high-density areas on steep slopes (although there might be proper roads for trucks) might need other types of receptacles than areas on flat ground.
6. **Vermin and vector control:** The receptacles must be impermeable to vermin and flies. This implies that receptacles must not allow moisture or rainwater to enter and must not discharge any leachate.
7. **Durability:** The receptacles must be fairly resistant to mechanical damage as well as be “animal proof”. Various domestic and other animals damage receptacles in search of food.
8. **Availability:** The receptacles must be freely available in the market at competitive prices (to both the Municipality and consumers as the case may be).
9. **Number of receptacles:** The size of the household and the volume of waste generated will determine the number of receptacles required. A fixed number can be provided per household and additional receptacles on request and possibly at a cost to the household.

Where bulk containers are the most applicable receptacle, the same standards apply as for receptacles as stipulated above. In addition, bulk containers must be fitted with reflectors and where appropriate be placed next to a platform for ease of access.

A formalised domestic waste collection system must be provided to transfer the waste from individual households to the bulk containers in cases where such containers are used for domestic waste. The job creation potential (i.e. involvement of community contractors) of such a domestic waste collection system must be optimised in favour of the local community.

It must be noted that skips are designed for collection of bulky waste such as building rubble or “hard” garden waste which will not become windblown during transportation. Skips are therefore not appropriate for domestic waste collection unless appropriate measures are put in place to prevent windblown litter from the skips i.e. covering nets.

Generators of industrial waste usually dispose of their waste themselves or use a private contractor. The receptacles used are usually skip containers.

To summarise, the type of receptacle will be dependent on what the community can afford, the volumes of waste generated, the type of waste and the special needs of the community.

9.2.4.2 Communal collection points

Communal collection points must be clearly demarcated areas with appropriate receptacles where household waste can be deposited for collection by the Service Provider/Municipality. The Municipality must ensure that communal collection points are kept tidy at all times.

The receptacles must be:

1. Covered so as to prevent windblown litter; and
2. User friendly to allow even children and disabled persons to safely deposit waste into the receptacles.

The collection points must:

1. Be easily accessible for waste collection vehicles; and
2. Encourage waste separation at source.

9.2.4.3 Frequency of collection

Acknowledging that waste minimisation is encouraged; the frequency of waste collection must not encourage illegal dumping or cause a nuisance in terms of odours and volumes of waste being stored.

Non-recyclable waste must be removed at least once a week.

Recyclable waste must be removed at least once every two weeks and removal must be coordinated with industry (the users of the recyclables) to minimise costs and the clogging of space at transfer stations and depots.

Waste deposited at communal collection points must be collected within 24 hours of receptacles being reported as full or at regular intervals so as not to attract vermin and increase health risks.

Bulk containers must be collected once filled up or within 24 hours of being reported as full, but not less than once a week.

Frequency of collection of recyclable and non-recyclable waste may differ depending on:

1. The size of the bins provided, and the volumes of waste generated.
2. The area of collection in terms of:
 - (a) type of service provided including types of vehicles and equipment used, and
 - (b) distances between collection points and disposal sites to minimise transport costs.
3. Climatic conditions - In South Africa's hot weather conditions, the collection of non-recyclable waste less than once a week is a health hazard.

9.2.4.4 Waste Management Equipment

The type of equipment is usually determined by the cost of the service to the residents, the condition of the collection roads (surface, alignment, etc.), the distance to the landfill and the number of collection points serviced per day.

9.2.4.5 Cost of Equipment

There is a wide range of collection equipment that can be utilised for collection equipment. This can range from a tractor and trailer system (+/- R 390 000) up to a top of the range REL (+/- R 1 300 000). It is vital that the right equipment is utilised for the right conditions and type of service required. This will be clarified in the following points.

9.2.4.6 Conditions of Collection Roads

The road condition that the collection vehicle has to drive plays a major factor when deciding on a particular collection vehicle. If one has to compare a rural road full of potholes to a road in a city suburb, a tractor and trailer would be more suitable in the rural application as opposed to a state of the art 20 m³ REL, which is not built to drive on poorly maintained roads. The maintenance cost would be above normal for an REL to drive these roads on a daily basis due to wear and tear on components. A tractor and trailer, which is a much more robust type of system, will be better suited to such conditions. In an urban environment a tractor and trailer will be less suited as the landfill is usually far from the collection areas and will take too long to drive to the landfill and back.

9.2.4.7 Distance to the Landfill

As discussed above, distance to the landfill plays an important role. For instance, if the landfill is 20 km from the collection area, a tractor and trailer will spend most of the time driving from the collection area to the landfill and back. A general rule is that a tractor and trailer combination should not drive further than 7 km from the collection area to the landfill. For distances above 7 km, alternative types of vehicles should be considered.

There is a collection system using a mobile compactor with a demountable container. This can be used in various applications. Once the container is full, it is demounted and left for a 'Roll-on Roll-off' truck to collect. The collection vehicle therefore does not waste any time driving to the landfill and back.

Another possible application will be in a regional context where the vehicle collects waste in a certain area, leaves the container at a designated point and moves on to the next area. The container will then be collected by a "Roll-on Roll-off" truck for disposal at the landfill.

9.2.4.8 Number of Collection Points

The number of collection points becomes critical in an urban area where a 20 m³ REL collects up to 1 200 service points per day. A collection vehicle's sole purpose should be to collect waste and not spend time driving from the collection area to the landfill and back. Aspects such as compaction also play an important role. A 20 m³ REL can collect up to 60 m³ of waste at a time because of a one to three (1:3) compaction ratio, while a tractor/trailer combination can collect only 5 m³ to 10 m³ at a time before it has to offload. The tractor/trailer therefore has to make a lot more trips to the landfill than a 20 m³ REL. The REL therefore has more time for the collection and service of more points. It must also be noted that the "runners", collecting and loading the collection vehicle, are idling while the vehicle is on the road to the dumpsite and back.

9.2.4.9 Landfill Equipment

On the larger landfills a landfill compactor, loader, water container and tipper will be found to ensure effective operating conditions. For smaller landfills a TLB will handle waste effectively enough and on communal landfills where the trench system is used, a machine is only required part time. The type of equipment will depend on the type of operation (trench, cell, etc.) and the volume of the waste generated.

Compaction is usually an important factor since this allows for more waste to be disposed of at a landfill thereby prolonging the life of the landfill. Economics however play an important role, since the volume of waste has to justify the type of equipment. It is of no use using a 30-ton landfill compactor, capable of handling over 500 tons of waste per day, on a landfill only receiving 10 tons per day. Such a machine cost in the region of R 2 600 000 and operating cost is in the region of R 180.00/hour without the cost of the operator or maintenance costs.

From the above it is evident that the choice of equipment is very important to ensure the correct equipment is used for the correct application.

9.2.5 Legal requirements/framework

Equitable waste collection services must be provided to all households within the jurisdiction of the Municipality. The Municipality should adhere to the National Waste Collection Standards developed by DEA (at that time, now DEFF). These standards can be included in the waste management by-laws that are necessary to enforce waste collection practises.

The Municipality should also take cognisance of the indigent policy to provide free waste collection services to those who cannot afford the service.

Weekly kerbside collection for all households in major towns are recommended with a community based waste collection system (making use of locals) recommended for densely populated areas such as informal settlements and villages, which is not easy accessible, to collect waste to a

centralised collection area (i.e. transfer stations or waste drop-off facility – Taaibosch and Inveraan/Indermak/Puraspa) from where the Municipality can collect the waste for disposal at a suitable or licensed waste management facility i.e. Alldays and Senwabarwana landfills respectively.

9.2.6 Resources and finances

Funding sources are the municipal budget and Equitable Share for assistance to provide free basic services to indigents.

The organizational capacity and current staff compliment within the Community Services Division of the Municipality is not sufficient to service the existing households/service points and for proper landfill site operations.

The Municipality does not have the available resources and personnel to operate any landfill site in a sustainable manner.

The organogram highlights the number of available staff under each section such as staff to perform management duties, planning, waste collection, recycling and disposal, and enforcement etc. From the organogram it is clear that capacity is required to fulfil all waste management and enforcement matters.

As explained in Section 3.2.2 of the Report, that additional vehicles that would be required to collect waste from the unserved households and proposed developments and since one compactor truck is old and faulty, the Municipality would **need 1 (one) additional driver, with 4 (four) runners (general workers) – 4 runners per REL vehicle, to service the unserved households and additional residential developments.**

With the existing transfer station in Taaibosch and the proposed transfer station in Inveraan/Indermak/Puraspa to be established, it is proposed that **2 (two) additional drivers for the skip loader trucks (one skip loader in Taaibosch and 1 skip loader in Inveraan/Indermak/Puraspa)** be appointed, as well as **2 (two) transfer station supervisors and 4 (four) General Workers at the Taaibosch and Inveraan/Indermak/Puraspa transfer stations.**

In addition to the above resource requirements, it is recommended that a Waste Specialist be appointed to enhance the current programmes at the buy-back recycling centre in Senwabarwana and to identify, monitor and evaluate recycling opportunities and initiatives within the Municipality.

In general, should any future need arise and if future development results in an unmanageable impact on the waste service delivery, the organizational capacity will be increased accordingly and will at all times comply with the requirements of NEM: WAA. It is recommended that the

existing Manager responsible for Waste Management also acts as Waste Management Officer (WMO) as per requirement of NEM: WAA with associated duties.

9.2.7 The implications should there be lack of action on the strategic goal 2

- The Municipality will be in contravention of the National policy for the provision of basic refuse removal services to indigent households which requires that waste collection services should be delivered to indigent households.
- Will not contribute to government targets (Outcome 10 targets) which aim to increase the number of households receiving a waste collection service to 95% of urban households and 75% of rural households by 2016. (National Waste Management Strategy, November 2011 by Department of Environment Affairs and Tourism). This National Waste Management Strategy has been reviewed and the third National Waste Management Strategy was promulgated on 3 December 2019. The challenge with the revised strategy is not only to achieve and surpass the service delivery targets set in the NWMS 2011, but to leverage waste beneficiation to improve the sustainability of service delivery in the long term. New targets will be set which Municipalities need to adhere to.
- Further, it will contravene any applicable municipal by-laws including the Municipality's Constitutional obligation on the delivery of waste collection services.
- The poor and the most vulnerable will continue to live in unhygienic conditions posing health and safety challenges such as vector borne diseases.

