



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

CITY OF CAPE TOWN



4TH GENERATION INTEGRATED WASTE MANAGEMENT PLAN/ WASTE SECTOR
2022/23-2026/27

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ACRONYMS

ADC	Alternative Daily Cover
AWT	Alternative Waste Treatment
BBC	Buy-Back Centre
CCT	City of Cape Town
CID	City Improvement District
CP	Coastal Park Landfill
CRR	Capital Replacement Reserve
DFFE	Department Forestry, Fisheries and Environment
DEA&DP	Department of Environmental Affairs and Development Planning
EFF	External Financing Fund
EfW	Energy from Waste
EIA	Environmental Impact Assessment
EMT	Executive Management Team
EPR	Extended Producer Responsibility
EOAM	Economic Opportunities and Asset Management
EPWP	Expanded Public Works Programme
GHG	Greenhouse Gas
IDP	Integrated Development Plan
IPWIS	Integrated Pollutant and Waste Information System
IS&T	Information services and technology
IWMF	Integrated Waste Management Facility
IWMP	Integrated Waste Management Plan
IWMS	Integrated Waste Management System
MBT	Mechanical Biological Treatment
MFMA	Municipal Finance Management Act,
MRF	Materials Recovery Facility
MSA	Municipal Systems Act
MSDF	Municipal Spatial Development Framework
MSW	Municipal Solid Waste
MiTS	Micro Transfer Station
MTIFF	Medium Term Infrastructure Investment Framework
NDP	National Development Plan
NEMA	National Environmental Management Act
NEMWA	National Environmental Management Waste Act, 2008 (Act No.59 of 2008)
NWMS	National Waste Management Strategy
O&M	Operations and Maintenance
OCC	Operational Control Centre
PRO	Producer Responsibility Organisation
RTS	Refuse Transfer Station
RUL	Remaining Useful Life
S@S	Separation at Source
SA	South Africa
SCM	Supply Chain Management
SDF	Spatial Development Framework
SDG	Sustainable Development Goals
SLA	Service Level Agreement
SMME	Small, Medium and Micro-Enterprises
SMF	Strategic Management Framework
UWM	Urban Waste Management
USDG	Urban Settlements Development Grant
TOD	Transit Oriented Development
VHK	Vissershok Landfill

GLOSSARY OF TERMS

Terms	Definitions
Airspace	The volume of space on a landfill site, calculated in Cubic metres (M3)
Beat	The scheduled work to be performed by one bin-lifting refuse compacting vehicle with one driver and crew one day in one or more geographical zone/s. It is identified by a unique alphanumeric code representing the Area, District, and Beat and, where applicable additional information such as trade waste. It can be depicted by one or more polygon on a map covering either a portion of one suburb or a whole or several whole suburbs or any other combination thereof.
Buy back Centre	Centre where people sell recyclables material they have collected. Recycling companies buy recyclable material from the buyback centre and pay only for the material they can use.
Cleansing	Means the process of cleaning and removing unwanted substances, such as dirt, infectious agents, and other impurities, from an object or environment. In the context of waste management, it includes; litter picking, removal of dead animals, street sweeping, clearing of illegally disposed waste; and street cleaning which involves the use of water and disinfectants. The activities undertaken by the Cleansing Branch of City of Cape Town's Solid Waste Management Department.
Decommission	In relation to waste treatment, waste transfer or waste disposal facilities, means the planning for and management, and remediation of the closure of a facility that is in operation or that no longer operates.
Disposal	Means the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into or any land.
Domestic Waste	Means waste excluding hazardous waste that emanates from premises used wholly or mainly for residential, educational, sport or recreational purposes.
Drop off facility	Means facilities provided by the City in strategic locations around the City of Cape town to facilitate waste minimisation through the separation of recyclable material, garden refuse. It can also be used as temporary transition points for waste.
Food Waste	means discarded food (organic fraction) generated from residential, industrial and commercial food processes

Formal Households	Means a developed residential property where individual erven were approved in terms of Town planning legislation
General Waste	Means waste that does not pose an immediate hazard or threat to health or to the environment, and includes— (a) domestic waste; (b) building and demolition waste; (c) business waste: and (d) inert waste;
Green/Garden waste (also referred to as Clean Garden Waste)	Means organic waste, which emanates from gardening or landscaping activities at Residential Properties, business or industrial properties, which includes but is limited to grass cutting, leaves and branches, and includes any biodegradable material and includes such waste emanating from Residential Properties and business properties, but excludes waste products of animal origin.
Hazardous waste	Means waste that may, by circumstances of the production, use, quantity, concentration or inherent physical, chemical or toxicological characteristics, therefore, have a significant adverse effect on the environment, or the health of a person or other living organisms. Such waste has a high risk rating of 1 and 2 and may not be disposed-of at CCT landfills. An example is health care risk waste.
Informal Settlement Collections	The standard service level for informal settlements dwellings is a once-a-week, bagged door-door waste collection service provided to indigent families. In this category, each informal household will be provided weekly with Council refuse bags, of a size, number and design determined by the City.
Integrated waste management facility	In the context of this report, an Integrated Waste Management Facility is infrastructure that serves to intercept waste before disposal by retrieving materials for processing, re-use and recycling and is typically integrated with a refuse transfer station.
Landfill	A modern engineered way to dispose of waste into the ground and still protect the environment. As the landfill is built, the base of the cell is lined with a protective layer and materials are installed to monitor and collect leachate and gas emissions. As waste is deposited over the liner, it is compacted with heavy machinery in an effort to get the maximum amount of waste in an area. At the end of the day, the waste is covered with soil or special fabric cover (unless specifically exempted by state regulators.) Once the lined area is completely full, it is covered with an engineer-designed cap. Regulations mandate the periodic testing of groundwater, leachate levels and gas emissions
Lift	The planned collection of waste from a formal wheelie bin.

Material Recovery Facility (MRF)	Synonymous with Drop-offs in this report and is included here to align with the terminology in the Transfer Stations. There are two classes (levels) of Micro Waste Transfer Stations, namely minor and major. The distinction between the two is based on the size of the station and the type of processing that takes place there.
Mini Material Recovery Facility (Mini-MRF)	A small centre, located at Drop-offs, for the reception and transfer of materials recovered from the waste stream for recycling.
Municipal Solid Waste	Waste generated from residential and non-industrial commercial sources. It includes predominantly household waste (domestic waste) with sometimes the addition of commercial waste collected by a municipality within a given area. It includes both solid and semi-solid wastes and generally excludes industrial hazardous waste.
Organic Waste	Means waste of biological origin which can be broken down, in a reasonable amount of time, into its base compounds by micro-organisms and other living things
Recovery	Means the controlled extraction of material or the retrieval of energy from waste to produce a product.
Recycle	Means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material;
Refuse Transfer Station	A facility where waste is temporarily stored and ideally sorted before it is transported more economically to other recycling centres or landfills.
Re-Use	To utilise the whole, a portion of a specific part of any substance, material or object from the waste stream (again) for a similar or different purpose without changing the form or properties of such substance, material or object.
Sector Plan	Means a plan that will contain the information that is required by this document, where by strategy and plans are stated and translated into implementation plans.
Service Point	The specific location at which a solid waste service is rendered, such as the location of a lift.
Waste	"Waste" means any substance, whether or not that substance can be reduced, re-used, recycled and recovered— (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of; 30 (b) which the generator has no further use of for the purposes of production; (c) that must be treated or disposed of; or (d) that is identified as a waste by the Minister by notice in the

	Gazette, and includes waste generated by the mining, medical or other sector, but— (i) a by-product is not considered waste; and 35 (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste;
Waste characterisation	A process of analysing waste streams and their composition and quantities (tonnes) considering, seasonality, calorific value, and volume; may distinguish between different settlement structures (urban, peri-urban, and rural).
Waste Management Facility	Means a place, infrastructure, structure or containment of any kind wherein, upon or at which a waste management activity takes place and includes a waste transfer station, container yard, landfill site, incinerator, drop-off site, a recycling or a composting facility.
Waste Minimisation	Means the avoidance of the amount and toxicity of waste that is generated and, in the event, where the waste is generated, the reduction of the amount and toxicity of waste that is disposed of.
Waste Treatment Facility	Means any site that is used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of the waste.

CHAPTER 1

1. INTRODUCTION

The Sector Plan (Integrated Waste Management Plan) is developed to fulfil the directorate's legislative mandate, to align with the City's strategic objectives in terms of the new term of office IDP and to enable integrated planning with other programmes and services of the City.

The Waste Management Sector Plan or Integrated Waste Management (IWM) Plan of the Urban Waste Management (UWM) Directorate of the City of Cape Town consists of operational and support strategies, as well as a schedule of projects and activities. The aim of the IWM Plan is to give effect to the directorate's strategies of waste minimisation, provision of sustainable and affordable services and compliance with the goals of the National Waste Management Strategy and the objectives of the National Environmental Management Waste Act 59 of 2008.

The City recognizes that waste generation occurs in different instances. Waste is generated through the activities of people, business or industrial entities; in this case, there is space to regulate and to control the generation of waste. In the case of natural disasters, accidents or other natural process waste is also generated, but in these instances, it becomes more complex to implement the same control mechanisms.

The waste generated in Cape Town by private citizens, tourists, visitors, commerce and industry has resulted in a net growth in the volume of waste. The City does not have unlimited landfill airspace. There is a need to divert waste from landfill to ensure that landfill airspace is not depleted sooner than necessary. Given the City's burgeoning population and ongoing increase in the volumes of waste disposed of, the City could in future face an environmental and health crisis.

The City acknowledges its responsibilities to reduce, minimize and dispose waste in an environmentally acceptable manner in order to reduce its impact on the environment and save landfill airspace and approved an Integrated Waste Management policy to articulate bold measures to achieve these objectives, protect the environment, and offer progressive, sustainable options for integrated waste management.

Furthermore, waste must be managed through various processes that will ensure a safe, healthy and a sustainable environment to ensure that the right of individuals as enshrined in section 24 of the Constitution is protected. Fulfilment of this right requires that all stakeholders must accept co-responsibility for minimizing waste impacts optimally, to ensure environmental sustainability.

CHAPTER 2

2. DESCRIPTION OF THE GEOGRAPHICAL AREA, GEO-PHYSICAL AND GEO-HYDROLOGICAL CONDITIONS

The City of Cape Town Metropolitan Municipality (CCT), a Category A municipality, is situated in the southern peninsula of the Western Cape Province and covers an area of approximately 2,445 km². The CCT is neighboured by the West Coast District to the north, Cape Winelands District to the east and Overberg District to the Southeast.

The area consists of varying topography, which includes flat plains, hills and mountains. High mountains are located fairly close to the sea; e.g. Table Mountain which exceeds 1 000 m in elevation. Other high mountains on the perimeter include the Hottentots-Holland, Helderberg, Stellenbosch, Jonkershoek, Franschhoek, Wemmershoek, Du Toits, Paarl, Slanghoek, Limiet and Elandskloof mountains. These mountains form an eastern perimeter of mountains around the CCT. A major portion of the CCT consists of the area known as the Cape Flats, which has an elevation of between 20 and 45 m above sea level.

