



KAAP AGULHAS MUNISIPALITEIT
CAPE AGULHAS MUNICIPALITY
U MASIPALA WASECAPE AGULHAS

Cape Agulhas Municipality

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MANAGEMENT SERVICES

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Ingerop Office Contact Details	Ingerop South Africa Suite 209, Tyger Lake Building, 2 Niagara Way, Tyger Falls, Bellville, P.O. Box 3970, Tyger Valley, 7536 Cape Town, South Africa
Contact Person	Tony Gates tgates@ingerop.co.za 021 9142833

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Originator

A Gates

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Reviewer

C Wiid

Date:

Approver

P de Kock

Date:

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Abbreviations

AD	Anaerobic Digestion
AWTT	Alternative Waste Treatment Technologies
CAM	Cape Agulhas Municipality
CAPEX	Capital Expenditure
CoCT	City of Cape Town
CSIR	Council for Scientific and Industrial Research
DEA&DP	Department of Environmental Affairs and Development Planning
DEA&DP LAT	Department of Environmental Affairs and Development Planning Landfill Airspace Tool
DEA&DP AWMTT	Department of Environmental Affairs and Development Planning Alternative Waste Management Technologies Tool
DFFE	Department of Forestry, Fisheries and Environment
EPR	Extended Producer Responsibility
HHW	Household Hazardous Waste
HHWP	Household Hazardous Waste Plan
IC&I	Industrial, Commercial and Institutional
IDP	Integrated Development Plan
IDS	Illegal Dumping Strategy
IPWIS	Integrated Pollutant and Waste Information System
IWMP	Integrated Waste Management Plan
IndWMP	Industry Waste Management Plan
LPI	Litter Picker Integration
MFMA	Municipal Finance Management Act
MTREF	Medium Term Revenue and Expenditure Framework
N&S	Norms and Standards
NEM:WA	National Environmental Management: Waste Act (Act No. 59 of 2008)
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NGO	Non-Governmental Organisation
OPEX	Operating Expenditure
OW	Organic Waste
OWDP	Organic Waste Diversion Plan
PPPs	Public-Private-Partnerships
POWS	Provincial Organic Waste Strategy

REL	Rear End Loader (Collection compactor vehicle)
SAWIS	South African Waste Information System
SWD	Solid Waste Department
T	tonnes
t/a	tonnes per annum
WC	Western Cape
WCG	Western Cape Government
WML	Waste Management Licence

1 Introduction

1.1 Background

The Integrated Waste Management Plan (IWMP) is a statutory requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) and has as its goal, the transformation of the current methodology of waste management to a sustainable practice focussing on waste avoidance and environmental sustainability.

In addition, the revised National Waste Management Strategy 2020 (NWMS) provides a framework and strategy for the implementation of the Waste Act and outlines national policy and strategic approach to waste management that is equitable, inclusive, sustainable and environmentally sound.

The Cape Agulhas Municipality (CAM) developed its 3rd generation IWMP in 2016. This has undergone review in 2020, 2021, 2022 and 2023. This IWMP is the 4th generation plan replacing the 2016 version.

The development of the IWMP is necessary as it is an integral tool to identify current needs and act as a guide towards sustainable waste management. The IWMP is required to be incorporated as part of the CAM's Integrated Development Plan (IDP) but is submitted as a separate document. In addition, its goals are aligned with the Western Cape IWMP and the NWMS.

The Plan covers all 6 wards of the Municipality, reviews services currently rendered and sets goal to be achieved.

1.1.1 Objectives of an IWMP

The primary objective of the IWMP is to integrate general waste management within the local authority using a cradle-to-grave approach that incorporates appropriate, affordable and an environment-friendly mix of solutions which will continually reduce the mass of waste requiring disposal, providing a dynamic framework to manage the Municipality's waste stream effectively based on the waste hierarchy. Principles of the Circular Economy will be included in order to allow for the beneficiation of suitable wastes.

The IWMP will establish a dynamic system, which will aid decision-making and ensure that waste is handled in such a way that does not cause harm to human health or well-being or the environment. It shall acknowledge that:

- Everyone has the right to have the environment protected through reasonable measures which prevent pollution and environmental degradation, and which promote sustainable development;
- Waste must be managed in a responsible manner, promoting avoidance, reduction, reuse, recovery, recycling and responsible disposal in terms of the waste hierarchy;
- The achievement of equity will be pursued, and no person or community shall be discriminated against in the provision of solid waste services;
- There will be a thrust towards poverty alleviation through empowerment projects e.g. waste recovery, reuse and recycling;
- There is integration between the different municipal functions in the provision of services.
- Political and administrative structures will be capacitated to make appropriate and informed decisions.

The specific objectives of the IWMP should be:

- To provide an integrated waste management strategy combining all methods of waste management with regard to the waste hierarchy.

This strategy will inform the establishment of programmes:

- To increase education, awareness and the marketing of strategies.
- To progressively reduce the amount of waste which is disposed of at landfill.

- To provide an adequate waste collection service to everyone in the municipal area.
- To increase waste minimisation and recycling.
- To treat and dispose of all of the waste generated within the municipal area.
- To minimise adverse social and environmental impacts related to waste management and thereby improve the quality of life for the population.
- To identify and plan for future waste management needs and requirements.
- To minimise waste management costs by optimising the efficiency of the waste management system.
- To ensure that there is adequate capacity to implement the IWMP.
- To increase law enforcement capabilities
- To ensure legislative compliance with regards to waste management facilities/operations and National diversion targets
- To inform strategies for monitoring and enforcement.
- To present the IWMP to the public and all stakeholders and thereby ensure that the waste management systems and strategies chosen, as well as the institutional, legal and financial framework proposed, are accepted.

1.1.2 Performance review of 3rd Generation IWMP 2016

Comments from previous IWMP Annual Reports and Reviews were noted and incorporated.

Annual Reports were carried out as follows:

- 2020 by Chand Environmental Consultants
- 2021 by JG Africa
- 2022 and 2023 by NCC Environmental Services

1.2 Approach and Methodology

1.2.1 Fundamental Principles

Underlying principles or factors for this IWMP are as follows:

Principle	Description
The 'polluter pays principle'	<p>The National Environmental Management Act, (NEMA), Act 107 of 1996, states that all costs associated with the management of waste should be borne by the persons who generated the waste. Such costs may include the following:</p> <ul style="list-style-type: none"> • Waste minimization; • Waste separation • Containing, treating and disposing of waste; and • Rectifying environmental harm caused by waste.;
Circular Economy	<p>"Circular Economy" means a regenerative system in which resource inputs and waste, emissions, and energy leakage are minimised by slowing, closing, and narrowing energy and material loops which can be achieved through long -lasting design, maintenance, repair, reuse, remanufacturing,</p>

Principle	Description
	refurbishing, and recycling and which is in contrast to a linear economy which is a 'take, make, dispose' model of production;
Cradle to grave	This is a process where a waste generator is responsible for its waste and develops intervention programmes throughout the lifecycle until final disposal.
Cradle to cradle	The concept of cradle-to-cradle is different from cradle to grave in that each part of a product is made with its entire life cycle in mind. Closed-loop recycling reduces the demand for raw materials and the fuel to produce a new product. Cradle-to-cradle materials are either biologically consumable, where they can be returned straight to the Earth, or technically reusable, where the materials can be reused or placed directly back into the production cycle
Co-ordination	This is a process where a waste generator ensures that waste management is integrated across all sectors of the organization
Capacity building and education	To successfully implement its IWMP the CAM recognizes the need to ensure the development of skills, capacity and knowledge of its employees, retailers and other stakeholders for effective participation in achieving integrated waste management. Gender equality shall be strongly promoted.
Accountability	The CAM is responsible for environmental policy formulation, monitoring and enforcement. This will ensure accountability for waste generated and managed.
Ensuring Sustainable Development	This IWMP needs to achieve a better balance between economic prosperity, social equity and environmental protection – i.e. making sure that sustainable development takes place in the context of 'living today with tomorrow in mind'
Extended Producer Responsibility	<p>The IWMP will include the private sector via the principles associated with the Extended Producer Responsibility. This is an environmental protection strategy or policy, that makes the manufacturer of a product responsible for the entire life cycle of that product – especially for the take back, recycling and final disposal thereof.</p> <p>This is set out in the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008) Regulations regarding Extended Producer Responsibility (Government Notice No. 43879)</p>
Inclusive management	Via the Illegal Dumping Strategy, CAM endeavours to include all role players and generators, in the management of waste. By utilizing Marketing Awareness and Education, optimal utilization of resources, collection of data and community inputs, this seeks to create a collective consciousness and integrated approach.

Table 1 - Fundamental Principles

1.2.2 Development of the Integrated Waste Management Plan

The main aims for the IWMP include:

- To develop a strategy that will address methods of waste management to achieve compliance with the requirements of the waste management hierarchy.
- To increase waste minimization by promoting the prevention, reduction, reuse and recycling of waste.
- To ensure that the Solid Waste By-Law is suitable for enforcement.
- To optimize airspace at landfills by adopting technologies and techniques to steadily reduce the amount of waste which is disposed of at landfill.
- To improve the levels of service in certain areas of the municipality such that adequate and equitable waste collection services become available to everyone in the CAM.
- To ensure an integrated approach to all waste management projects is adopted so as to minimise adverse social and environmental impacts.
- To identify and develop a plan for future waste management needs and requirements.
- To optimise infrastructural and financial requirements so as to ensure that waste management costs are minimised by optimising the efficiency of the waste management system.
- To ensure that adequate capacity is made available for the CAM to meet the targets set within the IWMP.
- To present the IWMP to the public and all stakeholders and thereby ensure that they have a voice in development of the waste management systems and strategies chosen, as well as ensure that the institutional, legal and financial frameworks proposed, are accepted.

1.2.3 IWMP process

To compile this plan a Status Quo Investigation and Gap Analysis were undertaken to update the previous information collected in the 2016 IWMP. The following methodology was followed for the status quo investigation:

- All relevant records were obtained for the purposes of the study
- Relevant officials from the CAM were interviewed
- Areas in the study were visited to obtain first-hand information of the existing status of the waste management services rendered
- Organisations involved in solid waste management were interviewed

The municipal area was assessed with consideration of waste generation, collection volumes, existing collection systems, equipment, personnel and landfill and drop-off status.

In addition, in 2021 the CAM completed their Organic Waste Diversion Plan (OWDP) but this needs revision. A Waste Characterisation Study (WCS) in was completed in 2023. The results of both these waste management components are incorporated into this plan.

The current waste management practices were evaluated against the principles contained in the waste management hierarchy and waste management aspects were evaluated from the points of generation through to disposal/landfill.

The status quo report compiled for the IWMP provides an indication of the planning context within which the IWMP for the CAM was formulated, as well as additional legislative frameworks that needed to be considered when undertaking the compilation of an IWMP. It set the platform for the completion of all subsequent stages of the integrated waste management planning for the CAM.

The status quo report provides legislative frameworks that were considered when reviewing the IWMP as well as an indication of the context within which the review of the IWMP was conducted.

1.3 Context

1.3.1 Geographic Area

The Cape Agulhas Municipality (CAM) (WCO33) is a local Municipality located on the South-East Coast of South Africa, approximately 160 kilometres South-East of Cape Town. It forms part of the Overberg District Municipality (ODM) (DC3), situated in the Western Cape Province. It abuts the Cape Metropolitan Municipality to the West, the Cape Winelands District Municipality to the North and the Garden Route District Municipality to the East.

The Municipality is geographically diverse and covers an area of 2 411 km² and approximately 178 Km of coastline. It includes 9 urban settlements namely Bredasdorp, Napier, Struisbaai, Arniston / Waenhuiskrans, L'Agulhas, Klipdale, Protem and Suiderstrand and Elim which is a historical Moravian mission station. The administrative head offices of both Cam and ODM are located in Bredasdorp

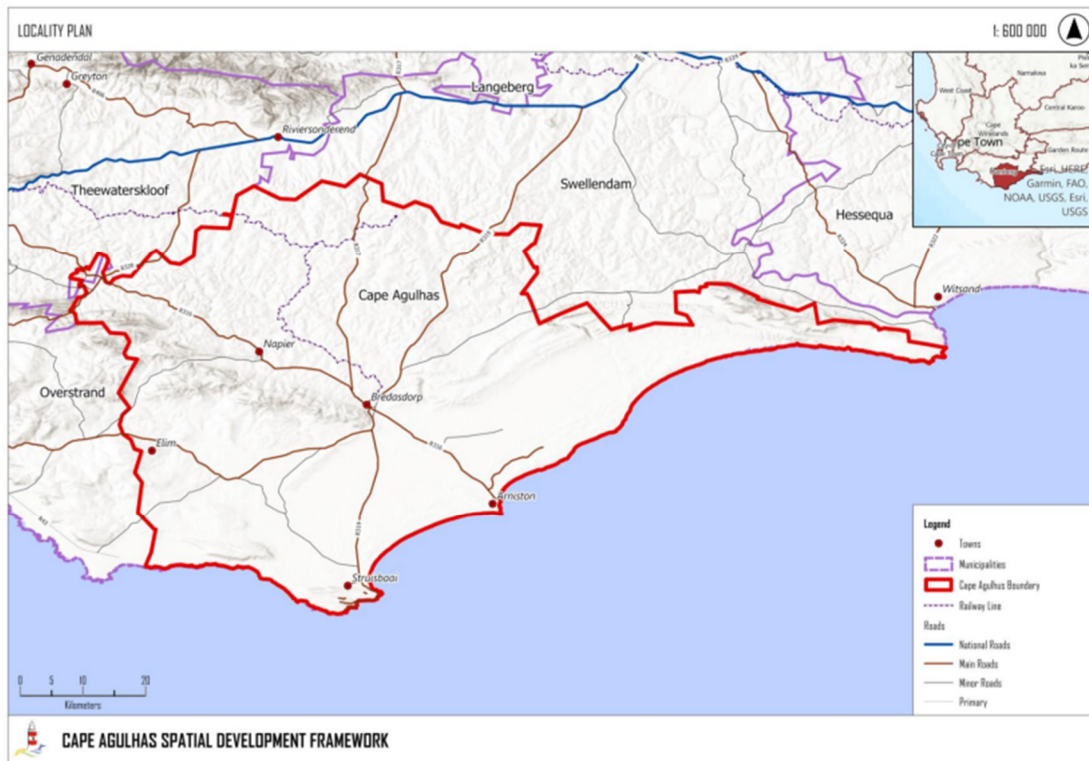


Figure 1 – Cape Agulhas Municipality - Study Area

CAM includes a number of large rural areas, as well as the following towns::

1.3.1.1 Bredasdorp

Bredasdorp is centrally located within the Municipal, is the economic hub of the Cape Agulhas Municipal Area and home to the biggest concentration of urbanised population. Bredasdorp is also regarded as the Administrative capital of the Overberg Region, as a number of Government Departments and State-Owned Enterprises have established regional offices in this town. The head office of the Overberg District Municipality is also located in Bredasdorp and is strategic for the development of the local economy of the area. Agriculture is the backbone of the economy of town, but the business and tourism sectors have also grown significantly over the years. Unique tourism products such as the Shipwreck Museum, Heuningberg Nature Reserve and the Anglican Rectory are some of the most important tourism attractions.

1.3.1.2 Arniston/Waenhuiskrans

The fishing village of Arniston/Waenhuiskrans is situated approximately 24 km South-East of Bredasdorp. Prior to 1820, fishermen occupied the bay in which Arniston/Waenhuiskrans is situated and they called it Kassiesbaai - now a well-known and attractively restored fishing village and a national monument. Arniston has become a holiday destination and its hinterland a region for viticulture. Whale watching is a popular tourist activity. The Overberg Test Range is situated adjacent to the town.

1.3.1.3 L'Agulhas and Suiderstrand

L'Agulhas is the Southernmost town on the African continent. The town of L'Agulhas developed around the famous lighthouse at Cape Agulhas, which is the country's second oldest lighthouse - dating back to 1848.

Suiderstrand is widely regarded as an extension of the town of L'Agulhas and is situated approximately 10km West of this panoramic coastal town. Suiderstrand mostly consists of a number of holiday homes along the beach and makes use of all public facilities and services of L'Agulhas.

1.3.1.4 Struisbaai

Struisbaai, only a few kilometres from L'Agulhas, is renowned for its pristine 14 km beach - which is one of the longest uninterrupted stretches of white sandy beach in the Southern Hemisphere. Struisbaai is very popular for aquatic sports and its small convenient harbour facility offers boat owners the lure of deep-sea fishing. The route to Struisbaai skirts around the Karsrivierlei and Zoetendalsvlei, which is the largest natural body of fresh water in South Africa. Struisbaai is a secondary economic hub and is a renowned tourist destination.

1.3.1.5 Napier

Napier is situated 58 km from Caledon and 16 km from Bredasdorp on Route 316. Agriculture is the predominant economic activity of the Napier area with grain farming dominating this industry. This region is one of the most important wool producing areas in the country. The climate is also favourable for vegetable farming. Due to the tranquil and laid-back atmosphere of the town various artists have made Napier their home and their work is for sale at local businesses and art galleries. Napier is also a very popular place for retirees.

1.3.1.6 Elim

The Elim mission station was founded in 1824 and is predominantly inhabited by members of the Moravian Church. On 12 May 1824 Bishop Hallbeck of the Moravian Church acquired the 2 570-ha farm Vogelfontein from Johannes Schonken. On Ascension Thursday 12 May 1825, the name was changed to Elim (which means *palm trees*). The mission station was established around the original farmhouse built in 1796 by a Huguenot named Louis du Toit. The entire town has been declared a national monument and has also been identified as a cultural historic site.

1.3.1.7 Klipdale and Protem

The construction of a railway line to the settlements of Klipdale and Protem and the grain elevator in the area, contributed to the establishment and growth of these two settlements. With the completion of the railway line from Cape Town, via Sir Lowry's Pass, to Bredasdorp early in this century, a branch railway line was built from Klipdale (north of Napier) to a station called Protem. The extension of the railway line further into the Overberg was planned, but to date nothing has realised.

1.3.2 Climate

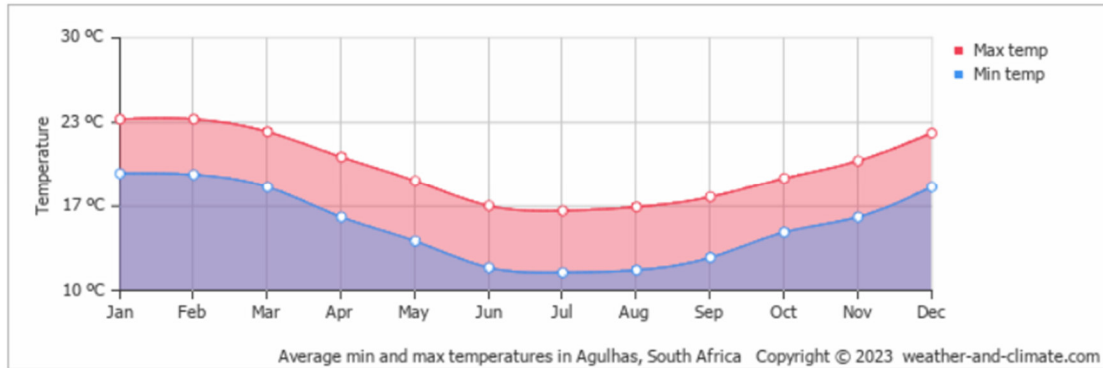


Figure 2 - Monthly average temperature

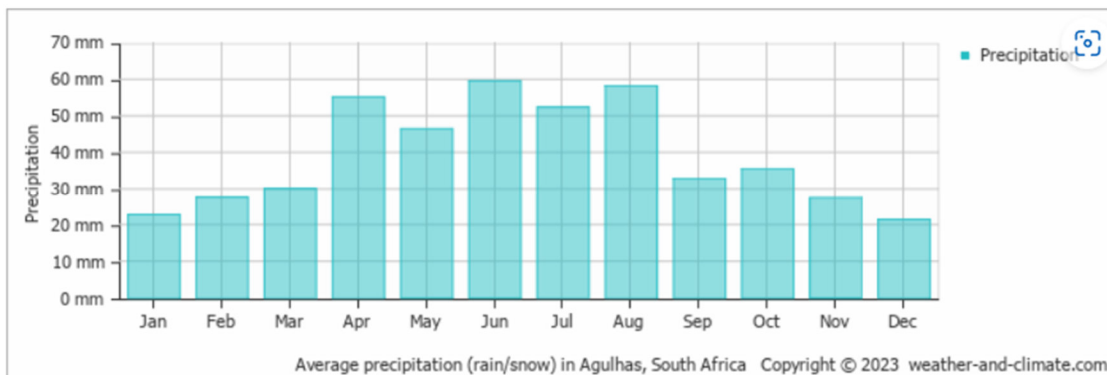


Figure 3 - Monthly average precipitation

In Bredasdorp, the summers are warm and dry, the winters are long and cool, and it is windy and mostly clear year-round. Over the course of the year, the temperature typically varies from 10°C to 24°C with an average of 16.7 °C. It is considered to have a local steppe climate.

Average rainfall for the year is 463mm, with June/July being the wettest period and Dec/Jan, the driest.

The climate is influenced by local topo-geographical features as well as be the ocean and shows great variability.

1.3.3 Geology

(CAM IWMP 3rd Generation review. Chand Environmental Consultants, Mar 2020).

The Agulhas Municipal area is underlain by rocks and sediments of four geological formations which are, in chronological order, the Malmesbury, Table Mountain, and Bokkeveld Groups as well as the Bredasdorp Formation. Refer to **Error! Reference source not found.**

The Malmesbury Group rocks only outcrop in two small areas, one just to the west of Bredasdorp and the other to the North-West of Agulhas. These rocks are very old, >600 million years, and comprise meta-sediments such as phyllitic shale. They occupy 1% of the area.

The Table Mountain Group (TMG) rocks predominantly comprise resistant quartzitic sandstones and form the range of the Soetmuis and Heuning Berg between Napier and Bredasdorp. These mountains

form a Southern branch of the Cape Fold Belt. Although the outcrop area is relatively small, these rocks underlie the whole of the coastal plane at varying depths of up to ~100 m. They outcrop again along the coast between Struisbaai and the Western boundary of the area and form the Southernmost tip of Africa. They also underlie the inland areas, but at much greater depths. These rocks occupy about 10% of the area.

The Bokkeveld Group rocks occupy the largest area, some 60%, and comprise an alternating sequence of shales and sandstones. However, in this area the sandstones are poorly developed compared to further West. This lithology gives rise to the characteristic rolling hilly topography of the Overberg wheat land areas.

The Bredasdorp Formation forms an important component of the southern part of the area and comprises sand, calccrete, calcarenite and a basal conglomerate. It occupies 29% of the area.

A number of fairly large faults cut the TMG of the Napier-Bredasdorp Mountains, trending North-East, South-West and East-West. Extensive faulting has also been inferred from geophysics in the TMG of the coastal plain area North of Agulhas.

1.3.4 Groundwater

In broad terms, any aquifers developed in rocks of the Malmesbury, Table Mountain and Bokkeveld Groups, will be of the fractured or secondary type, which are shown as shades of green in **Error! Reference source not found.** Aquifers developed in the unconsolidated to semi-consolidated sediments of the Bredasdorp Group will be of the inter-granular or primary type and are coloured shades of mauve in **Error! Reference source not found.**

In the fractured rock aquifers, the TMG Aquifers have the highest potential and are recognized as one of the best aquifers in South Africa. However, they have limited outcrop in the area and also have limited accessibility due to the rugged mountainous topography developed by the resistant quartzitic sandstones. Relatively large-scale groundwater abstraction from this aquifer for municipal use occurs near Bredasdorp (0.2 million m³/a) and at Struisbaai (0,45 million m³/a).

The Bokkeveld rocks form a poor aquifer in the area because of their predominantly shale-like nature, low recharge and poor water quality. This rock type covers the bulk of the area. This “aquifer” is rated as b1 on the DWAf hydrogeological map, which means that median borehole yields are <0.1 l/s. Its exploitation is mainly limited to stock watering and farm domestic use.

The Bredasdorp Aquifer is an important source of groundwater for the towns of Struisbaai, Agulhas and Suiderstrand. The main aquifer development is in the basal conglomerate, which is present in channels within the underlying TMG rocks. Production boreholes at Agulhas and Suiderstrand abstract ~160 000 m³/a from this aquifer.

The best quality groundwater (refer to Figure 5) is found in the TMG and Bredasdorp Aquifers in the Soetmuis and Heunings Berg and in the coastal plain area south of Bredasdorp. This groundwater generally has an electrical conductivity (EC) of <70 mS/m. To the East, West and North of this area the quality deteriorates, particularly in the Proteem and Klipdale area, where the EC exceeds 1000 mS/m.

1.3.5 Hydrology

The Cape Agulhas municipal area consists of the typical Overberg “rolling hills” to the north of Bredasdorp and a coastal plain to the south (refer to Figure 4). The coastal plain has almost no slope and has a number of vleis, e.g. Voëlvlei, Soetendalsvlei, Karsrivierlei and De Hoopsvlei. The Heunings River reaches the sea between Struisbaai and Waenhuiskrans. Due to the flat gradient of the coastal plain the drainage of the area after a rainstorm is extremely slow and the water may remain as surface water for months.