9.3 Resource Extension

Goal 3: Provide an Effective and a Cost-Efficient Waste Management Service

Targets:

1. Effective structure and extension of human resources,
2. Extend and maintain waste collection fleet for service delivery,
3. Effective financial management for waste management,
4. Implement improved tariff model, and
5. Decrease non – payment of tariffs.

9.3.1 Target 1: Effective structure and extension of human resources.

It is recommended that the Municipality compiles a detailed organogram of waste management personnel and first fill any vacant positions. Thereafter the need for additional positions should be identified, the organogram updated, and the new vacant positions filled.

The organizational capacity and current staff compliment within the Community Services Department of the Municipality (responsible for waste management) is deemed to be not sufficient to service the unserved households and backlogs.

As explained in Section 3.2.2 and Section 3.2.6 of the Report, the immediate Human Resource Capacity Staff needed to ensure an effective and efficient waste management service within the Municipality is as follows:

Table 33: Human Resource Capacity required

Position	Number of Staff Required
Transfer Station / Drop-off Facility Supervisor	2
Drivers	3
General Workers / Runners	12
Waste Management Specialist (to drive Recycling Initiatives)	1
Total	18

The Municipality must ensure that the vacant positions are filled with suitably qualified personnel and that the personnel receive the training required to fulfil their duties effectively.

Depending on the level of training required, general labourer versus compactor operator, it must be decided whether to provide in-house training or whether to provide the employee with specialised training. In-house training should only be attempted if the capacity and knowledge exist within the Municipality, but it is recommended that experts be obtained to provide more specialised training.

9.3.2 Target 2: Extend and maintain waste collection fleet/equipment for service delivery.

The Blouberg Municipality has a limited number of waste management vehicles and is experiencing a severe shortage of equipment for waste collection and landfill operation, especially at the Alldays landfill where the operation is currently not outsourced to a contractor. There is only a bulldozer available at the Alldays landfill but was not present on the site during the site inspection.

Since the operation at the Alldays landfill is to be sourced to a contractor soon, who will have to bring in his own equipment for landfill operation, it is not deemed necessary to purchase any additional landfill equipment at this stage. The appointment of the contractor at the Alldays landfill should be fast-tracked.

The correct type and numbers of vehicles which is required for delivery of waste management services is a major contributing factor for the Municipality to ensure effective and efficient waste service delivery.

The Municipality has only 2 compactor trucks and one tractor trailer system. It was found that only one of the compactor trucks was operational, while the other compactor truck was faulty. It is evident that the vehicles required for waste service delivery are not performing optimally as many of the vehicles require service and maintenance.

The vehicle fleet will have to be extended once waste collection services are extended to service the unserved areas (backlogs) and new areas when they are developed, as well as the equipment to service the existing and proposed transfer station in Taaibosch and Inveraan/Indermak/Puraspa, respectively.

Collection vehicles that are the most appropriate for the specific task and geographical terrain must be used. Collection vehicles used for the collection of non-recyclable waste might not be appropriate for the collection of recyclable waste.

Consideration must be given to the following:

1. Type of waste to be removed - recyclable or non-recyclable;
2. The geographical area of collection;
3. The method of collection - e.g. whether the receptacles in use need specialised equipment to be lifted or not;
4. How much each type of waste can be compacted;
5. Any leachate forming when compacting the waste;
6. Whether different types of recyclables are collected in one receptacle at the households;
7. Collection vehicles, used for the collection and transportation of waste must not be used for any other purpose while collecting and transporting waste;
8. Health issues (regular cleaning of the vehicles is required) must be considered;
9. Waste must be collected and transported in closed vehicles (covered to ensure no windblown litter generation) to prevent littering during transportation. Non-compatible vehicles must be phased out.
10. Maintenance schedules must be adhered to and roadworthiness of vehicles ensured where applicable in order to ensure a reliable waste collection service.

Additional vehicles that would be required to collect waste from the unserved households and proposed developments and since one compactor truck is old and faulty, the Municipality would

need 1 (one) additional 19m³ REL compactor truck, to service the unserved households and additional residential developments.

With the existing transfer station in Taaibosch and the proposed transfer station in Inveraan/Indermak/Puraspa to be established, it is proposed that **2 (two) skip loader trucks (one skip loader in Taaibosch and 1 skip loader in Inveraan/Indermak/Puraspa)** be purchased to service the two transfer stations.

It is imperative that the Municipality should compile a vehicle replacement plan to ensure that future planning for the replacement of the vehicles is done at the appropriate time.

The equipment and vehicles required for the transfer station in Taaibosch and the proposed transfer station in Inveraan/Indermak/Puraspa will be:

1. 2 x Skip Loader trucks (Total: R2,600,000 or R1,300,000 per truck)
2. 16 x 6m³ skips @ R 13,300 per skip

Fleet Management must allocate a budget to purchase new vehicles and equipment for operational purposes within the waste department. Collaboration is required with the fleet management section of the Municipality and external service providers to ensure that turn-around time for servicing the waste fleet is reduced.

The total number of vehicles and equipment required for the waste collection and transfer need within the Municipality is as follows:

Table 34: Vehicle and Equipment Requirements

Vehicle/Equipment	Number Required	Total Amount
Skip Loader truck	2	R2,600,000
6m ³ skips	16	R212,800
20m ³ REL Compactor Truck	1	R2,050,000
Total		R4,862,800

Alternative:

1. Privatisation of Waste Collection.
2. Waste collection by community-based collection models

Alternative 1: Privatisation of Waste Collection.

Analysis for alternative no 1:

A Section 78 (S78) assessment is a process required by the Municipal Systems Act (2000) and will cost the Municipality an estimated R 600 000-00 per study. The cost – benefit of privatisation of the municipalities' waste collection services can only be determined after the study has been completed. It is therefore recommended that the Municipality allows for the study within their municipal budget in order to analyse the possible advantages to privatise the collection of waste within its boundaries.

Possible benefits of privatisation of the waste collection services could include:

1. Reduced operating cost of waste collection,
2. Reduced capital expenditure for the Municipality in terms of trucks and equipment procurement,
3. Reduced operational expenditure in terms of salaries,
4. Improved waste collection services within the municipal area.

Alternative 2: Waste collection by community-based collection models.

Locals can be used to service villages or densely populated settlements such as informal settlements.

Increase SME participation by encouraging locals to explore opportunities in waste through using labour intensive collection models.

The main aim is to increase the number of households receiving a waste collection service and by promoting labour intensive collection methods a municipality could realize other spin offs such as creating job opportunities as well as encouraging entrepreneurship.

More information on a community-based waste collection system is as follows:

Collection in informal settlements is hampered by poor access and lack of roads within the settlements themselves. As such, conventional collection vehicles (compactors) cannot access individual households and therefore providing an individual household service in these areas is impossible. Furthermore, the lack of title and ownership of property restricts municipalities' collection budgets, as rates are not collected in these areas.

People living in informal settlements have the right to basic services including waste collection. Informal settlements are typically serviced at the expense of ratepayers. All municipalities have pro-poor or indigent policies that cater for the poor people who cannot afford to pay for the municipal services.

Some key obstacles with regards to financing free basic services are discussed below.

There is no financial recovery for the waste service in informal settlements in the form of rates; it is recommended that an innovation tariff system be implemented by the Municipalities whereby tariffs are linked to waste volumes produced by the households. The municipality charges ratepayers only for the volume of waste that is collected by the municipality. The result of this has been that ratepayers are encouraged to recycle and thereby reduce the amount of waste generated.

No billing system can be established for informal settlements as there is no title or ownership structure for individual houses.

In order to meet the basic needs for all the residents in the municipalities, the municipalities must ensure that indigent residents have access to free lifeline basic services. The indigent and pro poor policies force the municipalities to render free basic services to the people who cannot afford to pay for such services.

To provide services in the unserved areas of the Municipality seems to be a daunting and impossible task. However, a solution recommended was found in the communities themselves providing the service. And therefore, a different approach was needed - one in which the entire community would benefit, and the local authority could achieve its service delivery goal.

A community-based refuse collection business model allows the municipality to achieve their service delivery goals by providing efficient, sustainable waste management services while at the same time answering to the wider need for government and the private sector to promote Black Economic Empowerment, create jobs, transfer skills and uplift communities. Waste collection is an ideal industry within which to create employment. It can be adapted to be labour intensive, instead of capital-intensive as is the case in many developed countries.

The first step in establishing a community based-waste collection system for the unserved or rural areas is that local municipal councillors and community leaders must identify suitable community contractors within a designated area within the municipality. These are generally unemployed individuals, men and women, who show entrepreneurial and leadership qualities, are literate and have valid driver's licenses. Importantly, they are individuals who are accepted by the community.

A contract is entered into between the municipality and a third party/ies in which the third party/ies agrees to sub-contract the collection service to community contractors, who are members of the community being serviced. The contractors commit to providing services to a defined standard; and the third party/ies agrees to train and assist the contractors set up and run their small businesses. The third party/ies arranges bank loans for the contractors to buy their vehicles and equipment, which they own from the first day of operating their businesses and also assists the

contractors with all facets of establishing their businesses, from finding premises, to recruiting staff, from the legal aspects to financial and administrative systems.

The contractors are put through a five-year training programme in the management of small businesses, which has been accredited by the University of South Africa. The third party/ies remains involved throughout the entire contract period, which is usually five years. This is a key element of its success, since most new enterprises fail because the owners can perform the technical work but have no administrative experience. On-going service provision includes financial management support, quality control and community liaison.

The waste collection skills needed are easily taught and can be supplemented in a way that allows the new waste management entrepreneurs to remain in control of their own businesses. Jobs are created within the community for formerly unemployed and unemployable men and women, helping people in these communities prosper. Their environment is also far cleaner and healthier. As a result, they are more able and willing to contribute a small monthly payment for waste removal services. Typically, each contractor employs 12 to 16 people from within the local community to service 5000 collection points, and the programme endeavours to spend at least 70 per cent of the contract revenue within the community by way of salaries and wages, diesel purchases and consumables.