Cape Town is located within the Cape Floristic Region, which is geographically the smallest of the world's six floral kingdoms, but supports the highest density of plant species. Cape Town supports 2 500 indigenous plant species of which 190 are endemic (species that are found nowhere else in the world), thus within the Cape Floristic Region it is considered an area of particularly high floral diversity (or a local "hotspot" within a global "hotspot"). This floral diversity relates to the steep environmental gradients, including altitudinal, geological and rainfall gradients; that have combined to create a large number of different habitats. Six national vegetation types are found only within the City Of Cape Town's borders, and of these, five are classified as "Endangered" or "Critically Endangered". These vegetation types support species that are unique to Cape Town and many of these are under threat from extinction, due to habitat destruction and the impact of invasive alien species.

The city is located in a highly sensitive and vulnerable ecosystem and is recognised as a global biodiversity hotspot, meaning that it is highly threatened. The City is also fortunate to have the Table Mountain National park within its boundary. The City's environment is one of its strongest assets - driving tourism and attracting people and investment into the city's economy. Growing resource consumption, pollution (air, water, and waste) and the protection of the city's biodiversity are key issues that must be addressed.

Climate

Cape Town has a Mediterranean-type climate with well-defined seasons. Cape Town has a mean annual rainfall of 515mm/annum and an average temperature of 16.7°C. The area has moderately wet winters and dry, warm summers. In the winter months, May through August, cold fronts sweep across the Atlantic and bombard Cape Town with rain and the north-west gales. The winters are cool with an average minimum

temperature of about 7° C. Most of the rainfall occurs in winter, but due to the topography, the rainfall varies quite dramatically. In the valleys and coastal plains it averages 500mm per year, while in the mountainous areas it can average as much as 1500mm a year.

The meteorological depressions that typically bring rain to this area during winter move past to the south of the area (and the land mass) during summer; resulting in long dry spells.

Geo-hydrology

Cape Town has a footprint of over 300km coastline. The rivers in the CCT are relatively small. Some rivers worth mentioning are the Salt-, the Dieppe-, the Black-, the East-, Quills-, Moderate- and Lorenz rivers. The rivers, which are utilised as water sources, lie mostly outside of the CCT. These are the tributaries to the Berg River namely the Wolwekloof and Banhoek tributaries, Sonderend-, Palmiet-, Klein Berg- and Leeu rivers. Of these, the Berg River that flows in a northerly and later westerly direction is by far the largest.

The major dams that supplies the CCT are situated outside (except for the Steenbras Upper and the Steenbras Lower Dams) the mountainous eastern perimeter of the area:

- The Theewaterskloof dam near Villiersdorp is the major water source of the CCT and forms part of a large inter-basin water transfer scheme that regulates the flow from the Sonderend-, Berg- and Eerste rivers.
- The Voëlvlei dam is the furthest north near Gouda and relies on diversion works in the Klein Berg, Leeu and 24 Rivers for its water supply.
- The Wemmershoek dam is situated in the mountains near Franschhoek and is supplied from various small rivers in the Wemmershoek Mountains (e.g. Tierkloof- and Olifants rivers).
- The Steenbras Upper dam and Steenbras Lower dam are situated in the Hottentots-Holland mountain range near Gordon's Bay, and serve a dual purpose of providing an upper reservoir for the Steenbras Pumped Storage Scheme and for supplying water for domestic/industrial use.
- The Berg River Dam is located in the upper reaches of the Berg River near Franschhoek.
- Other smaller dams include the dams on Table Mountain (Woodhead, Hely Hutchinson, De Villiers, Victoria and Alexandra) which are used to supply water to the southern suburbs and the Peninsula, and the dams at Simons Town (Kleinplaats and Lewis Gay) which provide water to the Peninsula.

The CCT is the economic hub and capital of the province as well as the legislative capital of South Africa, where the national parliament and many government offices are located. Being the oldest City in South Africa, it is affectionately known as 'The Mother City'.

CHAPTER 3

3. DEMOGRAPHICS

Population Projections for Cape Town from 2017 to 2040

Cape Town currently has the second-largest population of all cities in South Africa, with an estimated 4.976 million residents in 2024 (Statistics SA, Mid Year Population Estimates 2024). The city has seen steady population growth over the years, albeit at a slowing annual growth rate: decreasing from an average annual growth rate of 2.3% from 2003-2012 to 2.1% from 2013-2022. In 2024, Cape Town is estimated to make up 65.8% of the population in the Western Cape (Statistics SA, Mid Year Population Estimates 2024).

The table below shows a summary of the population projections for Cape Town (CCT, 2018) and each of the four service delivery areas (SDA). Updated projections should be available during the course of 2025 projecting the city's population up to 2050.

Table 1 : Population projections 2018

Year	Cape Town	SDA: North	SDA: East	SDA: Central	SDA: South
2016	4,004,983	946,172	1,040,530	1,018,544	999,737
2017	4,087,318	964,007	1,064,298	1,038,943	1,020,070
2018	4,169,427	981,675	1,088,049	1,059,357	1,040,346
2019	4,251,227	999,149	1,111,772	1,079,760	1,060,546
2020	4,332,656	1,016,418	1,135,460	1,100,131	1,080,647
2021	4,413,593	1,033,454	1,159,072	1,120,445	1,100,622
2022	4,494,004	1,050,236	1,182,613	1,140,693	1,120,462
2023	4,573,925	1,066,751	1,206,108	1,160,883	1,140,183
2024	4,653,398	1,083,014	1,229,575	1,181,013	1,159,796
2025	4,732,476	1,099,067	1,253,027	1,201,076	1,179,307
2026	4,811,070	1,114,906	1,276,430	1,221,046	1,198,688
2027	4,889,156	1,130,527	1,299,786	1,240,913	1,217,930
2028	4,966,761	1,145,939	1,323,105	1,260,673	1,237,045
2029	5,043,910	1,161,153	1,346,387	1,280,319	1,256,051
2030	5,120,572	1,176,183	1,369,619	1,299,830	1,274,940
2031	5,196,580	1,191,002	1,392,758	1,319,159	1,293,661
2032	5,271,867	1,205,603	1,415,777	1,338,295	1,312,192
2033	5,346,400	1,219,990	1,438,641	1,357,235	1,330,533
2034	5,420,203	1,234,179	1,461,342	1,375,985	1,348,696
2035	5,493,219	1,248,166	1,483,858	1,394,524	1,366,670
2036	5,565,281	1,261,915	1,506,152	1,412,803	1,384,412
2037	5,636,363	1,275,432	1,528,203	1,430,818	1,401,910
2038	5,706,433	1,288,715	1,549,977	1,448,577	1,419,163
2039	5,775,484	1,301,768	1,571,462	1,466,085	1,436,170
2040	5,843,462	1,314,576	1,59,2637	1,483,328	1,452,921

Projected population figures for Cape Town and its four area-based service delivery areas were produced for the years from 2017 to 2040. The results show that the population of Cape Town as a whole is expected to grow from approximately 4.00 million

individuals in 2016 to approximately 5.84 million individuals in 2040, which represents an average annual increase in the population of 1.59% and of approximately 1.84 million individuals over the whole period.

It should be noted that the total estimated population according to the CCT Land Use Model (LUM) 2040 (completed in August 2020) is somewhat higher than the official CCT Population Projection estimate. The LUM population estimate of 6.085 million population by 2040¹ is useful in conjunction with the official population projections, and can be used, in the interim. The LUM is also in the process of being updated during 2025.

The rate of growth in the population of Cape Town and its four service delivery areas differ considerably as mortality, fertility and migration rates differ across the areas. See Table 2 for the annual growth rates for Cape Town and each of the service delivery areas (CCT, 2018).

Table 2 : Annual growth rates

Year	Cape Town	SDA: North	SDA: East	SDA: Central	SDA: South
2017	2.1%	1.9%	2.3%	2.0%	2.0%
2018	2.0%	1.8%	2.2%	2.0%	2.0%
2019	2.0%	1.8%	2.2%	1.9%	1.9%
2020	1.9%	1.7%	2.1%	1.9%	1.9%
2021	1.9%	1.7%	2.1%	1.8%	1.8%
2022	1.8%	1.6%	2.0%	1.8%	1.8%
2023	1.8%	1.6%	2.0%	1.8%	1.8%
2024	1.7%	1.5%	1.9%	1.7%	1.7%
2025	1.7%	1.5%	1.9%	1.7%	1.7%
2026	1.7%	1.4%	1.9%	1.7%	1.6%
2027	1.6%	1.4%	1.8%	1.6%	1.6%
2028	1.6%	1.4%	1.8%	1.6%	1.6%
2029	1.6%	1.3%	1.8%	1.6%	1.5%
2030	1.5%	1.3%	1.7%	1.5%	1.5%
2031	1.5%	1.3%	1.7%	1.5%	1.5%
2032	1.4%	1.2%	1.7%	1.5%	1.4%
2033	1.4%	1.2%	1.6%	1.4%	1.4%
2034	1.4%	1.2%	1.6%	1.4%	1.4%
2035	1.3%	1.1%	1.5%	1.3%	1.3%
2036	1.3%	1.1%	1.5%	1.3%	1.3%
2037	1.3%	1.1%	1.5%	1.3%	1.3%
2038	1.2%	1.0%	1.4%	1.2%	1.2%
2039	1.2%	1.0%	1.4%	1.2%	1.2%
2040	1.2%	1.0%	1.3%	1.2%	1.2%

¹ Nevertheless, it should be noted that the LUM is a dwelling unit projection model, and not a population projection model, such as the City's Population Model (known as CPOP1) which is based on traditional and tested population projection methodologies.

Age profile

Figure 2: indicates how the age profile of Cape Town is projected to change over time, showing the age profile in 2016 and the projected age profiles for 2020, 2030 and 2040. From the population pyramids, it can be seen that Cape Town population is expected to experience significant aging over the next two decades. According to the Census 2022, we can see the broadening of the age profiles for ages' i.e. 25-29; 30-34; 35-39.