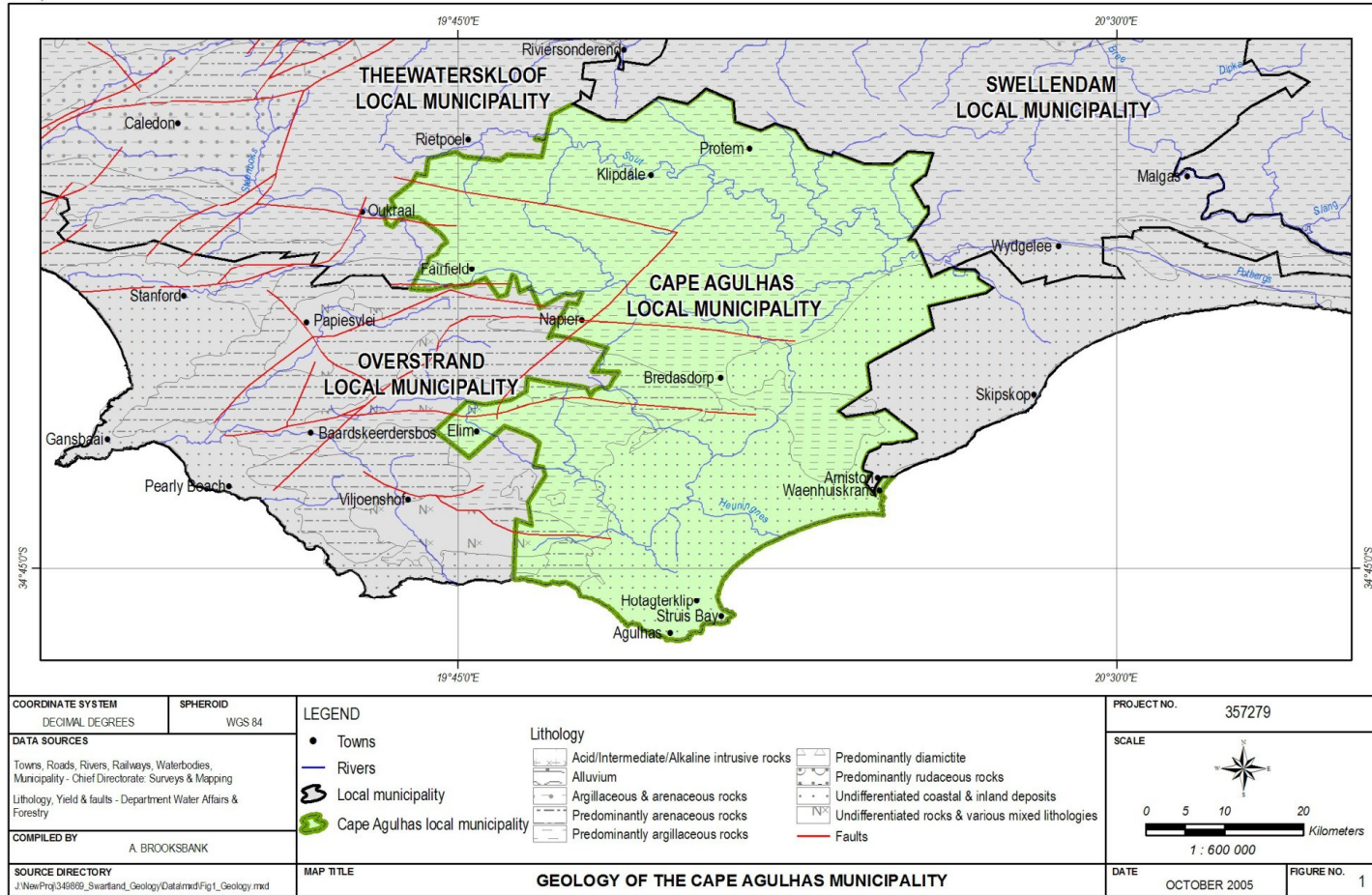


Figure 4 – Geology of the Cape Agulhas Municipal Area

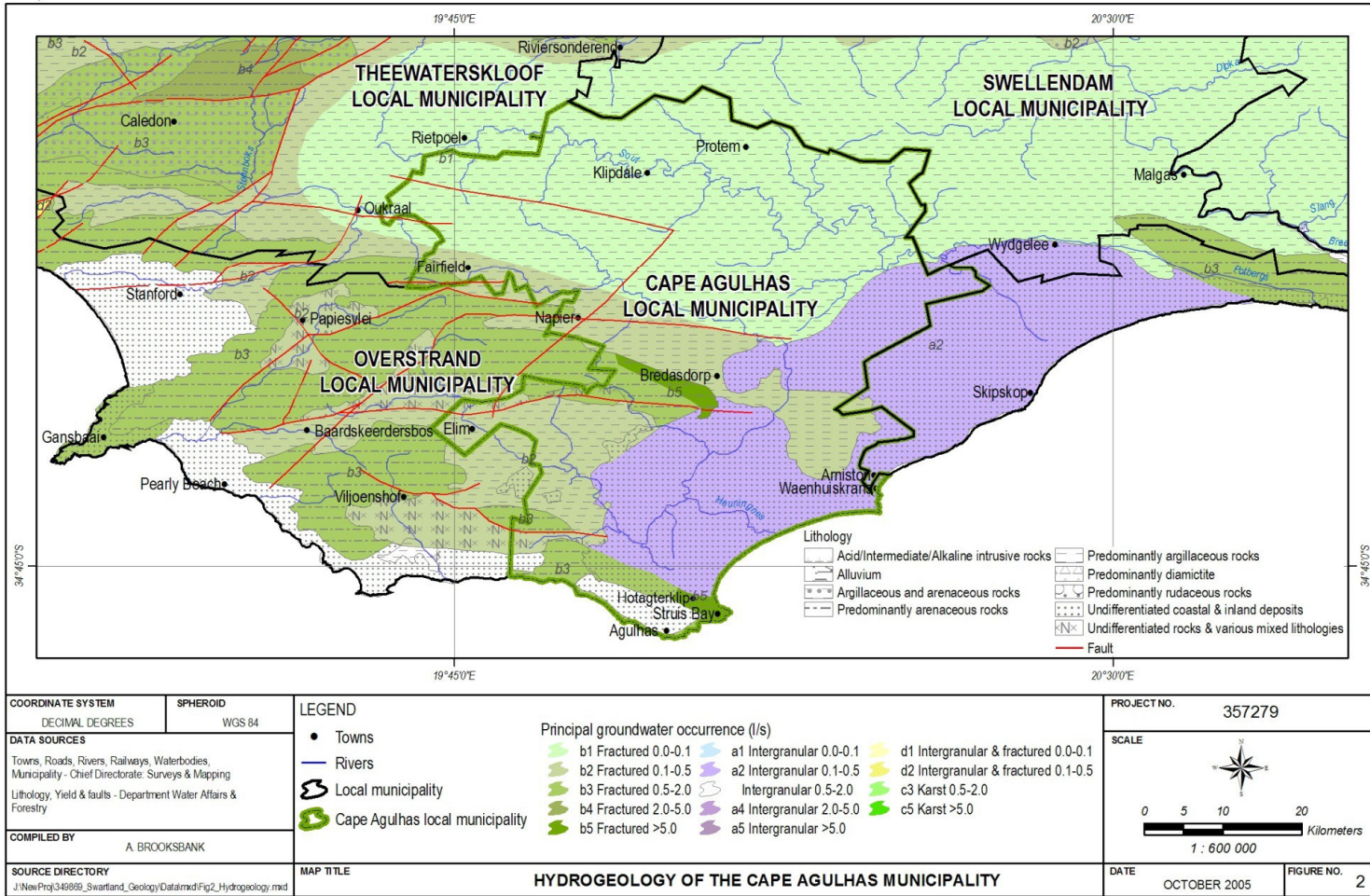


Figure 5 – Hydrology of the Cape Agulhas Municipal Area

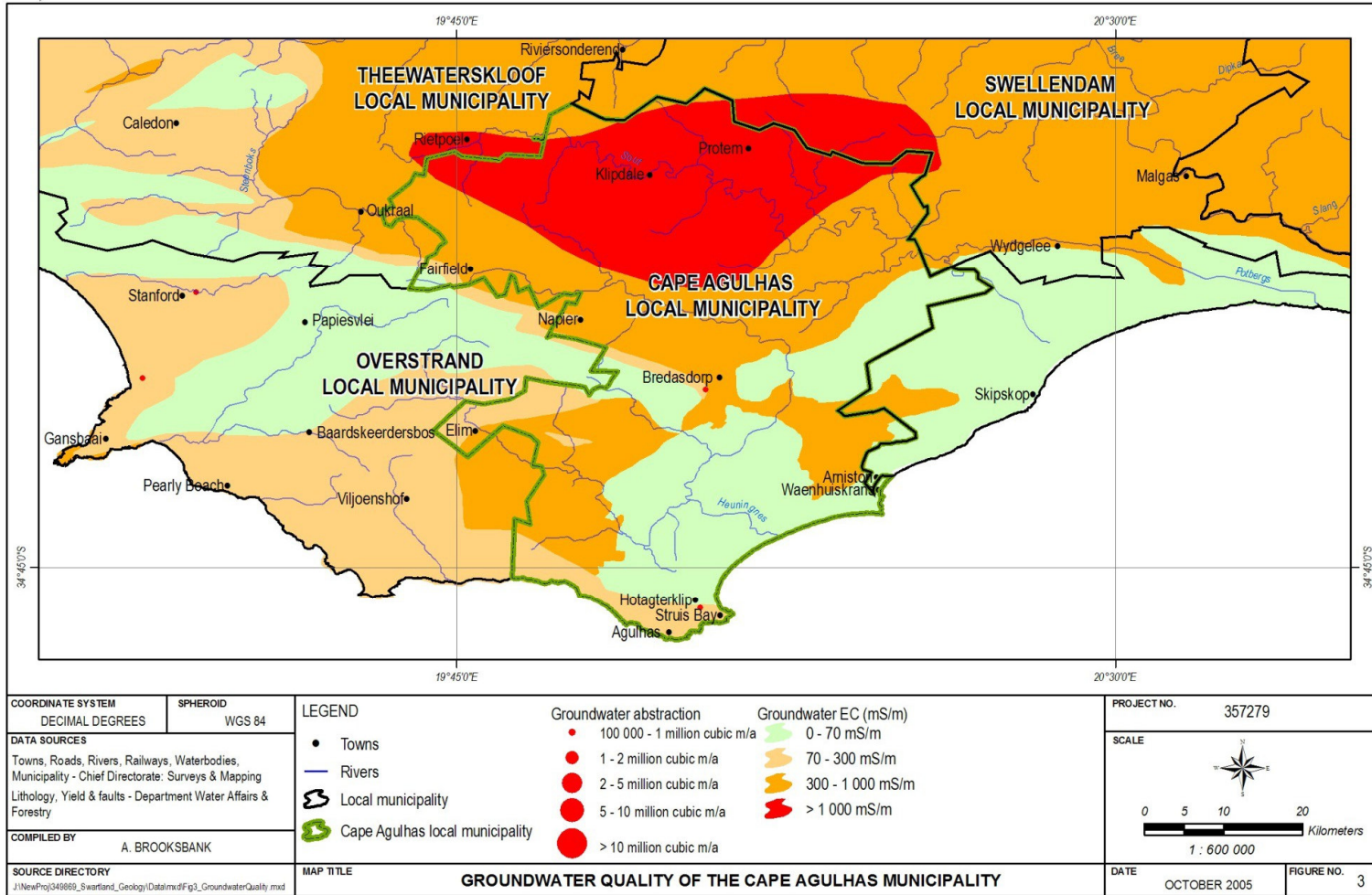


Figure 6 – Groundwater of the Cape Agulhas Municipal Area

1.3.6 Road Network

The length of roads in CAM is some 228km of which 188km are surfaced. (*Pavement Management System Network / Strategic level assessment 2019*)

The principal roads that serve the area are shown in

- National and Regional Distributors
 - N2 (NR 00203/4) being the section from Swellendam to Caledon
- Primary Distributors
 - R319 (MR 22064) from the N2 near Swellendam to Bredasdorp and then Suiderstrand (MR 22061)
 - R 316 (TR 02901) from Caledon and Napier, to Bredasdorp and then Arniston (TR02902)
 - R 317 (MR02065) from N2 at Stormsvlei, to Bredasdorp
 - R 43 (MR 00262, DR 01210) from Bredasdorp, through LAngpad, down to Oubaai
- District Distributors
 - DR 02013 through Prinskraal, between the Arniston and Struisbaai areas
 - Numerous District roads linking smaller settlements

Referring to Figure 7 the main routes used for transferring waste within the CAM as well as externally to the Karwyderskraal Landfill are indicated. No additional routes are anticipated in the future.



Figure 7 - Major Road network used for transportation of waste

1.4 Strategic alignment

There are a number of strategic plans on a national, provincial and local level which have been taken into consideration during the development of this IWMP.

1.4.1 National Strategic Plan

The National Waste Management Strategy (NWMS) is a statutory requirement of the Waste Act to provide a framework and strategy for the implementation of the Waste Act. The current NWMS 2020 plan revised and updated the 2011 strategy to achieve the following;

- Assimilates the strategic approach to waste management with the commitments and directives of the Sustainable Development Goals 2030 and South Africa's National Development Plan: Vision 2030;
- Unequivocally locates waste management as one of the key underpinnings of South Africa's economy and social fabric; and
- Integrates and provides an enabling environment for the DFFE's 2017 Chemicals and Waste Economy Phakisa and government's 2019 Good Green Deeds Programme.

There are three pillars to the NWMS 2020, namely Waste Minimisation, Effective and Sustainable Waste Services and Compliance, Enforcement and Awareness which support the expected outcomes.

1.4.2 Municipal IDP and SDF

1.4.2.1 CAM Integrated Development Plan:

The 2021/2022 version of the document was used.

Strategic Goals of the IDP, reported as having been achieved, include the Key Performance Areas of Basic Service Delivery. Specific Projects are:

- Implementation of a Wheelie Bin Project
- The purchase of a new Compactor
- The Acquisition of the P&B Lime premises – with the Capital Priority of the establishment of a Materials Recovery Park

The IDP recognised Air Quality as being a Municipal responsibility, notes the implementation of Air Quality Management Plan and further notes the potential pollution source from "...*Waste treatment and disposal...*".

Refuse removal as a basic service is discussed.

The High Strategic Risk posed by non-compliance to requirements of the Permit, is highlighted.

The IDP notes the need for Fleet Management and notes the establishment of a dedicated unit to carry out this task.

The IDP sets out the solid waste management functions and services offered and notes the challenges as being:

- Capacity of landfill sites
- Illegal entrance to landfill site
- Illegal dumping
- Shortage of staff.

Operational Development Priorities recognised are:

- Ongoing implementation of wheelie bin project
- Develop a report on future landfill activity
- Creation of additional drop off points to curb illegal dumping
- Youth recycling awareness programmes in schools

- Community recycling awareness programmes
- Organic waste diversion awareness

The development of the Materials Recovery Park is set as a Capital Development Priority.

The IWMP is recognised as being a part of the overall IDP.

As part of the CAM Revenue Enhancement Strategy, a number of Strategic Interventions, relating to waste management, have been completed.

The 3-year Capital Programme sets aside budgets for, inter alia, the Materials Recovery Park, the purchase of plant and the purchase of an Air Quality Monitoring Unit for the landfill site.

1.4.3 Spatial Development Framework:

The Spatial Development Framework notes the recycling and recovery of waste as being a Policy Direction. Growth aspirations are modest and the SDF notes that “.....settlements in CAM do not fall within the upper tier of growth potential and social need. growth potential. Thus, CAM could not expect absolute or extraordinary prioritisation for additional resources for services beyond what is already provided by government....”.

In spite of the SDF’s comment on growth, the Local Economic Development Strategy, focusses on tourism and the revival of the post-Covid economy.

1.5 Stakeholder Participation

1.5.1 Process

In order to ensure that input is gathered from relevant groupings the following process was followed.

1.5.2 Authorities

There were a number of consultation workshops with the Solid Waste Department .Each stage of the reporting was presented in draft, discussed and revised accordingly.

A draft of the IWMP was submitted to DEA&DP and WCDM for review before submission to the CAM Council for approval. After Council approval the Final IWMP must be submitted to DEA&DP.

1.5.3 Public and other Interested and Affected Parties

The IWMP was made available for review by the public for a period of 30 days, from <<Date to be confirmed>> to << Date to be confirmed>>, to obtain feedback and comments. The review of the IWMP and the period available was advertised in the local newspaper, Suidernuus, and made available on the CAM website. Copies of the IWMP were made available for inspection at all municipal libraries.

1.5.4 Comments and responses

No comments were received from the public or interested and affected parties.

Comment was received from DEA&DP and have been responded to accordingly in **Appendix F**.

2 Status Quo

2.1 Legislative requirements overview

2.1.1 National policy and legislation

South Africa has extensive legislation that has been promulgated to ensure protection of the environment and people. Relevant acts, regulations and guidelines applicable to waste management are summarised in the following tables.

Legislation/regulations	Synopsis
The Constitution of the Republic of South Africa, 1996, as amended	Section 24 (a) of the Act states that: “everyone has the right to an environment that is not harmful to their health or wellbeing.” This poses a duty on all organs of state to promulgate legislation and to implement policies that ensure that this right is upheld. Chapter 7 of the Constitution states that the roles and responsibilities of local government include: Promotion of social and economic development; and Promotion of a safe and healthy environment
National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended	It is the key legislation for environmental management in South Africa. NEMA promotes social, economic and environmental sustainability with a key focus on conservation of the environment. The Act requires environmental processes to be transparent and to provide capacity for disadvantaged stakeholders to participate. NEMA promotes the need for co- operative governance where more than one government department may be involved in decision- making for a proposed development. NEMA was amended in 2006 and again in June 2010, providing a new list of activities that require environmental authorisation through different processes.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as amended	The Act requires that a National Waste Management Strategy (NWMS) be drafted in order to achieve the objectives of the Act. The NWMS was first drafted and finalised in 2011 and all spheres of government must implement this strategy. It also sets waste service standards, covering areas such as tariffs, quality of service and financial reporting. Municipalities are also required by the Act to designate a waste management officer. Municipalities must produce an IWMP and submit it to the Member of the Executive Council (MEC) for approval. The approved IWMP must be included in the Municipal IDP and is required to follow the consultative process as defined in Section 29 of the Municipal Systems Act. The NEMWA provides definitions of waste as well as the listed activities that require licensing. This Act also provides specific waste management measures for remediation of contaminated land as well as for compliance and enforcement.
National Waste Management Strategy (2011), November 2011	The National Waste Management Strategy (2011) (NWMS) was promulgated on 4 May 2012 to address South Africa’s waste management challenges and gave effect to the suite of policies and relevant legislation which preceded it. The overall objective of the strategy is to reduce the generation of waste and reduce the impact of all forms of waste on economic development, health and the quality of environmental resources. The NWMS sought to achieve the following goals: <ul style="list-style-type: none"> • Promote waste minimisation, re-use, recycling and recovery; • Ensure effective and efficient waste delivery services; • Growing the contribution of the waste sector to the green economy; • Ensure that people are aware of the impact of waste on their health, well-being and the environment.

Legislation/regulations	Synopsis
	<ul style="list-style-type: none"> • Achieve integrated waste management planning; • Ensure sound budgeting and financial management for waste services; • Provide measures to remediate contaminated land; and • Effective compliance with and enforcement of the Waste Act.
National Domestic Waste Collection Standards (GN 21 of 2011)	Provides standards relating to the collection of general waste. Distinguishes between the levels of service relating to waste collection whilst emphasising that equitable waste collection services must be provided to all households within the jurisdiction of the Municipality.
National Waste Information Regulations (GN 625 of 2012)	To regulate the collection of data and information to fulfil the objectives of the National Waste Information System as set out in section 61 of the Waste Act. Specify registration and reporting requirements.
Waste Classification and Management Regulations, (GN 634 of 2013)	To regulate the classification and management of waste in a manner that supports and implements the provision of the Waste Act and provides a mechanism and procedure for the listing of waste management activities that do not require a Waste Management License. Prescribes requirements for; disposal to landfill, timeframes for management of certain wastes and general duties of waste generators, transporters and managers.
National Norms and Standards for Assessment of Waste for Landfill Disposal, GN 635 of 2013	The National Norms and Standards for the assessment of waste for landfill disposal prescribe the requirements for the assessment of waste prior to landfill. Provides a standard assessment methodology for waste prior to disposal at landfill and advises on the total and leachable concentration limits.
National Norms and Standards for disposal of Waste to Landfill, GN. 636 of 2013	The norms and standards for disposal of waste to landfill stipulate the waste acceptance criteria for disposal to landfill and the various waste disposal restrictions. Provides detail on the different classes of landfills, the containment barrier requirements and the types of waste acceptable at the different classes of landfill. These regulations regulate classification and management of waste to give effect to provisions of the NEMA.
National standards for the Extraction Flaring or Recovery of Landfill Gas, GN 924 of 2013	The purpose of these Norms and Standards is to aim at controlling the flaring, extraction or recovery of landfill gas at facilities in order to prevent or minimise the potential negative impacts on the bio-physical and socio-economic environments. It describes how these facilities must be designed, operated, monitored and decommissioned.
National Standards for the Scrapping or Recovery of Motor Vehicles, GN 925 of 2013	These Standards are applicable to a vehicle scrapping or recovery facility with an operational area exceeding 500m ² and describes how such a facility must be designed, operated, monitored and decommissioned.
National Norms and standards for the Storage of Waste, GN 926 of 2013	The purpose of the norms and standards is to- <ul style="list-style-type: none"> • Provide a uniform national approach relating to the management of waste storage facilities; • Ensure best practice in the management of waste storage facilities; and • Provide minimum standards for the design and operation of new and existing waste storage facilities.
National Norms and Standards for the Remediation of Contaminated Land and Soil Quality, GN331 of 2014	The purpose of these Norms and Standards is provide a uniform national approach to determine the contamination status of an area and to limit uncertainties about the most appropriate criteria and method to apply in such an assessment. Also provide minimum standards for assessing necessary environmental protection measures for remediation activities.
National Environmental Management: Waste Amendment Act (Act 26 of 2014)	Amendment to the National Environmental Management: Waste Act 59 of 2008. Provides amendments by substituting and deleting some definitions. Introduces the Waste Pricing Strategy and the establishment of the Waste Management Bureau.

Legislation/regulations	Synopsis
National Pricing Strategy for Waste Management (GN 904 of 2016)	To provide the basis and guiding methodology for setting waste management tariffs so as to increase diversion from landfill and encourage reduction, reuse and recycling of waste. Identifies and details three economic instruments for waste management namely; downstream instruments, upstream instruments and subsidy-based instruments.
Minimum Requirements for Waste Disposal by Landfill, 1998	The then Department of Water Affairs and Forestry (DWAF), having a concern for the protection of water resources of South Africa and at the time being responsible for permitting of waste facilities developed a part series of documents commonly referred to as the 'Minimum Requirements'. The first edition was published in 1994, followed by a 2nd edition in 1998, a 3 rd edition was drafted in 2005 but never. The minimum requirements for waste disposal addresses landfill classification, and the siting, investigation, design operation and monitoring of landfill sites. In the landfill classification system, a landfill is classified in terms of waste class, size of operation, and potential for significant leachate generation, all of which influence the risk it poses to the environment. Graded requirements are then set for all aspects of landfilling, including public participation.

Table 2 - National Policy and Regulations pertinent to waste management

2.1.2 New and updated legislation since 2016.

Legislation/regulations	Synopsis
National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste (GN 1093 of 2017).	These norms and standards were developed to reduce the licensing requirements for low impact waste management activities. The norms and standards are applicable to all facilities where general waste is sorted, crushed, ground, crushed, screened or baled. All facilities where such activities are undertaken need to be registered with the provincial authority. Facilities with an operational area in excess of 1,000m ² need to be registered and comply with all the requirements of the norms and standards.
National Environmental Management Waste Act (GN 1094 of 2017) Amendment	Amendment to the list of waste management activities that have, or are likely to have, a detrimental effect on the environment. The list of waste management activities that have, or are likely to have, a detrimental effect on the environment were updated in 2015 to remove low impact activities related to waste management including the sorting, shredding, grinding, crushing, screening and baling of general waste.
Extended Producer Responsibility (GN 1184 of 2020)	Aims to provide the framework for the development, implementation, monitoring and evaluation of extended producer responsibility schemes by producers in terms of section 18 of the Waste Act. To facilitate the effective and efficient management of identified end of life products and to encourage and enable the implementation of circular economy initiatives. Details and the roles and responsibilities of producers as well as the minimum requirements and criteria for EPR schemes.
National Waste Management Strategy (2020)	The National Waste Management Strategy 2020 (NWMS) clearly shows the intention of DFFE to prioritise diversion of waste from landfill sites and increasing the beneficiation of waste through recycling and organic waste beneficiation. The NWMS is structured around a framework of three pillars each with their respective goals. The goals along with their respective targets are to be achieved by dates (year) indicated in the NWMS. The 2020 NWMS has three strategic pillars to improve waste management in South Africa: <ul style="list-style-type: none"> • Waste minimisation The goal is to prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years leading

Legislation/regulations	Synopsis
	<p>to Zero-Waste going to landfill through reuse, recycling, and recovery and alternative waste treatment.</p> <ul style="list-style-type: none"> • Effective and sustainable waste services <p>All citizens live in clean communities with waste services that are well managed and financially sustainable;</p> <ul style="list-style-type: none"> • Compliance, enforcement and awareness. <p>Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping.</p>
Amendment of the regulations and Notices regarding Extended Producer Responsibility (GN 400 of 2021)	<p>Provides updates to the Extended Producer Responsibility (GN 1184 of 2020) regulations.</p> <p>Provides updates to definitions and amendments to regulations pertaining to the EPR schemes as well as their effective date.</p>
National Norms and Standards for Organic Waste Composting (GN 561 of 2021)	<p>Provides a uniform approach for controlling the composting of organic waste. Aims to reduce the environmental impacts of composting and to ensure that the best practicable environmental option is implemented.</p>
National Norms and Standards for the Treatment of Organic Waste (GN 1984 of 2022)	<p>Aims to reduce the amount of organic wastes that would go to landfill by diverting to facilities that will treat it for beneficial use. The Norms and Standards are also aimed at controlling the processing of organic waste at specific facilities in order to avoid, prevent or minimise potential negative impacts on the environment.</p>

Table 3 - National Policy and Regulations since 2016 IWMP

2.1.3 International Treaties

2.1.3.1 Basel Convention

The Basel Convention is the most comprehensive global environmental agreement on hazardous waste and other wastes. The convention regulates transboundary movements of hazardous wastes and other wastes and disposal of such waste.

The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application covers a wide range of wastes defined as “hazardous wastes” based on their origin and/or composition and their characteristics, as well as two types of wastes defined as “other wastes” - household waste and incinerator ash.