9.3.3 Target 3: Effective financial management for waste management

It is recommended that a detailed financial investigation be conducted by the Municipality which will address the following:

- Operational management of vehicles, salaries, etc.
- Basic service allocation (appropriation) from MIG funding (including total allocation for indigents)
- Credit control
 - assessment of effective use of financial system & reporting ability
 - accessibility of pay points to the public
 - CRM
 - Indigent Management with specific regard to allocate equitable share to the accounts
- Pricing & tariffs
 - Review policies & compile by-law for legal compliances including Tariff Policy, Credit Control, debt collection & Indigent Policy
 - Identify gaps in terms of legislation & policies
 - Identify operational non-compliance
 - Assess tariff costing mechanism or formula
 - High level exercise to determine actual cost of services delivered

- Contribution of developers to bulk infrastructure
- Billing
 - Differentiation of household, business(s) for billing purposes
- Other issues
 - Budget management
 - Cash flow assessment
 - High level balance sheet review.

The current billing system does not seem to be effective. A pre-paid system should be investigated to be implemented where non-payment of fees is present. The Municipality must also take cognizance of the draft policy on Free Basic Refuse removal and develop an action plan for implementation.

It is further recommended that a detailed financial investigation be undertaken to investigate the operational management of vehicles, salaries, basic service allocation, credit control, pricing and tariffs, and other issues i.e. budget management etc.

9.3.4 Target 4: Implement improved tariff model

To provide a cost-effective waste management service the tariff structure should be investigated to be viable and be standardised. A distinction between the tariffs for waste collection at domestic, businesses and Government Institutions should be made that will ensure that the generators of waste pay for the waste they generate. This can also be an incentive for businesses to minimise their waste streams.

The financial implications of the free basic refuse removal service to indigents should be determined to ensure that the cost shortfall not covered by the Equitable Share is budgeted for accordingly by the Municipality.

In South Africa, each local municipality has a unique set of parameters that influences waste service delivery and tariff charges. Parameters can vary from the type of waste removed, municipal infrastructure and budgeted expenditure on unique services. A comprehensive tariff study is needed to accommodate the following:

- Upgrading service delivery and introduction of waste services throughout the municipal area will entail standardising the service that is delivered to all the households in the area.
- All households must therefore be serviced on an equal basis, either by the Municipality or by the community.
- In the medium term it is important that the tariffs identified for service delivery is comparable throughout each local municipal area in the District.
- Over a longer-term, service need to be identified and uniform tariffs implemented throughout the municipal area.

- The standardisation of the tariff structure will provide uniformity that may encourage payment of tariffs.
- Tariffs for additional services, including garden and commercial waste removal, should also be according to service delivery.
- The Municipality must also take cognizance of the draft policy on Free Basic Refuse removal and develop an action plan for implementation.

DEA has developed a standard tariff model that can be used as a base for implementation and adaption by the municipality for an implementation of an improved tariff model.

9.3.5 Target 5: Decrease non – payment of tariffs

To provide a cost-effective waste management service, the payment of service tariffs should be improved. Formal households as well as businesses currently serviced are billed on a monthly basis in conjunction with their water and electricity bills. Penalties for non-payment of accounts should therefore easily be enforced by withholding services. This however is an administrative problem that generally takes a long time.

The inclusion of more areas, however, may increase the likelihood of non-payment by residents. A possible option is a pre-paid system similar to the one used for electricity. The system can be a coupon-based system where coupons can be bought in advance for a specific month. The negative aspect is that non-payment and subsequent non-delivery of services will lead to an increase in the instances of illegal dumping in the area. It is recommended that the pre-paid system be used in accordance with strategies to prevent illegal dumping in the municipal area. It would also be possible for the Municipality to retrieve some of the lost service fees from the Equitable Share.

9.3.6 Legal requirements/framework

Section 24 of The Constitution of the Republic of South Africa (Act No. 108 of 1996) gives every person a right to an environment that is not harmful to their health or well-being. Schedule 5B assigns the responsibility for waste collection services and disposal to local government. Furthermore, the delivery of municipal services is defined both in the Municipal Structures Act (Act No. 117 of 1998) and the Municipal Systems Act (Act No. 32 of 2000). In addition to the mandate outlined in The Constitution and the Municipal Systems and the Municipal Structures Acts, the Waste Act (Act No. 59 of 2008), requires municipalities to provide containers for recyclables, the waste information system and integrated waste management planning. The municipality must also draft waste management by-laws that are specific for their area of jurisdiction. The by-laws must be specific on the services that are provided, and the charges and tariffs associated with the services. It must also provide for the regulation of services not

provided. For example, if garden waste is not removed by the municipality, regulations must state how communities must deal with this waste stream. It must provide for permits to be issued to private companies or persons providing the service on behalf of the municipality to allow control over these services. The by-laws to be developed should also make provision for the implementation of the waste management hierarchy. For example, the by-law may state that certain waste streams must be separated at source and taken to drop-off centres or recycling facilities.

9.3.7 Resources and finances

Several financial resources options for the implementation of the various recommendations were identified.

- Municipal Budget (Shortage of Municipal funds)
- Municipal Infrastructure Grants or Special Municipal Infrastructure Fund. National Government three-year cycle and business plans have to be submitted and funds made available to District Municipalities
- Equitable Share provided by Government should be used for subsidising refuse removal tariffs.

9.3.8 The implications should there be lack of action on the strategic goal 3

If goal 3 is not implemented the municipality would not be able to provide the necessary waste management services as effective financial management and income generation is required for all aspects of management planning. Another problem is that due to the high demand for waste collection services and the limited resources available to municipalities, municipalities often find themselves having to work overtime. This practice is closely regulated by the municipal financial legislation as well as the labour laws. In trying to cope with the increased demand, municipalities often transgress these legislative prescripts of ensuring a certain maximum number of hours a worker can be expected to work overtime as well as the maximum amount of money a municipality can spend on overtime payments. The solution is to balance service delivery and available resources. Innovative planning of collection rounds and schedules can significantly cut the overtime required.

9.4 Waste Minimisation

Goal 4: Decrease waste deposited on landfill

Targets:

1. Formalise and encourage recycling activities,

2. Encourage waste minimisation.

9.4.1 Target 1: Formalise and encourage recycling activities.

Currently the Municipality has a partnership with PEACE (Planning, Education, Agriculture, Cooperatives and Environment) Foundation to deal with waste management issues. The foundation is an organisation that focuses at alleviation of poverty in rural areas of South Africa. A recycling buyback centre (in Senwabarwana) was initiated as a community project, to facilitate collection, sorting and selling of waste. Waste recycled at the Senwabarwana landfill site is also brought to the buy-back centre where different types of waste such as paper, plastic and cans are baled and then sold. This initiative should be promoted and could be rolled out to other areas as well.

In order to ensure maximum recycling, from the above initiative, it is recommended that a formal agreement be reached with waste recycling industries and companies. These companies will then work together with potential waste recyclers in the municipal area. DEFF has signed agreements with the plastic, glass, waste tyre and Poly-Ethylene Terephthalate (PET) industries. To this end, it is further recommended that the DEFF be approached to assist in facilitating the recycling of the aforementioned waste streams. In addition to this, the Municipality can appoint a Waste Specialist to enhance the current programmes and to identify, monitor and evaluate recycling opportunities and other initiatives within the Municipality.

9.4.2 Target 2: Encourage waste minimisation

Waste minimisation at source is more effective than recycling since it reduces removal and transport costs. It is therefore recommended that waste sorting and minimisation be encouraged amongst the households and businesses within the Municipality.

9.4.3 Legal requirements/framework

Waste minimisation should be encouraged via by-laws that needs to be compiled to make provision for the implementation of the waste management hierarchy.

9.4.4 Resources and finances

Several financial resources options for the implementation of the various recommendations were identified.

- Municipal Budget (Shortage of Municipal funds)
- Municipal Infrastructure Grants or Special Municipal Infrastructure Fund. National Government three-year cycle and business plans have to be submitted and funds made available to District Municipalities,

- Capital gains from the recycling market.

9.4.5 The implications should there be lack of action on the strategic goal 4

If goal 4 is not implemented, the municipality will not adhere to the principles of the NEM: WAA and landfill airspace will not be optimised.

9.5 Management of Illegal Activities

Goal 5: Minimise/prevent illegal activities

Targets:

1. Develop an Illegal Dumping Management Strategy,
2. Improve removal of illegally dumped waste.

9.5.1 Target 1: Develop an Illegal Dumping Management Strategy

The Municipality experiences problems with illegal dumping within its jurisdiction. This can either be attributed to a lack of an effective refuse removal service, or residents being unaware of their options regarding private waste disposal. It is anticipated that a certain portion of these activities will be eliminated through proper community awareness programs.

It is imperative that the Municipality develops and implements a system to minimise or stop illegal dumping within the Municipal area. The major problem facing the Municipalities is that they do not have the specific manpower to police the illegal disposal of waste. Within the serviced areas it is easier to regulate illegal dumping and introduce a penalty system for offenders. There are several actions the Municipalities can take to minimise illegal dumping and introduce such a penalty system.

The first is that Municipal By-laws must be drafted and be enforced in order to issue spot fines for residents caught dumping waste in illegal areas. This will to a certain degree reduce and prevent illegal dumping within the town boundaries. The disadvantage is that it will not reduce dumping outside the town boundary, and it will increase the pressure on already limited human resources.

A second option will be to introduce community awareness whereby a community watch movement is introduced. This will limit the pressure on the human resources of the municipality as neighbourhood watch systems are put in place. Incentives such as discount on regular fees for "clean" neighbourhoods can be introduced to encourage these activities.

A third option is the provision of refuse skips at strategic locations, throughout the villages to minimise travelling distances for the general public and to provide convenient access to a disposal facility. The Municipalities can then remove the refuse on a monthly basis.