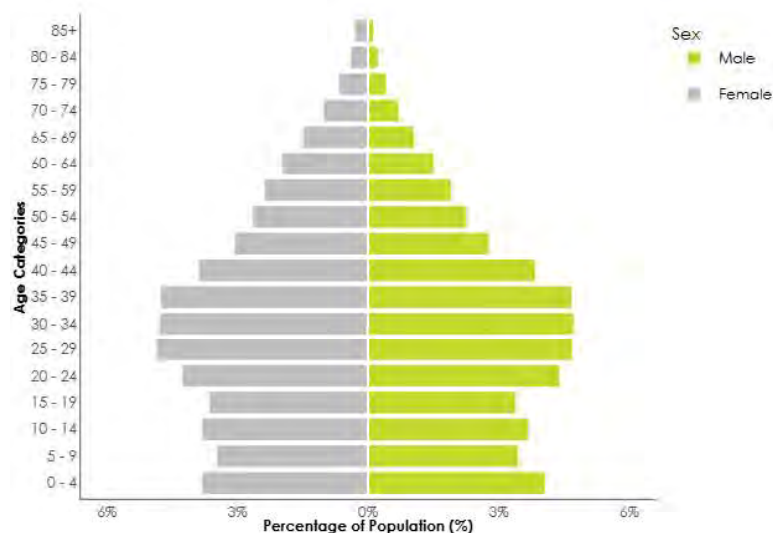
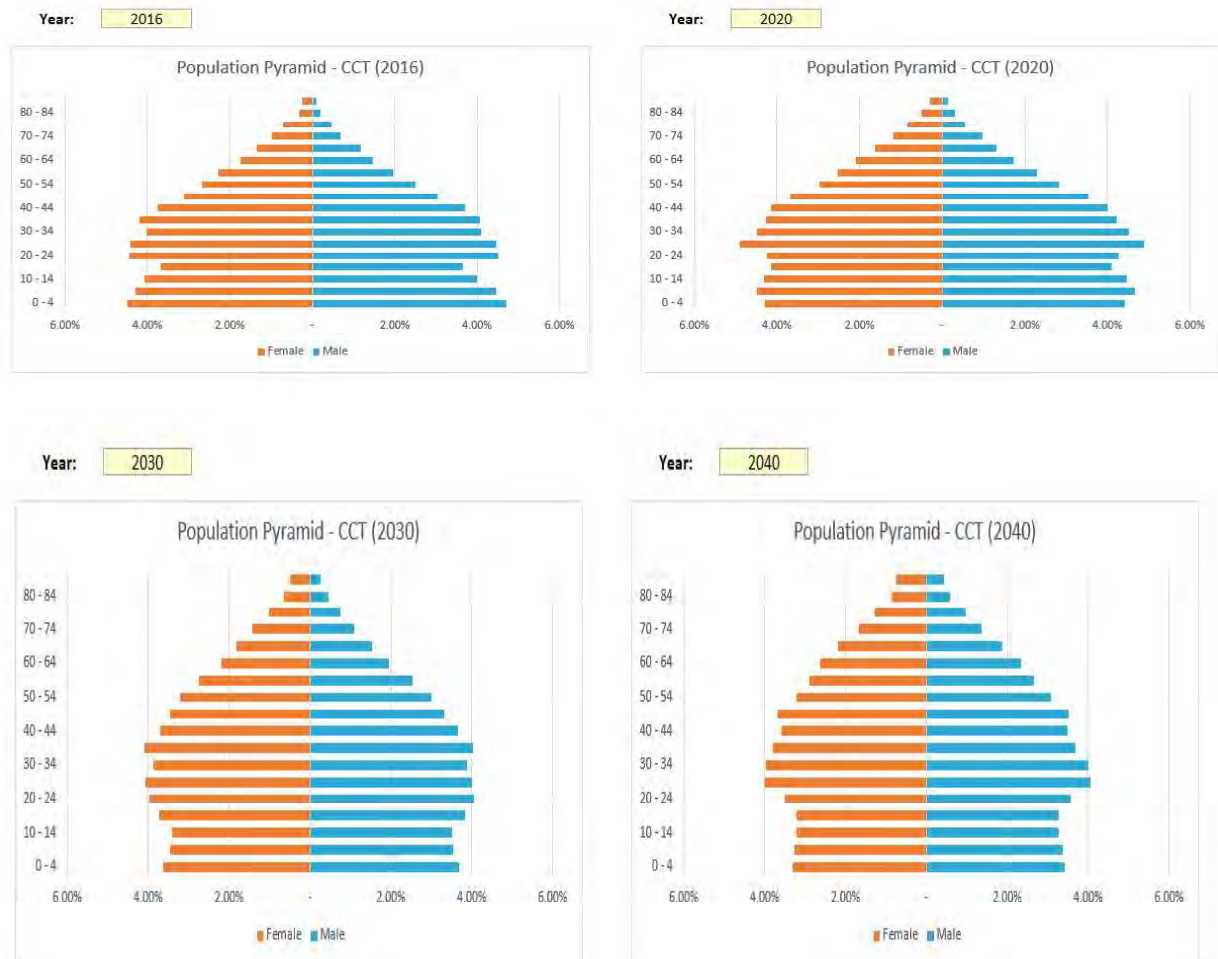


Figure 1: Age profile (CCT, 2018, Census 2022)

Cape Town population projection pyramids, (CCT, 2018, Census 2022)

According to Census 2022, 6.7% of Cape Town population was aged 65 years and older and this percentage is expected to increase to 12.0% by 2040. For those younger than 15 years, the percentage of the total population is expected to decrease from 22.4% in 2022 to 19.8% in 2040. Although the percentage of the population younger than 15 years is decreasing, the number of individuals in this age group is expected to increase by about 117 000 between 2016 and 2040

Spatial Module

Projections for sub-metropolitan regions face methodological challenges not commonly encountered at the level of urban systems. Demographic processes at sub-system scale are not only influenced by historical trends and household characteristics, but also spatial dynamics such as land availability and constraints, rates of informal settlement and backyarding growth and overcrowding.

A spatial module has been included in the linear population projection model. This spatial adjustment module allows the re-apportion of projected citywide growth to sub-metropolitan catchments based on annual residential capacities per SDA as derived from inter-related spatial assumptions and policy decisions.

Population and household indicators

As at 2024, City of Cape Town had a population of 4 976 527 which amounted to approximately 1 508 038 households.

Table 3: Cape Town population figures (2024 Mid-Year Population Estimates, Statistics South Africa, Households from City derived calculations)

Issue	Number
Population	4 976 527
Households	1 508 038
Average Household Size	3.30

These households are living in different **housing circumstances**. The housing circumstances of households as at 2024 show that some 18.5% of households lived in informal dwellings, compared to 81.5%² in formal dwellings.

² City derived calculations using the Mid-Year Population Estimates 2024

Table 4: Cape Town dwelling type statistics (derived using the 2024 Mid-Year Population Estimates, Statistics South Africa)

Dwelling Type	Number	Percentage
Formal Dwelling	1 228 608	81.5%
Informal structure in backyard	95 808	6.4%
Informal structure NOT in backyard	183 622	12.2%
Total	1 508 038	100%

Household income

The largest proportion of households falls into the R3,501 - R10,000 income bracket at 31.1% (see Figure 2A), indicating that this range encompasses a significant portion of the population. The second-largest category is the >R22,001 bracket at 30.0%, suggesting a substantial share of higher-income households. Lower-income brackets, such as R0 - R1,500 (8.3%) and R1,501 - R3,500 (9.3%), represent a smaller fraction of households, reflecting a decline in lower-income groups. The middle-income ranges, R10,001 - R15,000 (11.8%) and R15,001 - R22,000 (9.3%), account for more moderate portions. This highlights a relatively even distribution between middle and higher-income households, with a smaller share in the lowest brackets.

Figure 2B shows trends over the past nine years across the six household income brackets from 2013 to 2023. The lowest-income brackets (R0 - R1,500 and R1,501 - R3,500) show a general decline over time, indicating fewer households in these categories. The R3,501 - R10,000 and R10,001 - R15,000 brackets vary, suggesting a shifting middle-income group. The R15,001 - R22,000 category remains relatively stable but shows slight shifting, possibly due to economic conditions. The highest bracket (>R22,001) has an upward trend, with some volatility, suggesting an increasing number of households earning higher incomes. Overall, the data indicates a shift away from lower-income brackets toward higher-income groups.

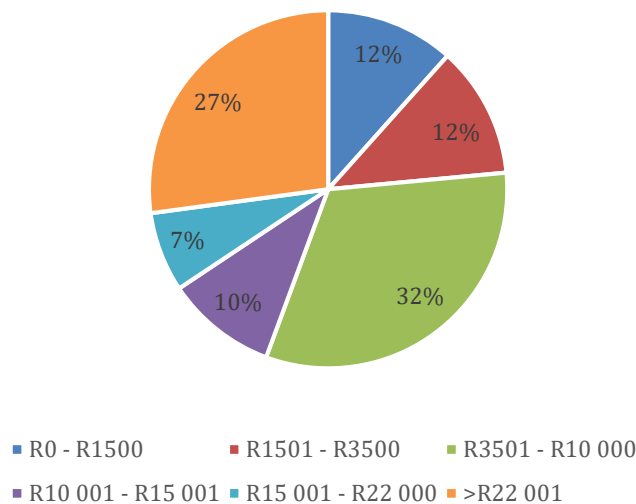


Figure 2A: Percentage distribution of Cape Town monthly household income, in Rands from the 2023 General Household Survey, Statistics South Africa

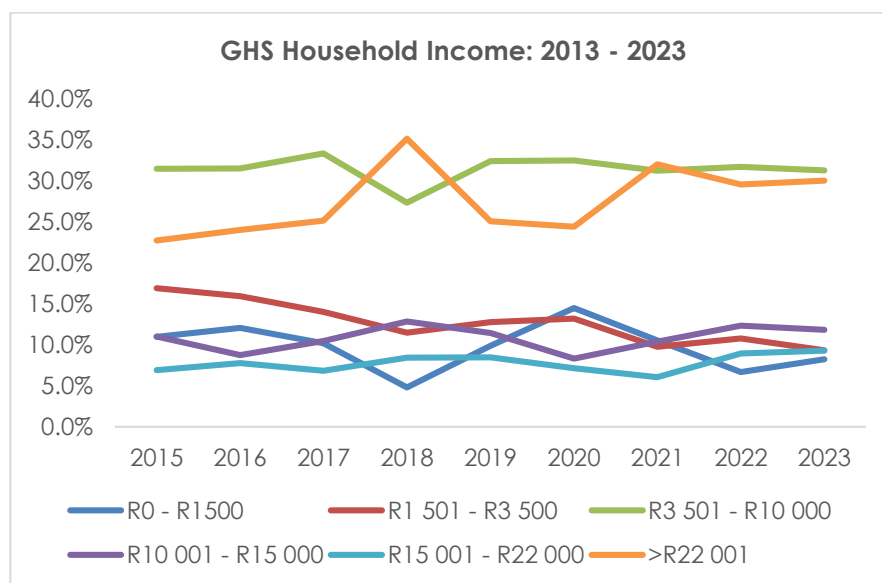


Figure 2B: GHS Household Income Trends

Employment and economic profile

The city generated a gross geographic product of around R697,9 billion in 2023 (current prices) and is the second largest urban economy in South Africa (see Figure 3 below).. Cape Town plays a significant role in the regional economy, making up 72% of the Western Cape GDP, and 10% of national GDP in 2023. At the sectoral level, Cape Town's finance and business services; community and personal services; and transport and communication sectors continued performance above pre-Covid-19 levels into 2024 Q3. The pandemic in 2020 resulted in the worst recession in Cape Town and the subsequent recovery has been hindered by increasing geo-political conflicts and risks to trade and

investment. Challenges to local growth include bottlenecks in the logistics sector, geopolitical tensions, volatility of the GNU and although electricity supply has improved, the threat of further electricity constraint. Notwithstanding these challenges, there are pockets of innovation including Cape Town's finance, real estate, technology, and business process outsourcing (BPO) sectors, as well as firms in the food value chain. Cape Town's diverse services sector dominates, making up 80,9% of the economy.