The provisions of the Convention centre around the following principal aims:

- the reduction of hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal;
- the restriction of transboundary movements of hazardous wastes except where it is perceived to be in accordance with the principles of environmentally sound management; and
- a regulatory system applying to cases where transboundary movements are permissible.

In all cases where transboundary movement is not, in principle, prohibited, it may take place only if it represents an environmentally sound solution, if the principles of environmentally sound management and non-discrimination are observed and if it is carried out in accordance with the Convention’s regulatory system, which is the cornerstone of the Basel Convention

2.1.3.2 Rotterdam Convention (1998)

The Rotterdam Convention came into effect in 1998 and promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labelling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Parties can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply

2.1.3.3 Stockholm Convention

Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, effective from May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants (POPs). Member countries of the convention, of which South Africa is one, have agreed to phase out POPs, and prevent their import or export. It imposes restrictions on the handling of all intentionally produced POPs, i.e., identified highly toxic, persistent chemicals.

2.1.3.4 International Convention for the Prevention of Pollution from Ships (MARPOL)

The International Convention for the Prevention of Pollution from Ships (MARPOL) is the main international convention covering prevention of pollution of the marine environment.

The MARPOL Convention was adopted after a number of amendments in May 2005 and includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes.

Certain wastes are permitted to be disposed at sea outside buffer limits and after prescribed pre-processing. Disposal at sea of wastes such as plastics, synthetic ropes, fishing gear, plastic garbage bags, incinerator ashes, clinkers, cooking oil, floating dunnage, lining and packing materials, paper, rags, glass, metal, bottles, crockery and similar refuse are prohibited and are required to be brought to land and properly disposed of.

The discharge of sewage into the sea from ships is allowed under certain conditions and the convention includes regulations regarding the ships' equipment and systems for the control of sewage discharge, the provision of port reception facilities for sewage, and requirements for survey and certification.

Governments are required to ensure the provision of adequate reception facilities at ports and terminals for the reception of sewage and waste, without causing delay to ships.

2.1.4 Provincial policy and legislation

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

2.1.4.1 Western Cape Integrated Waste Management Plan

The Western Cape 2nd generation IWMP 2017-2022 aimed to provide strategic direction for integrated waste management over the short-, medium- and long-term to provincial government, local government, industry, commerce and civil society. Furthermore, it aimed to facilitate the implementation of the Waste Act and the NWMS, 2011 to improve waste management in the province. IWMP's must be reported on annually to ensure implementation of activities they should be reviewed ideally every 5-years in alignment with the municipal Integrated Development Plan (IDP) cycle.

The Western Cape Government is currently reviewing their IWMP This will be the 3rd generation IWMP referred to as the IWMP 2022-2027. The specific objectives of the IWMP 2022-2027 (*DEA&DP IWMP 2022-2027 Situational Analysis (Draft) Feb 2022*) is stated as follows:

- To provide an analysis of the status of implementation of the province's 2nd generation IWMP 2017-2022, which will inform the development of the IWMP 2022-2027,
- to provide an overview of the achievements in the province in terms of waste management,
- to provide an overview of the identified waste management gaps and needs in the province,
- to develop a set of goals, objectives, activities and targets that respond to the identified gaps and needs,

- to take cognisance of aspects relating to gender equality, socio-economic development, sustainability of waste services, environmental impacts when developing goals, objectives, activities and targets.

2.1.4.2 Provincial Strategic Plan 2019-2024

The Plan sets out the WCG's vision and strategic priorities. Five Vision-inspired priorities have been identified:

- safe and cohesive communities
- growth and jobs,
- empowering people,
- mobility and spatial transformation,
- innovation and culture.

Waste management is addressed under priority area 1 which identified the need for improving the cleanliness of neighbourhoods. Cleaner neighbourhoods will be achieved through improving waste management in vulnerable communities and targeting illegal dumping.

2.1.4.3 Provincial Spatial Development Framework, 2014

The PSDF addresses the spatial inequalities, unsustainable resource consumption and disposal. It also recognises the need for innovation in the waste sector to increase waste recycling and reuse. The need for waste-to-energy in the long term is also referred to in the plan. It identifies regional planning initiatives to address specific economic, social, natural or unique features in a specific area. Three urban and two rural priority areas have been identified. The feasibility into regionalisation of waste management services in the regional planning areas would need to be explored.

2.1.4.4 Western Cape Waste Awareness Strategy

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

2.1.4.5 Department of Environmental Affairs and Development Planning (DEA&DP) Strategic Plan, 2020-2025

The DEA&DP Strategic Plan has identified waste management as 1 of its six key strategic focus areas. It envisions a sustainable and resilient environment that enables an inclusive and transformative spatial economy. It provides the following 5-year targets for waste management:

- 50% of waste diverted from landfill.
- 5 districts received departmental SMME support interventions to create jobs and to promote the waste economy.
- 95% of households with access to basic refuse removal services.
- 85% of waste facility owners submitting compliance audits.
- 80% of municipalities with by-laws aligned to NEM: WA.
- 90% of municipalities with 3rd generation IWMPs.

2.1.4.6 Green Economy Strategy Framework, 2013

The Strategy has a vision to "position the Western Cape as the lowest carbon province in South Africa and the leading green economic hub of the African Continent". It aims to grow the commercial waste economy in partnership between public and private sectors as a major source of green jobs. To achieve this, innovation in identifying waste materials, enabling an environment to support the waste economy

and develop a market by establishing a province-wide waste exchange to support the expansion and creation of new waste enterprises by improving the knowledge of waste resources.

2.1.4.7 Provincial Organic Waste Strategy, 2020

The Western Cape Provincial Organic Waste Strategy was released by DEA&DP in March 2020. The strategy was developed as a guideline for the development of organic waste diversion from landfill and implementation of initiatives for the reuse or recovery of this organic waste. The focus of the Strategy is to comply with national legislation, limit greenhouse gas emissions and its negative impact on the climate and ensure organic waste diversion from landfills. The strategy also identifies the mechanisms to ensure the organic waste is available as a resource, the development of the infrastructure for the recovery of the organic waste and strategies to support the uptake and beneficiation of this resource. Good information management, public and private sector awareness, and private sector buy-in are required to achieve the 100% organic waste reduction by 2027 as set out by the Organic Waste Strategy.

2.1.4.8 Western Cape Air Quality Management Plan, 2021

Aims to ensure the effective and consistent implementation of sustainable air quality management practices, by all spheres of government, relevant stakeholders and civil society to progressively achieve and efficiently maintain clean and healthy air in the Western Cape.

2.1.4.9 OneCape 2040

The OneCape 2040 aims to transition from an unsustainable carbon-intensive resource-use society to sustainable, low carbon resource use to ensure that the Western Cape Province is recognised as the leader and innovator in the Green Economy. The province supports local government and the private sector to improve the recovery of waste material and beneficial use thereof.

2.1.5 Municipal By-Laws

The Cape Agulhas Municipalities Refuse Removal By-Law of 2005, was repealed with effect from 8 April 2022 and replaced with the Cape Agulhas Municipality Integrated Waste Management By-law, 2021, which was published in the Western Cape Provincial Gazette Extraordinary No. 8580 of 8 April 2022.

The by-law sets out the duties and obligations for the Municipality, businesses and private citizens regarding the generation, use, collection, transport, recycling and disposal of waste within the CAM area.

2.1.6 Institutional Responsibilities

2.1.6.1 National Government

The National Department of Forestry, Fisheries and Environment National (DFFE) is tasked with establishing a National Waste Management Strategy, including norms, standards and targets and guideline documents for integrated waste management planning for all waste types.

2.1.6.2 Provincial Government

The Department of Environmental Affairs and Development Planning (DEA&DP) of the Provincial government is tasked with the implementation of the National Waste Management Strategy and national norms and standards, and may set additional, complementary provincial norms and standards. The Waste Act notes that these norms and standards must amongst other things facilitate and advance regionalization of waste management services. DEA&DP is also responsible for developing hazardous waste management plans and preparing a Provincial Integrated Waste Management Plan. Municipal IWMP's should incorporate and align their plans with the Provincial IWMP.

2.1.6.3 Local Government

The Waste Act requires local authorities to implement mechanisms for the provision of waste collection services including collection, storage and disposal. Local authorities are also required to facilitate recycling and waste diversion from landfill and manage waste information appropriately.

Local Government is required to develop and submit plans for integrated general waste management to the Provincial Government.

The NWMS 2020 requires that Local Government shifts its focus to promoting diversion of waste from landfill through reuse, recycling and recovery. The NWMS promotes the following;

- All municipalities should include the provision of drop-off/buy back centres and storage facilities for recyclables in their IWMPs.
- DFFE to investigate the feasibility of implementing a landfill tax and prepare policy to assist municipalities in financing monitoring and compliance of landfills.
- IWMPs should include awareness and enforcement strategies aimed at creating a culture of compliance with the Waste Act and municipal by-laws involving waste collection and disposal, littering and illegal dumping.

The Waste Act requires that all local municipalities must appoint a Waste Management Officer (WMO) who is responsible for co-ordinating waste management in the municipality in collaboration with an Environmental Management Inspector, to ensure compliance with the Waste Act.

2.1.6.4 Private Sector

“The private sector is involved throughout the waste sector as generators of waste, providers of waste-related services, recyclers of waste and consumers of recycled materials – as well as providing an important interface to consumers. The involvement of the private sector is therefore critical to the implementation of the NWMS.” (NWMS 2020)

The NWMS promotes government and private sector collaboration on raising public awareness, particularly in relation to recycling of priority wastes, food waste, and safe disposal of hazardous domestic wastes.

The private sector is also responsible for the preparation of Industrial Waste Management Plans and where required by municipal by-laws Construction Waste Management Plans, both to ensure the safe and proper disposal of these wastes.

2.2 Demographics

2.2.1 Population

The following statistics were sourced from the Western Cape Community Survey 2016 (WCCS 2016) which also drew on Census 2011 (see also Figure 4).

District/Municipality	Census 2011		CS 2016		Population growth rate
	Population	%	Population	%	
West Coast	391 766	6.7	436 403	6,9	2.4
Cape Winelands	787 486	13.5	866 001	13,8	2.2
Overberg	258 176	4.4	286 786	4,6	2.4
Eden	574 265	9.9	611 278	9,7	1.4
Central Karoo	71 011	1.2	74 247	1,2	1.0
City of Cape Town	3 740 031	64.2	4 005 016	63,8	1.6
Western Cape	5 822 734	100	6 279 730	100	1.7

Table 4 - Population of District Municipalities and Metro in the Western Cape

District/Municipality	Total population		% change
	Census 2011	Community Survey 2016	
Overberg	258 176	286 786	
Theewaterskloof	108 790	117 109	7,6%
Overstrand	80 432	93 466	16,2%
Cape Agulhas	33 038	36 000	9%
Swellendam	35 916	40 211	12,0%
Western Cape	5 822 734	6 279 730	
South Africa	51 770 560	55 653 654	

Table 5 - Population distribution and percentage change District and Local Municipality: Western Cape, Census 2011 and Community Survey 2016

Table 5 above shows CAM to be the least populated Municipal area in the Overberg District Municipality.

The CAM Socio-Economic Profile (SEP) 2021 estimates the 2021 **population at 35,427 and a growth rate of 0,5%** up to 2025. These figures have been adopted for the IWMP.

2.2.2 Household sizes

Household size refers to the number of people per household, who make common provision for food, shelter etc. The actual size of households is on a marginally downward trend from 3.4 people per household in 2020 to 3.3 predicted for 2024. Contributing factors to a stagnation in household size growth could include, but are not limited to, lower fertility rates, occurrences of divorce, ageing population, etc.

2.2.3 Population density

Amidst rapid urbanisation across the Western Cape, population density figures will aid public sector decision makers to mitigate environmental, individual health and service delivery risks. In 2020, the population density of the Overberg District (OD) was 25 persons per square kilometre. The Cape Agulhas Socio Economic Profile for 2021 shows the following:

Cape Agulhas	10 people per km²
Swellendam	10 people per km ²
Theewaterskloof	38 people per km ²
Overstrand	63 people per km ²

2.2.4 Wards

The CAM consists of six wards, which are listed below.

WARD	AREAS/TOWNS
1	Napier, Elim, Spanjaardskloof, Houtkloof and surrounding farming areas
2	Part of Bredasdorp and Klipdale
3	Part of Bredasdorp which includes the low-cost housing scheme (Kleinbegin), Zwelitsha and Simunye
4	Part of Bredasdorp including the Central Business District, Protem and surrounding farms
5	Suiderstrand 'Agulhas Struisbaai and Haasvlakte
6	Arniston and surrounding Farms, Overberg Test Range, Part of Bredasdorp (Selfbou and Bergsig area)

Table 6 – Cape Agulhas Municipality Wards



Table 7 – Cape Agulhas Municipality Ward map

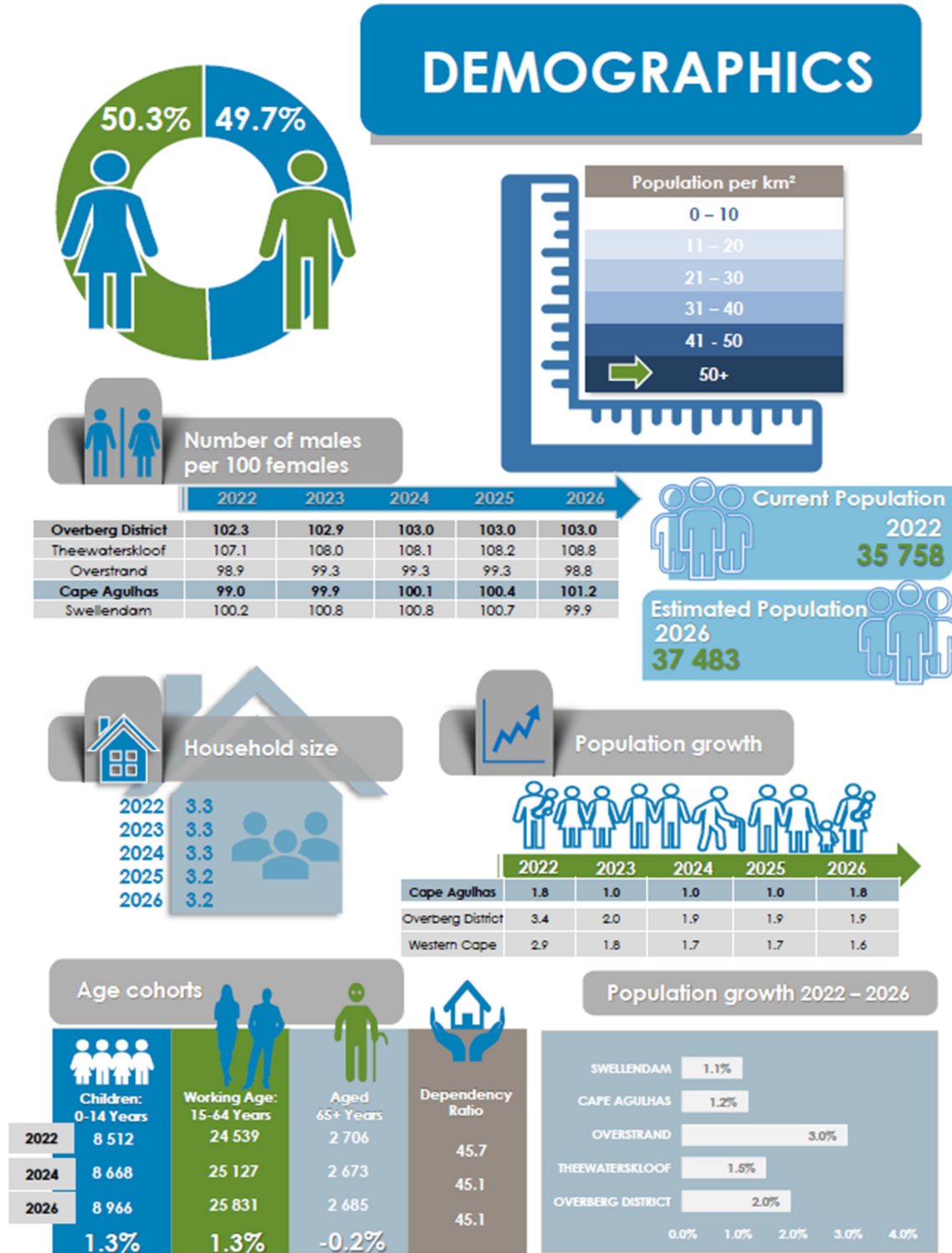


Figure 8- -2022 Socio Economic Profile: Cape Agulhas Municipality Demographics

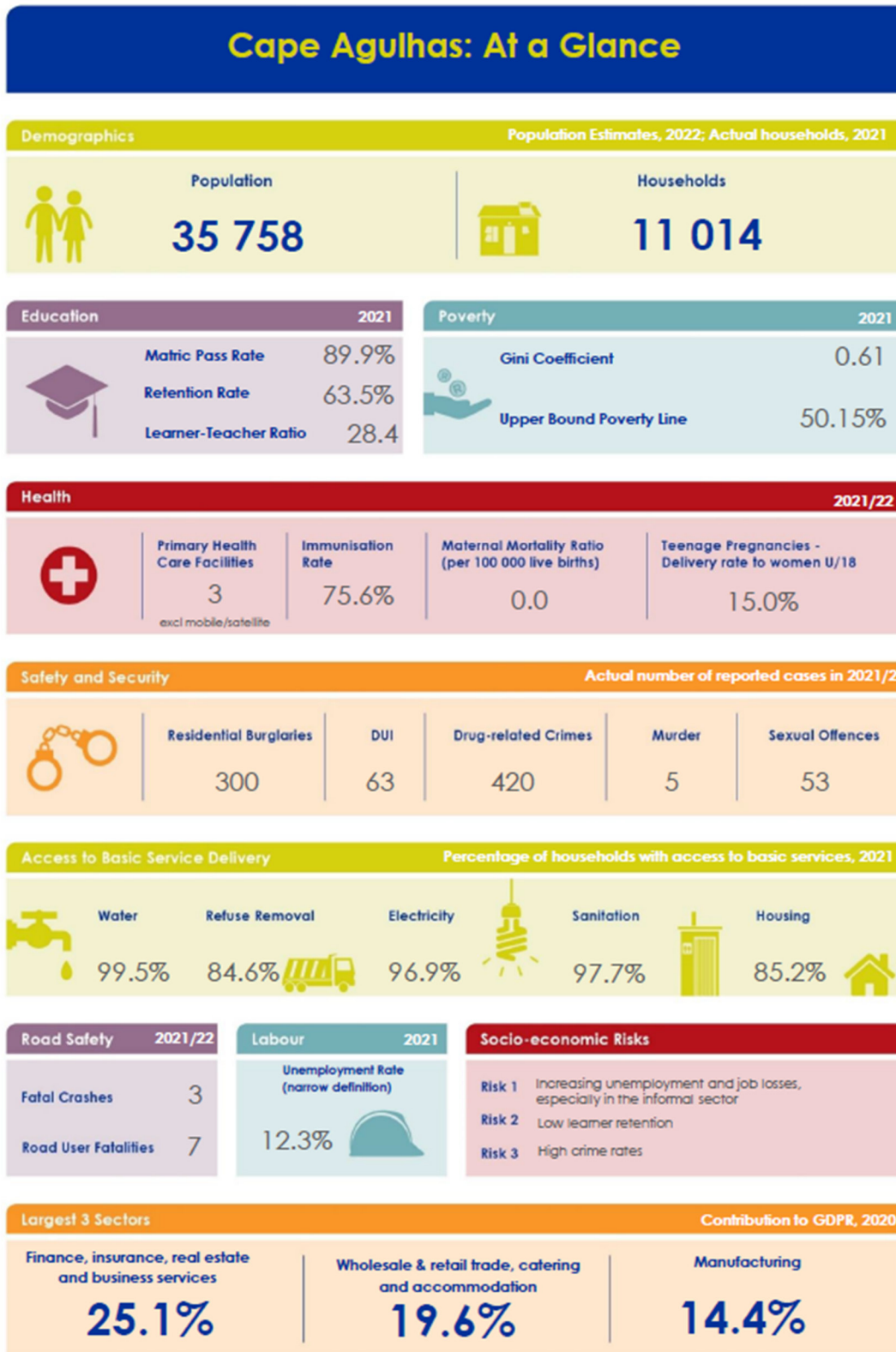


Figure 9 - 2022 Socio Economic Profile: Cape Agulhas Municipality

2.2.5 Socio-Economic Conditions

	2021 Population	2021 Households
Bredasdorp	15 524	4 521
Napier	4 214	1 337
Struisbaai	3 877	1 454
Elim	1 412	390
Arniston/Waenuiskrans	1 267	337
L'Agulhas	548	253
Suiderstrand	44	23

Table 8 - Population Estimate Urban areas for 2021 (STATSSA)

	Lower Income 0 - R50,613		Middle Income R50614 - R404901		High Income R404902 and up	
	%	Households	%	Households	%	Households

Table 9 - Estimated number of households per income group in the urban areas for 2021

2.2.6 Development profile

The CAM IDP 2021/2022, claims that the Municipality has a modest growth potential and that there will be a recovery in growth in the post COVID period. Agriculture, forestry and fishing sector, one of the main sources of employment, has contracted by approximately 1% from 2014 to 2018.

The Cape Agulhas area has the lowest (12.3 per cent in 2021) unemployment rates within the District. Unemployment has however been on an upward trend since 2015 (6.4 per cent). The proportion of the not economically active population has also increased from 2020 to 2021 as job losses and an insufficient supply of jobs have led to an increasing number of discouraged work- seekers. Unfortunately, most job losses affected low skilled and informal workers who are more vulnerable to living in poverty during times of tough economic times. (*The 2022 Socio-Economic Profile, Cape Agulhas Municipality, Western Cape Government.*)

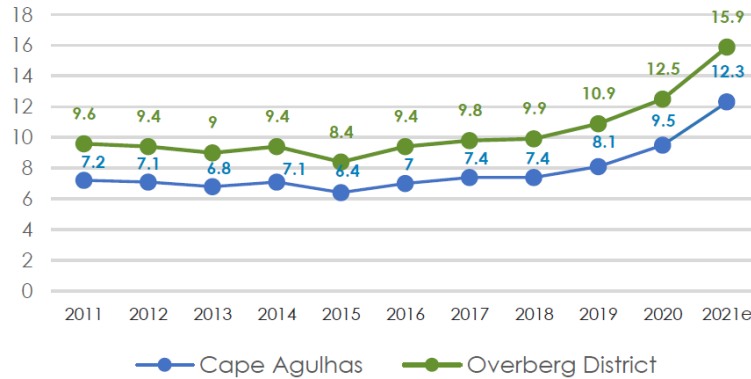


Figure 10 - Unemployment rate 2011 – 2021

2.3 Waste generation, Quantities and Characteristics

An appreciation of socio-economic and growth data can be used to inform an understanding of how waste quantities could be expected to increase over time. For the CAM, population, population density and income, show rising trends. This, coupled with small increases in business activity, could be seen as indicators of a future growth in waste quantities.

2.3.1 Waste types and categories

2.3.1.1 Municipal Waste

The CAM receives and collects municipal waste from a number of sources:

- Residences – via formal collections of wheelie bins
- Informal areas – via collection of skips and wheelie bins
- Business and Industrial
- Drop-Off stations

Section 2.3.2 discusses the composition of the CAM waste stream. With regards to Municipal waste, it can be seen that recyclable and organic materials make up a considerable portion of the overall stream (more than 50%). An implication here is that there appears to be significant potential for the reduction of waste going to the landfill, by increasing recycling. Organic waste will be largely addressed as set out in **Section 2.6.3** which presents a synopsis of the Organic Waste Diversion Plan.

2.3.1.2 Industrial and Commercial Wastes

While there is some recycling, a large part of this waste stream ends up at the disposal site.

Used and discarded tyres are taken up by farmers for use on their lands, are returned to manufacturers or are collected by industries. Fortunately, the occurrences of tyres being dumped in open spaces, is rare. It is not clear whether the various tyre suppliers have registered with the Waste Bureau.

The CAM Integrated Waste Management By-Law of 2021, requires that commercial enterprises dealing with tyres, must register with the Municipality.

2.3.1.3 Construction and Demolition Waste

These wastes continue to be a characteristic of the CAM waste stream. While they could be seen as a sign of commercial activity, their impact is also felt at the disposal stage (at this stage, there is no evidence of the recycling of this waste). The CAM, as far as is possible, makes use of these wastes as cover material at the Bredasdorp Disposal Site.

2.3.1.4 Farming

Waste from farms is not included in the CAM collection services. Farmers can take their general waste directly to the Bredasdorp landfill and Drop Off Facilities.

2.3.1.5 Healthcare Facilities

Clinics and healthcare workers have the potential to generate Health Care Risk Waste (HCRW) which is hazardous and therefore must be treated appropriately. A lack of appropriate HCRW treatment facilities presents a critical pollution risk at the point of generation. All public clinics and hospitals are under the authority of the Provincial Department of Health. These wastes from clinics, are sent to the Provincial Hospital and are then disposed of at a licenced facility by a private service provider.

Only general waste from the hospitals and clinics is collected by the waste management unit of CAM.

2.3.1.6 Hazardous wastes

The waste characterisation study of 2023 shows that less than 1% of the CAM waste stream is made up of E-waste (recyclable and hazardous components) and Household Hazardous Waste (HHW). It is assumed that this is disposed of at the BWDF. There is, however, an E-waste drop off service provided by Overberg recycling and Scrap.

CAM does not have a Household Hazardous Waste Plan.

Waste Generation

2.3.1.7 Current Waste Quantities Generated

The data for all waste generated in the Cape Agulhas Municipality, are captured via written records. These are from:

- The respective Supervisors at the 3 Drop Off Facilities at Napier, Waenhuiskrans and Struisbaai
- The Supervisor at the Bredasdorp Disposal Site (no weighbridge at the site)

The data is summarised below and detailed in **Appendix B**

Table 10 presents the data from 2021 to 2023.