The costs of the skips are:

Table 35: Estimated Skip Costs

Estimated skip costs	
5.5 m ³	R 11,900.00
6 m ³	R 13,300.00
9 m ³	R 15,300.00
11 m ³	R 17,170.00

A fourth option is the Good Green Deed Program that is a tool that assists the municipality in the elimination of illegal dumping, as well as providing education and awareness programs. The municipality has EPWP participants designated to assist and perform activities that involve waste management. EPWP participants are funded by the Department of Public Works and are usually employed on a one-year contract. The municipality is responsible for managing the EPWP participants. It is recommended that the Municipality appoints a coordinator for the Good Green Deed Program.

It is recommended that a combination of the above be implemented to find an effective solution to the illegal dumping of waste. The compilation and enforcement of by-laws and policy and strategy development by the municipality will assist with the illegal dumping problem. Through community awareness and a neighbourhood watch system, the residents will have all the information regarding the disposal of waste in their area. They will also be aware of the incentive scheme to prevent illegal dumping from taking place within their surrounds.

9.5.2 Target 2: Improve removal of illegally dumped waste

Illegal dumping of waste is common all over the Municipal area. The Municipality has to collect this waste at an unnecessary cost.

The Municipality should clean all areas where waste is illegally dumped. The Municipality should place skips in “illegally dumping hot spot areas”, as well as notice boards to try and prevent further illegal dumping in these areas once cleaned.

9.5.3 Legal requirements/framework

Section 24 of The Constitution of the Republic of South Africa (Act No. 108 of 1996) gives every person a right to an environment that is not harmful to their health or well-being. Illegal dumping should be prevented by enforcing the waste management by-laws of the Municipality.

9.5.4 Resources and finances

Several financial resources options for the implementation of the various recommendations were identified.

- Municipal Budget (Shortage of Municipal funds)
- Municipal Infrastructure Grants or Special Municipal Infrastructure Fund. National Government three-year cycle and business plans have to be submitted and funds made available to District Municipalities

9.5.5 The implications should there be lack of action on the strategic goal 5

If goal 5 is not implemented, the municipal officials will not be able to enforce waste management requirements i.e. as set in by-laws. This will result in transgressions i.e. illegal dumping of waste. A system to involve residents to assist the municipal officials to report waste transgressions will help the short-staffed municipality to keep a watch full eye all over the municipal area.

9.6 Waste Information System

Goal 6: Capacity building through information sharing

Targets:

1. Develop and maintain a waste information system,
2. Contribute to Inter Municipal Waste Information Workshops.

9.6.1 Target 1: Develop and maintain a waste information system

The main target would be to develop and maintain a WIS. This system would allow for record-keeping of comprehensive records of waste disposal and collection on which informed decision-making can be based and to comply with the reporting requirements of the relevant Provincial authority. The operator of the weighbridge at Senwabarwana landfill, and the operator to be appointed at the Alldays landfill, will soon be able to provide more accurate waste disposal data which could be captured in the WIS.

The costs involved in the development of a WIS will vary depending on the structure and contentiousness of the area. **DEFF has developed a generic WIS that may be provided to the Municipality for implementation.**

9.6.2 Target 2: Contribute to Inter Municipal Waste Information Workshops

The current difference in service delivery management within the Limpopo Province necessitates that frequent information sharing sessions be held to share capacity building information. Another option is to provide quarterly reports regarding waste management to other Local Municipalities. It is proposed that the information sharing sessions would be the preferred option since it would allow for discussions on problems encountered and not only provide information. These quarterly meetings should be attended by all the Local Municipalities within the District Municipality as well as representatives from the relevant Provincial **Environmental** Department, LEDET.

9.6.3 Legal requirements/framework

Any person (including the Municipality) conducting an existing waste management activity listed in Annexure 1 of the National Waste Information Regulations under Section 26 (1)(t) and (ee) of NEM: WAA must apply to the DEFF to be registered on the South African Waste Information System (SAWIS) to report on the types of waste, source from which waste comes from and quantity of waste in tons. The Regulations is applicable to landfills where more than 150 tons of waste is being disposed of per day. Currently less than 150 tons of waste is disposed of at the Senwabarwana and Alldays landfills per day but should be closely monitored by the Municipality for planning purposes.

9.6.4 Resources and finances

Several financial resources options for the implementation of the various recommendations were identified.

- Municipal Budget (Shortage of Municipal funds)

9.6.5 The implications should there be lack of action on the strategic goal 6

If goal 6 is not implemented, the performance within the municipal area will not improve. If personnel do not have the correct information at hand, they will not be able to properly plan and manage waste in their municipal area.

9.7 Education and Awareness

Goal 7: An educated community that is aware of the principles of responsible waste management

Targets:

1. Build Community Awareness.

9.7.1 Target 1: Build community awareness

The Municipality presently does not have any formal community awareness campaigns that are directed at informing the general community with regards to waste management.

A top down approach by the Municipality relies heavily on non-payment penalties to ensure that residents comply with legislation. Recycling and waste minimisation initiatives, however, are not included in the normal service delivery and can only be effectively achieved with the co-operation of the residents.

It is therefore vitally important that the community is made aware of initiatives, waste recycling activities and the advantages of waste minimisation and recycling by the Municipality. This can either be achieved by advertisements and notices in the local newspapers or by providing information regarding these initiatives on the municipal bills distributed each month. The Municipality can also conduct road shows to demonstrate to and inform people of waste related issues.

An Awareness Campaign is crucial to make people aware of the Integrated Waste Management Plan of the Municipality. This awareness campaign needs to have the full support of the Municipality and other Government Departments. This campaign will need to look at an integrated approach to community awareness, this can include one or more of the following campaigns: -

- **A.** Site visits by schools, community groups and businesses to a recycling centre.
- **B.** Awareness programs at schools, crèches, hostels etc.
- **C.** Town and school clean up campaigns, with prizes for the most waste collected.
- **D.** Awareness through plays, pantomimes, dances and song.
- **E.** Teaching of community members to use waste as a resource in their homes and to make crafts, which can be sold,
- **F.** Encouraging schools to establish recycling centres and use as much of the waste for arts, crafts, gardening and functional gadgets.
- **G.** Adopt a spot campaign.
- **H.** Environmental Clubs

A. Site visits by schools, community groups and businesses to a recycling centre.

Each recycling centre will have trained staff that will be capable of handling visiting groups to the centre. This site visit will teach the visiting group exactly how a recycling centre is run. They will also be exposed to the downstream projects like the composting and vegetable gardens. These ideas can then be replicated at each of the schools or community houses.

B. Awareness programs at schools, crèches, and hostels

This will involve individual site visits to each school (Can be done by LEDET officials). Each school will be required to firstly arrange a clean-up campaign in and around the school. This waste is to be brought back to the school where it will be analysed. The students will be given the opportunity to find uses for each type of waste. They will also be shown examples of things made from waste. They will then be shown what to do with the waste. This could include crafts, swings, and sold as scrap for income, arts, handy tools, blocks or useful agricultural gadgets. The school will also be encouraged to establish a waste management system at the school. This could include a recycling centre and waste management policy.

The students will then be introduced to the competition. This will include the following: -

- Drawing and colouring in competition which depicts a dirty and clean environment
- Make any toy from waste.
- Make a recreational item from tyres.
- Make any handy item from a PET bottle.
- Make anything from tin.
- Make anything from paper or cardboard.
- Make anything from glass.

The above categories are distributed between the grades by the Principle. The Provincial Environmental Department can allocate a small budget for the materials needed; will allocate a time period where they will return to monitor the progress. On completion the schools submit their best examples to the judging committee.

The final judging will be done by prominent members of the community and ended off with a ceremony and prize giving for the best categories.

The other competition can be run by “Collect a Can”, plastic or glass recycling companies and will also be introduced to each school. This involves the collection of tin cans only at each school. The school is encouraged to collect cans from homes, functions and public areas. These cans are sent to the recycling centre where the cans are weighed and documented. Each year the total

tonnage is added up and submitted to Collect a Can Competition. The school with the most cans collected per school member wins a prize for the school.

C. Town and school clean up campaigns

Part of any waste program comes the initial cleaning up of the town, school or village. Here the local schools and church groups can be involved. To make the campaign more appealing there should be some sort of incentive like prizes, snacks or cash incentives for the schools' benefit. This can easily be coordinated with the Department of Education and School heads.

Part of the clean-up would include a presentation on what the clean-up is all about and why it is being done. The opportunity should be taken to encourage the setting up of small recycling centres. On completion of the clean up the children will return to the respective schools with the waste collected. This waste will then be tipped out and analysed to see what types of waste was collected and why people threw it away in the first place. The students should then be encouraged to think of uses for the waste.

The Local Municipality will then take this waste away to the Senwabarwana and Alldays landfills, located within the municipal area.

D. Awareness through plays, pantomimes, dances and song

This campaign would also involve schools in the area. This would start with a visit to the relevant institution to introduce the program. The institution would then develop a pantomime, dance or song to encourage waste awareness. The group would be allocated a small budget to create costumes and props. They would then visit public meetings for school functions to promote waste awareness.

E. Teaching of community members to use waste as a resource in their homes and to make crafts from the waste

This approach would be encouraging any interested community member to use waste as a resource at their homes. Poor communities are normally the best recyclers and waste users as they have through necessity used waste to build their homes. Some ideas would be as follows: -

- Using 2l plastic bottles for rain gauges, funnel or for planting in.
- Using wastepaper to make usable furniture, trays or bins.
- Using plastic bags to make bags, mats, jackets and hats. These items are of such good quality that they can be sold for income generation.
- Old glass bottles can be crushed and used to make concrete bricks and blocks.
- Tins can be used to make hats, lunch boxes, arty flowers and ashtrays.

F. Encouraging schools to establish recycling centres and use as much of the waste for arts, crafts, gardening and functional gadgets.

Schools can be taught how to use their waste for the arts and crafts programs or to be used in the vegetable gardens or be used to retain erosion banks.