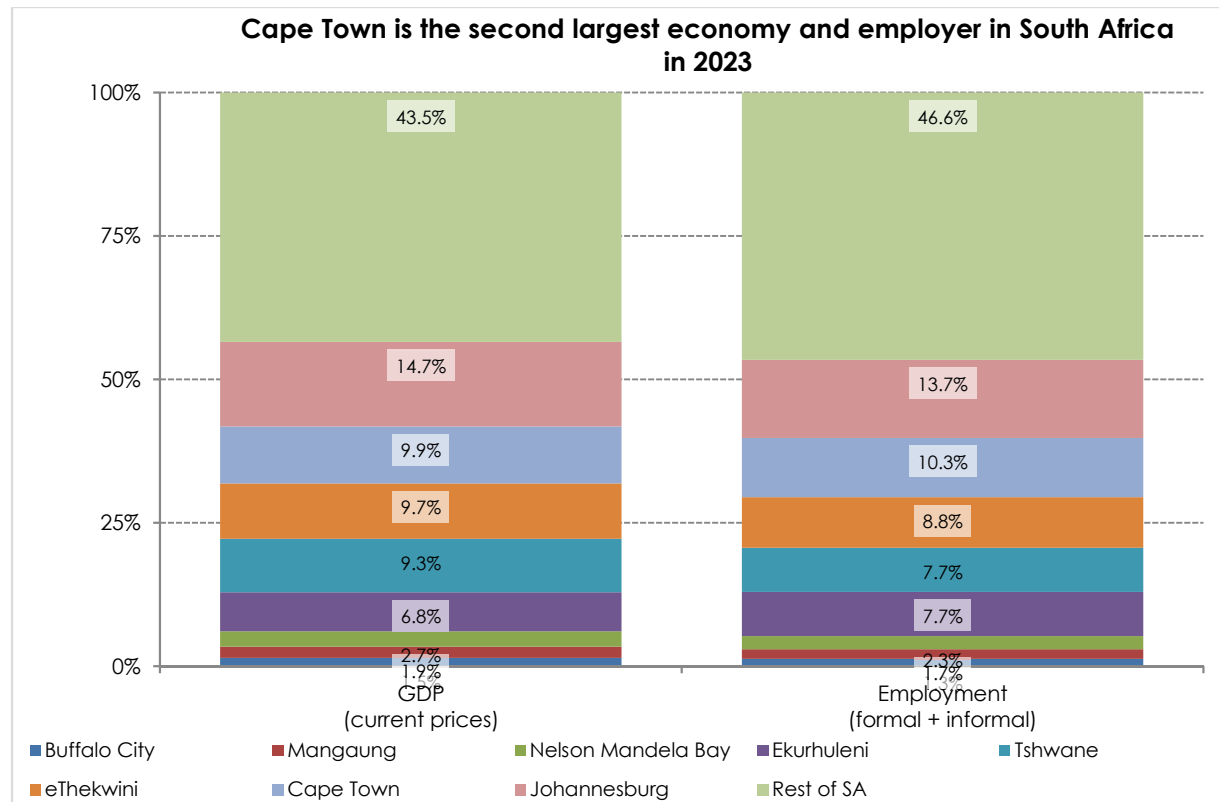


Figure 3 : A comparison of Cape Town GDP and total employment with other cities, 2023 (Source: South Africa Regional eXplorer, S&P Global, February 2025)

Economic growth at both a national and city level has struggled to keep pace with population growth. Cape Town economic growth was 2,9% in 2022 and dropped to 0,9% in 2023. Early expectations are for growth of 1,2% for 2024. Gross domestic product (GDP) per capita, which had been on a declining growth trajectory in the few years prior to the pandemic, declined to R120 301 in 2020 (current prices). Since then, Cape Town's GDP per capita has grown to R147 382 in 2023.

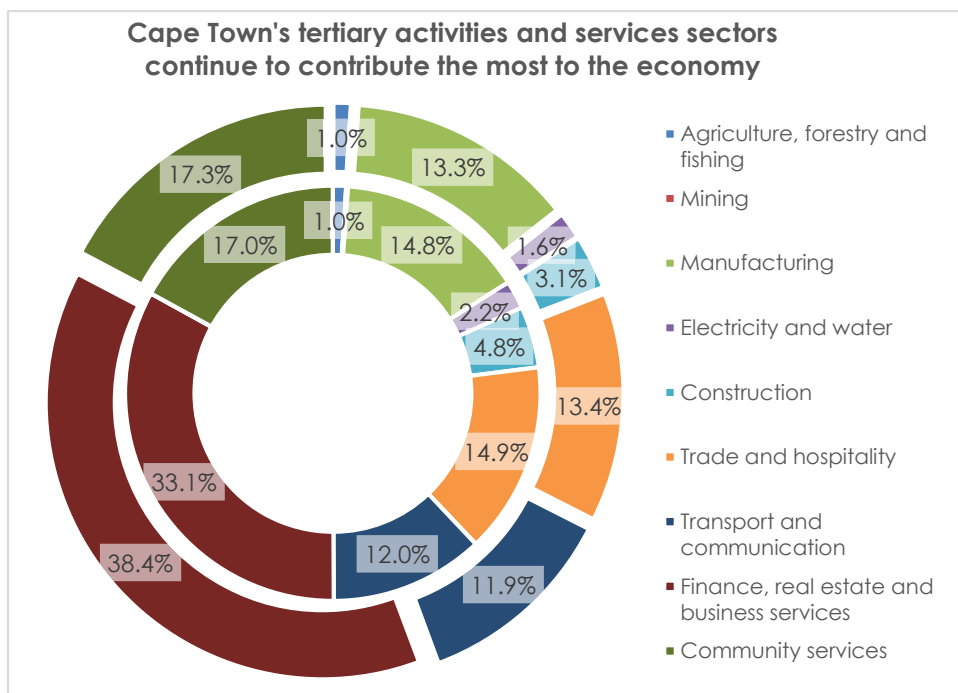


Figure 4: CT Sectoral GVA share, 2014 (inner) and 2023 (outer)³

The majority of sectors experienced a declining share of Gross Value Added (GVA) from 2014 compared to 2023, countered by increasing shares of the finance, real estate and business services (from 33,1% to 38,4%), as well as community services sectors (from 17,0% to 17,3%). Historically the lower GVA shares would not necessarily always equate to lower rand value produced by the sector. However, due to notably constrained growth in the last several years, five of Cape Town's sectors have declined in their rand value produced in 2023 when compared to their respective levels in 2014. The sectors that have increased in output over this period include the finance, real estate and business services; community services; transport and communication; and agriculture sectors. These trends further highlight the dominance and strength of tertiary activities in the local economy.

In 2014, the finance, real estate and business services led in GVA contribution (33,1%), while employment was driven by the trade and hospitality sector (21,6%). However by 2023, both GVA and employment were led by finance, real estate and business services contributing 38,4% and 22,2%, respectively. The disparity in their contribution to GVA as compared to employment highlights the sector's relatively low labour intensity. The notable change in ranking for the top employment contributor from trade and hospitality in 2014, to finance, real estate and business services in 2024, reflects shifts within the economy after experiencing setbacks like the drought and the Covid-19 pandemic.

³ Source: South Africa Regional eXplorer, 2025.

Employment and skills

Since 2021, the broad unemployment rate has been on a decreasing trend, indicating that Cape Town's labour market is recovering. Despite the shocks, Cape Town's broad unemployment rate has remained the lowest rate among metros. Cape Town's broad unemployment rate improved in 2023 (25,2%) as labour intensive industries related to tourism recovered, but rose slightly again in 2024 (25,8%).

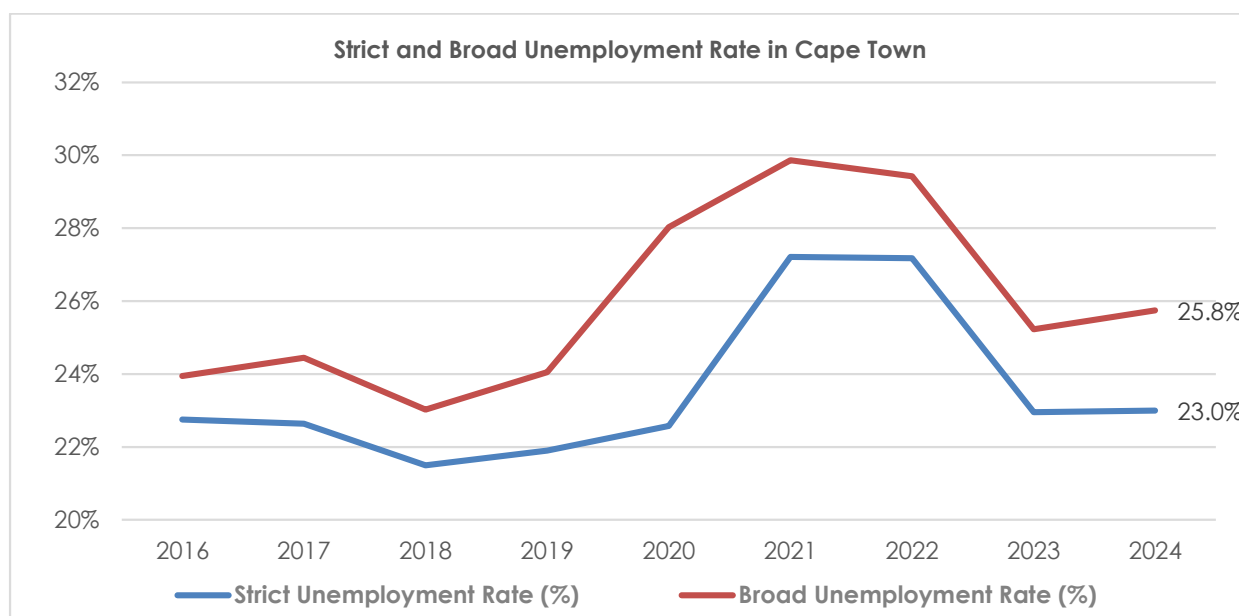


Figure 5: Unemployment rates for Cape Town, 2016-2024⁴

In 2024, 1,75 million individuals in Cape Town were employed, 525 062 were unemployed but searching, and another 38 628 were discouraged job seekers. The narrow youth (15-24 years old) unemployment rate increased to 48,2% in 2024, from 47,1% in 2023. While this remains lower than the youth unemployment rate for the country, it is still notably higher than in other developing countries. Of particular concern are the youth who are not in education, employment and training (NEET) of which there were 27,4% in 2024.

The Male contribution to employment (an average of 55%) consistently outweighs the female employment contribution (an average of 45%).

⁴ Source: Quarterly Labour Force Survey 2016-2024, Statistics South Africa. 2021 is an average of quarter 1 to quarter 3.

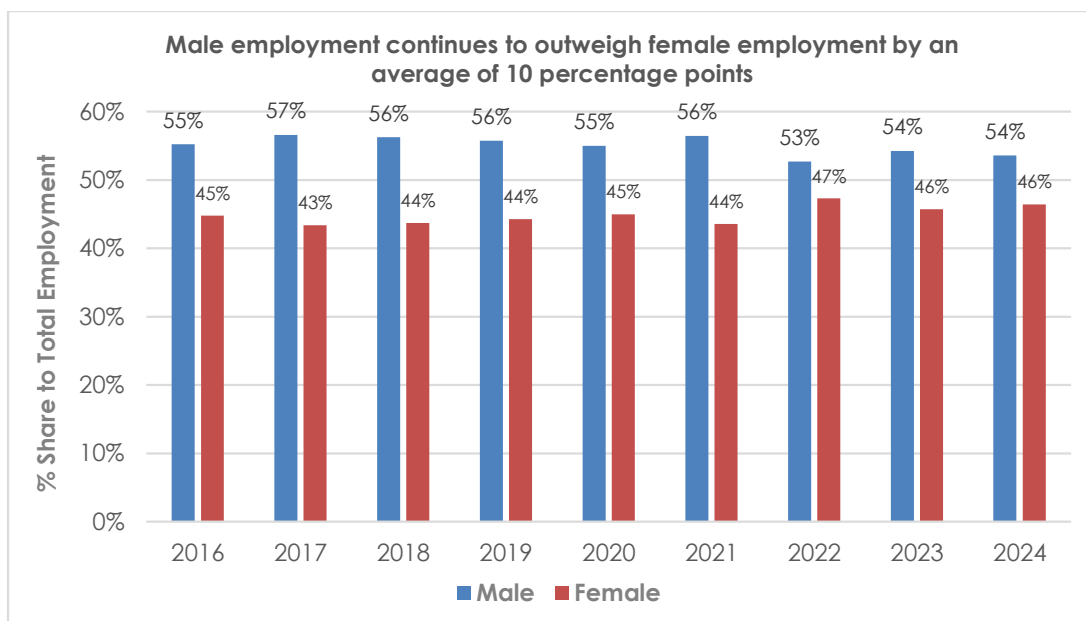


Figure 6: Employment Gender Gap in Cape Town, 2016-2024⁵

Informal employment contributes around 12,7% to total employment in Cape Town. Informal employment declined in 2024 to 223 712 individuals, from 232 413 individuals in 2021. Structural unemployment trends are also likely to persist as the demand for labour in the higher-skilled tertiary sectors and the supply of labour in the lower-skilled categories of the labour market remain mismatched.