Waste Categories	Waste Generated		Waste Landfilled		Waste Diverted from Landfill		
	Jul 2021 to May 2023	Average per month	Jul 2021 to May 2023	Average per month	Jul 2021 to May 2023	Average per month	% Diversion
Municipal Waste	23 969	1 092.1	23 969	1 092.1	-	-	0
Organic Waste	12 065	477.4	6 068	369.6	5 997	351	7.8%
Recycled Waste	7 628	324.2			7 628	324.2	9.9%
Construction & Demolition Waste	30 194	1 376.8	30 194	1 376.8			0
Commercial and Industrial Waste	3 292	129.7	3 292	129.7			0
	77 148		63 523		13 625		18%

Table 10 - Summary of waste generated, landfilled and diverted from 2021 to 2023

The following should be noted;

- Although C&D waste is classified as Landfilled or Diverted, all waste classified as Landfilled is, where suitable, utilised for cover material and roadbuilding on the landfill.
- Garden waste diversion rate has tripled in the last year due to the mandatory requirement to divert 50% of organics from landfill by 2022.
- Organic waste includes condemned food and carcasses as well as a percentage of household waste which allows for food wastes and garden waste disposed in collection bins. This percentage in the order of 31%.
- It can be seen that an average of 6 059 tons of waste per month, has been landfilled. This comes about as a result of the diversion of 3 653 ton per month of the 9 713 ton generated per month – approximately 38%. Should all C&D waste be considered diverted this rate would increase to in the order of 55%

Figure 11 below shows the monthly quantities of municipal waste generated excluding construction and demolition (C&D) waste. C&D waste is typically a significant quantity in municipal wastes due to its high density and generally distorts the trend of waste generation. Figure 11 indicates that there has been an overall decrease in waste generated in the CAM over the last 5 years. This is likely to be the result of previously classifying mixed C&D and garden waste as Garden waste, corrected in 2021, and the pandemic of 2020.

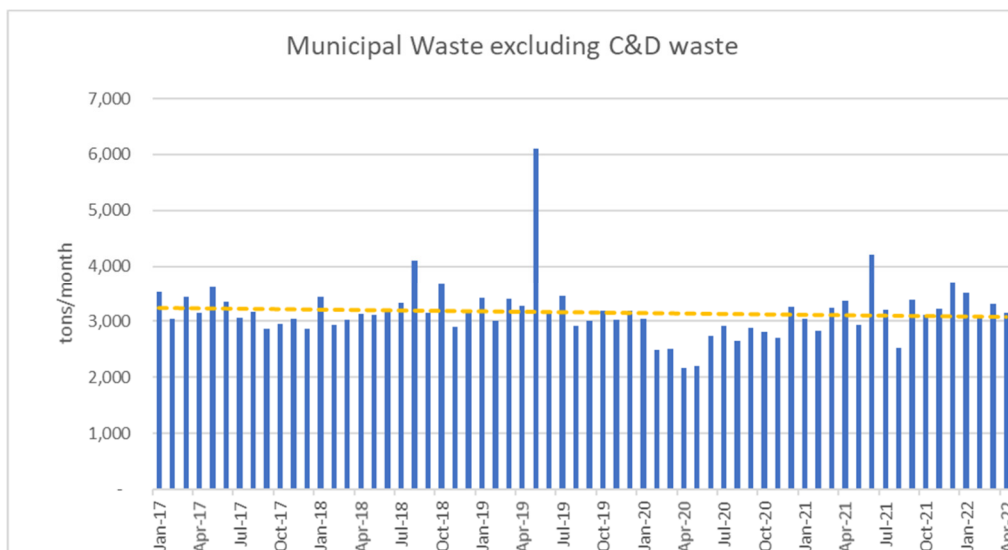


Figure 11 – Monthly municipal waste generation 2017 - 2022, excluding C&D waste

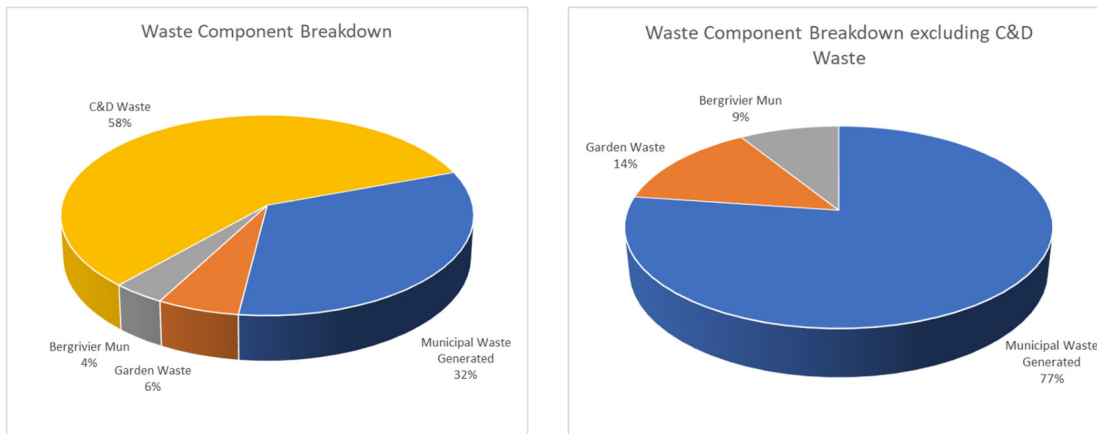


Figure 12 - Waste Component Breakdown including C&D waste and excluding C&D waste.

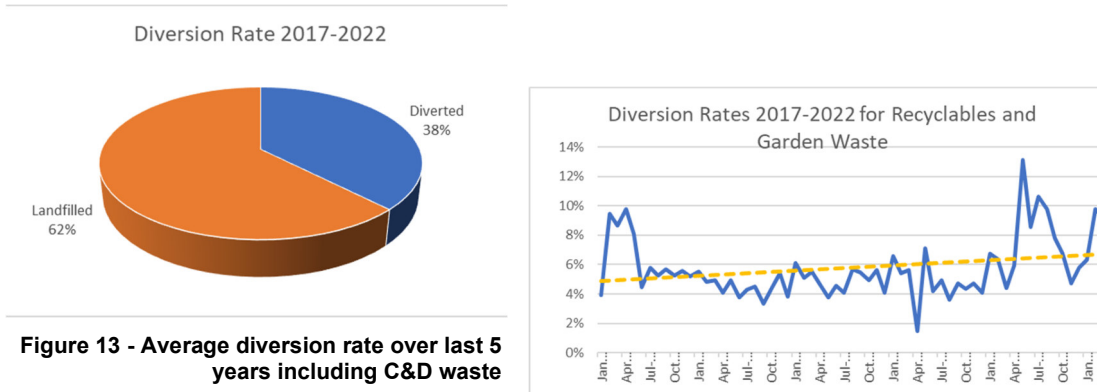


Figure 13 - Average diversion rate over last 5 years including C&D waste

Figure 14 - Monthly diversion rates of recyclables and garden waste for last 5 years showing a positive trend

2.3.1.8 Projected Waste Quantities

The projection or prediction of waste quantities is essential information for planning. At the same time however, it is not a perfect science and relies on assumptions and estimates. In this regard, it is an important consideration that planning strategies must be robust enough to deal with fluctuations in waste quantities. A further factor is that timescales and programme must come from careful planning and the understanding of the extended lead times associated with implementation.

As stated in **Section 2.2.1** a population growth of some 1,60 % is anticipated in the latest IDP and adopting the last 12 months of the 2017- 2022 records i.e.. May 2020 to April 2022 the projected quantities for each category of waste have been calculated for the next 20 years and presented in Table 11

Year	Total tons	Municipal Waste	C&D Waste	Garden Waste	Organic Waste	Bergrivier Mun
2022	122,963	27,132	71,543	5,939	12,190	6,160
2023	124,930	27,566	72,687	6,034	12,385	6,258
2024	126,929	28,007	73,850	6,131	12,583	6,358
2025	128,960	28,455	75,032	6,229	12,784	6,460
2026	131,023	28,910	76,232	6,329	12,989	6,563
2027	133,120	29,373	77,452	6,430	13,196	6,668
2028	135,250	29,843	78,691	6,533	13,408	6,775
2029	137,414	30,320	79,950	6,637	13,622	6,883
2030	139,612	30,805	81,230	6,744	13,840	6,994
2031	141,846	31,298	82,529	6,851	14,062	7,105

2032	144,116	31,799	83,850	6,961	14,287	7,219
2033	146,421	32,308	85,191	7,072	14,515	7,335
2034	148,764	32,825	86,554	7,186	14,747	7,452
2035	151,144	33,350	87,939	7,301	14,983	7,571
2036	153,563	33,884	89,346	7,417	15,223	7,692
2037	156,020	34,426	90,776	7,536	15,467	7,815
2038	158,516	34,977	92,228	7,657	15,714	7,941
2039	161,052	35,536	93,704	7,779	15,966	8,068
2040	163,629	36,105	95,203	7,904	16,221	8,197
2041	166,247	36,682	96,726	8,030	16,480	8,328

Table 11 - Projected tonnages for waste categories up to 2041

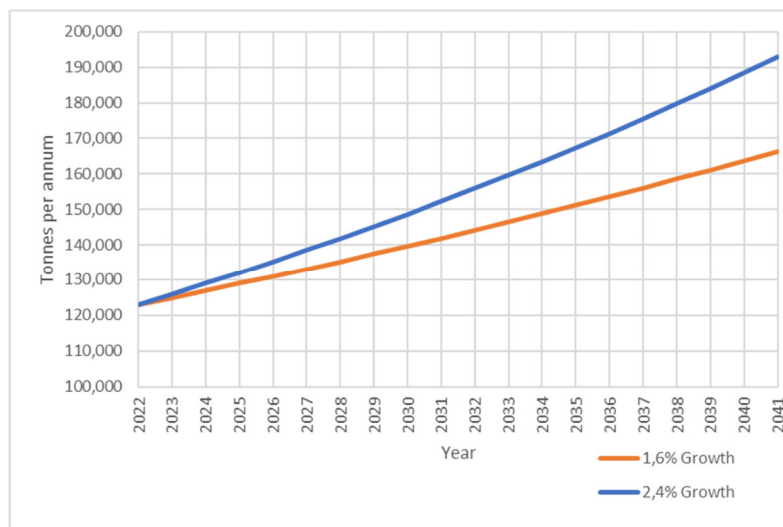


Figure 15 – Waste growth at 1,6% and 2,4% per annum

Figure 15 plots the waste growth at 1,6% as well as at 2,4%, being 50% higher than the current adopted growth rate. It should be noted that the above does not take into account future waste minimisation programs such as 100% diversion of organics by 2027 and increased recycling and should therefore be considered the worst case scenario for future planning.

2.3.2 Waste Characteristics

2.3.2.1 Introduction

A waste characterisation study was completed in January 2023 in which 500 households and commercial enterprises in the key towns in the CAM were sampled. Sampling was stratified into low-, middle- and high, income groups and undertaken as per the recommendations of the Western Cape Government's Department of Environmental Affairs and Development Planning (DEA&DP), Waste Characterisation Guideline for Municipalities with regards to the type of venue, equipment, sampling and sorting methods and data collection.

All waste was collected directly from randomly selected households. Collection took place on the day the Municipality normally collected the waste for the specific town or suburb. A total of 3,533 kgs of waste was collected and characterised.

2.3.2.2 Current Waste Characteristics

A summary of the results for 5 areas are presented in Table 12 below.

Location	Bredasdorp	Bredasdorp	Zwelitsha	Selfbou & Riemvasmaak	Napier	Napier	Struisbaai/L'A gulhas	Bredasdorp	Struisbaai North		
Income level	High	Middle	Low	Low	Mixed	Mixed	High	High	Low	Total (Kg)	%
Paper and board (includes cardboard)	34,0	26,0	30,8	23,9	81,2	108,9	66,3	28,1	27,4	426,63	12,1%
Glass	28,8	27,7	23,6	15,8	57,3	23,5	75,8	36,3	25,6	314,47	8,9%
Metal	5,3	3,2	8,1	7,3	13,0	4,9	9,9	5,6	4,7	61,94	1,8%
Plastic	45,4	35,2	61,6	40,9	87,7	43,4	56,5	38,5	53,5	462,6	13,1%
Food Waste	99,6	61,9	22,7	58,5	219,8	35,0	145,5	98,5	66,6	808,3	22,9%
Garden/Green Waste	91,8	28,1	19,6	1,7	174,0	23,6	89,5	112,0	8,8	549,24	15,5%
Construction Waste	11,3	2,3	27,1	8,8	34,8	24,0	26,5	10,4	13,6	158,69	4,5%
Textile	5,4	0,6	46,4	10,4	12,3	34,5	5,1	3,6	28,4	146,66	4,2%
Residual Waste	12,6	2,3	41,6	42,4	106,7	21,2	14,1	29,2	18,7	288,77	8,2%
Absorbent Hygiene Products	3,6	10,6	57,1	28,3	10,3	19,1	4,6	22,4	17,4	173,42	4,9%
Household Hazardous Waste	0,0	0,7	0,7	0,5	0,7	1,1	0,0	0,0	1,0	4,62	0,1%
E-Waste	0,5	1,2	0,8	0,0	1,0	0,1	2,8	0,0	3,3	9,70	0,3%
Other waste	2,1	1,3	1,9	39,7	15,4	0,0	49,7	18,1	0,2	128,3	3,6%
TOTAL (Kg)	340,4	201,1	341,9	278,3	814,2	339,3	546,3	402,6	269,1	3 533,08	

Table 12 - Summary of composition results

The results for the entire CAM region are presented in Table 13 and graphically in Figure 16.

Waste Type	Mass (kg)	% of total
Paper and board (includes cardboard)	426,63	12,1%
Glass	314,47	8,9%
Metal	61,94	1,8%
Plastic	462,6	13,1%
Food Waste	808,3	22,9%
Garden/Green Waste	549,24	15,5%
Construction Waste	158,69	4,5%
Textile	146,66	4,2%
Residual Waste	288,77	8,2%
Absorbent Hygiene Products	173,42	4,9%
Household Hazardous Waste	4,62	0,1%
E-Waste	9,70	0,3%
Other waste	128,3	3,6%
Total	3 533,08	100%

Table 13 – Cape Agulhas Municipality - results

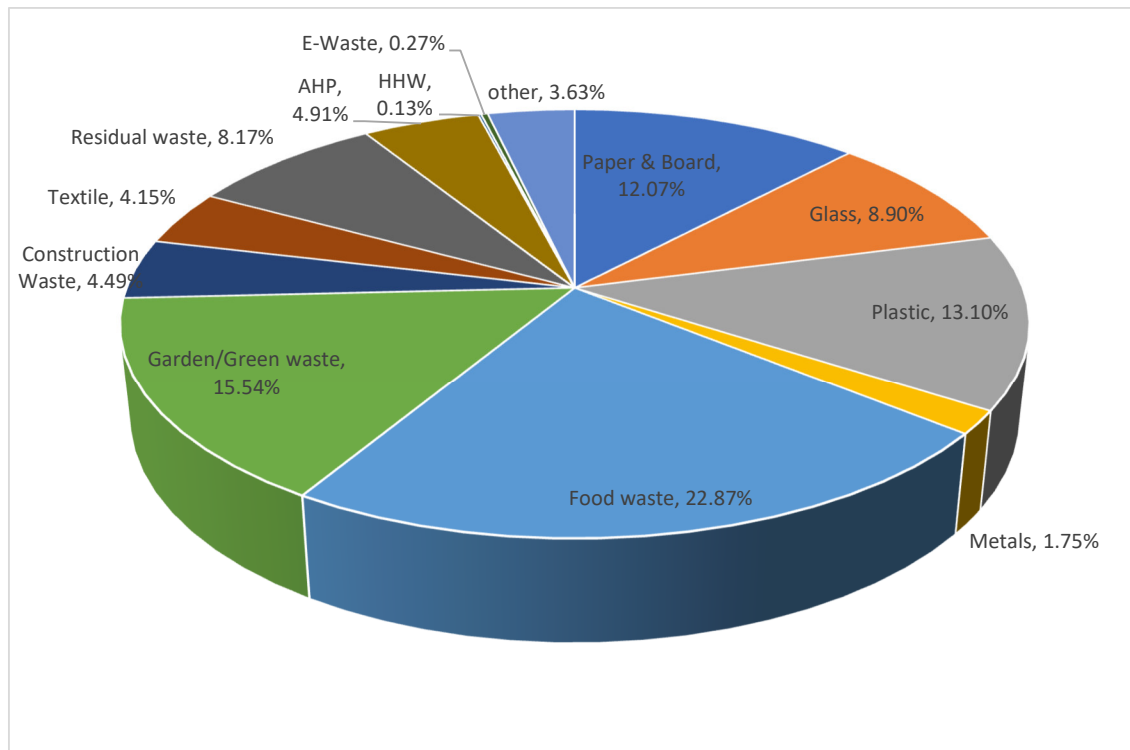


Figure 16 - Percentage breakdown of waste categories for CAM

The results of the waste characterisation study concluded that;

- Of the 500 households that were sampled a total mass of 3,533kg (3.53 tons) of waste was recorded, with an estimated volume of 18 m³.
- Food Waste was the most prominent component by mass (22.9%) of the waste types that were sampled.

- 40,3% of the waste types that were sampled by mass were recyclable materials: Paper and cardboard (12.1%) Plastics (13.1%) Glass (8.9%) Construction waste (4.5%) and Metal (1.8%). The above percentages would be applicable to recyclables that are separated at source as commingled waste generally has a relatively high proportion of contamination. In addition, not all plastics will be recyclable.
- Garden waste constituted 15.6% of the total waste sampled by mass and 17.8% by volume.
- E-waste constituted a mere 0.27% of the total waste sampled by mass and .3% by volume. E-waste is however classified as hazardous waste and contains recyclable materials that can be recovered. The remaining hazardous components of the E-waste must be disposed of at an appropriate facility.
- Hazardous Waste constituted some 0.13% of the total waste sampled by mass and 0.1% by volume. Although minimal, hazardous waste is not permitted to be disposed with household general waste.
- The remaining 17.23% of the waste types by mass and 22.4% by volume was Nappies, Textiles, Wood, Inert and Residual. These waste types cannot be recycled and there are no or limited (unaffordable) alternative waste technologies available in South Africa. Therefore, this is considered the portion that will be necessary to dispose of at a landfill site.
- The recyclable portion (soft plastic, hard plastic, paper, cardboard, glass and metal) comprises approximately 40% by mass of the total waste going to the Bredasdorp Disposal Site on a monthly basis.

From the study the following assumptions could be made

- Approximately 40% by mass, of the waste generated in the CAM area, is potentially recyclable
- A further 16% by mass (garden waste) is potentially compostable.
- Accordingly, approximately 56% by mass, of the waste generated in the CAM area, is currently going to landfill and could be diverted.
- The average household generates approximately 7kg of waste per week.

2.4 Current service delivery

2.4.1 Service areas



Figure 17 - CAM Ward map

Figure 17 shows the 14 wards in the CAM. Within these wards are a number of informal areas:

WARD	AREAS/TOWNS
1	Napier, Elim, Spanjaardskloof, Houtkloof and surrounding farming areas
2	Part of Bredasdorp and Klipdale
3	Part of Bredasdorp which includes the low-cost housing scheme (Kleinbegin), Zwelitsha and Simunye
4	Part of Bredasdorp including the Central Business District, Proteem and surrounding farms
5	Suiderstrand 'Agulhas Struisbaai and Haasvlakte
6	Arniston and surrounding Farms, Overberg Test Range, Part of Bredasdorp (Selfbou and Bergsig area)

2.4.2 Collections

The 2022 Socio-Economic Profile (SEP) for CAM states that there are 11 014 households in the Municipality, of which 9 318 (84,6%) receive once-a-week refuse removal (basic service). The CAM 4th review IDP 2021/22 states that there are no backlogs in urban areas.

The settlement of Elim is not provided with a collection service – they do their own collection and transport but dispose at the Bredasdorp Disposal Site.

5 teams responsible for the collection of municipal waste, operating on the schedule set out below.

Collection Day	Town	
Monday	Mountain side of Bredasdorp, right side of Longstreet, Struisbaai, L'Águlhas and Waenhuiskrans	Households
Tuesday	Left side of Longstreet, Primary school area Struisbaai Noord, Suiderstrand, Klipdale and Proteem	Households
Wednesday	Selfbou, Area F, Kleinbegin, Simunye, Zwelitsha and Bergsig, Recycling: Waenhuiskrans	Households
Thursday	Napier: Recycling in all towns	Households

Table 14 - Municipal waste collection program in CAM

The households referred to above, are provided with a 240ℓ wheelie bin, which is emptied once a week by a collection vehicle (REL).

The same teams are responsible for the collection of business/commercial waste

The business/commercial waste collection schedule is set out below.

Collection Day	Town	
Monday	Bredasdorp, Napier, Struisbaai, Waenhuiskrans and L'Águlhas	Business/commercial
Tuesday	Bredasdorp	Business/commercial
Wednesday	Bredasdorp, Struisbaai, Waenhuiskrans	Business/commercial
Thursday	Waenhuiskrans, Bredasdorp, Struisbaai	Business/commercial

Table 15 – Business/commercial waste collection program in CAM

In addition, a number of informal areas receive free refuse removal services bagged waste. These areas are: an area adjacent to the formal housing at Zwelitsha, Oukamp in Struisbaai and Napier informal area. Collections are once a week. This system is of limited efficacy as not all members of the community are prepared to walk the distance to the skips, resulting in illegal dumping and litter. A longer-term solution will be the formalising of these areas, the provision of roads, the registration of residents as indigent and the provision of wheelie bins.

Institutional and multi-dwelling service points (schools, flats, hospitals etc.) have municipal waste collected once a week.

CAM provides a collection service for bagged recyclable materials, in terms of which some approximately 50% of the formal households are covered.

2.4.3 Recycling

The current recycling tender is valid until 30 June 2024. The Service Provider is responsible for the collection of recyclable material at 32 businesses in Cape Agulhas. The Municipal team is responsible for collecting all households. A two-bag system is in place to sort the recyclable material at source, but it is not fully adopted by all the residents in the municipality.

All recyclables are separated by the recycling Service Provider and sent to Cape Town for further processing. (*CAM Solid Waste Management Report April 2023*). The same SP is responsible for determining the quantities (on the basis of estimating truck volumes) of waste arriving at his premises.

Shops, restaurants and shopping centres make use of a two-bag system in terms of which the Municipality collects the recyclables and the landfill wastes, separately. It is estimated that approximately 80% of these generators, participate in this system.

2.4.4 Drop-offs

CAM operates 3 facilities where business and private individuals, can drop Municipal waste and/or recyclables. For the smaller quantities (generally 1 ton or less) there is no charge. These stations thus make responsible waste management possible, for people who generate ad hoc wastes that cannot be disposed of in the 240l bins and those who are not in a position to pay for the service.

At certain facilities, general cleaning up falls behind due to staff shortages and ad hoc events of littering. Use is made of EPWP labour, as well as the use of local litter pickers.

The facilities are discussed in more detail in 2.5.

2.4.5 Bulk Cleansing

2.4.5.1 Street sweeping

All streets are swept once a month in all towns. Main roads in residential areas or roads that are used more regularly, are swept twice a month. EPWP projects are also responsible for street sweeping, as the Municipality does not have full-time street sweepers employed.

- In Arniston - The EPWP team sweeps 3 days a week: Tuesday, Wednesday and Thursday.

- In Struisbaai - The EPWP team regularly sweeps each week between a Tuesday and a Thursday, especially in Struisbaai North.
- In Napier- The EPWP Team sweeps on a Monday and Friday.
- In Bredasdorp- The EPWP teams sweeps regularly. Zwelitsha (Informal Settlement) has their team and the other two teams are divided between the upper town in Bredasdorp and the other side of Bredasdorp

2.4.5.2 Illegal dumping

The following was extracted from the CAM Illegal Dumping Clean-up Strategy of August 2022:

- The CAM is experiencing an increase in illegal dumping
- Ad hoc cleanups using EPWP teams and Community Work Programme are proving to be unsustainable and ineffective
- Assistance is provided by DFFE and SANParks
- Black bags are handed out in informal areas
- It appears that most dumping is in black bags
- The Youth in Waste group conducted a survey which found that most illegal dumping takes place in low income areas
- 10m3 skips have been placed but with little effect nor participation
- The most prevalent waste dumped is garden and household

Problems highlighted:

- Capacity shortages
- Appointments of EPWP take time
- Budget insufficiency
- Insufficient communication and formal awareness campaigns
- Non-availability of clean-up plant
- Lack of team co-ordination and supervision
- No complaint structure, resulting in extended time for action to take place
- Some cleanup tasks have been allocated to other Departments due to funding shortages
- Law Enforcement is lacking
- Cleanups are infrequent and erratic.

Current resources for managing illegal dumping, are:

- CAM service provider with TLB and a truck
- CWP projects (National initiative)
- EPWP workers
- DFFE projects
- SANParks Coastal Project

Based on the above, it appears that a formalised Illegal Dumping Strategy is needed in the CAM – this in order to effectively manage and co-ordinate the available resources.

2.4.5.3 Beach cleaning

SANParks and EPWP resources carry out beach cleaning (Cleaning and Greening project)

2.4.5.4 Entrances to towns

EPWP teams are responsible for cleaning the entrances and approaches to towns.

2.4.5.5 Open space clearing

Based upon complaints received, EPWP teams are deployed in Arniston, Napier and Bredadorp. A Team appointed through DFFE and SANParks, assist in Bredasdorp and Struisbaai. Cleaning of these areas is completed using machines.

Beautification of cleaned sites takes place by demarcating with tyres and the planting of small gardens.

2.5 Waste management facility assessment

The CAM operates the following waste disposal facilities;

- Bredasdorp Disposal Site
- Napier Drop-Off station
- Waenhuiskraans Drop-Off station
- Struisbaai Drop-Off station

2.5.1 Bredasdorp Disposal Site

The Bredasdorp Disposal Site is located approximately 3,5km North-East of the town of Bredasdorp. The site consists of an active working area of approximately 8 Ha. Figure 18 – Bredasdorp Waste Disposal Site provides a summary of pertinent information.