G. Adopt a spot campaign.

The idea behind it is to encourage schools, businesses, Woman's groups, Municipalities etc. to adopt a part of the Municipality which is important to them. This might be a park area, which is overgrown, dirty and vandalized. The nearby school can now adopt that site and it will be there responsibility to keep it in working order for the year. Sponsors can be approached to assist in fixing the park up of paying for tools and labour. A sign is then erected on site with the Adopted groups name on it.

H. Environmental Clubs

- The establishment of environmental youth clubs is seen as an integral part of the programme that has a potential to draw youth involvement into implementing environmental outreach programs.
- Ward Councillors could be encouraged to revive or set up environmental desks where street representatives could be allocated.
- The Provincial Environmental Department will be intimately involved in establishing these clubs.

I. Community Awareness

The neighbouring schools are also involved in school competitions and drama performances in order to strengthen the public awareness campaign. Although there will be efforts made to inform the community about waste management and the importance of the environment, some community members will still burn their waste, hawkers will continue throwing waste on the ground despite the provision of waste bins for their convenience, the reason being they are creating more jobs for waste collection.

In order to enhance the public environmental awareness campaigns a few suggestions are made below:

- The environmental advisory unit within the Provincial Environmental Department should be engaged as their contribution could be enormous for the programme.

- The establishment of environmental youth clubs is seen as an integral part of the programme that has a potential to draw youth involvement into implementing environmental outreach programs.
- Community meetings, road shows, interaction through local radio station, door-to-door distribution of information are tools that should be implemented to encourage the recycling activities.
- Local schools should be encouraged to participate in recycling activities and environmental education should be involved in school curriculum.
- Ward Councillors could be encouraged to revive or set up environmental desks where street representatives could be allocated.
- Meeting with traditional leadership to encourage their ownership and communication of such initiatives into the rural areas.
- Publication of articles in local newspapers, printing of posters and information leaflets.

J. Workshops

Financial institutions should be engaging the community in environmental public awareness campaigns organized through workshops to inform the community about programmes and funders. The workshops should highlight to the community the importance of sorting their waste at home.

Although there were efforts made to inform the community about waste management and the importance of the environment, some community members still burn their waste, hawkers continue throwing waste on the ground despite the provision of waste bins for their convenience, the reason being they are creating more jobs for waste collection.

PUBLIC INFORMATION

The establishment of a library with lots of information on recycling, waste minimisation and integrated waste management. So, if you are looking for information, a central office which could be at the existing Municipal offices will have a selection of books on the above subjects and numerous national and international publications on waste issues.

10. FUNDING/RESOURCES AND FINANCES

The Municipality will have to source funding for the proposed goals and targets. The funding mechanisms used could be from internal sources (operational budgets) or outside sources like government departments, private sector, and international funders/donors.

Possible donor sources for the Municipality are as follows:

- Municipal Infrastructure grant (MIG)
- Department of Environment, Forestry and Fisheries (DEFF) - Various programmes and partnerships
- Department of Public Works (DPW) – Extended Public Works Programme (EPWP) for labour intensive construction methods.
- Department of Trade and Industry (DTI) – Various Programmes and Schemes
- Industrial Development Corporation (IDC) – Green Energy Fund
- Royal Danish Embassy (DANIDA)
- World Bank
- United Nations Development Programme

11. RECOMMENDATIONS

The following recommendations have been derived from the situation analysis and the desired end state:

Target	Recommendations	Implementation Detail
Goal 1: Improve and develop infrastructure to comply with legislative requirements and municipal needs.		
Target 1: Ensure that all the landfill sites in the Municipality are licensed and comply with legislative requirements.	<p>The Alldays landfill site should be upgraded in the immediate to short term, including the site operations.</p> <p>A landfill supervisor at the Alldays landfill site should be appointed, and training should be provided for all waste disposal facility supervisors and operators.</p>	<p>At the Alldays landfill site, provision for the upgrade of the waste disposal (construction of phase 2) was made. The upgrade will include a weighbridge, proper access control, fencing, ablution facilities, new disposal cells and recycling areas. A new waste management license application will have to be prepared and submitted to the Competent Authority (LEDET).</p> <p>The Alldays landfill site is experiencing operational problems mainly as a result of uneducated personnel as well as interference by uncontrolled reclaiming activities on daily operations and the lack of infrastructure at the landfill sites.</p> <p>The upgrades will assist the site staff to operate the site in accordance with the Minimum Requirements for Waste Disposal by Landfill and the license conditions. To further assist the staff to properly operate the site, it is recommended that an Operational Plan be compiled for the operation of the landfill site. The Operational Plan of the Alldays landfill site should <i>inter alia</i> address proper access control, recording of incoming waste volumes and volumes recycled, operational principles to follow for</p>

Target	Recommendations	Implementation Detail
		<p>compliance with the approved cell development plan, recycling operations, handling of special waste streams i.e. tyres, and basic operational principles of sanitary landfilling such as daily compaction and covering of waste. The haphazard disposal of waste and burning of waste should be phased out immediately.</p> <p>The Senwabarwana waste disposal site is licenced, and reasonably well operated by a contractor. The site should continue to be operated in accordance with its licence conditions and regularly audited as required</p> <p>Waste disposal facility operators and supervisors should attend courses to have the “know-how” to operate waste disposal facilities. Consideration should be given to also outsource the operations at the Alldays landfill, as well extending the contract to outsource the operations at the Senwabarwana landfill (once expired).</p> <p>The Taaibosch transfer station should be upgraded by repairing the fencing where it is interrupted as a result of poor installation and theft. The upgrades at the Taaibosch transfer station should include ramps and skips, from where waste can be transferred to the Alldays landfill.</p>
	Conduct Audit Management of Landfill Sites to maintain favourable operations	<p>A professional service provider should be appointed on a bi-annual basis to audit the Senwabarwana and Alldays landfill sites to ensure conformance to license conditions and/or minimum requirements. The landfill</p>

Target	Recommendations	Implementation Detail
		audit reports will enable the municipality to take corrective steps on non-conformance items in order to improve the management at the landfill sites and in order to comply with applicable legislation.
	Investigate the feasibility establishing a transfer station at the vicinity of Inveraam/Indermak/Puraspa to serve the secondary settlements. in the medium to long term.	A feasibility study should be conducted to investigate the feasibility of establishing a transfer station at the vicinity of Inveraam/Indermak/Puraspa to serve the secondary settlements, from where waste will be transferred to the centralised regional landfill, being the Senwabarwana landfill site (since it is the landfill site closest to the proposed transfer station locations). If proven to be feasible , the transfer station should be properly located, designed and constructed. This transfer station facility does not have to be licensed (anticipated throughput of less than 100m ³ of waste per day), as it falls under Category C listed Activities which only requires conformance to the National Norms and Standards for the Storage of Waste.
	Should the option to investigate, the feasibility establishing a transfer station at the vicinity of Inveraam/Indermak/Puraspa to serve the secondary settlements is proven to be feasible, technical designs should	A professional service provider should be appointed by the municipality to compile technical designs for the proposed transfer infrastructure facilities in the vicinity of Inveraam/Indermak/Puraspa, and to prepare drawings for construction for all. The service provider needs to assist with the tender letting process and site supervision of the construction work at the transfer station.

Target	Recommendations	Implementation Detail
	be prepared, and put out tenders for the construction work for the establishment transfer infrastructure facilities.	
	Conduct a Section 78 service delivery- assessment to determine the privatisation of waste disposal operations at the Alldays landfill site.	In order to establish the feasibility to privatise the management of the Alldays landfill site within the municipal area, a Section 78 service delivery- assessment should be conducted to assess potential service delivery mechanisms for the provision of a municipal service (waste disposal services).
Goal 2: Provide effective waste collection		
Target 1: Extend service delivery to all areas within the Municipality and extend service delivery to all indigent populations where possible.	Extend services to unserved areas	The Municipality should also extend the free basic refuse removal service to indigents in serviced settlements on an on-going basis and as per targets indicated in Section 9.2.2 of this Report.
Target 2: Effectively plan to extend service delivery to any new developments within the Municipality	Add new residential development areas as it develops	Extend services to include the proposed new developments in service delivery system. Section 9.2.2 of this Report outlines the new developments.
	Privatise waste collection for new or rural unserved developments	Privatisation of waste collection can be considered for mid and high-income developments, while waste collection in the villages can be done in the form of a PPP with SME's with all waste disposed of at the local landfills.
Target 3: Conduct a transportation study to identify and optimise collection routes and number of service points	Optimise Collection Routes	Amend and optimise waste transportation system by conducting a transportation study. Consider alternative vehicles and transportation options.

Target	Recommendations	Implementation Detail
Target 4: Establish receptacle requirements within the Municipality and supply the receptacles to residents in order to optimise collection efforts.	Continue with current refuse collection system and phase in new receptacles	Continue with current refuse removal system and phase in new receptacles i.e. wheelie bins.
Goal 3: Provide an Effective and a Cost-Efficient Waste Management Service		
Target 1: Effective structure and extension of human resources	Compile a detailed organogram of waste management personnel	A detailed organogram of waste management personnel should be compiled to include the following appointments to be made: Alldays area: <ul style="list-style-type: none"> • two(2) Supervisors • three (3) Drivers, • twelve (12) General workers (runners) and, • one (1) Waste Management Specialist (to drive Recycling Initiatives). Senwabarwana area <ul style="list-style-type: none"> • one (1) Waste Management Specialist (to drive Recycling Initiatives).
	Employ new staff as vacancies develop	Fill current vacant positions and create posts to extend human resources capacity to fulfil service requirements, if necessary.
	Provide training for low level staff and for specialised positions	Locally train low level staff and provide specialised training for specialised positions and ensure proper training of contracted personnel.
Target 2: Extend and maintain waste collection fleet for service delivery	Compile equipment replacement plan	Compile equipment replacement plan.
	Replace the tractor trailer systems to fulfil	Ensure budgeting and/or funding is in place to purchase/lease and replace fleet as and