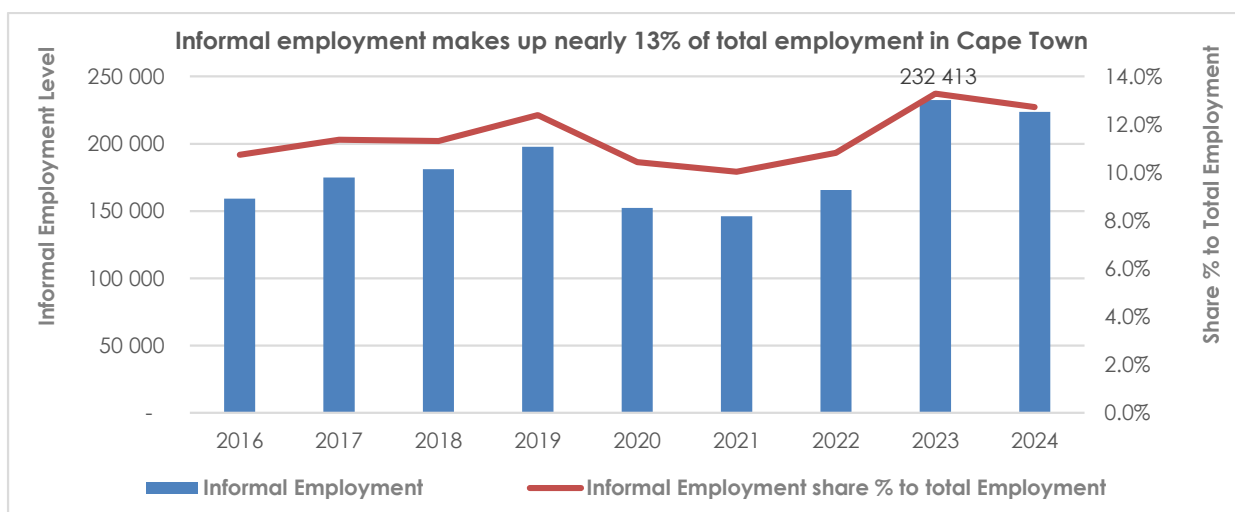


Figure 7: Informal sector employment in Cape Town, 2016-2024⁶

Projected trends

The tables below from the LUM 2040 project the number of new dwelling units projected to be developed across formal and informal sectors between 2020 and 2040. The City's

⁵ Source: Quarterly Labour Force Survey 2016-2024, Statistics South Africa.

⁶ Source: Quarterly Labour Force Survey 2016-2024, Statistics South Africa. 2021 is an average of quarter 1 to quarter 3.

projections suggest that 53% of new dwelling units developed between 2020 and 2040 will be informal, which amounts to an approximate 334 242 new informal dwellings over this period. Informal dwellings are broken into main dwellings (26.5% of all new dwellings), additional dwellings (19.7%), and multi-residential informal boarding house units (6.8%).

In comparison, a projected 47% of new dwellings units will be formal, amounting to an approximate 296 026 new dwellings over the period 2020 and 2040. Formal dwellings are broken into main dwellings (33% of all new dwellings), and additional dwellings (14%). This information suggests that the City needs to be proactively planning for informality – which has impacts in terms of land availability, provision of basic services, security of tenure, and other regulatory responses.

Table 5: Distribution of projected 2020 – 2040 dwelling unit growth across dwelling type

Market/Year		% of Total du at 2040	Estimated number of new dwelling units - Growth only	
			Total	Ave du/p.a. 2020 - 2040
All dwelling types	Formal main dwelling (Baseline Flat line Projections 2020 – 2040)	33.0%	208 053	9 907
	Additional dwelling formal	14.0%	87 973	4 189
	Informal main dwelling	26.5%	167 298	7 967
	Additional dwelling informal	19.7%	124 081	5 909
	Multi-residential informal boarding house unit	6.8%	42 863	2 041
	Grand Total	100%	630 268	30 013

Source: City of Cape Town, Policy and Strategy Department, Research Branch, **Projected Inputs to Support the City's future Land Use Model 2040 for Metropolitan Spatial Planning**, August 2020

CHAPTER 4

4. STRATEGIC INTENT

Vision

The vision for the Strategy is to deliver a clean city for all, where residents and businesses have access to quality, sustainable, and affordable waste services.

4.1 Alignment with Waste Strategy

Key principles underpinning the Strategic Framework:

Quality: Excellent Waste Services are delivered. **Sustainability:** Waste services are managed in a way that ensures environmental and financial sustainability of the City and service providers. **Affordability:** Residents ability to pay without compromising other needs

The Sector Plan aligns with the following Waste Strategy Pillars:

1. Optimising existing services,
2. Minimising waste produced,
3. Maximising basket of service offering

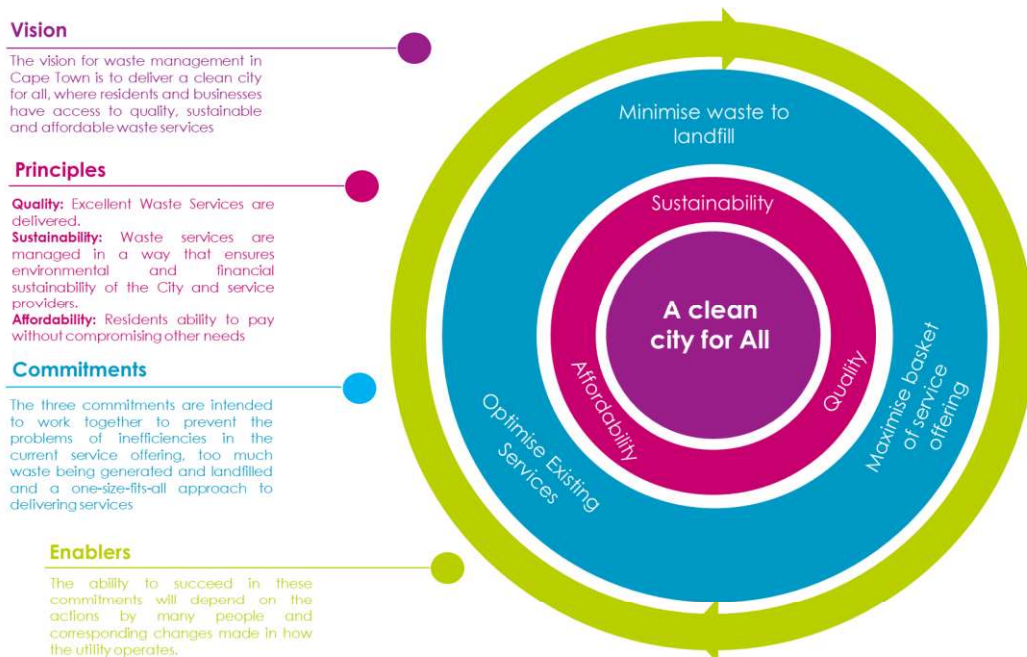


Figure 8: Waste Strategy 2024

4.2 Strategic Deliverables

Urban Waste Directorate identified twelve (11) strategic deliverables in line with the waste strategy

1. Optimising existing services

- 1.1. Accelerate infrastructure development and regulatory amendments to fast-track diversion (Mini-MRF's at larger drop-offs or free standing MRF's
- 1.2. Revisiting the funding and tariff model in collaboration with Corporate Finance to address the high levels of cross subsidisation among the various functions and across the municipality.
- 1.3. Develop and implement a city Cleanliness Index in collaboration with other City directorates.
- 1.4. Assess the viability of historic and closed landfill sites for alternative waste treatment

2. Minimising waste produced

- 2.1. Aim to meet National and Provincial waste diversion targets .
- 2.2. Collaborate with City directorates/departments and external stakeholders in the development and implementation of a Circular Economy Action Plan (cross cutting intervention throughout the City).
- 2.3. Ensure aggressive communication and marketing campaigns:

3. Maximising basket of service offering

- 3.1. Develop UWM capacity, resources, technology and infrastructure to meet growth, the changing environment and legislative imperatives
- 3.2. To manage greenhouse emissions from the City's waste management activities and facilities
- 3.3. Finalise policy for servicing backyarders and accelerate the rollout of weekly refuse collection services to backyarders
- 3.4. To research and consider innovative solutions for waste management

4.3 Resilience Factors

Key resilience challenges related to UWM operations are summarised in the table below.

Table 6: Key Resilience Challenges

Main resilience factors	Related factors (if relevant)	Comments and questions
-------------------------	-------------------------------	------------------------

Policy & regulatory uncertainty	Compliance with national legislative requirements puts a burden on the City and ratepayers.	Local government realities not fully considered by national government. Some waste-related targets are aspirational and not fully realizable; unfunded mandates; This is about obtaining the right balance between what government must do and what the private sector / households must do.
Rapid urbanisation	Subsequent increase in waste production / Informal settlements	Population is expected to grow at around 1.7% per annum. The Directorate needs to plan for the eventuality - when the expected growth is exceeded.
Informal settlements & backyards / Densification of human settlements	Illegal land occupation / Traffic congestion	Different business models for densely populated areas (including informal settlements) needs to be explored
Rapidly declining landfill space	Increase in waste production / regional inefficiencies / policy & regulatory uncertainty	At current waste generation rate, landfill airspace is projected to run out by 2036; extensive diversion measures and extending landfill foot print are the only measures that can effectively increase landfill airspace. The inclusion of a new landfill on all future scenarios of waste management is crucial.
Weak resource economy	Increase in waste production / Ineffective separation at source	The global market for recyclables / re-use has collapsed in recent past; no significant local / regional market for resources; investment in operations / infrastructure for alternative pathways other than landfilling comes with risk if insignificant market.
Poverty & inequality / Unemployment / Insecure municipal finances	Economic crisis / Crime & violence	These factors impact revenue raising ability; Poverty levels affect the number of non-paying customers; While unemployment moves within a narrow band

4.4 IDP Alignment: New Term of Office

The Sector Plan / IWM Plan aligns with National and Provincial plans and policies. It also aligns with the City's Integrated Development Plan (IDP), endorsing the priorities, foundations and objectives for the new term of office as depicted in the table below