Location	Bredasdorp, Cape Agulhas Municipality
Co-ordinates (entrance of site)	Latitude: 34° 31' 19" S Longitude: 20° 04' 15" E
Site classification	Class B (GSB ^r)
Estimated size of site	8 Ha (working area) and 29 Ha (licenced area)
License status / type	Current/Variation Waste Management Permit
License number	19/2/5/4/E1/5/WL0107/17
Anticipated closure date	Under review via an application for an increase in permitted height
Site Status	Operational
Buffer	A 500m Buffer Zone is required as per licence conditions and is in place. This is under review via an application for a decrease to 200m
Access	From the R319, through the residential area of XX and then via gravel road (total 900m 43pprox..)
Surrounding land use	Residential, industrial with the greatest area being open veld
Access control and signage	<ul style="list-style-type: none"> • Signs at site entrance • Security at entrance gate
Plant used on site	<ul style="list-style-type: none"> • excavator (full time - on contract) • Tipper (not full time - on contract. Also does clean-ups of illegal dumping) • TLB (not full time – on contract. Also does clean-ups of illegal dumping) • Loader (full time – CAM plant) • Dozer (full time)
Staff/Human resources	<ul style="list-style-type: none"> • 2 staff members at gate for access control • ad hoc presence of EPWP workers for cleanups
Buildings/facilities	<ul style="list-style-type: none"> • perimeter fence • Container guardhouse at entrance
Description of waste management	<ul style="list-style-type: none"> • Entrance control and rudimentary recordkeeping at entrance • Little supervision at workface
Waste accepted on site	The site accepts general, building, recyclable and garden waste.
Leachate Management	None
Stormwater management	None
Recycling	Not on the site.
Operating hours	Monday to Friday 08:00 to 18:00 Saturdays and holidays 09:00 to 17:00 Sundays Closed
Estimated remaining life of site	Under review via an application for an increase in height
Challenges	<ul style="list-style-type: none"> • Wind-blown litter • Unauthorised access after hours • Perimeter fencing incomplete • Buffer Zone encroachment by informal and formal housing • Lack of ablutions for site staff.
Monitoring Committee	A Monitoring Committee, as required by the Licence, must still be established

Figure 18 – Bredasdorp Waste Disposal Site

2.5.2 Napier Drop-off Station

The Napier Drop-off station, situated on the outskirts of Napier off West Street.

Napier Drop Off Facility - Summary	
Location	Approximately 1,6km North-East of Napier
Co-ordinates (entrance of site)	Latitude: 34° 57' 28" S Longitude: 19° 54' 08" E
Estimated size of site	0.8 Ha
License status / type	Norms and Standards (19/2/1/2/3/2(0027/21))
Site Status	Operational
Access	Off West Street and then via Monasanto Road and Swart Street (approx 460m unsurfaced road)
Surrounding land use	Old Napier Landfill Site and open veld
Access control and signage	<ul style="list-style-type: none"> • Signs at entrance • Supervisor manages entrance • Law enforcement official during the day
Plant used on site	<ul style="list-style-type: none"> • No plant required • Roll-on Roll-off truck on an ad hoc basis to transport full/empty containers
Staff/Human resources	<ul style="list-style-type: none"> • 1 supervisor • ad hoc cleaning by EPWP workers
Buildings/facilities	<ul style="list-style-type: none"> • Brick entrance/security building with ablutions • Ramps and tipping platform (gum pole retained) • Tipping platform and container area - block-paved or concrete • Space for 2 to 3 x 30m³ containers • Unsurfaced roads • Perimeter fence • Closed landfill site adjacent
Description of waste management	<ul style="list-style-type: none"> • Drop Off facility for mixed waste • 30m³ open-topped containers receive mixed waste • Full/empty containers are exchanged on request, by the appointed Service Provider • Rubble tipped on adjacent area and flattened periodically • Garden waste stockpiled on adjacent area. Removed by Service Provider with periodic chipping by a separate Service Provider
Waste accepted on site	Mixed recyclables with some Municipal waste
Stormwater management	None
Operating hours	Monday to Friday 08:00 to 18:00 Saturdays and holidays 09:00 to 17:00 Sundays Closed
Challenges	<ul style="list-style-type: none"> • Perimeter fence damaged and does not prevent access • Unauthorised access after hours • Stormwater management required to divert runoff from surrounding areas from entering site (site becomes inundated) • Clearing of surrounding vegetation required • General maintenance of roads and retaining structure required

Table 16 – Napier Drop-off Station - Summary



Figure 19 – Napier Drop-off Station

2.5.3 Waenhuikraans Drop-Off Station

The Waenhuikraans Drop-Off Station is situated off the R 315, adjacent to the Wastewater Treatment Works

Waenhuikraans Drop-Off Station – Summary	
Location	On the outskirts and South West of, Waenhuiskraans/Arniston
Co-ordinates (entrance of site)	Latitude: 34° 40' 26" S Longitude: 20° 13' 18" E
Estimated size of site	1 200m ²
License status / type	Norms and Standards (19/2/1/2/3/2(0027/21))
Site Status	Operational
Access	Off the R315, and then via approx. 830m of unsurfaced road
Surrounding land use	Wastewater Treatment Works adjacent and the rest, veld
Access control and signage	<ul style="list-style-type: none"> • Signs at entrance • Supervisor manages entrance • Law enforcement official during the day
Plant used on site	<ul style="list-style-type: none"> • No plant required • Roll-on Roll-off truck on an ad hoc basis to exchange full/empty containers
Staff/Human resources	<ul style="list-style-type: none"> • 1 supervisor • Ad hoc cleaning by EPDP workers
Buildings/facilities	<ul style="list-style-type: none"> • Brick entrance/security building with ablutions • Ramps and tipping platform (gum pole retained) • Tipping platform and container area - block-paved or concrete • Space for 2 to 3 x 30m³ containers • Unsurfaced roads • Perimeter fence • Wastewater Treatment Plant site adjacent
Description of waste management	<ul style="list-style-type: none"> • Drop Off facility for mixed waste • 30m³ open-topped containers receive mixed waste • Full/empty containers are exchanged on request, by the appointed Service Provider • Volumes of incoming waste increase during peak periods over holidays, but this accommodated by adding an additional container • During peaks, trucks collecting domestic waste discharge their loads here as they cannot complete their rounds and reach the Bredasdorp Disposal Site, in time • Rubble tipped on adjacent area, flattened and/or removed periodically • Garden waste stockpiled on adjacent area. Removed by Service Provider with periodic chipping by a separate Service Provider
Waste accepted on site	Mixed recyclables with some Municipal waste
Stormwater management	None
Operating hours	Monday to Friday 08:00 to 18:00 Saturdays and holidays 09:00 to 17:00 Sundays Closed
Challenges	<ul style="list-style-type: none"> • Perimeter fence damaged and does not prevent access • Unauthorised access after hours • Stormwater management required to divert runoff from surrounding areas from entering site (site becomes inundated) • Clearing of surrounding vegetation required • General maintenance of roads and retaining structure required • Evidence of disposal of waste along access road, outside of the site

Table 17 - Waenhuiskraans Drop-Off Station – Summary



Figure 20 - Waenhuiskraans Drop-off Station

2.5.4 Struisbaai Drop-Off Station

Stuisbaai Drop-Off Station - Summary	
Location	Stuisbaai, Cape Agulhas Municipality
Co-ordinates (entrance of site)	Latitude: 34° 47' 29" S Longitude: 20° 01' 47" E
Estimated size of site	1Ha
License status / type	Norms and Standards (19/2/1/2/3/2(0029/21))
Site Status	Operational
Access	Off the R319, and then via approx. 600m of unsurfaced road
Surrounding land use	Old landfill site and open veld
Access control and signage	<ul style="list-style-type: none"> • Signs at entrance • Supervisor manages entrance • Law enforcement official during the day
Plant used on site	<ul style="list-style-type: none"> • No plant required • Roll-on Roll-off truck on an ad hoc basis to transport full/empty containers
Staff/Human resources	<ul style="list-style-type: none"> • 1 supervisor • ad hoc cleaning by EPWP workers
Buildings/facilities	<ul style="list-style-type: none"> • Brick entrance/security building with ablutions • Ramps and tipping platform (concrete retaining wall) • Tipping platform and container area - block-paved or concrete • Space for 2 to 3 x 30m³ containers • Unsurfaced roads • Perimeter fence • Closed landfill site adjacent
Description of waste management	<ul style="list-style-type: none"> • Drop Off facility for mixed waste • 30m³ open-topped containers receive mixed waste • Full/empty containers are exchanged on request, by the appointed Service Provider • Rubble tipped on adjacent area and flattened periodically • Garden waste stockpiled on adjacent area. Removed by Service Provider with periodic chipping by a separate Service Provider
Waste accepted on site	Mixed recyclables with some Municipal waste
Stormwater management	None
Operating hours	Monday to Friday 08:00 to 18:00 Saturdays and holidays 09:00 to 17:00 Sundays Closed
Challenges	<ul style="list-style-type: none"> • Perimeter fence damaged and does not prevent access • Unauthorised access after hours • Stormwater management required to divert runoff from surrounding areas from entering site (site becomes inundated) • Clearing of surrounding vegetation required • General maintenance of roads and retaining structure required • • Evidence of disposal of waste along access road, outside of the site

Table 18 - Struisbaai Drop-Off Station - Summary



Figure 21 - Struisbaai Drop-off Station

2.5.5 Closed landfills

There are three landfills that no longer receive Municipal waste. These are at Napier, Waenhuiskrans and Struisbaai. In all cases these are adjacent to the Drop Off Facilities. Rubble and garden waste are currently disposed of here - rubble is flattened and periodically removed and the garden waste is chipped and removed.

These sites have ceased operation, have been issued with Waste Management Licence for decommissioning (Licences are valid till 2027) but have not yet been formally closed and rehabilitated. There are currently no plans for this operation.

2.5.6 Remaining Airspace

The Bredasdorp Disposal Site has been operating under the original Environment Conservation Act Permit issued on 11 Dec 2008 (G:L:B-). This was subsequently updated to a Waste Management Licence (WML) with two variations for (a) the increase of the footprint, and (b) the inclusion of a Drop Off Facility.

In terms of these authorisations, the restriction placed on the maximum height is “...6m above ground level...”. In January 2023 a report was commissioned by CAM to establish remaining airspace (Airspace Report, Ingerop Jan 2023). It was concluded that landfilling, in excess of the height restrictions, had taken place and that certain slopes were steeper than 1V to 3 H. On the assumption that these aspects would be rectified, the net airspace remaining would allow for approximately 12 months of landfilling.

It is important to note that the footprint upon which active landfilling is currently taking place, occupies approximately half of the licenced footprint. However, CAM is not planning to expand the landfill nor to develop further disposal cells.

The Airspace Report further concluded that a more meaningful increase in airspace could be achieved if an increase in height to 12m above ground level, were to be granted by the Authorities. To this end, CAM has made application to DEA&DP for an amendment to the Waste Management Licence. If this is granted, the airspace yielded would allow for some 14 years of disposal at current disposal rates.

A more recent Airspace Report, based upon a topographical survey carried out in August 2023, is in the process of finalisation. An initial conclusion is that available airspace has been consumed – this is consistent with the projections in the Jan 2023 report.

2.5.7 Auditing and Licence compliance

CAM has conducted Internal Audits and has appointed service providers to carry out External Audits. In addition, DEA&DP has conducted its own audits. Emerging from the latter, are a number of items of non-compliance (see appendix for Sept 2022 audit). These include:

- Encroachment of housing into the Buffer Zone
- Inadequate groundwater monitoring results and interpretation
- No run-off infrastructure on site
- Waste body slopes that are excessively steep
- Lack of access control
- Litter pickers and animals on the work face

The non-compliances have been brought into DEA&DP's deliberations on the application for a height increase. Flowing from this is a requirement for an Action Plan to be formulated and implemented as a means of addressing all matters of Licence compliance. CAM has submitted an Action Plan to DEA&DP.

2.6 Waste avoidance, reduction and recycling

2.6.1 Municipal initiatives

The CAM has achieved some success in diverting waste going to the landfill. Notable initiatives include the chipping of garden waste, as well as a two-bag system (one clear bag) for recyclables. (See **2.6.3** below). Some 585 tonne per month of garden waste, which is chipped, is sold to composting businesses and to private individuals (*from IPWIS submissions*).

The above translates to approximately 18% by mass, of waste generated in the CAM, that is not landfilled. This results in a saving of airspace and extending of the life of the landfill site.

With regard to the amount of waste diverted, there is scope to increase this. National targets for organic waste diversion need to be met and as far as recycling is concerned, businesses and members of the public need to be encouraged to increase separation at source.

In Struisbaai, a local entrepreneur takes up approximately 90% of the chipped product and converts this to compost.

Construction and demolition waste is used as cover material at the landfill. Although this is indeed re-used, it is not diverted from the landfill and does consume airspace.

2.6.2 Private initiatives

Apart from the garden waste that is being diverted by CAM, a Public/Private Partnership is in place. This is collaboration between the Zero Waste Association of South Africa (ZWASA) and the P&B Limeworks. There is also support from CAM. This initiative is funded by P&B Limeworks, as well as Grant funding.

The project is for the composting of organic waste and operates as follows:

- Compostable bags are distributed, free of charge, to the Zwelitsha residential area and certain residences in Long Street
- ZWASA staff collect the bags and take them to the composting site at the old P&B Limeworks site close to the Bredasdorp Waste Disposal Site. This site is currently being expanded and will thus be able to process more material
- Waste pickers are employed to operate the small composting facility. This consists of small heaps/windrows that are mixed by hand
- The compost produced is used locally and sold to the commercial sector
- Land has been allocated for the establishment of vegetable gardens, but this has not been implemented yet
- Expanding of the scale of operations is limited by the need to increase the uptake from end users – there is ample available garden waste.

2.6.3 Organic Waste Diversion Plan

The Cape Agulhas Municipality Integrated Waste Management By-law, 2021, recognises the need to manage organic waste and places obligations for the management thereof on both the generator and the Municipality. This reinforces the need to implement the OWDP.

CAM prepared an Organic Waste Diversion Plan (OWDP) in (See Appendix D). The plan notes the primary wastes as being garden/green waste from cleaning and clearing and kitchen/food waste from households and businesses.

Kitchen/food waste, when separated at source, is taken up by pig farmers. The remainder, which occurs as unsorted waste in the general waste stream, ends up at the landfill.

Garden/green waste is stockpiled at the landfill or Drop Off facilities and is chipped. In addition, CAM offers a service for collecting and offloading at the landfill/drop-offs. Residents can buy a sticker at the CAM Integrated Waste Management Plan 2023

Municipal office, which entitles them to the collection of bags filled with green waste. Each bag needs to have one sticker. The Municipality also has a paid service for loads up to 6 m³ for collection of green waste. After a pre-payment, the Municipality will collect and remove within one week.

Apart from composting (which has priority access and takes up about 40% of the chipped waste) local pig farmers absorb approximately 30 %, with the balance being used to dress slopes and the Bredasdorp landfill, or is used by local residents.

CAM has appointed a service provider who is responsible for the chipping of garden/green waste at the Bredasdorp Disposal Site, as well as at the 3 Drop off facilities. This takes place only 4 times a year and results in an accumulation of waste and an associated fire risk.

Home composting takes place, but is left to the individual residents to organize and manage. No data for these activities is available. At this stage, CAM does not provide home composting kits.

The 2021 OWMP sets out a number of generic ideas and goals for the compilation of a plan, as well as highlighting certain aspects of implementation. It does not however, set out an Implementation Plan

It is clear that the Organic Waste Diversion Plan, needs updating.

2.7 Current initiatives and strategy

The CAM is currently in a difficult position regarding the availability of airspace at the BWDS (see 2.5.6 Remaining Airspace). This matter has been receiving attention and has culminated in the discussion of alternatives and strategy within the Solid Waste Department. A report (Item) was presented to The Municipal Manager in August 2023 (see Appendix xx ALTERNATIVE WASTE MANAGEMENT SOLUTIONS INCLUDING WASTE MANAGEMENT STRATEGY).

In terms of this document, a number of initiatives have been put to Council for approval. These include:

- Dynamic compaction (the generation of airspace via compaction of waste using heavy equipment)
- Construction of a new cell
- Outsourcing of operations
- Transportation of the CAM waste, to the Karwyderskraal Regional Waste Disposal Site.
- Aggressive recycling, organic and green waste campaigns

It is hoped that decisions from Council, could be made by the end of October 2023.

An initiative that has been implemented in 2023, is the first phase of the construction of a Materials Recovery Facility at the old P&B Limeworks. This facility will only be operational in 2024.

2.8 Waste Management Fleet

The waste management fleet is managed by the municipal fleet management department. At present the refuse collection fleet consists of 3 operational compactor trucks which are between 2 and 6 years old. There are no backup vehicles.

Registration Number	Make	Vehicle Description and duties	Age	Condition
CS 7008	NISSAN UD80	Compactor truck - Household waste collections in Bredadorp and Napier	2001	Lic exp 30/4, Rear spring centre bolt to be replaced, front bumper dents, grease on vehicle minimal, clutch okay, brakes okay
CS 15457	NISSAN CRONER PKE250	Compactor Truck – Collections of waste and recycling in all towns	2021	Grease minimal on vehicle, Vehicle still under warranty. Was in Worcester for 4000hr service on 25/8/2023
CS 18639	TATA NOVUS	Compactor Truck – Household waste collections in all towns	2017	Light bracket rear bent, mudguards bent, grease on vehicle minimal, passenger fender hanging, passenger seats torn, lic 30/11, torque arm bushes to be replaced soon as a spare vehicle is available from those under repair

CS 2336	NISSAN UD35	4 Ton Truck – Collections and EPWP support	2004	Rear blade springs broken, clutch to be replaced, brake fluid leak front wheels, seats torn, engine oil leaks, lic exp 30/11, spring pins and bushes need attention pto pump sweat
CS 10671	NISSAN UD 40	4 Ton Truck – Collections, complaints and cleansing	2012	Batteries flat, front bumper cracked, lic exp 30/9, leaking wheel cylinder, lift cylinder leak, propshaft needs attention, diff pinion oil seal sweat, clutch need attention, seats torn, lic 30/4
CS 14815	NISSAN UD40	4 Ton Truck – Collections, complaints and cleansing	2013	Struisbaai truck that was not available upon inspections. Has gone for 2 tyre repairs today due to normal wear and tear usage. Thorough inspection will be done in the week of 11 – 15 September 2023
CS 10674	NISSAN UD40	4 Ton Truck – Collections, complaints and cleansing	2012	Service, brakes front and rear overhaul (drums, shoes, wheel cylinders and brake master cylinder), pins and bushes rear, blade springs rear broken, water overflow bottle damaged, wheel bearings front and rear, hub seals front and rear, lic exp 30/9
CS 6105	CAT 924F	Frontend Loader – landfill Sites	2000	Lic 31/8, cab rust, overheating issues, cracked windows, machine overall dirty, leaking hydraulic pipes, transmission seals sweat, diff seals sweat, various cylinder jacks leaking, various pins and bushes on cylinders excessive play, tail light brackets bent
CS 16623	KOMATSU FEL	Frontend Loader – Landfill Sites	2023	Still awaiting service front agency (250hrs), machine still under warranty, paint spillage on rear drive axle casing (possibly due to dumping site where machine is being used)
CS 8922	FORD BANTAM	Bakkie	2012	Bakkie currently has a problem with the passenger door lock. It was replaced Friday 1 September in the Workshop but now however has the same problem again

Table 19 - Fleet details

2.8.1 Maintenance

There is no formal Maintenance Plan for the vehicles and plant and such interventions are carried out only when there is a breakdown. In addition, lengthy turn-around times for repairs results in a disruption to operations. There is no Replacement Plan in place.

2.9 Organisational Structure

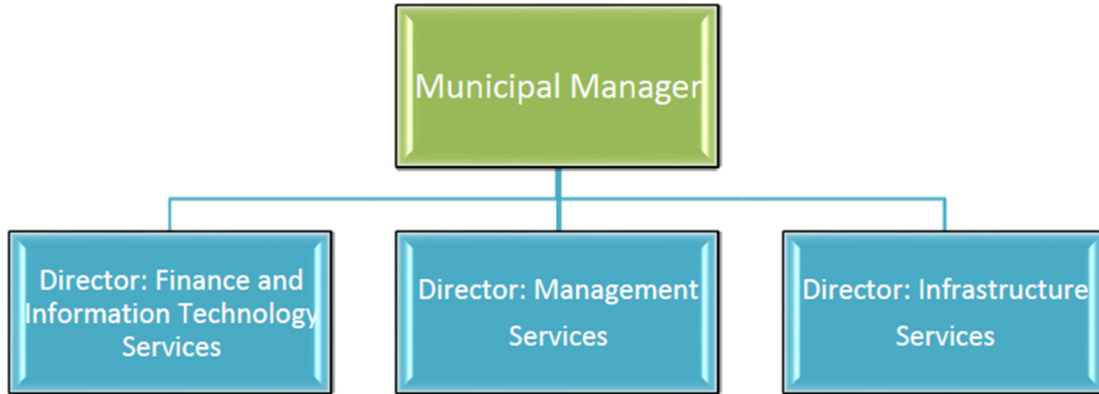


Figure 22 - Municipal Organogram – Macro structure

DIRECTORATE	DIVISIONS	DEPARTMENTS
Municipal Manager	-	- Internal Audit (Reports to Audit Committee)
	Strategic and Risk	- Strategic Services - Planning - Administration - Shared services
	Socio economic development	- Social services - Economic Development Services
	Human Resource and Organisational Development	
Infrastructure Services		- Water and Sanitation - Roads and Storm water - Waste Management - Electrical Services - Building Control - Fleet Management - Project Management Unit
Finance and Information Technology Services		- Revenue - Expenditure - Budget and Treasury Office - Supply Chain Management - Information Technology
Management Services		- Library Services - Protection Services - Public Services - Human Settlement - Human Development

Table 20 - Administrative Directorates and Departments

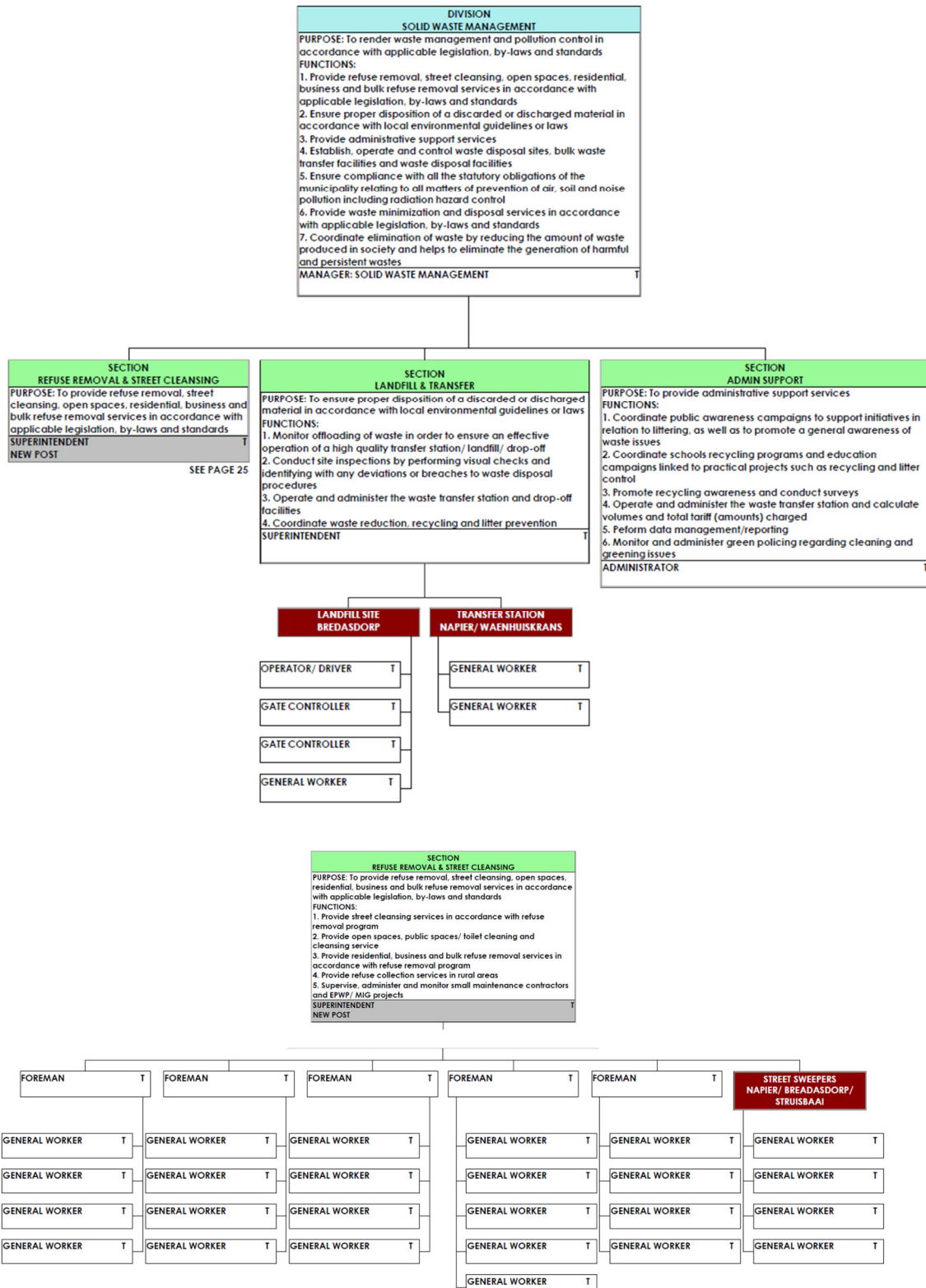


Figure 23 - Waste Management Organogram

2.9.1 Core waste management function

The Solid Waste Department operates a Centralised system with Bredasdorp being the hub with all areas serviced from here.