Target	Recommendations	Implementation Detail
	the collection needs in the immediate to short term (phased in over three financial years for budgeting purposes). The tractor trailer systems can be used for waste collection in areas where the roads are not accessible for REL vehicles.	when required through the equipment replacement plan. The following vehicles and equipment are required: <ul style="list-style-type: none"> • 2 x REL Compactor Trucks for waste collection (to service Senwabarwana and Alldays main towns and to service new developments identified in the medium to long term). • 1 x skip loader truck • 10 x 6m³ skips • Should the regionalisation option for disposal be proved feasible for Senwabarwana, additional transfer vehicles and equipment will have to be purchased/leased i.e 1 x skip loader truck and 6 x 6m³ skips.
	Maintain equipment	Maintain current collection fleet and negotiate maintenance contracts with vehicle suppliers.
	Privatisation of waste collection is also recommended as an alternative to extending and maintaining waste collection fleet for waste delivery.	A Section 78 service delivery- assessment should be conducted to assess the potential service delivery mechanisms for the provision of a municipal service (waste collection).
	Waste collection by community-based collection models.	Increase SME participation by encouraging locals to explore opportunities in waste through using labour intensive collection models.
Target 3: Effective financial management for waste management	Perform Detailed Financial Investigation	Perform Detailed Financial Investigation
Target 4: Implement improved tariff model	Evaluate Level of Service Delivery.	To provide a cost-effective waste management service, the payment of service

Target	Recommendations	Implementation Detail
	Develop Standardised Tariffs for Specific Levels of Service and update on a yearly basis	tariffs should be improved and the tariff structure should be investigated to be viable and be standardised. A distinction should be made between the tariffs for waste collection at domestic, businesses and Government Institutions and will ensure that the generators of waste pay for the waste they generate. This can also be an incentive for businesses to minimise their waste streams.
Target 5: Decrease non – payment of tariffs.	Implement pre-paid system	Implement pre-paid system.
All Goals and Targets	Compile and update By-laws to comply with NEM:WAA requirements. Review on a five-yearly basis	Compile and update By-laws to comply with NEM:WAA requirements. Review on a five-yearly basis.
Goal 4: Decrease waste deposited on landfill		
Target 1: Formalise and encourage recycling activities.	Provide Recycling Containers throughout Town - locate containers at strategic places	Provide Recycling containers throughout Town - locate containers at strategic places.
	Add additional containers to service new development areas	Add additional containers to service new development areas.
Target 2: Encourage waste minimisation	Promote Waste Minimisation under residents and businesses	Promote Waste Minimisation under residents and businesses.
	Formal agreements between waste recycling industries and companies/businesses (Partnership agreements)	Formal agreements between waste recycling industries and companies/businesses. Approach DEFF for assistance on their agreements with the plastic, glass, waste tyre and Poly-Ethylene Terephthalate (PET) industries. Identify, monitor and evaluate

Target	Recommendations	Implementation Detail
		recycling opportunities and initiatives within the Municipal area.
	Regular forum meetings with stakeholders to co-ordinate waste minimisation and to encourage growth on the recycling section	Regular forum meetings with stakeholders to co-ordinate waste minimisation and to encourage growth on the recycling section.
	Implement incentive Schemes for In-House Recycling for business and homes	Implement incentive Schemes for In-House Recycling for business and homes.
Goal 5: Minimise/prevent illegal activities		
Target 1: Develop an Illegal Dumping Management Strategy	Establish Community Watch Programme with incentive schemes	Establish Community Watch Programme with incentive schemes.
	Provide Accessible Containers for Illegal Dumping Throughout Towns and Settlements	Provide Accessible Containers for Illegal Dumping Throughout Towns and Settlements.
Target 2: Improve removal of illegally dumped waste	Clean Illegally Dumping Hot Spot Areas	Clean Illegally Dumping Hot Spot Areas.
Goal 6: Capacity building through information sharing		
Target 1: Develop and maintain a waste information system	Develop WIS	Develop WIS for proper waste quantity recording DEA has developed a generic WIS that may be provided to the Municipality for implementation. Ensure regular and accurate reporting of waste information to Limpopo Provincial authorities (LEDET)
	Maintain and update WIS as the situation changes in the Municipality	Maintain and update WIS as the situation changes in the Municipality.

Target	Recommendations	Implementation Detail
Target 2: Contribute to Inter Municipal Waste Information Workshops	Attend workshops	Attend workshops.
Goal 7: An educated community that is aware of the principles of responsible waste management		
Target 1: Build community awareness	Build Community Awareness through Newspaper Notices and Flyers. Conduct Road Shows	Build Community Awareness through Newspaper Notices and Flyers. Conduct Road Shows.

12. IMPLEMENTATION PLAN

The following recommendations have been derived from the situation analysis and the desired end state:

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
All the landfill sites in the Blouberg Local Municipality are licensed. However, the Goals and Objectives of the NWMS are not applied at the Alldays landfill site. The Alldays landfill site is not operated fully according to Minimum Requirements and/or license conditions.	Goal 1: Improve and develop infrastructure to comply with legislative requirements and municipal needs.	Target: Ensure that all the landfill sites in the Municipality are licensed and comply with legislative requirements.	Operations Plan, Proper Training of Disposal Facility Staff, or alternatively investigate feasibility to source out operations at the Alldays landfill site. Continuous maintenance of landfill sites	X	X	X	X	X	Alternative: Privatisation of disposal operations at the Alldays landfill site.	Existing Staff and Service Providers	None	R1,500,000 upgrading cost of the Alldays landfill site including repair of vandalised facilities, improved access control, consolidation of waste body in single operational cell (Provision for the upgrade of the waste disposal (constructio

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
												<p>n of phase 2) was made on the MTERF budget for 2019/2020).</p> <p>Should alternative be proven to be feasible:</p> <p>Section 78 of MSA, Service Delivery Investigation: R 600 000</p>

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
				X	X	X			Alternative: Investigate the feasibility for establishing a transfer station vicinity of Inveraan/Indermak/Puraspa to serve the secondary settlements.	See Goal 2 & 3	See Goal 2 & 3	Professional Fees for establishing a new proposed transfer station in vicinity of Inveraan/Indermak/Puraspa: R2,350,000 Professional fees, including tender documentation and construction supervision. Upgrade the Taaibosch

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
												transfer station design to make provision for the construction of ramps with skips, assistance with tender documentation and construction supervision: Construction cost: R 1,000,000 for the Taaibosch transfer station upgrade.

Situation Analysis (Gaps and Needs)	Desire d End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
			Audit Management of Alldays and Senwabarwana landfill Sites	X	X	X	X	X		Existing Staff and Service Providers	None	R 75 000, including water quality monitoring during each audit occasion

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
The Municipality is not able to access some residential and informal settlement areas.	Goal 2: Provide effective waste collection	Target 1: Extend delivery to all areas within the Municipality and extend service delivery to all indigent populations where possible.	Extend services to un-serviced areas. Ensure budget as per Section 3.9.2 of this Report. The Municipality should ensure that all households have access to a waste collection service by 2024.	X	X	X	X	X		Existing Staff	None	None. Internal Budget as per Table 16 of this Report

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
Extend services to include the proposed new developments in service delivery system. Section 3.12 of this Report states the proposed new developments		Target 2: Effectively plan to extend service delivery to any new developments within the Municipality.	Extend services to un-serviced areas. Ensure budget as per Section 3.9.2 of this Report	X	X	X	X	X	Alternative: Privatised waste collection for new or rural unserved developments.	Existing Staff	None	None
A complete transportation study needs to be done to optimize waste collection		Target 3: Conduct a transportation study to identify and optimise collection routes and number of service points.	Optimise Collection Route		X				Alternative: Alternative vehicle and transport options.	Existing Staff and Service Providers	None	R 80 000
Optimise receptacle usage within the municipal area		Target 4: Establish receptacle requirements within the Municipality and supply the receptacles to residents in order to optimise collection efforts.	Continue with current refuse collection system	X	X	X				Existing Staff	None	None
			Provide additional skips in the various towns of Senwabarwana, Alldays and in the second order settlements as well as their surrounding low-cost areas.	X	X					Existing Staff	Skips and Skip Loader Truck	R13,300 per 6m3 skip (16 skips) and 2 x skip loader trucks @ R1,050,000 per skip loader truck.

	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
The Blouberg Local Municipality has a shortage of personnel for waste collection, street sweeping and for the proper management of the disposal facilities.	Goal 3: Provide an Effective and a Cost-Efficient Waste Management Service	Target 1: Effective infrastructure and extension of human resources.	Conduct capacity assessment and needs study	X						Existing Staff		None, to be negotiated by the Municipality

	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
			Employ Additional Staff to service new areas and to manage disposal facilities	X	X					It is recommended that the municipality appoints the following: <ul style="list-style-type: none"> • two (2) Transfer station supervisors (should the feasibility for establishing a transfer station at vicinity of Inveraam/Indermak/Puraspa be proven), • three (3) drivers, • twelve (12) general workers (runners) • one (1) Waste Management Specialist (to drive Recycling Initiatives). 		None, to be negotiated by the Municipality
			Provide training for low level staff and for specialised positions	X	X	X	X	X		Existing Staff and Service Providers	None	None, to be negotiated by the Municipality
The Blouberg Municipality has a few waste management vehicles but is in a severe shortage of equipment for collection and landfill operations, especially at the Alldays landfill where the operation is currently not		Target 2: Extend and maintain waste collection fleet for service delivery	Compile equipment replacement plan.	X					Alternative: <ol style="list-style-type: none"> 1. Privatisation of Waste Collection. 2. Waste collection by community-based collection models 	Existing Staff and Service Providers	<ul style="list-style-type: none"> • 1 x 20m³ REL Compactor Truck • 1 x skip loader truck (for the Taaibosch Transfer station) • 10 x 6m³ skips 	Approximately R2,500,000 (Skips and skip loaders already catered for in Goal 2)

	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
outsourced to a contractor. The vehicle fleet will have to be extended once waste collection services are extended to new areas when they are developed												
			Purchase/ lease required equipment and replace equipment. Should the option to establish transfer station be proved, feasible- skips loader truck and skips should be purchased.				X			Existing Staff and Service Providers, also refer to Goal 2 Human Resources required	Refer to Section 9.3.2 for the number of vehicles and equipment required	Refer to Table 7 for the breakdown of cost for vehicle and equipment required
			Maintain equipment				X	X		Existing Staff and Service Providers	None	None, to be included in the municipal budget
A detailed financial investigation should be conducted by the Municipality. The		Target 3: Effective financial management for waste management	Perform detailed Financial Investigation	X						Existing Staff and Service Providers	None	R 400 000