Table 7: IDP Alignment: New Term of Office

WASTE STRATEGY PILLARS	CITY - IDP	PROVINCIAL/ GOALS NATIONAL
Maximising basket of service offering Optimising existing services,	4. Well-managed and modernised infrastructure to support economic growth 4.1 Utility business model programme 4.1.B. Solid Waste – Business model reform Initiative (Waste Strategy)	WCIWMP Goal 2: Improved integrated waste management planning and implementation for efficient waste services and infrastructure, Goal 4: Improved compliance with environmental regulatory framework National Waste Management Strategy 2020 Pillar 2: Effective and sustainable waste services Pillar 3: Compliance, enforcement and awareness
Optimising existing services, Maximising basket of service offering	2. Improved access to quality and reliable basic services 2.1 Mainstreaming basic service delivery to informal settlements and backyard dwellings programme 2.1.C. Informal settlements waste collection project 2.1.F Backyard dwelling service support project (private properties) 4.7 Promoting cleanliness and addressing illegal dumping 4.7.A. Area cleaning project 4.7.B. Public awareness and partnerships initiative	WCIWMP Goal 2: Improved integrated waste management planning and implementation for efficient waste services and infrastructure, National Waste Management Strategy 2020 Pillar 2: effective and sustainable waste services

	4.7.C. Illegal dumping monitoring and enforcement initiative	
Minimising waste produced	4.6 Waste minimisation and recycling programme 4.6.A. Integrated waste management facilities initiative 4.6.B. Waste minimisation for a circular economy initiative	WCIWMP Goal 1: Strengthened education, capacity and advocacy towards Integrated Waste Management Goal 3: Effective and efficient utilisation of resources National Waste Management Strategy 2020 Pillar 1: Waste Minimisation NDP 2030 : Objectives Achieve the peak, plateau and decline trajectory for greenhouse gas emissions, with peak being reached by 2025 Absolute reduction in the total volume of waste disposed to landfill each year. Supporting action point 33 to stimulate renewable energy and waste recycling

Urban Waste Integrated Waste Management Policy and Bylaw.

Furthermore, the principles, service levels and standards for waste management are contained in the City's IWM policy. The overarching policy objectives are:

- to ensure basic waste management services to all residents,
- to reduce waste that is landfilled,
- to conserve resources and the environment,
- to clear illegally disposed waste, and
- to reduce the impacts of waste on the health, well-being and environment.

The service levels and payment of waste management services is in accordance with the tariff information contained in the City's Tariff Schedule, which is reviewed and adopted by Council at the same time as the Integrated Development Plan (IDP) and the IWM Plan.

City's IWM By-law, for the regulation of waste management activities, is aligned with National imperatives (NWMS), and was adopted by Council (resolution C15/03/09), and promulgated in August 2009. This is the first comprehensive waste management by-law aligned to the objectives of the National Waste Act. The by-law was subsequently amended to align with administrative, legal and juristic requirements in 2010 and the most recent amendment and promulgation was in June 2016.

City Strategies and Policies

The UWM role in, and ability to contribute towards, key CCT strategies and plans such as the MSDP, Resilience Strategy and others is summarised as follows

The UWM Sector Plan adopts and endorses the corporate strategies and plans, such as:

City of Cape Town Municipal Spatial Development Framework

- It supports and informs our waste management investment decisions where it affects the spatial form of the City.
- It reflects the spatial vision of the City.
- It allows for integrated planning and design for waste infrastructure to ensure our ability to provide basic services.

Draft Energy Strategy

The City is considering a number of options to use energy from waste. These include waste/sewerage to methane gas, waste-to-energy, and co-generation. The recovery of landfill, organic waste and wastewater treatment plant methane is of added significance given that methane is a major contributor to the carbon emissions from City-owned facilities.

Economic Growth Strategy

Enterprise and investment, catalytic sectors for funding and business support for waste projects.

Climate change Strategy

Energy and climate change. Implementation of projects / measures for the mitigation of climate change because of waste on the environment.

The City will aim to reduce Cape Town's carbon footprint in order to contribute to the global reduction of greenhouse gas emissions and make the local economy more competitive. This

will be done through the implementation of a range of carbon emission reduction projects in line with the aims of the Energy 2040 goals.

The City will aim to further enable the re-use or recycling of waste materials into economic resources, at the same time reducing waste to landfill, and contributing to a resource-efficient economy by continuing to implement various waste minimisation and recycling projects across the city.

Waste and the Circular Economy: Recovering and deriving value from Cape Town's waste stream is a key element in the shift towards a circular economy, with multiple co-benefits with respect to cleanliness of the city, and reduced littering and illegal dumping. Improved resource efficiency through material recycling, reduced waste, and diversion of organic waste from landfill to productive uses will be combined to reduce greenhouse gas emissions. In order to address this challenge, the City commits to working towards achieving the following goals within this strategic focus area:

- Goal 22: Develop and implement a sustainable waste management strategy that is financially feasible, and maximises material efficiency by prioritising waste avoidance, reduction, treatment and recycling in line with provincial targets
- Goal 23: Reduce organic waste disposal to landfill by 50% by 2030 and 100% by 2050 through better waste separation, treatment and utilisation
- Goal 24: Increase diversion of recyclables from disposal to landfill by 40% by 2030 and 85% by 2050 through improved collection, waste separation, and providing support to informal workers
- Goal 25: Reduce the climate and environmental impact of disposal facilities by increasing landfill gas collection efficiency, treatment and utilisation

Comprehensive integrated Transport Plan

Planning for efficient transportation of waste through road and rail. Management of waste generated during road constructions.

Environmental Strategy

This aligns with the NEMA principle of ensuring that waste generation is minimised or managed in a manner that does not pollute the environment. In addition to the provision of basic services, recycling services are widely available, large scale composting of garden waste is in place, and waste diversion is optimised.

Water Strategy

Stormwater management and wastewater treatment has a direct impact on the management of waste e.g. disposal of sewage sludge, river and canal management and

cleaning.

Integrated Human Settlements Sector Plan

The provision of integrated waste management services to settlements through identification of suitable waste service mechanisms and development of waste infrastructure.

Resilience Strategy

Planning for waste services to include existing shocks and stress that impacts the service. This include climate change, rapid urbanisation, rapidly declining landfill space and weak resource economy

CHAPTER 5

5. PUBLIC PARTICIPATION

The public participation process for the 4th generation IWMP was conducted in terms of section 17 of the Local Government: Municipal Systems Act, Act 32 of 2000. In alignment with the prescribed legislation, the stakeholder engagement process for draft 4th generation IWMP was implemented as follows;

1. Collaboration Platform

The City of Cape Town launched an online collaboration platform, where residents can share ideas about specific challenges the City is facing.

The public was requested to join the platform by registering using these steps on their digital device (mobile phone; tablet or desktop):

- Enter this link into your Internet browser: <https://www.capetown.gov.za/ideas>
- Register on the platform using your email address;
- Create your profile by providing a username and password (you can submit input anonymously);

After successfully registering, members were able to navigate to the topic: Comment on the City's draft 2022-2027 water and waste sector plans and submit feedback on these draft plans.

2. Have your say

Comments, input or recommendations were submitted on these plans from

- E-mail: wsw.plans@capetown.gov.za
- Online: www.capetown.gov.za/haveyoursay
- Post: Service Integration Office, Water & Waste Services Directorate, 9th Floor, 2-Bay, Tower Block, Civic Centre, 12 Hertzog Boulevard, Foreshore, Cape Town, 8001 for attention David Paulse
- Hand: At your nearest Sub council Office

3. The draft IWM Plan was also advertised in the regional and local community newspapers (Argus, Burger and all community newspapers).
[capetown.gov.za/Media-and-news/Have your say on draft water services and waste management sector plans](http://capetown.gov.za/Media-and-news/Have_your_say_on_draft_water_services_and_waste_management_sector_plans)

4. Key stakeholders were notified via email to submit their comments and inputs.

CHAPTER 6

6. LEGISLATIVE REQUIREMENT AND BACKGROUND TO CCT WASTE SECTOR PLAN

6.1 National, provincial and by-law analysis

Legislation, government policy, national strategies and protocols, and the City's institutional and regulatory framework have a direct bearing on the sustainable, affordable and equitable provision of waste services in Cape Town. This includes, but is not restricted to the following:

- Constitution of the Republic of South Africa, 1996; Chapter 2 Bill of Rights and Schedule 5B, and MSA provisions requiring local government to ensure provision of waste management services.
- Constitution, s.24: The right of everyone to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.
- National Environmental Management Act, 1998 (Act No. 107 of 1998)
The NEMA principles are cornerstones to the development of the Specific Environmental Management Acts. In the Waste space, the service is underpinned by the following principle: that waste is avoided or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) as amended and related regulations. Some of which includes;
 - EPR regulation - Producers to take responsibility for their products beyond the consumer stage.
 - "The-polluter-pays" principle and responsibility of waste generators.
 - Waste Information Regulations
 - To regulate the collection of data and information.
- Norms and Standards
 - Norms and Standard for storage of waste
 - Norms and standard for sorting, shredding, grinding, crushing, screening or baling of general waste
 - Norms and standard for treatment of organic waste
 - Norms and standard for organic waste compost
 - Norms and standard for disposal of waste to landfill
- Policies
 - National Policy in Thermal Treatment of General and Hazardous Waste (2009)
 - National Policy for the Provision of Basic Refuse Removal Services to Indigent Households (2011)

- The National Waste Management Strategy (2020) (NWMS) - The NWMS defines two key components to ensuring waste minimisation, which are also key drivers for the above circular economy, as follows:
 - Waste prevention (or waste avoidance) – avoiding the generation of waste and avoiding its toxicity;

Waste as a resource (or waste beneficiation) - Beneficiating waste through re-use, recycling, treatment and recovery to reduce the amount and the toxicity of waste disposed of.

NWMS ambitious targets are:

Table 8: National Waste Management Strategy goal

GOAL	SA: SHORT TERM TARGET (2025)	SA: MEDIUM TERM TARGET (2030)	SA: LONG TERM TARGET (2035)
Prevent waste, and where waste cannot be prevented, ensure that the following targeted percentages of waste is diverted from landfill , leading to zero waste going to landfill in future.	40% of waste diverted from landfill	55% of waste diverted from landfill	More than 70% of waste diverted from landfill

- Legislation, which regulates the development and operation of waste facilities, includes;
 - Environment Conservation Act, 1989 (Act No. 73 of 1989)- Section 20
 - National Water Act, 1998 (Act No. 36 of 1998)
 - National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
- Legislation which regulates special waste streams;
 - Hazardous Substances Act, 1973 (Act No. 15 of 1973) and Regulations
 - National Health Act, 2003 (Act No. 61 of 2003)
- Legislation related to establishment, functions and mandate of local government.
 - Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000)
 - Defines basic municipal service as meaning “a municipal service that is necessary to ensure an acceptable and reasonable quality of life and, if not provided, would endanger public health or safety or the environment
 - Local Government: Municipal Structures Act, 1998 (Act No. 117 of 1998)
 - Local Government: Municipal Finance Management Act, 2003 (Act No. 56 of 2003)
- Other supporting legislation includes the following;
 - National Road Traffic Act, 1996 (Act No. 93 of 1996), for transportation of

- waste by road
- Second-Hand Goods Act, 2009 (Act No. 6 of 2009), reuse, recycling of used goods to combat theft
- Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and Regulations

Provincial legislation and policies

- Western Cape Health Care Waste Management Act, 2007 (Act No. 7 of 2007) includes responsibilities regarding health care waste management
- Hazardous Waste Management Plan (DEA&DP) (2006)
- Western Cape 2nd generation Integrated Waste Management Plan (2017)
- Provincial Waste Information System
- OneCape2040 (2013)
- Western Cape Government: Western Cape Green Economy Strategy Framework (2013)
- Western Cape Provincial Spatial Development Framework (SDF)

City By-laws and policies

- Integrated Waste Management By-law, 2009, as amended
- Environmental Health By-law, 2003
- Streets, Public Places and the Prevention of Noise Nuisances By-law, 2007
- Air Quality Management By-law, 2016
- Treated Effluent By-law, 2010 as amended
- Wastewater and Industrial Effluent By-law, 2013
- Environmental Management Strategy
- Economic Growth Strategy
- EPWP Policy
- Air Quality Management Policy
- Asset Management Policy
- Supply Chain Management Policy

CHAPTER 7

7. COMPLIANCE AND ENFORCEMENT

Compliance Audits

The monitoring systems used by the Urban Waste Directorate are governed by various legislation. The table below depicts audit requirements for the City's waste facilities and their compliance status.