The department collects, transports and disposes of waste from residences, businesses, schools, hospitals, informal areas. It operates and manages the Bredasdorp Disposal Site and 3 Drop Off facilities. The cleaning up of beaches, as well as clearing of illegal dumping also form part of the services provided.

A private service provider is responsible for the collection of recyclables from businesses, for the sorting of the materials and for the distribution to end users and converters.

A different private service provider provides skips for Drop Off facilities and containers and transports them to the landfill.

2.9.2 Waste Management Officer

Mr Walter Linnert is the designated Waste Management Officer.

2.9.3 Staffing

Position	No. positions	No. positions filled
Management		
Manager Solid Waste	1	1
Administrative Support	1	1
Bredasdorp Disposal Site		
Superintendent	1	0
Access control	5	5
Equipment Operator	1	1
Drop Off Facilities		
Foremen	3	3
Waste Collection		
Superintendent	1	1
Driver	5	5
Collection team	21	21
Bulk Cleansing		
Street sweepers		
General Assistant/Operator		
Public Awareness and Education		
Project Coordinator		
Environmental Educator		
Enforcement Officer		
Total		

Table 21 - Staffing Positions available and filled

Law enforcement staff assist with the policing on all sites. In addition to Municipal staff, EPWP teams assist on a regular basis.

2.10 Financial Management

Financial information has been obtained from the Medium-Term Revenue and Expenditure Framework (MTREF) for 2023/24-2025/26. The MTREF is a medium-term financial plan, usually 3 years, based on a fixed first year and indicative further two years budget allocations.

The graph below shows the Expenditure and Revenue and Capital Expenditure (CAPEX) for the current year and the next 2 years. The revenue is skewed by the deduction of R9mil to R10mil over the three years for free basic services, refuse removal.

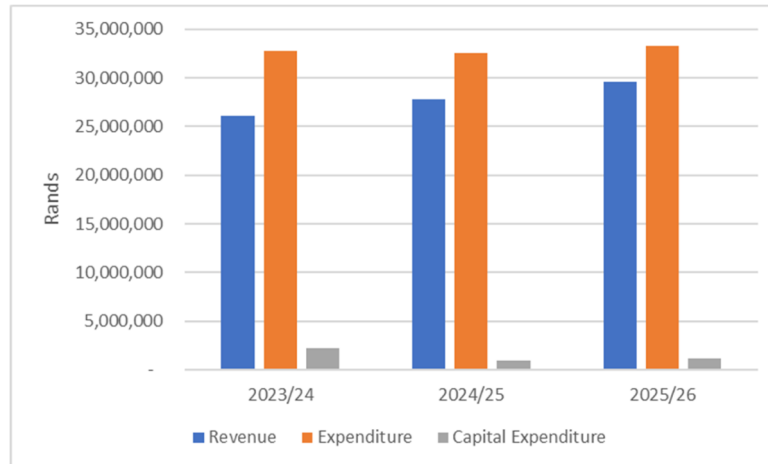


Figure 24 - Revenue, Expenditure and CAPEX 2023/24 to 2025/26

2.10.1 Capital expenditure

Capital Budget	Final Budget 2023/24	Final Budget 2024/25	Final Budget 2025/26
Collections	-	-	1,200,000
Disposal	2,200,000	900,000	-
Total	2,200,000	900,000	1,200,000

Table 22 - Capital expenditure

Capital expenditure for 2022/23 amounted to some R4,1 million. This was primarily for fencing of the landfill, a front end loader and upgrading of the drop-offs.

2.10.2 Revenue

	2023/24	2024/25	2025/26
Waste management (Total)	26,134,740	27,833,050	29,639,990
Solid Waste Disposal (Landfill Sites)	60,490	64,420	68,610
Solid Waste Removal	35,289,060	37,582,400	40,023,050
Free Basic Services - Refuse removal	-9,214,810	-9,813,770	-10,451,670

Table 23 - Revenue

The bulk of revenue is received from service charges for residential and commercial waste collection and basic charges availability fees. The free basic services is for refuse removal for indigent households and is basically a loss in income. Funding sources include internal, national and external and to a lesser extent provincial.

2.10.3 Operating expenditure

	2023/24	2024/25	2025/26
Waste management (Total)	32,720,470	32,569,710	33,262,370
Solid Waste Disposal (Landfill and Drop-offs)	12,569,970	12,515,530	12,665,600
Solid Waste Removal	20,150,500	20,054,180	20,596,770

Table 24 - Operating expenditure

Operating expenditure includes staff costs, equipment operating costs, maintenance of infrastructure, contracted services such as collection of recyclables at source, and other costs incurred in the operations of the Waste Management Department.

The share of total operating expenditure between the two Waste Management Functions - Removals and Disposal is shown graphically in Figure 25,

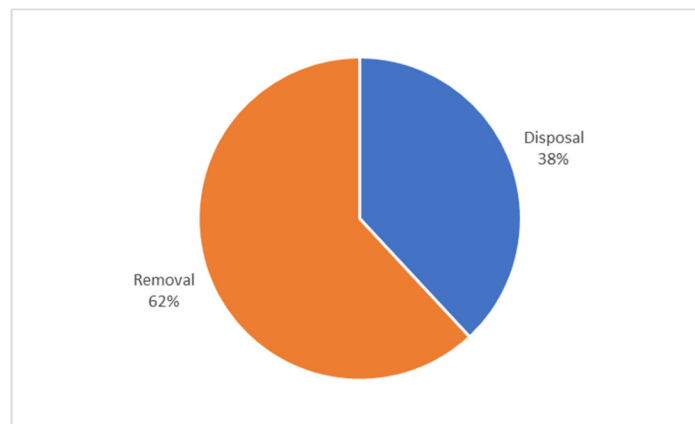


Figure 25 - % of total expenditure budget

As can be expected collection costs are in the order 62% of operating costs and disposal is 38%.

A breakdown of total expenditure is presented in Figure 26 and for Collections and Disposal in Figure 27 below.

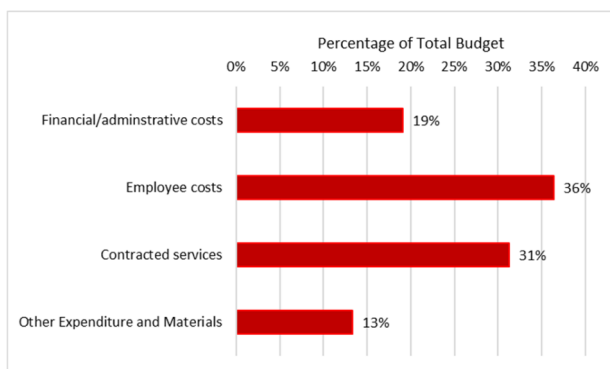


Figure 26 - Breakdown of major expenditure categories

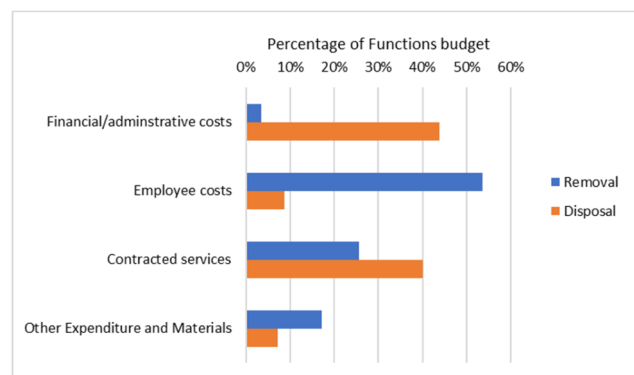


Figure 27 - Breakdown of major expenditure categories for Collections and Disposal

The largest expenditure overall, and for collections, is employee costs, indicating the labour-intensive nature of waste collection. Fuel and maintenance are not captured separately as they form part of the

contracted services for collections and landfill operations. Contracted services are some 31% of costs with the larger portion going to landfill operations.

Contracted services also include for maintenance, security, recycling, training and consultants.

2.10.4 Tariffs

The current tariffs for domestic and business and commercial collection for 2023/2024 are tabled below.

A complete set of tariffs for Refuse Removal are provided in **Appendix E**.

	Frequency	Tariff
Domestic	240l bin once a week	253.00
Business and Industrial Premises		
240l Bin	Once a week	293.25
Bulky refuse	Once a week	1,449.00
Bona fide Sports clubs	Once a week	218.50
Landfill fee	Per month	3,116.50
Garden refuse removal (contractors)	Per load	776.25
Garden refuse removal (household)	Per vehicle	13.80

Table 25 - 2023 – 2024 Municipal tariffs

2.10.5 Free basic services

The social package assists households that are poor or face other circumstances that limit their ability to pay for services. To receive these free services the households are required to register in terms of the Municipality's Indigent Policy.

The cost of the social package of the registered indigent households is financed by the Municipality and largely by utilising the National Revenue Fund Equitable Share grant. The National Revenue Fund Equitable Share is a grant from national treasury provided to municipalities to provide basic services to poor households and to assist municipalities with limited resources to perform basic core municipal functions. The equitable share is calculated based on the number of indigent households per municipality.

The cost associated with indigent subsidies for waste management amounts to R 9,215 million in 2023/24 and increases to R 9,814 million and R10,452 million in the 2 following years respectively.

The table below shows the funds that will be made available to CAM for the next 3 years as documented in Schedule 3 of the Division of Revenue Bill by National Treasury.

	2023/24	2024/25	2025/26
Cape Agulhas	40 380 000	43 729 000	47 082 000

Table 26 - Equitable share allocated to CAM for next 3 years

The 2022/23 MTREF includes statistics on services provided to indigent households. The table below provides actual information up to 2020/21 and forecasted data up to 2024/25.

Description	2022
Number of formal residential properties	9,385
Number of informal residential properties	1,629
Total Number of properties in CAM	11,014
Number of formal residential properties for which refuse is removed once per week which are billed for refuse removal	9,318
Provide free basic refuse removal to indigent households	3568
Number of times the refuse bins and bags are collected in informal settlements	209
Number of refuse collection service points (Skips) available in informal settlements	11

Table 27 - Service provision to formal and informal households

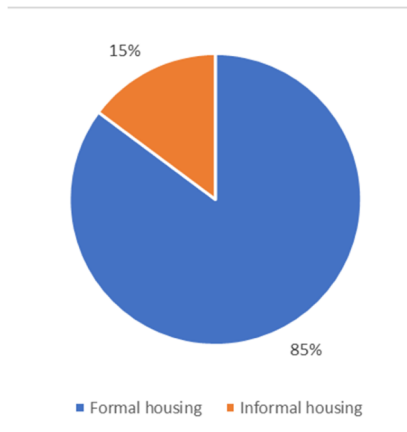


Figure 28 - Distribution of housing in CAM (21/22)

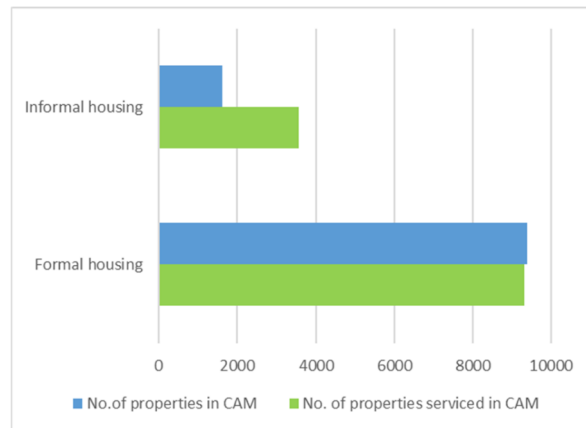


Figure 29 - Housing serviced by CAM Waste Management

Figure 29 indicates that 98% of formal housing receives a waste collection service and over 200% for informal housing, however this data will be skewed as indigent households are likely to be included under informal housing. Overall, the CAM is servicing 100% of all households.

In 2020/21 there were 3,568 indigent households provided with free basic services in the CAM. The Waste Management Department received some R 9,215,000 of the fund allocation, and in 2020/21 the cost of providing a free basic service of one removal per week was in the order of R215/household/month.

2.10.6 Funding

As previously discussed, the Waste Management Department relies on service charges and an allocation of the National Revenue Fund Equitable Share given to CAM.

2.11 Waste awareness and education

2.11.1 Programs and initiatives

The CAM has recognised the need to increase public awareness of matters relating to solid waste management. It intends starting a program called “ Youth in Waste Awareness”. The project will be aimed at all age groups and all areas within Cape Agulhas Municipal boundaries. The awareness will include door to door, shopping malls, schools, education institutions, clean up campaigns and special events.

The project includes all towns in Cape Agulhas with 7 participants (including Elim). It will run for 6 months and training will be provided in the first two weeks. The main focus will be on recycling and organic recycling. This project will report directly to Human Development.

It is clear that awareness and education require a significant boost in order to increase reach and efficacy.

2.12 . Complaints

The Solid Waste Department receives complaints telephonically from the public or walk-ins to the office. The complaints received are communicated to the relevant parties, namely the Superintendent and the EPWP project administrator. The foreman will then relay the complaints to the SWM collection vehicle drivers and the EPWP project administrator will relay it to the teams, and they are addressed accordingly.

The complaints are also captured on the Collaborator system. Once a complaint is resolved the Superintendent or EPWP project administrator inform the Solid Waste Division and the complaint is then recorded on the system as being attended to and the matter is closed.

2.13 Waste information management

2.13.1 Registration

CAM is registered on both the IPWIS and SAWIS systems.

In accordance with the municipal by-law commercial services for the collection and transport of waste in the municipal area are required to be registered with the CAM and obtain a licence authorising the waste management activities. There are currently between 30 and 40 accreditations, primarily collection and transporters, building sites and the large waste management companies.

2.13.2 Reporting

Reporting is done regularly using waste data derived from records generated at the Bredasdorp Disposal Site, Drop Off Facilities and from recycling activities. This information is based upon written documents as there is no weighbridge at the landfill.

The CAM's reporting frequency for 2021/22 as per the IPWIS was as follows;

Reporting Status	2022	2023	Compliance score
Bredasdorp Waste Disposal Facility	12/12	6/6	100%

(Source IPWIS – DEA&DP)

Table 28 - Reporting status to IPWIS for 2021/22

3 Gap and Needs Analysis

3.1 Gaps and needs identified in IWMP 2016

The following were recommended in the 3rd Generation IWMP in 2016 (those shaded have received attention).

<u>Waste Management Component</u>	<u>Gaps and Need Identified</u>
Priorities:	
Waste Management Licence compliance	<ul style="list-style-type: none"> Address non-compliances from external audits of waste facilities
Waste Avoidance	<ul style="list-style-type: none"> Waste tyre and informal waste reclaimers Action Plans
Disposal Facilities	<ul style="list-style-type: none"> Provision of necessary facilities
Waste Information System	<ul style="list-style-type: none"> Waste Information System and reporting to IPWIS
Education and Awareness	<ul style="list-style-type: none"> Continued public engagement, particularly with the undertaking of the industry workshop in 2016/2017
Recommendations:	<ul style="list-style-type: none">
Education and Awareness	<ul style="list-style-type: none"> Engage with public to encourage separation at source Conduct workshops with industry leaders Make public aware of any new or upgraded facilities Keep records of various initiatives
Waste Collection and transport	<ul style="list-style-type: none"> Maintain existing fleet
Waste reduction	<ul style="list-style-type: none"> Implement both rubble crushing and the chipping of garden waste Promote home composting
Waste Disposal	<ul style="list-style-type: none"> Carry out regular audits of facilities Address non-compliances identified in audits
General	<ul style="list-style-type: none"> Establish the Materials Recovery Facility at the Bredasdorp Landfill Provide waste removal at Spanjaardskloof Establish a composting facility Provide skips at Kleinbegin, Zwelitsha and Selfbou Create a policy for dealing with informal waste reclaimers at the Bredasdorp Landfill Rehabilitate the closed landfill sites

Table 29 - Gaps and needs identified in IWMP 2017

3.2 Gaps and needs identified in IWMP 2023

3.2.1 Legislation

<u>Waste Management Component</u>	<u>Gap</u>	<u>Need</u>
Waste By-Laws and Policies	The existing by-law does not cover all required aspects	By Law to be expanded and made comprehensive
	Illegal Dumping Strategy requires updating	Revise and update
Health Care Risk Waste generators and Hazardous Waste Generators	Generators of H and/or HCRW must be registered with SAWIS and IPWIS.	Registration to be checked.
Industry Waste Management Plans	CAM may be accepting unregulated wastes.	Check whether businesses and industry can provide approved Industry Waste Management Plans and/or Tyre Waste Management Plans and businesses in the tyre industry have proof of registration with the Waste Bureau.
Extended Producer Responsibility	Businesses may not be complying with the EPR	Confirm if relevant businesses have registered with DFFE (for instance – Paper and Packaging, Electrical and Electronic, sectors).
	Schemes have not yet been implemented	Understand schemes and initiatives and align SBM with them.

Table 30 – Legislation Gaps and Needs

3.2.2 Waste data

<u>Waste Management Component</u>	<u>Gap</u>	<u>Need</u>
Waste records and information	Waste records are not comprehensive and are inaccurate	Ensure thorough record keeping as this would be beneficial to understanding the waste stream and to inform waste reduction strategies.
		Provide training to improve accuracy of estimates

Table 31 - Waste data Gaps and Needs

3.2.3 Collections

<u>Waste Management Component</u>	<u>Gap</u>	<u>Need</u>
Collections in informal areas	Insufficient use of skips deployed in informal areas	Investigate alternate methods (possibly expand the bag system)
Collection fleet	The collection fleet consists of a number of vehicles that are older than 10 yrs.	Upgrade/increase collection fleet or consider outsourcing.
	Specialist collection vehicles need to be serviced/repaired as far afield as in Cape Town	Investigate service providers in closer proximity
	Service to centres that are far afield, need improvement	Investigate practicalities of arranging for service providers to attend in the SBM area.
		Investigate the feasibility of decentralization, the establishment of satellite depots and the expanding of Separation at Source initiatives.

Table 32 – Collections Gaps and Needs

3.2.4 Transfer

<u>Waste Management Component</u>	<u>Gap</u>	<u>Need</u>
Drop Off Facilities	Drop-Offs need to be upgraded to keep pace with planned growth, as well as to support decentralisation initiatives.	Introduce upgrading needs in planning and capital budgeting.

Table 33 – Transfer Gaps and Needs

3.2.5 Waste Facilities

<u>Waste Management Component</u>	<u>Gap</u>	<u>Need</u>
Bredasdorp Disposal Site	Waste Management Licence non-compliance	Address all non-compliances
	Action list items, associated with Waste Management Licence amendment application, are not yet resolved	Resolve all Action List items
	Encroachment into Buffer Zone	Re-locate occupants of residences that have been established in the Buffer Zone
	Construction and demolition waste is being brought to the site in large quantities	Investigate practicalities of the crushing of C&D waste
	Chipped and un-chipped garden waste is present in large quantities	Improve rate of chipping and increase downstream use of chipped material
	High degree of unauthorised access	Repair perimeter fence and increase security resources
	Inadequate resources to effectively secure site and control pickers	Increase security resources
	Lack of ablution facilities	Provide adequate facilities
	Offices poorly maintained	Upgrade and maintain offices
	Insufficient employment opportunities to allow for integration of litter pickers in formal waste management tasks	Investigate roles for litter pickers in site management
Staff and resources (all facilities)	There are vacant posts	Fill any vacant posts (particularly Superintendent level)
	Further support from EPWP needed	Increase the number of EPWP staff utilised and ensure a constant workforce i.e. no lapses when contract renewals take place.
Staff training	Comprehensive waste information not being achieved	Train staff on data capture techniques, volume/mass estimating and accurate records
	Staff at the landfill not fully trained	Provide landfill operations training for staff
	Drop Off Facility staff not fully trained	Provide training relating to management of the facility, supervision of staff
Waste Management at Drop Off facilities	Management of Drop Off facilities not up to standard	Staff on the ground appear to need more support – training, labour for cleaning up
	Inadequate security.	Provide 24 hr security.
		Repair/re-instate fencing and maintain

<u>Waste Management Component</u>	<u>Gap</u>	<u>Need</u>
	Disposing of garden waste and/or rubble in general waste stream.	Increase management scrutiny.
	Backlog in garden waste and rubble removal.	Increase resources and/or services.
	Little provision for users to dispose of recyclable materials.	Provide containers and removal service.
	Offices poorly maintained	Upgrade and maintain offices
Closed landfill sites	The 3 sites must be rehabilitated and formally closed	<ul style="list-style-type: none"> • Establish status of Closure Permits • Put necessary budgets in place • Rehabilitate the sites

Table 34 - Waste Facilities Gaps and Needs

3.2.6 Waste avoidance, reduction and recycling

<u>Waste Management Component</u>	<u>Gap</u>	<u>Need</u>
2-bag/clear bag system	<ul style="list-style-type: none"> • Current system is not sufficiently effective • Collections appear to be infrequent • Community buy-in and commitment is low 	<ul style="list-style-type: none"> • Improve collections and thereby justify expansion into other areas • Embark on an Education and awareness campaign to inform residents. This has to be supported by improved service delivery in order to demonstrate Municipal commitment
Diversion of waste	<ul style="list-style-type: none"> • Current diversion of waste is less than 20% • Only garden waste and recyclables are currently diverted 	<ul style="list-style-type: none"> • Aim at an increase to at least 40% • Increase diversion of garden waste and recyclables • Divert more construction and demolition waste by crushing and re-using • Increase diversion for offices and businesses • Accelerate the establishment of the Materials Recovery Facility in order to maximise diversion potential
Organic Waste Diversion Plan	Current plan needs to be updated	Update current Plan
Buy-Back Centres	No Buy-Back centres are in place	Investigate the viability of this system

Table 35 - Waste avoidance, reduction and recycling Gaps and Needs

3.2.7 Organisational needs

Waste Management Component	Gap	Need
Staff	There are vacant posts in the Waste Management Department	Fill any vacant posts.
	There is a potential benefit to the integration of waste management efforts and resources across various departments	Investigate the feasibility of cross-departmental integration and co-operation (for instance, clean-ups of illegal dumping, beach cleaning)
	Erratic deployment/availability of outside resources	Engage with National Public Works and Infrastructure Department to discuss ways for optimum use of EPWP resources, as well as to reduce red tape and delays in securing resources.
	Shortage of Law Enforcement officials	Create posts for additional staff, fill posts

Table 36 - Organisational Gaps and Needs

3.2.8 Awareness and education

Waste Management Component	Gap	Need
Education	Insufficient education of waste generators	<ul style="list-style-type: none"> • Re-model and expand existing initiatives • Involve schools, non-profits organisations, commercial sector
Awareness and Education	There is no media officer who is focusses on awareness and education on behalf of the Solid Waste Department	Appoint a Solid Waste Department Media/Communications Officer or partner with other departments

Table 37 - Awareness and education Gaps and Needs

3.2.9 Financing

Waste Management Component	Gap	Need
Tariffs		
Capital Development Planning		

Table 38 – Financing Gaps and Needs

3.2.10 Illegal dumping

Waste Management Component	Gap	Need
Illegal Dumping Strategy		

Table 39 - Illegal dumping Gaps and Needs

3.3 Challenges

Section 3.2 discussed the various gaps and needs identified. Associated with these are certain challenges that obstruct the resolving of needs and shortcomings. Some of these are:

Typical Municipal-related challenges:

- Funding – Solid Waste Management is notoriously underfunded and relevant departments are in constant competition for finances. Waste management does not enjoy as high a priority as many other strategies and programmes
- Tariffs are insufficient to fund capital and operational costs – tariffs are generally the only source of revenue to fund solid waste management and again, there are many costs that need to be covered
- Staff – the shortage, as well as the difficulty in identifying suitable skilled staff is an ongoing challenge.
- Plant/equipment – certain items are specialised (landfill compactor, rear end loader collection trucks) and have a significant cost and a degree of specialised maintenance. Both of these often fall outside the means of a Municipality. This is also the case with CAM.
- Unique requirements and regulations associated with the management of solid waste. Although this has been significantly reduced with the introduction of Norms & Standards.

In order to implement this IWMP and achieve its goals, it is extremely important to understand that although the willingness to implement is evident, there are real constraints on a municipality to actually implement a plan successfully. The two underlying factors are;

- Limited finances for capital projects
- Human resources

The limited finances the municipality has, are already funding critical service delivery such as water, sanitation, electricity, roads, housing and waste management is not always a priority. It will therefore be essential that funding is secured to implement the plan in order that the CAM can meet the National and Provincial Government legislated mandatory requirements and its own goals,

The capacity of the resources available to the municipality, human and equipment, are generally stretched and the implementation of the IWMP will require additional resources for Special Projects, Awareness and Education, Data Management and Law Enforcement in order to succeed.

3.3.1 Challenges specific to the CAM

3.3.1.1 Informal dwellers:

These residents contribute additional waste to property with a single, official wheelie bin. This results in spillage, litter and waste left unresolved once a bin has been emptied. A short-term solution is to pick up all of the waste. A longer-term strategy is to increase the provision of skips and bags, as well as to increase the frequency of collections. In addition, the overall challenge is to resolve the housing backlog and thereby formalise the residential sector. This will enable legitimate allocation of bins and collection services.

3.3.1.2 Wastepickers:

People in this informal sector, are unregulated and generally resistant to any formalisation of their activities. At the landfill site, their actions constitute non-compliance with Licence requirements.

A possible strategy is for local waste pickers to sort waste at the Drop Off facilities. Other strategies will have to be investigated. The DFFE has produced a guideline document "*Waste picker integration guideline for South Africa: Building the Recycling Economy and Improving Livelihoods through Integration of the Informal Sector – August 2020*" which should assist the CAM in developing a plan to integrate waste pickers.

3.3.1.3 Depletion of landfill airspace:

Due to the low rate of diversion, as well as the dumping of construction and demolition waste, airspace is unnecessarily depleted. CAM has made the decision, not to expand the current waste footprint (despite having ample space within the licenced area). Consequently, airspace is all but consumed.

CAM has initiated the construction of the Materials Recovery Facility as a means of boosting the diversion of non-landfill waste, but this will have to be accelerated.