	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
extent and financial implications of the free basic refuse removal service to indigents should be determined to ensure that the cost shortfall not covered by the Equitable Share is budgeted for accordingly by the Municipality												
To provide a cost-effective waste management service, the payment of service tariffs should be improved and the tariff structure should be investigated to be viable and be standardised.		Target 4: Implement improved tariff model	Evaluate Level of Service Delivery, Develop Standardised Tariffs for Specific Levels of Service and update on a yearly basis	X	X	X	X	X		Existing Staff	None	None
A distinction should be made between the tariffs for waste collection at domestic, businesses and Government Institutions and		Target 5: Decrease non – payment of tariffs.	Implement Pre-paid system		X					Existing Staff and Service Providers	None	R 120 000

	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
will ensure that the generators of waste pay for the waste they generate.												
This can also be an incentive for businesses to minimise their waste streams												
The Municipality does not have an updated NEM: WAA set of by-laws pertaining to waste management.		All Goals and Targets	Compile and update by-laws to comply with NEM:WAA requirements	X						Existing Staff and Service Providers	None	R 200 000
			Review and update by-laws every 5 years					X		Existing Staff and Service Providers	None	R 130 000 (allow for 6% CPI increase per annum for year 5)

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
<p>For the majority of BLM, there is no existing waste minimizing initiative except for the Buy-back centre in Nthabeleng. The Municipality has no composting strategies in place.</p> <p>Organic Waste is disposed of at the Senwabarwana and Alldays landfill sites, with no processing of the garden waste. The volumes of garden refuse obtained from weighbridge data at the Senwabarwana landfill sites is approximately 120kg per month, and no volumes could be obtained from the Alldays landfill site. The exact volumes of garden refuse need to be determined (entrance control at the Alldays landfill site) to determine the feasibility of</p>	Goal 4: Decrease waste deposited on landfill	Target 1: Formalise and encourage recycling activities.	Provide recycling containers throughout towns - Locate recycling containers at strategic places	X						Existing Staff and Service Providers	None	R 180 000
			Add Additional Containers to Service New Development Areas		X	X	X	X		Existing Staff and Service Providers	None	R 130 000 per year (Allow for 6% CPI increase per annum)
			The Alldays landfill site and the Taaibosch transfer station should be upgraded to include MRFs.		X	X				See Goal 1	See Goal 1	Refer to Goal 1, included as part of infrastructure development

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
composting garden refuse.		Target 2: Encourage waste minimisation	Promote Waste Minimisation under residents and businesses	X	X	X	X	X		See Goal 7	See Goal 7	See Goal 7
			Formal agreements between waste recycling industries and companies/ businesses. Approach DEFF for assistance on their agreements with the plastic, glass, waste tyre and Poly-Ethylene Terephthalate (PET) industries. Identify, monitor and evaluate recycling opportunities and initiatives within the Municipal area.	X	X	X	X	X		Waste Management Specialist (to drive Recycling Initiatives)	See Goal 7	See Goal 7
			Regular forum meetings with stakeholders to co-ordinate waste minimisation and to encourage growth on the recycling section	X	X	X	X	X		Existing Staff and Service Providers	None	None
			Implement incentive Schemes for In-House Recycling for business and homes		X					Existing Staff and Service Providers	None	None

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
			Investigate the option of establishing a composting facility with the various landfill sites. Provision for Recycling stations should also be made.			X				Existing Staff and Service Providers	None	No costs assigned, to be determined when feasible

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
The illegal disposal of waste is common within the municipal area	Goal 5: Minimise/prevent illegal activities	Target 1: Develop an Illegal Dumping Management Strategy	Establish Community Watch Programme with incentive schemes	X						Existing Staff and Service Providers	None	R 40 000 for Strategy Development
			Develop by-laws which address the NEM: WAA requirements.	X						Existing Staff and Service Providers	None	
			Develop and enforce a penalty system for illegal dumping activities.		X					Existing Staff and Service Providers	None	None, to be negotiated by the Municipality
			Provide accessible containers for Illegal Dumping throughout towns and settlements. The municipality will need to consult the community and allow them to determine where they want the skips to be placed.				X			Existing Staff and Service Providers	Skips and Skip Truck	R 13 300 per skip - capex.

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
			Regular (weekly) waste collection service for 100% of households (including indigents)					X		Existing Staff and Service Providers	See Goal 3	See Goal 3
		Target 2: Improve removal of illegally dumped waste	Clean Illegally Dumping Hot Spot Areas	X	X	X	X	X		Existing Staff, operator, driver and/or Service Providers	FEL/TLB/ Tractor trailer and a 6m ³ truck	FEL or TLB - R 955 060 capex Skip loader to be used when skips are filled, R1,300,000 for skip loader truck to service all towns once a week or R 700,000 per year should service providers be used for clean-up operations (Allow for 6% CPI increase per annum)

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
The Municipality must develop a Waste Information System for waste reporting purposes, so that waste information can be reported to the district municipality where the district municipality can then communicate the information to provincial authorities	Goal 6: Capacity building through information sharing	Target 1: Develop and maintain a waste information system	Develop WIS, DEA has developed a generic WIS that may be provided to the Municipality for implementation	X						Existing and new staff	None	None
			Maintain and update WIS as the situation changes in the Municipality. Following the upgrades at the Alldays landfill site, the weighbridge operators of the weighbridges to be installed shall be appointed, to allow for more accurate waste disposal data which could be captured in the WIS (for both waste recycled and landfilled)			X	X	X		Existing and new staff	None	None

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
The Municipality has to compile a list or database of all health care facilities and industries in their area of jurisdiction, with a contact person and an indication of what is being done with their health care risk waste / industrial waste not collected by the Municipality i.e. who collects the waste and where is it being disposed off		Target 2: Contribute to Inter Municipal Waste Information Workshops		X	X	X	X	X		Existing and new staff	None	None

Situation Analysis (Gaps and Needs)	Desired End State	Targets	Action	2020	2021	2022	2023	2024	Alternative	Resources		
										Human Resources	Equipment	Finance
Responsible waste management within the community is lacking	Goal 7: An educated community that is aware of the principles of responsible waste management	Target 1: Build community awareness	Build Community Awareness through Newspaper Notices and Flyers. Conduct Road Shows	X	X	X	X	X		Existing Staff and Service Providers	None	R 53 000 per year (Allow for 6% CPI increase per annum)

12.1 Waste Disposal Infrastructure

The Municipality has jurisdiction over two waste disposal sites viz Alldays and Senwabarwana. Both landfill sites have been permitted/licensed. A waste transfer station at Taaibosch has been completed, but not operational.

Only the Senwabarwana landfill site is being operated in accordance with its authorization (permit/license) conditions. This landfill site is operated by a private contractor, while the Alldays landfill site is not operated in accordance with its authorization (permit/license) conditions. The Taaibosch transfer station is not yet operational and the designs of the transfer station are not adequate for the designated purpose.

The capacity and condition of the Alldays landfill site need to be improved as soon as possible. The landfill is all experiencing operational problems mainly as a result of shortage of personnel and uneducated personnel as well as interference by uncontrolled reclaiming activities on daily operations. The volumes of incoming waste are not recorded either. The landfill site is not covered on a daily basis and wind-blown litter, vectors, dust and odours are common concerns. The landfill is small in size.

The **Senwabarwana waste disposal site** is licenced (Licence 12/4/10 – B/10/C4, dated 24 April 2013). The site is operated by a contractor (Ingwe Waste Management), who is responsible for maintaining and managing the landfill site, on a 36-months period contract. The contractor reports on the status of the Senwabarwana landfill site on a monthly basis. The reporting entails potential issues that may arise in the day-to-day operation of the site.

The landfill site includes a recycling shed, which is operated by 2 private companies, namely, Ntshabeleng Waste Management and Green valley. The site is reasonably well operated and equipped with a weighbridge to record incoming waste volumes. Garden refuse is disposed of in a dedicated area, but no composting takes place. It is recommended that green waste be composted, which can be sold off to generate an income for the municipality or alternatively the compost can be used at the municipality's premises (parks, sport fields etc.).

The site should continue to be operated in accordance with its license conditions and monitored and audited as required.

The **Alldays waste disposal site** is permitted/licenced (Permit number B33/2/325/5/P87, dated 5 October 1993). The waste disposal site is experiencing operational problems in varying degrees, but mainly as a result of uneducated personnel as well as interference by uncontrolled reclaiming activities on daily operations.

The site is not covered daily, and wind-blown litter, vectors, dust and odours are common concerns.

Provision for the upgrade of the waste disposal (construction of phase 2) was made on the MTERF budget for 2019/2020 for the amount of R15,000,000 through Municipal Infrastructure Grant (MIG). The upgrade will include a weighbridge, proper access control, fencing, ablution facilities, new disposal cells and recycling areas.

The **Taaibosch transfer station** is not yet operational due to the inadequacy of the design for the designated purpose. The transfer station should be upgraded to include ramps and skips, from where waste can be transferred to the Alldays landfill. The existing fence is vandalised and should be repaired to control access to the site. Equipment i.e. a 6m³ skip loader truck and skips need to be purchased to put the transfer station into operation. An underroof shed area makes it possible to provide for a recycling / sorting / buy-back facility at the transfer station.

Site personnel should be appointed and educated to ensure the proper operation of the two landfill sites and proposed transfer stations and buy-back / sorting facilities to ensure compliance with license conditions (in the case of the landfills) and National Norms and Standards for the Storage of Waste (for the transfer stations and buy-back / sorting facilities).

It is recommended that an Operational Plan be compiled for the operation of the Alldays landfill site. The Operational Plan should inter alia address proper access control, recording of incoming waste volumes (recycled and disposed of), operational principles to follow for compliance with the approved cell development plan, recycling operations, handling of special waste streams, and basic operational principles of sanitary landfilling such as daily compaction and covering of waste.