Table 9: Audit requirements for waste facilities

Facility	Internal Audit Frequency Requirements	Internal Audit Average Percentage compliance with audit requirements (2023)	External Audit Frequency Requirements	External Audit Average Percentage compliance with audit requirements (2024)
ACTIVE SITES LANDFILL SITES				
Bellville South LFS	Bi-annual (twice a year)	88.49%	annually	82.87%
Coastal Park LFS	Quarterly	87.06%	annually	89.32%
Vissershok LFS	Monthly (11 months covered)	94.05%	quarterly	83.33%
CLOSED SITES				
Atlantis LFS	quarterly	97.84%	annually	98.85%
Brackenfell LFS	quarterly	88.68%	annually	92.50%
Faure LFS	quarterly	89.86%	annually	89.32%
Gordon's Bay LFS	quarterly	89.59%	bi-annually	95.39%
Kraaifontein LFS	quarterly	79.31%	annually	91.11%
Swartklip LFS	quarterly	94.42%	annually	93.43%
Table View LFS	quarterly	91.37%	bi-annually	75.83
Waterkloof LFS	quarterly	95.9%	annually	92.33%
HISTORIC SITES				
Fish Hoek LFS	bi- annually	91.94%	annually	95.69%
Macassar LFS	quarterly	95.25%	annually	80.97%
Mamre LFS	quarterly	96.77%	bi- annually	87.50%

Noordhoek LFS	quarterly	97.55%	annually	99.50%
Ocean View LFS	quarterly	90.07%	annually	91.19%
Radnor LFS	quarterly	99.32%	annually	93.33%
Sarepta LFS	Three times a year, conducted in January, July and November	87.89%	annually	96.00%
Simonstown LFS	quarterly	88.17%	annually	96.21%
Strand LFS	quarterly	99.3%	annually	96.25%
Witsand LFS	bi-annually	99.25%	biennially	90.72%
TRANSFER STATIONS				
Athlone RTS	quarterly	92.99%	annually	87.30%
Bellville RTS (Tygerberg IWMF)	quarterly	93.85%	bi-annually	87.73%
Kraaifontein IWMF	quarterly	89.78%	annually	94.22%
Swartklip RTS	quarterly	94.99%	annually	96.67%
DROP-OFFS				
Atlantis	quarterly	95.35%	biennially	94,62%
Killarney	quarterly	81.82%	biennially	95,77%
Welgelegen	quarterly	92.5%	biennially	92,56%
De Grendel	quarterly	82.05%	biennially	90,38%
Kensington	quarterly	84.72%	biennially	95,19%
Tygerdal	quarterly	95.35%	biennially	92,38%
Gordons Bay	quarterly	96.43%	biennially	94,03%
Delft	quarterly	93.42%	biennially	85,13%
Belhar	quarterly	95.23%	biennially	80,58%
Ravensmead	quarterly	93.42%	biennially	92,38%
Prince George Drive	quarterly	77.78%	biennially	Site commissioned June 2021

Wynberg	quarterly	95.24%	biennially	87,95%
Retreat	quarterly	76.47%	biennially	83,69%
Mitchells Plain	quarterly	83.78%	biennially	94,48%
Schaapkraal	quarterly	87.5%	biennially	82,92%
Induland	quarterly	73.8%	biennially	92,54%
Sea-Point	quarterly	94.44%	biennially	94,38%
Woodstock	quarterly	95.0%	biennially	86,86%
Kommetjie	quarterly	87.84%	biennially	93,54%
Simons Town	quarterly	94.05%	biennially	95,69%
Hout Bay	quarterly	95.86%	biennially	94,23%

CHAPTER 8

8. WASTE GENERATION AND COMPOSITION

Waste Quantities

The summarised waste quantities received at CCT Disposal Facilities over the past 6 financial years are presented in **Table 10**. The data distinguishes between waste landfilled and waste diverted for other uses. Builders' rubble and sand is typically stockpiled for use in temporary haul roads, daily cover and intermediate cover on slopes. Garden greens are chipped and beneficiated (typically to produce compost).

Table 10: Waste Managed by CCT

CITY OF CAPE TOWN WASTE STATISTICS	Total 21/22	Total 22/23	Total 23/24
	Tons	Tons	Tons
Waste Entering Disposal Facilities over Weighbridge			
General Waste	1 117 064	1 120 031	1 143 872
Hazardous Waste	4 024	6 546	19 051
Total Incoming General + Haz Waste Landfilled	1 121 088	1 126 576	1 162 923
Builders rubble entering landfill sites to be chipped	434 411	416 430	611 874
Garden Greens entering Landfill sites to be chipped	17 778	8 737	7 464
Total Incoming Waste sent for Builders Rubble Stockpile or Garden Greens Chipping	452 189	425 167	619 339
Total Incoming Waste (Tons)	1 573 277	1 551 744	1 782 262
Total Waste Diverted from Landfill	362 371	317 547	647 606
Total Waste Managed	1 695 776	1 656 704	

% Waste Minimisation (based on Council activities and disposal sites)	21.37%	19.17%	31.82%
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The waste data analysis found the following:

- The mass of general waste disposed to landfill at all CCT facilities in the past 6 financial years has remained consistent, with an annual average over this period of 1.15 million tonnes.
- 73% of waste received at landfill was Municipal Solid Waste (MSW) (2019), with 20% being inert.
- Based on household waste characterisation (2024 Winter Waste Charect characterisation), MSW comprises 33% recyclables by mass and 29% organic waste by mass (important for impact of future diversion scenarios).

Other waste streams generated within the City

Agricultural waste

Agricultural land is generally serviced by the private sector as per the integrated management principles and standards of the CCTs Integrated Waste Management Policy.

Sewage sludge

This IWM Policy excludes waste originating from sanitation systems, for which there are separate National and City policies, but makes provision for the disposal of treated sewage sludge's of an acceptable quality that will minimise the impact on the environment, as determined by separate guidelines from time-to-time.

Waste Tyre

The current waste tyre management system as provided for in the Waste Tyres Regulations (2024), enforced by DFFE is regrettably, after many years, still not curbing the ongoing illegal dumping of tyres. The City of Cape Town, as a responsible local authority, continue to collect illegally disposed tyres. Failing to do so, we have experienced, attract further dumping, which not only result in unpleasant visual cleansing nuisances, but also cause both fire and environmental risks. The waste tyre is prohibited from being landfilled like any other general waste as promulgated in the NEM:WA, National Norms and Standard for disposal of waste to Landfill Chapter 2, Section 5 (i) (o) and (p).

Currently the City is compelled to store these collected waste tyres at City drop-off sites, but only as a temporary measure. The Waste Tyre Regulations of 2024, promulgated on 20 March 2024, is clear on the management of waste tyres and the roles of relevant stakeholders in the value chain.

Household hazardous Waste

The NWMS target is to decrease landfilling of HHW by 10% by 2024. HHW is a relatively small waste stream and although there are varying levels of net benefits between municipalities. City of Cape Town has developed two drop-off facilities that are dedicated to HHW.

Health care risk waste

Specialized waste collection and related services and infrastructure for industrial and hazardous waste are currently not provided by the City of Cape Town, but by private accredited waste service providers due to specialized facilities and infrastructure requirements not normally provided or maintained by the City.

These services aim at industrial and health care service sectors (including veterinary services) that generate hazardous waste of various categories, which requires special handling, transport and treatment before disposal. Industries have the responsibility to contract with an accredited service provider for the management of these waste streams.

CHAPTER 9

9. WASTE AVOIDANCE, REDUCTION AND RECYCLING

Approximately 31.8% of waste in the system was diverted from landfill in 2023/24. Builder's rubble accounted for about 19% of this diversion followed by greens (6%) and Think Twice (Include drop off and City Initiatives) (7%).

Table 11: Waste Diversion

CITY OF CAPE TOWN WASTE STATISTICS	Total 17/18	Total 18/19	Total 19/20	Total 20/21	Total 21/22	Total 22/23	Total 23/24
Waste Minimisation Programmes	Tons	Tons	Tons	Tons	Tons	Tons	Tons
Bellville South Compost	9782	1971	333	742	0	0	0
Drop-off Facilities (Recyclables)	5 812	5 752	4 754	5 977	5 565	5 500	5 398
Athlone Refuse Transfer Station (Recyclables - Dirty MRF)		0	0	0	0	0	69
Builders Rubble reused	316 809	246 689	116 999	123 545	222 094	203 849	387 376
Chipping of Garden Greens at Drop-off Facilities	97 875	69 849	16 509	11 780	52 596	53 132	73 080
Chipping of Garden Greens Disposal Facilities	59 409	35 647	28 314	41 297	51 940	41 959	43 994
Sea/Green/Mouille Point Three Anchor Bay (Think Twice)	1 922	1 611	1 262	1 739	1 698	1 708	1 889
Atlantic Area (Think Twice)	2 607	2 678	1 281	3 905	4 129	2 254	1 621
Helderberg Area (Think Twice)	0	0	0	0	3 728	2 672	2 455
Kraaifontein IWMF (Think Twice)	16 021	14 601	15 735	25 007	18 250	4 532	15 904
Deep South Area (Think Twice)	1 388	1 497	1 657	2 284	2 196	1 704	2 030

CITY OF CAPE TOWN WASTE STATISTICS	Total 17/18	Total 18/19	Total 19/20	Total 20/21	Total 21/22	Total 22/23	Total 23/24
City Paper Project	158	132	90	84	50	73	101
Damaged Refuse Bins (Recycled plastic)	118	183	35	93	126	163	167
Organic Waste							112 473
Scrap Metal							1 050
Total Waste Diverted from Landfill	511 901	380 608	186 968	216 454	362 371	317 547	647 606
Total Waste Managed	2 640 830	1 671 874⁷	1 315 929	1 535 243	1 695 776	1 656 704	2 035 028
% Waste Minimisation (based on Council activities and disposal sites)	19.38%	22.77%	14.21%	14.10%	21.37%	19.17%	31.82%

CHAPTER 10

10. STATE OF ASSESSMENT

This Chapter provides an overview of the State of assessment for urban waste functions namely; Collections, Cleansing, Disposal, Drop –offs and Engineering & Asset Management (EAM).

10.1 Backlogs

Urban Waste Management backlogs are categorised as follows;

Investment Backlog:

This is experienced in the Disposal and Waste minimisation space where the development of waste infrastructure was delayed.