CAM has submitted an application for an increase in the maximum height of landfilling. If successful, this will bring relief but this remains a short-term solution and must be coupled with other initiatives to reduce the amount of waste going to landfill.

3.3.1.4 Encroachment into the Buffer Zone

In terms of the Waste Management Licence for the Bredasdorp Disposal Site, CAM has to establish and maintain, a 500m Buffer Zone around the official site boundary. Unfortunately, there has been a steady encroachment of formal and informal houses, into this area. This has been noted as a non-compliance in Audits and DEA&DP is applying pressure to CAM to resolve the matter.

As part of the application for an increase in the maximum height of landfilling discussed above, an application has been made to reduce the Buffer Zone to 200m around the official site. The intention here is to reduce the number of residents that will have to be re-located. Whether or not this application is successful, some re-location will have to take place.

3.3.1.5 Landfill Audits

Internal audits of the Bredasdorp landfill and Drop Off Facilities, are carried out by CAM or appointed Service Providers. In addition, DEA&DP conducted departmental audits in 2022 and 2023 (outcomes not yet available). The major non-compliance issues for the landfill are summarised below:

Facility	Audit Date	Compliance Rating	Non-compliance	Action	Due Date
Bredasdorp WDF					
External Audits	Sep 2022 DEA&DP		Access Control – site. Unauthorised access	Repair fence, improve control at gate, remove pickers	On-going
			Access control – encroachment into Buffer Zone	Prevent encroachment and relocate residents	2023 Action Plan
			Windblown litter	Cleaning	2023 Action Plan
			Fires on waste body	Control unauthorised access	2023 Action Plan
			Waste uncovered	Improve application of daily cover	2023 Action Plan
			Stormwater management	Improve application of daily cover in order to prevent contact between stormwater and waste, cover slopes and improve shape	2023 Action Plan
			Slopes too steep	Repair slopes	2023 Action Plan
			End shape required	Compile model of final shape	Request budget
			Airspace Report required	Jan 2023 has been completed. Updated report underway	Oct 2023

			Monitoring Committee not established	Establish Mon Comm	To be established by end of 2023
			Groundwater monitoring to be expanded to include, background, interpretation and recommendations	Specialist has been appointed	Report expected in mid Sep 2023
External Audit	May 2023 NCC	57.02%	Access Control – site. Unauthorised access	Repair fence, improve control at gate, remove pickers	On-going
			Access control – encroachment into Buffer Zone	Prevent encroachment and relocate residents	2023 Action Plan
			Windblown litter	Cleaning	2023 Action Plan
			Stormwater management	Improve application of daily cover in order to prevent contact between stormwater and waste, cover slopes and improve shape	2023 Action Plan
			Slopes too steep	Repair slopes	2023 Action Plan
			Record keeping unstructured	Revise system	By end of 2023
			Internal Audits not carried out regularly	Internal Audits to be carried out more frequently	By end of 2023
			No ablution facilities for staff	Provide facilities	Request budget
			Compaction and application of cover hindered by presence of pickers and animals	Repair fence, improve control at gate, remove pickers	2023 Action Plan

Napier Drop Off Facility					
External Audits	May 2023	87.38%	Access Control – site. Unauthorised access	Repair fence, improve control at gate	Request budget
			Record keeping unstructured	Revise system	By end of 2023
			Facility requires general maintenance	Carry out repairs and selective improvements	Request budget
			General housekeeping and clean-up required	Clean up the facility	Request budget
Struisbaai Drop Off Facility					
External Audits	May 2023	87.38%	Access Control – site. Unauthorised access	Repair fence, improve control at gate	Request budget
			Record keeping unstructured	Revise system	By end of 2023
			Facility requires general maintenance	Carry out repairs and selective improvements	Request budget
			General housekeeping and clean-up required	Clean up the facility	Request budget
Waenhuiskrans Drop Off Facility					
External Audits	May 2023	87.38%	Access Control – site. Unauthorised access	Repair fence, improve control at gate	Request budget
			Record keeping unstructured	Revise system	By end of 2023
			Facility requires general maintenance	Carry out repairs and selective improvements	Request budget
			General housekeeping and clean-up required	Clean up the facility	Request budget

Table 40 - Summary of Internal and External Audits non-compliant conditions

4 Objectives and goals

4.1 Introduction

In terms of the Waste Act and CAM's Integrated Waste Management By-law, it is required that the CAM develop and maintain an IWMP that will drive future planning of their waste management.

In order to develop an IWMP a process is followed which includes;

- Status Quo study
- Gap Analysis and Needs Assessment
- Development of Strategy
- Implementation Plan

This being a 4th generation IWMP the approach to the review of the IWMP would be;

- Analysis of the implementation of the 3rd generation IWMP
- Review of regulatory framework of waste management at national and provincial level and how it will impact on the IWMP
- Review the Status Quo of waste management in the CAM
- Identify any further gaps and needs
- Reviewing and updating Objectives and Goals.
- Preparation of the Implementation Plan

4.2 Setting objectives

The Objectives and Goals intend to provide a stepping-stone between the Status Quo and the final Integrated Waste Management Plan, and covers the following:

- An assessment and analysis of the waste systems for future planning
- Service delivery improvements and extension of services to areas currently not adequately serviced
- Comparison of the current solid waste management functions against national and international best practices.
- Identification of gaps and needs to be taken forward into the strategies and plans/policies that will comprise the IWMP.

In setting the Objectives, the following fundamental building blocks of an IWMP are considered:

- Findings, conclusions and recommendations shall be made which address waste management giving due consideration to institutional resources and finances.
- The plan shall identify problems and recommend solutions related to source reduction, recycling, organic waste treatment processes, waste transfer and disposal.
- It shall also recommend waste management objectives and targets in accordance with the waste hierarchy and the ultimate goal of waste reduction.
- The IWMP should embrace the principles of BPEO (Best Practicable Environmental Option) and shall provide for ongoing review and assessment, which will lead to continual improvement.
- National, Provincial and local environmental legislation and guidelines shall be used to inform the IWMP.

4.3 Strategic Objectives

The 2020 NWMS provides a set of goals that municipalities must achieve within a defined period. The NWMS strategic approach is based on Three Pillars, namely;

- Waste Minimisation,
- Effective and Sustainable Waste Services and
- Compliance, Enforcement and Awareness

Each pillar has goals and expected outcomes/targets, which set a desired level of performance and measurable achievements.

4.4 CAM Goals

A total of six goals have been identified for the CAM, informed by the status quo analysis and gap and needs assessment.

- Increased waste minimisation and recycling;
- Provision of efficient and financially viable waste management services;
- Effective waste information management and reporting;
- Improved waste education and awareness;
- Improved institutional functioning and capacity;
- Improved compliance and enforcement

The following table identifies the alignment of these goals with the National Waste Management Strategy, the Provincial IWMP and the CAM's 2016 IWMP.

CAM Goals	WC PIWMP Goals	NWMS 2020	CAM IWMP 2017
Goal 1. Increased waste minimisation and recycling	Goal 3. Effective and efficient use of resources	Pillar 1: Waste Minimisation The long term expected outcome is "Zero Waste going to Landfill". This outcome is represented in the short, medium and long term with 40% reduction of waste from landfill within 5 years; 55% within 10 years; and at least 70% within 15 years through Increasing re-use, recycling, recovery and alternative waste treatment; and maximising the role of the waste sector in the circular economy. A critical enabler of this pillar is the building of long-term collaboration and partnership between government and the private sector.	Goal 1; Promote recycling and recovery of waste. <ul style="list-style-type: none"> • Short term - 20% reduction of waste to landfill by 2018 • Medium term – 30 % reduction of waste to landfill by 2019 • Long term – 40% reduction of waste to landfill by 2020

CAM Goals	WC PIWMP Goals	NWMS 2020	CAM IWMP 2017
<p>Goal 2. Provision of efficient and financially viable waste management services</p>	<p>Goal 2. Improved integrated waste management planning and implementation for efficient waste services, infrastructure</p>	<p>Pillar 2 Effective and Sustainable Waste Services All South Africans live in clean communities with waste services that are well managed and financially sustainable by ;</p> <ul style="list-style-type: none"> • Recognising and addressing the circumstances and waste management challenges that exist in local government; • Developing and implementing flexible approaches to service delivery that incorporates the informal sector while addressing local needs; • Guiding public investment and partnerships with the private sector in waste management infrastructure and projects; and • Ensuring that the delivery of waste services contributes to sustainable development. 	<p>Goal 2: Ensure the effective and efficient delivery of waste services. Objectives:</p> <ul style="list-style-type: none"> • Funded and filled posts. • Businesses/industries responsible for waste services (receptacles) • Community based services should be rendered to areas where the municipality have no capacity • No illegal dumping <p>All households within the municipality must receive a basic level of waste service according to waste level National/Provincial standards in safe and clean environment.</p> <p>Goal 4: Sound budgeting and financing of waste management services to ensure that revenue expenditure for all services equals the revenue generated.</p>
<p>Goal 3. Effective waste information management and reporting</p>	<p>Goal 2. Improved integrated waste management planning and implementation for efficient waste services, infrastructure</p>	<p>Pillar 2 Effective and Sustainable Waste Services All South Africans live in clean communities with waste services that are well managed and financially sustainable by focussing on the effective and efficient delivery of waste services including</p> <ul style="list-style-type: none"> • separation of waste at source, • integrated waste management planning and reporting, • provincial IWMPs, • provincial oversight and reporting on local IWMPs and • improving the quality of waste sector information. 	
<p>Goal 4. Improved waste education and awareness</p>	<p>Goal 1: Strengthen education, capacity and advocacy towards integrated waste management</p>	<p>Pillar 3: Compliance, Enforcement and Awareness Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping by;</p> <ul style="list-style-type: none"> • Increasing compliance to local, provincial, national and international legislation and standards; • Mitigating and preventing pollution, littering and illegal dumping of waste; and • Improving the visibility and 	<p>Goal 6: Education and awareness To raise awareness about waste management, including treatment and disposal impacts and options, and building capacity in support of waste minimisation, reuse, recycling and recovery initiatives; Develop and implement a communication and public awareness plan that encourages minimisation, reuse, recycling, and recovery and discourages illegal</p>

CAM Goals	WC PIWMP Goals	NWMS 2020	CAM IWMP 2017
		awareness of the socio-economic and environmental benefits of compliance, effective waste management and environmentally compliant	dumping and littering, thereby minimising the negative impacts of waste on the environment including the quality of life of people themselves.
Goal 5. Improved institutional functioning and capacity	Goal 1: Strengthen education, capacity and advocacy towards integrated waste management	<p>Pillar 2 Effective and Sustainable Waste Services All South Africans live in clean communities with waste services that are well managed and financially sustainable by ;</p> <ul style="list-style-type: none"> • Recognising and addressing the circumstances and waste management challenges that exist in local government; • Developing and implementing flexible approaches to service delivery that incorporates the informal sector while addressing local needs; • Guiding public investment and partnerships with the private sector in waste management infrastructure and projects; and • Ensuring that the delivery of waste services contributes to sustainable development. 	<p>Goal 5: Ensure the safe and proper disposal of waste To treat and safely dispose of waste through interventions aimed at saving landfill airspace and reducing the potential negative impacts on the environment;</p> <ul style="list-style-type: none"> • Develop and implement a waste treatment and disposal strategy that will include but not limited to the following: • Compliance of all waste treatment and disposal facilities with relevant legislation for their development and permitting, operation and closure. • Addressing long term capacity needs of the municipality. • Explore alternative treatment and/or disposal options.
Goal 6. Improved compliance and enforcement	Goal 4: Improved compliance with environmental regulatory framework	<p>Pillar 3: Compliance, Enforcement and Awareness Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping by;</p> <ul style="list-style-type: none"> • Increasing compliance to local, provincial, national and international legislation and standards; • Mitigating and preventing pollution, littering and illegal dumping of waste; and • Improving the visibility and awareness of the socio-economic and environmental benefits of compliance, effective waste management and environmentally compliant infrastructure. 	<p>Goal 3: Ensure that legislative tools are developed to deliver on the Waste Act and any other applicable legislation. To ensure that legislative tools are developed and enforced with a target to prevent illegal dumping, increase enforcement of by-laws by 20%.</p> <p>Goal 7: Compliance and enforcement To achieve compliance to the municipal waste management by-laws through effective enforcement including prosecution in cases of non-compliance.</p>

Table 41 – CAM, Provincial and 2020NWMS Goals

4.5 Objectives

4.5.1 Increased waste minimisation and recycling

Objective	Actions and Targets
1. The diversion of recyclables from waste generated is increased.	1.1 Ensure a greater participation of households in the separation at source programme.
	1.2 Add recycling facilities to the drop-offs for plastic paper, glass and builders' rubble.
	1.3 Increase the diversion of recyclables from landfill, to 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years.
	1.4 Establish the Materials Recovery Facility at the old P&B Lime, site.
2. The diversion of organic waste from landfill is increased to comply with mandatory national and provincial targets.	2.1 Expand the home composting programme to additional households and consider providing composting kits.
	2.2 Expand the existing composting operation once the MRF has been established.
	2.3 Collaborate with commercial sector generators of organic waste to ensure reduction and diversion from landfill. Promote increased private sector composting.
	2.4 Implement the objectives and targets presented in the Organic Waste Diversion Plan (50% by the end of 2022 and 100% by the end of 2027).
3. The diversion of household hazardous wastes from landfill.	3.1 Implement the objectives and targets presented in the HHWP.
4. Waste picker integration.	4.1 Investigate and develop a waste picker integration plan (WPIP) in line with DFFE's guidelines.
5. Prevent waste generation through cleaner production and extended producer responsibility (EPR)	5.1 Investigate EPR schemes and potential projects that can be implemented in relation to recycling of priority wastes, with Producer Responsibility Organisations (PRO). This would be linked with Industry Waste Management Plans.

Table 42 - Increased waste minimisation and recycling actions and targets

4.5.2 Provision of efficient and financially viable waste management services;

Objective	Actions and Targets
1. The waste management fleet is sufficient to continue to provide a good waste collection service and there are backup vehicles available when required	1.1 The CAM to implement a Vehicle Replacement Plan and a Maintenance Plan.
2. A kerbside collection service is provided to all households in CAM urban areas.	2.1 CAM currently serves all formal households with kerbside collection. Investigate and develop a diversified plan to serve all informal housing and backyard dwellings with a collection service.
3. Cost reflective tariffs are charged to residents and business	3.1 Review waste service tariffs.
4. Maximise the lifespan of the Bredasdorp Waste Disposal Facility	4.1 Secure permission for a height increase from DEA&DP and establish the MRF.
6. Plans are in place to guide the development of waste management infrastructure which is required to meet national and provincial waste diversion targets as well as the high population growth rate anticipated over the next 10 – 15 years.	6.1 The CAM to develop and implement a waste infrastructure masterplan to guide the development and financing of waste facilities over the next 10 – 15 years.
	6.2 Expand Capital Development Budgeting to include the establishment of the MEF and for upgrades to Drop Off facilities.

Table 43 - Provision of efficient and financially viable waste management services actions and targets

4.5.3 Effective waste information management and reporting;

Objective	Actions and Targets
1. Accurate waste information is reported on the IPWIS on a regular basis. The CAM is aware of the type and quantity of waste generated in the municipality.	1.1 The capturing of data will continue and will be reported on IPWIS. The installation of a weighbridge at the MRF will contribute to accurate record keeping.
	1.2 Data capturing process to be reviewed to ensure that waste is characterized correctly and accurately.
	1.3 Improve record keeping at Drop Off facilities
2. The 2023 IWMP is regularly reviewed, and the implementation status of project is monitored.	2.1 Undertake annual performance reviews of this IWMP and send reports to DEA&DP
3. The 2021 Organic Waste Diversion Plan is regularly reviewed, and the objectives and targets are monitored.	3.1 Undertake annual performance reviews of the OWDP and send reports to DEA&DP
4. The 2022 Household Hazardous Waste Plan is regularly reviewed, and the objectives and targets are monitored.	4.1 Undertake annual performance reviews of the HHWP and send reports to DEA&DP

Table 44 - Effective waste information management and reporting actions and targets

4.5.4 Improved waste education and awareness;

Objective	Actions and Targets
1. Waste awareness campaigns are well planned and executed. Sufficient awareness materials are available for the waste awareness campaigns	1.1 Develop an annual waste awareness calendar with dates for events.
	1.2 Waste awareness campaigns are to be undertaken by trained and experienced personnel. Appoint a Communications Officer.
	1.3 Detailed records are kept of all waste awareness campaigns undertaken.
2. Waste awareness campaigns are mainstreamed at schools and all learners and educated on good waste management practices	2.1 Waste awareness campaigns to be undertaken at schools in CAM

Table 45 – Improved waste education and awareness actions and targets

4.5.5 Improved institutional functioning and capacity

Objective	Actions and Targets
1. The Solid Waste Department has well capacitated staff to allow for the waste management function to be actioned effectively and for the IWMP to be implemented	1.1 The Solid Waste organogram is to be reviewed to determine if sufficient positions are listed to allow implementation of this IWMP. All key positions and vacant posts to be filled
	1.2 Implementation of the IWMP to be added as a KPI to the Waste Manager, Superintendent or Supervisors' performance evaluation criteria.
	1.3 Employ experienced person to implement Special waste diversion projects and data management.
	1.4 Training schedule developed with training needs for employees at different levels identified.
2. Efficient inter-departmental co-operation and support	2.1 Increase formal engagement with other departments in order to facilitate a better understanding of roles and responsibilities, so as to improve support and integration of services
3. Improved communications, planning and co-operation with other municipalities in the district	3.1 Engage with Overberg District Municipality and DEA&DP with a view to establishing a regional forum for the holding of regular discussions on waste management in the area.
4. Policies and strategies are focussed and are updated	4.1 Review Waste By-Law
	4.2 Review and implement Illegal Dumping Strategy
	4.3 Review and implement Household Hazardous Waste Plan
	4.3 Review and implement Organic Waste Diversion Plan
5. To promote women's leadership and support in waste management.	5.1 Undertake to appoint a woman to a senior position within the waste department during the term of this IWMP.

Table 46 - Improved institutional functioning and capacity actions and targets

4.5.6 Improved compliance and enforcement

Objective	Actions and Targets
1 Littering and illegal dumping is reduced and the by- laws related to waste management issues are enforced	1.1 Appoint additional Enforcement Officers
	1.2 Increase the area of operation of officers to include littering, illegal dumping and Drop Off facilities.
	1.3 The by-law enforcement should be incorporated into the public awareness educational material.
2. Compliance with waste permits and regulations.	2.1 Annual audits of licensed facilities to be undertaken and submitted to DEA&DP.
	2.2 Internal audits to be conducted quarterly and reported to DEA&DP
	2.3 Audit recommendations to be implemented.
	2.4 Monitoring Committee to be established.

Table 47 - Improved compliance and enforcement actions and targets

5 IWMP Implementation Plan

5.1 Structure of the IWMP

The Integrated Waste Management Plan (IWMP) comprises three separate components, namely:

A Status Quo Report incorporating a Gaps Analysis and Needs Assessment:

The report describes the “status quo” of solid waste management in the CAM. The main areas of study include:

- Policy and regulatory considerations and By-laws
- Demographical and contextual considerations
- Waste collection and area cleaning
- Waste generation.
- Waste disposal
- Waste minimisation
- Hazardous and special wastes
- Institutional arrangements
- Financial arrangements
- Waste Information Systems
- Waste education, awareness and training

A gap analysis and needs assessment was undertaken to identify gaps and needs in terms of the status quo information and data as well as gaps in terms of identified shortcomings in the delivery of waste management services within the CAM.

B. Strategic Objectives

In this component the findings of the status quo and gaps analysis studies are analysed and assessed. Key issues, strategies and targets were identified which were carried forward for consideration for incorporation into the IWMP.

C. Integrated Waste Management Plan:

Through a process of interaction with the CAM’s Solid Waste officials and other stakeholders, a draft IWMP was developed which sets out the key activities of the IWMP, together with timeframes, and priorities. Key performance indicators are recommended for measuring the progress and performance of the future implementation of the IWMP.

5.2 Key issues

A number of roundtables were held with the Solid Waste Manager and staff. The purpose of the roundtables was:

- To gather information
- To report back on the work done and to get feedback on the three components of the IWMP process
- To encourage buy-in and ownership
- To identify the key issues that have an impact on waste management in the CAM and need to be addressed in the plan.

A number of key issues and shortcomings were identified that may have a significant impact on service delivery. These issues include:

- The IWMP must be robust, flexible, achievable and affordable.
- The CAM is aware of the benefits of waste minimisation and committed to supporting, facilitating and incentivising waste reduction. Close engagement with the public and private sectors is considered essential. Increased public-private partnering in solid waste management should be encouraged.
- There is a need for a Department law enforcement section to enforce the by-law and address illegal dumping.
- Finances are a major constraint to proper solid waste management.
- Lack of resources are a major constraint to implementation.
- There is a need for increased levels of service delivery for informal areas and backyard dwellers.
- The financial implications of implementing the IWMP and providing effective and equitable levels of waste management services will require a considerable increase in the Departments future capital and operating budgets for waste management.

The IWMP, once approved by the Municipality for adoption, must be reviewed regularly against set performance indicators and updated on a regular basis and fed back into the Municipalities Integrated Development Plan (IDP) and other relevant authority policies and structures.

5.3 Capital Development Plan

An assessment of infrastructure and the waste management fleet needs has been undertaken and a high-level costing of the capital requirements in the short to medium term to align with the IWMP has been prepared and presented in

Table 48. The plan can be used for budgeting purposes, in particular high-cost items such as landfill development which require a substantial lead time before being operational.

5.3.1 Vehicles and equipment

5.3.1.1 Compactor vehicles

The primary collection vehicle in a waste management system, the compactor unit and bin lifters are mounted on a standard truck chassis. The compactor and bin lifters generally have a useful life of 8 years and the truck chassis, 10 years.

The CAM currently owns 3 compactors all of which are used for collections. Figure 30 indicates the age variance of the fleet.

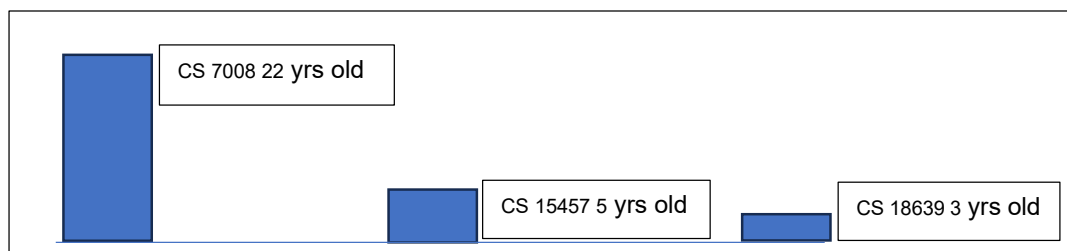


Figure 30 – Age of current fleet of compactors

Clearly, one of the vehicles is older than 10 years and in order to operate a reliable and cost-efficient fleet it is essential that replacement vehicles are purchased annually. The other two, are 5 years old, or less. Replacement vehicles, 15m³ body and binlifters currently cost in the order of R 2,100,000.

5.3.1.2 Skip Loaders

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The CAM currently does not own any skip trucks and outsources the supply and transport of skips.

5.3.1.3 Various other vehicles

The CAM operates 4 of 4 T trucks varying in age.

Replacement vehicles should be purchased when the maintenance and operating costs of the older vehicles becomes excessive, and it is financially beneficial to lease or purchase a new vehicle.

5.3.2 Infrastructure and materials

The NWMS is setting mandatory requirements for increased diversion of waste from landfill, diversion of organics and increase in recycling. Greater diversion will prolong the lifespan of the landfill, but other infrastructure will be required to collect diverted waste, sort and treat recycled waste and to process organic wastes. The timing of these interventions will be determined primarily by the resources available to the waste management department.

5.3.2.1 Landfill development

The extension of the landfill is one of the options discussed under **2.7** but if implemented, will form part of a number of interventions. Council is set to decide on these at the end of October 2023. .

5.3.2.2 Drop-offs

The drop-offs serve an important role in waste management in the CAM, providing a facility where waste can be brought by the community including garden waste, garage waste, household hazardous wastes and recyclables. There are currently sufficient facilities in the CAM, but they should be upgraded to improve access control, recycling and storage of HHW. A provisional amount of R800,000 per drop-off has been allowed for and programmed for the upgrade of one facility per annum.

5.3.2.3 MRF

The CAM has initiated the first phase of the construction of the Materials Recovery Facility on the old P&B Limeworks property. Costs have been estimated at R 68.5 million.

5.3.2.4 Home composting

The CAM does not provide any assistance to home composters. This has been identified as a gap and R xxxx has been provisionally allowed for.

5.3.2.5 Other Capital requirements

.

5.3.2.6 Composting

Expansion of the existing composting operations could be funded privately, but has been included in the overall Materials Recovery Facility budget.













Table 48 – 10-year Capital Development Plan

5.4 Implementation plan

The implementation plan is presented over in a table format. A timeline and priority have been assigned to each task. These tasks should be reviewed annually by the CAM and amended or adjusted accordingly.

Goal 1: INCREASED WASTE MINIMISATION AND RECYCLING
List of activities for the implementation and prioritisation over the short, medium and long term.

IMPLEMENTATION AND PRIORITISATION PLAN

No.	Activity	Short-term					Medium-term	Long-term	Priority
		23/24	24/25	25/26	26/27	27/28	2028-2031	2032-2041	
									High (H) Medium (M) or Low (L)
1.1.	Secure necessary decisions from Council in order to budget for and implement critical strategies								H
1.2.	Ensure a greater participation of households in the separation at source programme.								H
1.3.	Compile a Household Hazardous Waste Plan								H
1.4.	Add recycling facilities to the drop-offs for plastic paper, glass and builder's rubble.								H
				One facility per annum					
1.5.	Increase the diversion of recyclables from landfill in line with NWMS targets.								H
				40% Diversion by 2028			55% Diversion		
1.6.	Establish the Materials Recovery Facility at the old P&B Limeworks site.								H
1.7.	Expand the home composting programme to additional households								H
1.8.	Collaborate with commercial sector generators of organic waste to ensure reduction and diversion from landfill. Promote private sector composting.								H
1.9.	Develop areas at the drop-offs for the storage of various HHW types								M

Goal 2: PROVISION OF EFFICIENT AND FINANCIALLY VIABLE WASTE MANAGEMENT SERVICES
List of activities for the implementation and prioritisation over the short, medium and long term.