The Municipality can also assess the feasibility to outsource the operational activities of the Alldays landfill site by conducting a Section 78 Municipal Service Delivery investigation. This study will inform the Municipality whether it might be more cost-effective to outsource the operations rather than dealing with it internally.

Possible benefits of privatisation of the Alldays landfill site's operations could include:

1. Reduced operating cost of the landfill site,
2. Reduced capital expenditure for the Municipality in terms of plant and equipment procurement,
3. Reduced operational expenditure in terms of salaries,
4. Improved operation of the Alldays landfill site and the Taaibosch transfer station

It is further recommended to conduct a feasibility study in the short term for the establishment of a transfer stations/infrastructure in the vicinity of Inveraam/Indermak/Puraspa to serve the secondary settlements.

The transfer station facilities do not have to be licensed (anticipated throughput of less than 100m³ of waste per day), as it falls under Category C listed Activities which only requires conformance to the National Norms and Standards for the Storage of Waste. These facilities need to be properly located, designed and constructed.

A recycling facility should be designed as part of the Inveraan/Indermak/Puraspa transfer station landfill site to maximise waste minimisation initiatives. If the establishment of the transfer station is not feasible, recycling stations or buy-back facilities should be established in one of the areas (within the vicinity of Inveraan/Indermak/Puraspa).

12.2 Waste Collection

The Municipality should include new developments for the provision of a waste collection and disposal service. New residential developments are proposed for the Municipality which needs to be incorporated into the existing waste collection service. This includes the 12 new developments in Blouberg, namely; Burgwal, Coopers park, Mankodi, Terrebrugge, Leokaneng, Pinkie, Sebotse, Rosencrantz, Ngwanallela, Mamehlabe, Boslagte and Prospect.

It is essential that in conjunction with the Town Planning Section that future residential and business area expansion are catered for in terms of refuse removal. This will allow the Municipality to, at an early stage, determine the possible costs involved and therefore will be able to adjust their budget accordingly. This will allow the Municipality to service the new areas when they are developed.

The Municipality should maintain the current service delivery to all areas within the municipal area and extend the service delivery to all indigent households on an on-going basis. Waste Collection in the villages can be done in the form of a PPP with SMME's with all waste disposed of at the local landfills or existing/proposed local transfer stations

It is recommended that the Municipality continue with current refuse removal system, but provide additional skips in the various towns and their surrounding low-cost areas, as well as a skip loader truck to service the two towns on a weekly basis and transport collected waste to the nearest licensed disposal facility.

It is recommended that a complete transportation study needs to be done to optimize waste collection.

The Municipality should develop by-laws which address all aspects of the waste management hierarchy as required in terms of the National Environmental Management: Waste Amendment Act, 2014.

12.3 Resource Extension

The Blouberg Local Municipality has a shortage of personnel for waste collection and for the proper management of the disposal facilities. Currently there are no vacant positions present. The current organizational structure and human resources, including duties of the staff, delivering waste services within the Municipality is not sufficient. Duties include management, planning, waste collection, disposal and compliance enforcement.

A capacity assessment and needs study should be performed to identify the additional staffing needs and requirements.

All waste management staff should have proper training to carry out their duties and their performance should be monitored periodically.

It is recommended that the Municipality should appoint additional staff to service new areas and to manage the disposal facilities. This includes staff to manage the Alldays landfill site and the Taaibosch transfer station following the upgrades to be done. It is recommended that the municipality appoints the following personnel:

- Two (2) x Supervisors (for the Taaibosch Transfer station and Alldays landfill site).
- Three (3) x Drivers,
- Twelve (12) x General workers (runners) and,
- One (1) x Waste Management Specialists (to drive Recycling Initiatives).

The Blouberg Municipality has a limited number of waste management vehicles and is experiencing a severe shortage of equipment for waste collection and landfill operation, especially at the Alldays landfill where the operation is currently not outsourced to a contractor.

Since the tractor-trailer systems and one of the two compactor trucks are old and not very efficient, it is recommended that additional vehicles and equipment be purchased / leased to service existing and new service areas as they develop, as well as to service the proposed transfer infrastructure . The tractor-trailer systems can still be used where roads are not accessible to the RELs.

The following vehicle and equipment are required:

- 1 x REL Compactor Truck (for servicing the Alldays and Senwabarwana landfill, as well as the existing unserviced areas and new developments that are planned in the nearby future)
- 1 x TLB or Front End Loader (FEL) (for Clean-up operations), should it be decided to do the clean-up internally and not to outsource the clean-up operations.

The below equipment and vehicles are required if the regionalisation option is proved to be feasible at Inveraan/Indermak/Puraspa to serve the secondary settlements as recommended, as well as at the Taaibosch transfer station, and the infrastructure has been constructed and operational:

- 2 x skip loader trucks (one for Senwabarwana, if transfer infrastructure be proved feasible) and one for Alldays
- 6 x 6m³ skips for Senwabarwana area and 10 x 6m³ skips for Alldays area (Taaibosch transfer station)

The payment of services in the Municipal Area is low due to various reasons. The current billing system does not seem to be effective. A pre-paid system should be investigated to be implemented where non-payment of fees is present. The Municipality has adopted a Free Basic Services Policy. According to this Policy indigents registered receive a Free Basic Refuse removal service that is 100% subsidised on collection of refuse.

To provide a cost-effective waste management service, the payment of service tariffs should be improved and the tariff structure should be investigated to be viable and be standardised. A distinction between the tariffs for waste collection at domestic, businesses and Government Institutions is recommended and will ensure that the generators of waste pay for the waste they generate. This can also be an incentive for businesses to minimise their waste streams.

The extent and financial implications of the free basic refuse removal service to indigents should be determined to ensure that the cost shortfall not covered by the Equitable Share is budgeted for accordingly by the Municipality.

12.4 Waste Minimisation

For the majority of BLM, there is no existing waste minimizing initiative except for the Buy-back centre in Nthabeleng. This can also be attributed to the lack of available markets for the recycled materials. However, the National Environmental Management: Waste Amendment Act, 2014 (NEM: WAA) has shifted the emphasis from end of pipe solutions i.e. landfilling up the waste management hierarchy to promote waste minimisation.

For this reason, it is recommended that the Municipality develop a Waste Minimisation Strategy.

Council should identify and implement waste minimisation and recycling initiatives to reduce the tonnage of waste reaching the landfill site and which will subsequently create jobs for those who are interested to participate in recycling programs.

Recycling of waste will lengthen the lifespan of the landfill site. Through proper recycling it might be possible to remove as much as 30% - 50% of all material earmarked for landfill disposal. The Municipality has to encourage recycling by providing measures to increase the convenience of recycling for the average person. Recycling activities tend to fail due to the effort required from

the community. The Municipality therefore can place recycling containers at central and visible locations to maximise exposure and convenience. Community awareness about recycling and recycling initiatives must also then be increased through advertisements and the distribution of flyers and letters.

Garden refuse are disposed of at the Senwabarwana and Alldays landfills with no processing/treatment of the garden waste. The exact volumes of garden refuse at the Senwabarwana landfill site is recorded from the weighbridge data, while at the Alldays landfill, volumes are not recorded and need to be determined (entrance control at the respective landfills) to determine the feasibility of composting garden refuse.

The implementation of an incentive scheme for in-house waste minimisation for businesses should also be investigated.

Currently there is an existing buy-back centre in Senwabarwana. This buy-back centre optimises the efforts for waste minimisation and thereby decrease the volumes of waste destined to be landfilled. It is therefore also recommended that a formal agreement be reached with waste recycling industries and companies to ensure maximum recycling from the buy-back centre (development of partnerships to promote waste minimisation initiatives).

12.5 Management of Illegal Activities

The illegal disposal of waste is common all over the municipal area. The illegal disposal should be addressed in order to manage and minimise the illegal activities pertaining to waste disposal. No strategies to prevent illegal disposal is currently in place. The Municipality should budget for the purchasing of skips to place in strategic places and open spaces where illegal dumping is regularly occurring and clean these skips at the Alldays and Senwabarwana landfills when filled. The municipality will need to consult the community and allow them to determine where they want the skips to be placed. To further improve the current situation, the Municipality can introduce a neighbourhood watch system that will aim to prevent illegal dumping within their specific area.

12.6 Waste Information System

The Municipality must also develop a Waste Information System for waste reporting purposes. This system would allow for record-keeping of comprehensive records of waste disposal and collection on which informed decision-making can be based and to comply with the reporting requirements of the relevant Provincial authority (LEDET).

The Municipality has to compile a list or database of all industries and medical waste facilities (including old age homes) in their area of jurisdiction, with a contact person and an indication of what is being done with their medical / industrial waste not collected by the Municipality i.e. who collects the waste and where is it being disposed of.

DEA has developed a generic WIS that may be provided to the Municipality for implementation.

12.7 Education and Awareness

The Municipality presently does not have any formal community awareness campaigns that are directed at informing the general community with regards to waste management.

Recycling and waste minimisation initiatives are not included in the normal service delivery and can only be effectively achieved with the co-operation of the residents.

It is therefore vitally important that the community is made aware of initiatives, waste recycling activities and the advantages of waste minimisation and recycling by the Municipality. This can either be achieved by advertisements and notices in the local newspapers or by providing information regarding these initiatives on the municipal bills distributed each month. The Municipality can also conduct road shows to demonstrate to and inform people of waste related issues.

An Awareness Campaign is crucial to make people aware of the Integrated Waste Management Plan of the Municipality. This awareness campaign needs to have the full support of the Municipality and other Government Departments. This campaign will need to look at an integrated approach to community awareness. Examples of such campaigns are provided in Section 9.7.1 of this Report.

APPENDIX A
BLOUBERG LOCAL MUNICIPALITY: INDIGENT POLICY
2019/2020

APPENDIX B

PERSONNEL ORGANOGRAM

APPENDIX C

ALLDAYS LANDFILL SITE PERMIT

APPENDIX D

SENWABARWANA LANDFILL SITE LICENCE

APPENDIX E

PROOF OF PUBLIC PARTICIPATION CONSULTATION AND COMMENTS REPORT

To be inserted in Final IWMP only