IMPLEMENTATION AND PRIORITISATION PLAN

No.	Activity	Short-term					Medium-term	Long-term	Priority
		23/24	24/25	25/26	26/27	27/28	2028-2031	2032-2041	
2.1	The CAM to continue with its vehicle replacement implementation plan and unrepairable vehicles should be disposed of.	■ ■ ■ ■ ■ ■ ■ ■ ■ ■							H
2.2	Investigate and develop a plan to serve all informal housing and backyard dwellings with a collection service.		■ ■ ■ ■ ■ ■ ■ ■ ■ ■						H
2.3	Review waste service tariffs. The waste service tariff reviews to be informed by a full cost accounting exercise.		■ ■ ■ ■ ■ ■ ■ ■ ■ ■						M
2.4	GRAP assessment of the landfill site is undertaken on an annual basis and an annual contribution is made into a vote for the closure and rehabilitation of the landfill site.		● ● ● ●				■ ■ ■ ■ ■ ■ ■ ■ ■ ■		M
2.5	Expand Capital Development Budgeting to include upgrades to Drop Off facilities.		■ ■ ■ ■ ■ ■ ■ ■ ■ ■						H

Goal 3: EFFECTIVE WASTE INFORMATION MANAGEMENT AND REPORTING									
List of activities for the implementation and prioritisation over the short, medium and long term.									
IMPLEMENTATION AND PRIORITISATION PLAN									
No.	Activity	Short-term					Medium-term	Long-term	Priority
		23/24	24/25	25/26	26/27	27/28	2028-2031	2032-2041	
									High (H) Medium (M) or Low (L)
3.1	The Bredasdorp Waste Disposal Facility will continue to record data for all waste received and will be reported on IPWIS.	■	■	■	■	■	■	■	H
3.2	Data capturing process to be reviewed to ensure that waste is characterized correctly and accurately.	■							H
3.3	Improve record keeping at Drop Off facilities	■							H
3.4	Gate controllers to undergo training and retraining in identification of different types of wastes	■							H
3.5	Waste characterisations studies to be undertaken every 3 years.					●			H
3.6	Undertake annual performance reviews of this IWMP and send reports to DEA&DP	●	●	●	●	●			M
3.7	Undertake annual performance review of the OWMP and send report to DEA&DP	●	●	●	●	●			M
3.8	Undertake annual performance review of the HHWP and send report to DEA&DP	●	●	●	●	●			M
3.9	Consolidate all internal waste related datasets into a single inventory		■						H
3.10	Develop systems for effectively capturing and storing waste datasets identified above.		■						M

Goal 4: IMPROVED WASTE EDUCATION AND AWARENESS									
List of activities for the implementation and prioritisation over the short, medium and long term.									
IMPLEMENTATION AND PRIORITISATION PLAN									
No.	Activity	Short-term					Medium-term	Long-term	Priority
		23/24	24/25	25/26	26/27	27/28			
							2028-2031	2032-2041	High (H) Medium (M) or Low (L)
4.1	Develop an annual waste awareness calendar with dates for events.	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■			H
4.2	Appoint a Communications Officer. Waste awareness campaigns should be undertaken by trained and experienced personnel.	■							H
4.3	Develop an Awareness Strategy			■ ■ ■ ■ ■					H
4.4	Detailed records to be kept of all waste awareness campaigns undertaken.	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	M

Goal 5: IMPROVED INSTITUTIONAL FUNCTIONING AND CAPACITY									
List of activities or the implementation and prioritisation over the short, medium and long term.									
IMPLEMENTATION AND PRIORITISATION PLAN									
No.	Activity	Short-term					Medium-term	Long-term	Priority
		23/24	24/25	25/26	26/27	27/28			
							2028-2031	2032-2041	High (H) Medium (M) or Low (L)
5.1	The Solid Waste organogram is to be reviewed and all key positions and vacant posts to be filled that will ensure the proper implementation of the IWMP	■							H
5.2	Implementation of the IWMP to be added as a KPI to the Waste Manager or supervisor's performance evaluation criteria.	■	■	■	■	■			L
5.3	Training schedule developed with training needs for employees at different levels identified.	■							H
5.4	Increase formal engagement with other departments in order to facilitate a better understanding of roles and responsibilities, so as to improve support and integration of services	■							M
5.5	Continue engaging with Overberg District Municipality and DEA&DP with a view to establishing a regional forum for the holding of regular discussions on waste management in the region.		■						L
5.6	Review Waste By-Law at intervals to ensure it maintains relevance with time.		●	●					M
5.7	Review and finalise Illegal Dumping Strategy, obtain Councils approval and implement.	■							H

Goal 6: IMPROVED COMPLIANCE AND ENFORCEMENT									
List of activities or the implementation and prioritisation over the short, medium and long term.									
IMPLEMENTATION AND PRIORITISATION PLAN									
No.	Activity	Short-term					Medium-term	Long-term	Priority
		23/24	24/25	25/26	26/27	27/28			
									High (H) Medium (M) or Low (L)
6.1	Appoint additional Enforcement Officers	■							H
6.2	Increase the area of operation of officers to include littering, illegal dumping and Drop Off facilities.	■							H
6.3	Conduct audits of facilities in accordance with licence conditions.	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	M
6.4	Implement recommendations of the audits	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	M
6.5	Establish Monitoring Committee and continue with annual meetings.	■	●	●	●	●	●	●	H
6.6	Design and implement a waste picker integration plan.		■						M

6 Monitoring and Assessment

6.1 Monitoring plan

The Integrated Waste Management Plan presents a number of activities that are to be implemented within the plan's timeframe and it is of critical importance that a measurement system is in place to monitor their performance and success.

Monitoring activities that should be considered (*NWMS Implementation Programme Starter Document: Guideline Document for IWMP*), include:

6.1.1 General Issues

- Resource situation;
- Staff appointments, allocation of functions and training;
- Payment for services;
- Rates of generation of waste, verified by the waste information system;
- Reporting to the IPWIS;
- Illegal dumping and littering;
- Improvement in environmental and health conditions;
- Reporting to provincial environmental departments and DFEE;
- Legislation, regulations, ordinances and/or by-laws are in place;
- Complaints regarding poor waste management.
- Waste prevention and minimisation
- Annual reports of waste minimisation programmes and projects;
- Annual environmental reports on emissions to air, water and land;
- Achievement of targets for prioritised waste streams and pollutants;
- Information exchange and the establishment of waste minimisation clubs.

6.1.2 Collection and transportation

- Annual reports on the implementation of collection and transportation services;
- Payment received for waste collection and transportation services as against the actual cost for provision of these services.

6.1.3 Recycling

- Annual reports on waste recycling programmes and projects;
- Information exchange between stakeholders;
- Stakeholder forums coordinating new recycling activities;
- Social and environmental impacts of the implementation of new recycling initiatives.

6.1.4 Treatment and Disposal

- Registration and licensing of waste treatment facilities;
- Auditing of waste incineration facilities by provincial authorities;
- Environmental performance and impact;
- Provision of adequate hazardous waste treatment facilities.

- Registration and licensing of waste disposal facilities;
- Auditing of general waste disposal facilities by provincial departments;
- Environmental performance and impact;
- Provision of adequate hazardous waste disposal facilities;
- Management and control of salvaging at landfill sites.

The CAM Waste Department will need to develop an improved reporting system to collect the data required for a Monitoring Plan and this will include a communication platform for receiving and recording complaints.

6.2 Monitoring Reports

The results of the monitoring activities will be compiled into a monitoring report.

Annual reporting systems will be established to review progress – and where necessary, to adjust targets or actions based on new information or new developments. The responsibilities for the compilation and approval of reports as proposed by the 2020 NWMS are as follows:

CAM	Shall compile a report on the implementation of the IWMP on an annual basis and submit it for consideration by DEA&DP.
Western Cape Government	WCG will provide DFFE with annual progress reports regarding implementation of provincial IWMP. The Provincial Report must reflect progress in the implementation of IWMP's by local government.
DFFE	In consultation with other national departments the DFFE shall publish a national report on progress with the implementation of local authority and provincial IWMP's. The DFFE is also responsible for monitoring the implementation of EPR schemes developed by industry. Reporting requirements for these plans will be aligned with SAWIS.

SAWIS will develop guidelines for provinces and local government on the content and format of annual reporting on IWMPs.

Databases that record compliance and enforcement activities, such as the National Environmental Compliance and Enforcement Report will also be utilised for reporting.

6.3 Key Performance Indicators

In order to assess the outcomes of a IWMP a set of informative, measurable and reliable Key Performance Indicators are required to measure effectiveness of service delivery mechanisms and for effecting improvements where they may be necessary.

Key Performance Indicators (KPI's) are variables which together provide a meaningful, concise, overall picture of performance and are used to report progress.

Targets are also required for each Key Performance Indicator in order that the progress and outcomes can be tracked over time. Targets for the IWMP will generally be set in a time frame and linked closely with the Integrated Development Plan (IDP).

A Key Performance Indicator that is generally looked upon as a barometer to measure the overall performance of solid waste management is the year-on-year reduction of waste generated and/or disposed of. The overall cleanliness of a town or region is also considered to be another key parameter to be measured.

An important consideration in choosing suitable indicators is whether data is available for its measurement in the municipal area. A municipality has to be clear about what data it currently collects and what data it will have the capacity to collect in the near future. Performance measurement is essentially the process of analysing the data provided by the monitoring system in order to assess performance against pre-determined objectives. The production, obtaining and recording of accurate waste data will be an important element of the monitoring process and a basis for planning future management arrangements.

A set of KPI's has been suggested for the IWMP and are tabulated hereafter. The sequence of the KPI's align closely with the format of the plan and should be seen as "primary" indicators for the measurement of the success of implementing the IWMP.

In the course of implementing the IWMP it will be necessary to develop more appropriate KPI's or refine the suggested KPI's for specific programs or projects identified. At the same time, it will be essential to determine credible baseline data in order that the output measures are meaningful.

Key Performance Area	KPI Unit	Key Performance Indicator	Output Measure	Target
WASTE PREVENTION, MINIMISATION AND RECYCLING				
Recycling	%	Separation at Source General waste recycled	Participation rate of all service points	50% by 2027 70% by 2032
Organic diversion	%	Diversion of organic wastes from landfill in line with POWS	% of green waste and household organic waste diverted from landfill using waste characterisation	50% by 2022 100% by 2027
Home composting	%.	Increase in home composter users.	% of households participating	5% /annum growth
WASTE COLLECTION				
Service Provision	%	Provision of basic services to all residents within the Municipal area with below basic levels of services	% of households in poorly serviced areas with access to basic waste removal services	100% by 2027
	%	Provision of services to all households	% of households eligible for kerbside refuse removal which receive service on a weekly basis	100% by 2027
Cleansing	No.	Incidents of illegal dumping	Number per annum reported	10% reduction per annum
WASTE TREATMENT				
Landfill Sites	%	Vredenburg landfill is being monitored for compliance with regulatory requirements	Degree of compliance	>90
WASTE INFORMATION MANAGEMENT				
Data	%	Consolidation of waste datasets.	Degree of compliance	100% by 2025

Table 49 - Key Performance Indicators

7 References

1. Cape Agulhas Municipality *IDP May 2022*
2. Cape Agulhas Municipality *Annual Report 2021/2022*
3. Cape Agulhas Municipality – *Illegal Dumping Strategy*
4. Cape Agulhas Municipality *3rd Generation IWMP 2016*
5. Western Cape Government *Socio Economic Profile – Cape Agulhas Municipality 2022*
6. Western Cape Government *Municipal Economic Review and Outlook 2021*
7. Western Cape Government *Environmental Management Framework x*
8. Statistics South Africa *Provincial Profile Western Cape – Community Survey 2016*
9. *Industry Tyre Waste Management Plan - No. 46017 GOVERNMENT GAZETTE, 9 March 2022*
10. Department of Environmental Affairs – *Guideline for the implementation of Integrated Waste Management Plans*
11. Western Cape *Integrated Waste Management Plan 2022 – 2027 Draft*
12. SAWIC - *Waste Management Licences for Vredenburg Landfill*

APPENDIX A LEGISLATION

The Constitution of the Republic of South Africa, 1996, as amended

The South African Constitution (Act 108 of 1996) is the supreme law of the land. Section 24 (a) of the Act states that: “everyone has the right to an environment that is not harmful to their health or wellbeing.” This poses a duty on all organs of state to promulgate legislation and to implement policies that ensure that this right is upheld. Chapter 7 of the Constitution states that the roles and responsibilities of local government include:

- Promotion of social and economic development; and
- Promotion of a safe and healthy environment.

The Municipality is responsible for waste removal, managing waste disposal facilities and cleansing as it sees it as a part of basic service and as per Schedules 4 and 5 of the constitution.

National Environmental Management Act (No. 107 of 1998)

The National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended (NEMA) was promulgated in November 1998. It is the key legislation for environmental management in South Africa. NEMA promotes social, economic and environmental sustainability with a key focus on conservation of the environment. The Act requires environmental processes to be transparent and to provide capacity for disadvantaged stakeholders to participate. NEMA promotes the need for co-operative governance where more than one government department may be involved in decision-making for a proposed development.

NEMA was amended in 2006 and again in June 2010, providing a new list of activities that require environmental authorisation through different processes. The list describes those activities that require a basic environmental assessment (BA) and those that require a full environmental impact assessment (EIA). Both the BA and EIA involve public participation. The two processes are detailed and involved, however the EIA involves a longer timeframe, being broken down into scoping and impact assessment phases in comparison to BA:

- Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- Development must be socially, environmentally and economically sustainable. The Act further defines in considerable detail the approach to sustainable development.
- Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated.
- Environmental justice must be pursued so that adverse environmental impacts are not in any way discriminatory to any part of the population.
- There must be equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being.
- The participation of all interested and affected parties in environmental governance must be promoted throughout the life cycle of any project or programme and any decision making process.
- Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and the recognition of all forms of
- knowledge, including traditional and ordinary knowledge.
- The social, economic and environmental impacts must be considered, assessed and evaluated.
- Processes must be transparent.
- The rights of workers must be protected and the vital role of women and youth in environmental management and development must be recognised and their full participation promoted.
- There must be harmonisation between policies, legislation and actions relating to the environment.

- Global and international responsibilities relating to the environment must be incorporated at national interest.

National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as amended

Chapter 1, Section 2 of the National Environmental Management Waste Act provides the following objectives of the act:

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

- Minimising the consumption of natural resources;
- Avoiding and minimising the generation of waste;
- Reducing, re-using, recycling and recovering waste;
- Treating and safely disposing waste as a last resort;
- Preventing pollution and ecological degradation;
- Securing ecologically sustainable development while promoting justifiable economic and social development;
- Promoting and ensuring the effective delivery of waste services;
- Remediating land where contamination presents, or may present a significant risk or harm to human health or the environment; and
- Achieving integrated waste management and reporting and planning.
- To ensure that people are aware of the impact of waste on their health, well-being and the environment;
- To provide for compliance; and
- To give effect to section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being.

The Act requires that a National Waste Management Strategy (NWMS) be drafted in order to achieve the objectives of the Act. The NWMS was drafted and finalised in 2011 and all spheres of government must implement this strategy. It also sets waste service standards, covering areas such as tariffs, quality of service and financial reporting. Municipalities are also required by the Act to designate a waste management officer.

According to the Act, each municipality must produce an IWMP and submit it to the Member of the Executive Council (MEC) for approval. The approved IWMP must be included in the Municipal IDP. Prior to finalising the IWMP, the Municipality is required to follow the consultative process as defined in Section 29 of the Municipal Systems Act. This can be done either as a separate process or as part of the consultative process relating to its IDP.

Minimum contents required in an IWMP are outlined in the National Environmental Management: Waste Management Act. The contents of this IWMP were guided by those for a standard IWMP.

The NEMWA provides definitions of waste as well as the listed activities that require licensing. This Act also provides specific waste management measures for remediation of contaminated land as well as for compliance and enforcement. Waste and waste management activity as amended by Act 14 of 2003 is defined 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 that includes all wastes as defined in Schedule 3 of the

Act; or

- b) Any other substance, material, or object that is not included in Schedule 3 that may be defined as waste by the Minister by notice in the Gazette,
- c) 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;
- d) Where approval is not required, once a waste is, or has been re-used, recycled or recovered;
- e) 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
- f) 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 management activity” means any activity listed in Schedule 1 or published by notice in the Gazette under section 19, and includes:

The generation of waste, including the undertaking of any activity or process that is likely to result in the generation of waste;

- a) The accumulation and storage of waste;
- b) The collection and handling of waste;
- c) The reduction, re-use, re-cycling and recovery of waste;
- d) The trading in waste;
- e) The transportation of waste;
- f) The transfer of waste;
- g) The treatment of waste; and
- h) The disposal of waste.

The National Waste Management Strategy (2020)

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

The NWMS places the responsibility on the Municipality (with National and Provincial support in certain cases) to educate, provide vessels (bins), collect, process and dispose (composting facility) of organic waste. Municipalities must make provision in their IWMP or waste management strategy to manage green waste when generated in large quantities.

The NWMS is structured around a framework of three pillars each with their respective goals. The goals along with their respective targets are to be achieved by dates (year) indicated in the NWMS.. The 2020 NWMS has three strategic pillars to improve the waste management in South Africa:

- Waste minimisation
- Effective and sustainable waste services
- Compliance, enforcement and awareness.

The goal is to prevent waste, and where waste cannot be prevented, divert 40% of waste from landfill within 5 years; 55% within 10 years; and at least 70% of waste within 15 years leading to Zero-Waste going to landfill through reuse, recycling, and recovery and alternative waste treatment.

National Environmental Management: Air Quality Act

The National Environmental Management: Air Quality Act (39 of 2004) requires that appropriate consideration must be given to the emissions arising from waste management

practices, processes and procedures. Many facets of waste management are associated with atmospheric emissions, for example, waste transportation is associated with carbon dioxide released from vehicles, and methane and carbon dioxide which are released from landfill sites.

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

Atmospheric Pollution Prevention Act

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

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

The National Health Act, 2003 (Act No. 61 of 2003)

The National Health Act, 2003 defines “municipal health services” to include water quality monitoring; food control; waste management; health surveillance and prevention of communicable diseases, excluding immunisations; vector control; environmental pollution control; disposal of the dead; and chemical safety, but excludes port health, malaria control and control of hazardous substances.

Section 32 of the Act requires that municipal health services (including waste management) be effectively and equitably provided. Furthermore, national and provincial government must enter into a service level agreement as contemplated in section 156(4) of the Constitution, assigning the administration of the listed matters to the municipality.

The service level agreement must according to section 32(3) provide for:

- a) The services to be rendered by the municipality;
- b) The resources that the relevant member of the executive council must make available;
- c) Performance standards which must be used to monitor services rendered by the municipality; and
- d) Conditions under which the agreement may be terminated.

This Act also pertains to health care waste management. The Act, in relation to waste activities designates the municipal services by including waste management in terms of formulating regulations regarding medical and health care waste by the Minister Responsible.

Municipal Structures Act, 1998 (Act No 117 of 1998)

The Municipal Structures Act, 1998 (Act 117 of 1998) delineates powers and functions of different categories of municipalities. In terms of the Act, municipalities have powers and functions relating to integrated, sustainable and equitable social and economic development of the district. This role should

be performed by ensuring integrated development planning for the district as a whole, building the capacity of local municipalities to perform their functions, exercising local municipal powers where capacity is lacking, and promoting the equitable distribution of resources between the local municipalities in its area. The Act further reiterates the functions of local municipalities as contained in the Constitution excluding the ones referred to as district functions. This includes the provision of waste collection and disposal services and cleansing.

[Municipal Systems Act, 2000 \(Act No. 32 of 2000\)](#)

The Municipal Systems Act, 2000 (Act 32 of 2000) defines alternative approaches that may be employed in delivering municipal services and the processes to be followed when such alternatives are considered. The need for integrated planning and performance monitoring of both external and internal mechanisms of service delivery are emphasised in the Systems Act. The Act further mandates communities to be encouraged to participate in strategic decisions making relating to service delivery.

[The National Waste Information Regulations](#)

Section 5 (1) & (2) deals with the registration of people on the South African Waste Information System (“SAWIS”) Section 8 deals with the reporting or submission of information. Annexure 1: List of persons conducting the following activities must register on the SAWI/IPWIS in terms of regulation 5:

- Recovery or recycling of waste (b), (c), (e)
- Treatment of waste (g)

Annexure 2: Reporting requirements in terms of regulation 8 (1) Annexure 3: General Waste types for reporting to the SAWIS, requires the reporting of garden waste as follows:

Level 1 General Waste types (GW)

Level 2 Major Waste Type: Organic GW20

Level 3 Specific Waste Type: Garden Waste (01). Garden Waste must be reported under GW2001

[National Norms and Standards for Assessment of Waste for Landfill Disposal, Government Notice No. 635 of 23 August 2013](#)

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

[National Norms and Standards for the disposal of Waste to Landfill \(23 August 2013, GG No. 36784 GN No. 636\)](#)

Waste is evaluated in terms of the Norms and standards for the Assessment of Waste for Landfill Disposal set in terms of Section 7(1) of the NEM: WA. Waste Disposal Restriction provides prohibitions and restrictions on the disposal of waste to landfill and accompanying compliance timeframe.

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

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

[National Norms and Standards for Organic Waste Composting](#)

Provides a uniform approach relating to controlling the composting of organic waste at a facility that falls within the required threshold.

The norms and standards are applicable to the following activities:

- Recycling of organic waste at a facility that has an operational area in excess of 500m²
- Recovery of organic waste including the refining, utilisation or co-processing of organic waste in excess of 10 tons but less than 100 tonnes per day
- Construction and operation of any organic waste facility that has the capacity to process in excess of 10 tonnes but less than 100 tonnes of organic waste material per day
- Construction of any organic waste facility where the capacity of the facility is able to process in excess of 10 tonnes but less than 100 tonnes per day
- Construction and operation of any organic waste facility processing animal matter not intended for human consumption for installations handling in excess of 1 ton of raw material per day
- Construction and operation of any organic waste facility used applied heat (thermal treatment) in the treatment of general waste exceeding 10kg per day.

The Norms and Standards provide guidance acceptable treatment options for different types of organic waste. An organic waste treatment facility needs to be registered with the licensing authority 90 days before the commencement of construction. The design requirements for a facility are specified in the Norms and Standards.

National Norms and Standards for the Storage of Waste

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

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

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

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

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

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

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

The National standards for the extraction, flaring or recovery of landfill gas (GN 924 of 2013) aims to control the extraction, flaring and recovery of gas at landfills or recovery facilities to minimise harmful impacts to people and the surrounding environment. The standards require, in planning phase, that an assessment of environmental risks and impacts that are associated with the proposed activities is compiled, and that Environmental Management Plan is compiled to mitigate these risks. The standard

contains a set of standard procedures for handling and maintaining of equipment for construction, operational and

decommissioning phase. The standard also covers training, emergency response, monitoring and reporting, general requirements and transitional arrangements.

National Norms and Standards for the Sorting, Shredding, grinding, Crushing, Screening, or baling of General Waste (NO. 243 of 2017)

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

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

Waste Tyre Regulations

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

In summary, the regulation:

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

Extended Producer Responsibility (EPR) Regulations

The DFFE published the National Environmental Management: Waste Act (Act No. 59 of 2008) Extended Producer Responsibility (EPR) Regulations and notices for the identified waste streams of paper and packaging, electrical and electronic equipment (EEE) and lighting on 5 November 2020 for implementation. Further to this, the draft amendments to the regulations and notices regarding extended producer responsibility, 2020 were published for comment on 19 March 2021.

The purpose of the Regulations regarding extended producer responsibility, 2020 is to:

- Provide the framework for the development; implementation, monitoring and evaluation of EPR schemes by producers in terms of S18 of the NEMWA;
- Ensure the effective and efficient management of the identified end-of-life products; and
- Encourage and enable the implementation of the circular economy initiatives.

In terms of the regulations, all producers of identified products and producer responsibility organisations (PRO) must register with the department. The EPR system provides a means for relevant producers and PROs to register with the department and be issued with a unique registration number.

Objectives

The primary objectives of the EPR system are, but not limited to the following:

- Establish an online registration platform.
- Easy accessibility and quick registration process for producers and producer responsibility organisations (PROs).
- Efficient management of registrations by administrators.
- User-friendly and well organised EPR registration that complies with the regulations.
- Comply with the highest security standards.

Registration of producers

- All existing producers of products, at the time these regulations come into effect, must register with the department within 6 months of the publication of the Government Notice in the Government Gazette in terms of section 18(1) of the act by completing the prescribed form obtainable from the department.
- All new producers of products, who commence producing after these regulations come into effect, must register with the department within three (3) months of being established, by completing the prescribed form obtainable from the department.
- The department must consider all producer registration application forms and issue a registration number for each producer that has submitted such form, within 30 days of receipt of a form in which all sections are correctly completed.

Registration of producer responsibility organisations

- All existing producer responsibility organisations must register with the department within six (6) months of the publication of these regulations in the Government Gazette by completing the prescribed form from the department.
- All newly established producer responsibility organisations, after the coming into effect of these regulations, must register with the department within 3 months of being established by completing the prescribed form from the department.

Municipal By-laws

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

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

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



The CAM has developed an IWM By-Law in line with the Provincial model which empowers it to implement effective waste minimisation strategies.

APPENDIX B

WEIGHBRIDGE DATA - 2017-2022

Weighbridge Records and waste type breakdown prepared for IPWIS

APPENDIX C

ILLEGAL DUMPING STRATEGY

APPENDIX D ORGANIC WASTE DIVERSION PLAN

APPENDIX E TARIFFS

APPENDIX F PUBLIC PARTICIPATION NOTICE AND RESPONSES

Adverts placed in xxxxxx.

	1.		
	2.		