Development of Waste infrastructure

Significant delays were experienced with the authorisation of current landfill projects. This relates to the commenting authority who is the Department of Water and Sanitation. For any design approvals, this needs to be factored into the planning phase since there is no legislative timeframe that can assist to guide and allocate time to this process. Land reservation for City land is another process that the directorate will consider in the early stages of the project life cycle. This in particular has affected project implementation timelines of most of the drop off facilities that were planned for the next 10 years as per the table below.

Table 12: list of investment backlog projects

ID	Description	Planned Start	Actual Start	Reason for Backlog	Reason for project	Technical Category	Project Type	Investment Reason	IDP Priority
CPX.0007920	Vissershok North:Design and develop Airs	2023	2024	Significant delays with the approval of Vissershok designs by the National Department of Water and Sanitation.	Increase the City's landfill airspace to meet the future demand.	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
CPX.0011087	VHS: LFG Infrastructure - Beneficiation	2024	2025	This phase is delayed in the conclusion of the detailed design, as the current appointed professional consultants does not have the expertise to conclude this stage.	Extract Methane gas for flaring or electricity generation	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services

CPX.0010025	CPTS: Transfer Station New	2022	2024	With the delay in the construction of the Coastal Park Material recovery Facility on the same site, this project has been phased out.	This facility will allow for waste to still be disposed at Coastal Park landfill site and be transported to Vissershok landfill site	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
CPX.0014654	VHS: LFG Infr - Beneficiation (Phase 2)	2027	2028	This phase is dependent on the first phase, which has suffered delays.	Extract Methane gas for flaring or electricity generation	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
CPX.0003136	Purchase of Land Regional Landfill	2025	2028	Land still to be identified and procured. Feasibility study underway.	Secure long term for the development of landfill site for the City to meet future demand.	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
CPX.0003137	Dev of the Regional Landfill Site	2023	2029	This project is dependent on the purchasing	Increase the City's landfill airspace to meet the	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services

				of the landfill site	future demand.				
CPX.0023109	Vissershok North:Design&Dev Airs (Phase2)	2024	2025	This phase is dependent on the first phase, which has suffered delays.	Increase the City's landfill airspace to meet the future demand.	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services

10.2 Capacity and constraints

The table below depicts the existing capacity as determined by the consumption rate and demand. Depots undergo beat reviews annually, in collaboration with the GIS unit. These reviews may result in new beats being established, or existing beats expanding or changing. Factors that influence these decisions include: changes in density and population growth, beat proximity to depot, number of lifts. Required capacity is unknown at this stage. An investigation is currently underway to review current beats and determine additional capacity required, to be concluded by March 2024. Findings and related action items will be included in the next review of the sector plan.

The table below provides an overview of the available capacity within the directorate to provide waste services.

Table 13: Current capacity for waste services

SECTION	FUNCTION	CURRENT CAPACITY
Collections	Refuse collection	158 RELs Team collects 1000 – 1200 bins per day (beat) - 825 000 service points weekly
Cleansing	Litter Picking Street Cleaning Servicing of Informal Settlements Clearing of illegal dumping	Vehicles - 582
Disposal	Disposal Sites	Available airspace estimated to 14 years for the 2 disposal facilities
	Transfer Stations	Four Transfer Stations across the City. Utilisation lower than design capacity
Waste Minimisation	Drop offs	21 Drop offs – at 7km radius for the entire City, with the exception of the Somerset West area where the Macassar facility was decommissioned in the previous years.

Cleansing

The Cleansing Branch constitutes the largest number of personnel directly employed by the City as well as number of personnel appointed indirectly or directly via short-term projects. At present, the branch constitutes 1,628 permanent personnel, which are further supplemented by approximately 4,800 temporary personnel for short-term projects annually. The supplementing staffing is sourced through the Expanded Public Works Programme. The current human resources of the Cleansing Branch require a review in order to align it with the changing times and growth in services provision needs throughout the City.

Disposal

- The four RTS operational targets are currently lower than design capacities. Athlone in particular due to the constraint of the rail transport not being available.
- Although there are no capacity constraints at RTS plant availability is a challenge. Blue plant tender has addressed mechanical plant maintenance. Procurement of new containers as well as installing additional lines to increase capacity at RTS's is required. Since this is being created by downtime due to load shedding and traffic bottle necks which are unpredictable. Increased capacity will therefore need to be supported with additional capital programmes.
- The two operating landfill sites has a combined remaining airspace of 14 years. Capacity constraints at the landfill sites being reached in 2026 for Coastal Park and Vissershok in 2036 based on base case. In terms of operations, both operational landfills have adequate plant and equipment available for operations, however, equipment and fleet breakdowns impact operational efficiency. Both operational landfills are generally satisfactorily compacted and covered.

Drop-off facilities

- The City's Drop off facilities are generally placed within a 7km radius of any resident and caters for the whole City of Cape Town except for the Somerset West area where the Macassar Drop off was decommissioned. There has since been a strategic decision to progressively reduce the 7km radius to 3 km. As a result some of the areas fall outside the proposed 3km radius especially informal areas.
- To meet these demands, a tailored strategy and model for developing drop-offs in informal areas needs to be developed based on the types of waste generated, and waste collection and sorting processes. There is also a low proportion of drop-off sites in the formal low-income areas.
- This approach will address the lack of standardisation and the current disparities in the planning and development of Drop-off facilities. Figure 9 depicts the existing and planned drop-offs at 7km.

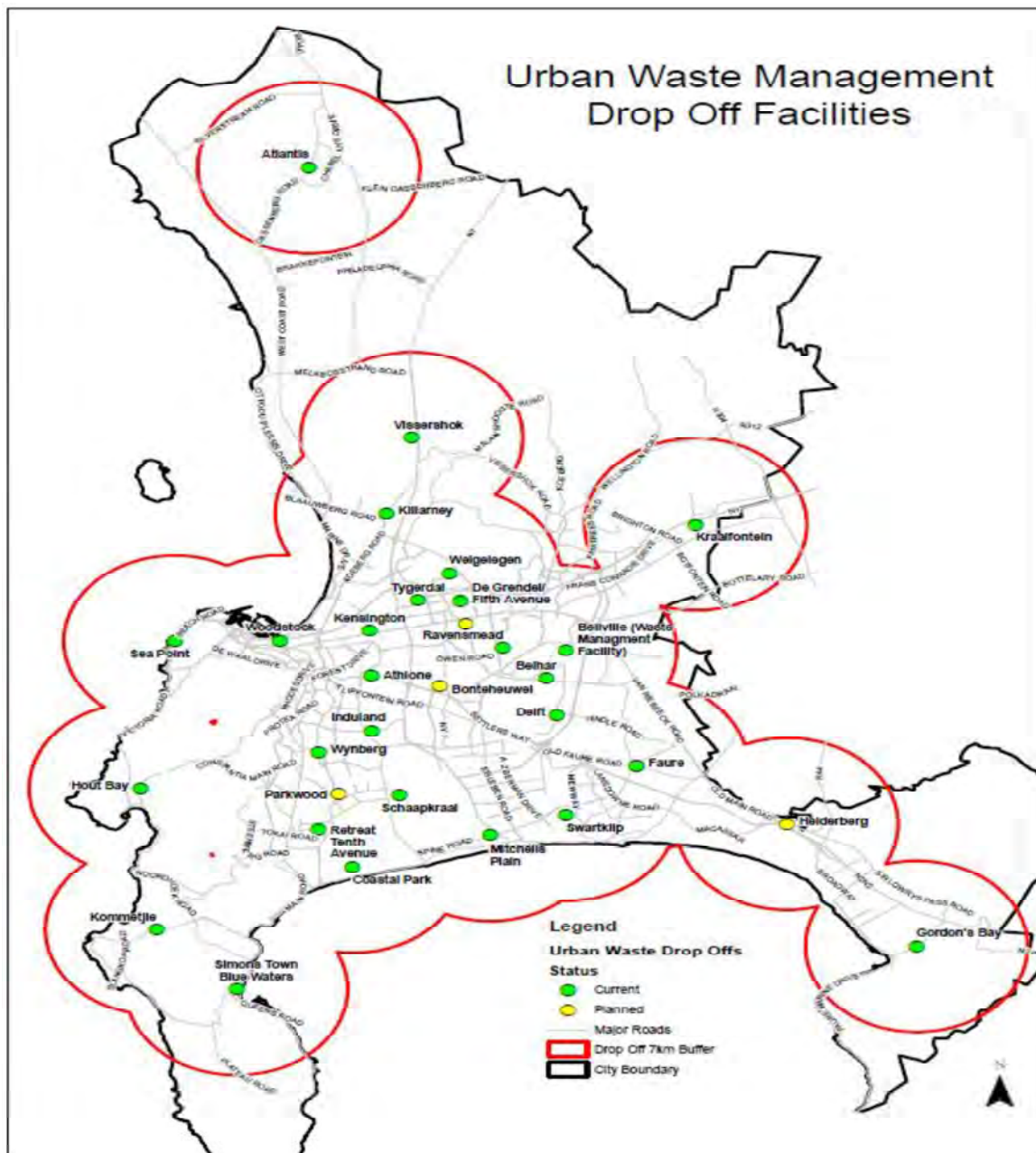


Figure 9: Drop-off facilities

Constraints

- **Densification**

Growth of the city and the impact of narrow roads and problematic turning circles renders certain areas within the City inaccessible for waste collection, resulting in illegal dumping. Inadequate waste containers exacerbate the situation.

- **Servicing of Backyarders**

The Directorate is still to determine the appropriate model for servicing backyarders. In terms of the IWM Policy, it is not mandatory for property owners to provide

additional bins to their tenants, this result in the City not being able to recover the full cost of servicing backyarders.

- Haulage of waste by road.

Access to rail is not currently available thus creating bottlenecks and additional costs to waste Services. Movement and transportation of waste between transfer stations and customers and final disposal sites is not a viable option considering the geography of the CCT service area in relation to the location of the landfills (over 30km). Waste Services incur significant costs in transporting waste between the network of transfer stations and the Vissershok South and North Landfills. As much of the growth in the CCT is taking place in the east, future logistical costs are likely to increase.

- Aging plant and equipment

There are plans in place to replace RTS equipment such as crane rails and compaction lines.

- Leachate treatment plant operationalisation

The operation of the leachate treatment plant at Vissershok will be reviewed in order to improve efficiencies.

- Depleted landfill airspace

The acquisition of land for the development of the regional waste facility remains a challenge.

- Lack of skills

The current lack of skills within UWM to deal with alternative technologies for waste disposal is addressed in the HR Plan.

10.3 Consumption and demand analysis

The mass of waste landfilled in the past six years has remained relatively stable, averaging at approximately 1.15 million tonnes per annum. While population trends (growth and socio-economic levels) are the main predictors of waste generation trends over time, the many pathways that waste may travel through the system before ending up at landfill means that the amount of waste disposed is dependent on many more variables, not just population characteristics.

There is an airspace challenge at the two (2) landfill sites with Coastal Park expected to reach capacity in 2026 and Vissershok Landfill to reach capacity in 2036. The various interventions on waste minimisation will have an effect of extending the life of these sites, as well as operational improvements through monitoring of various parameters.

Airspace consumption

The following airspace consumption information reports on the volume of airspace consumed within the period between surveys, which are undertaken monthly, as well as a lifespan projection (without accounting for waste growth and / or diversion initiatives).

Vissershok



Figure 10:Vissershok Landfill airspace consumption

Coastal Park

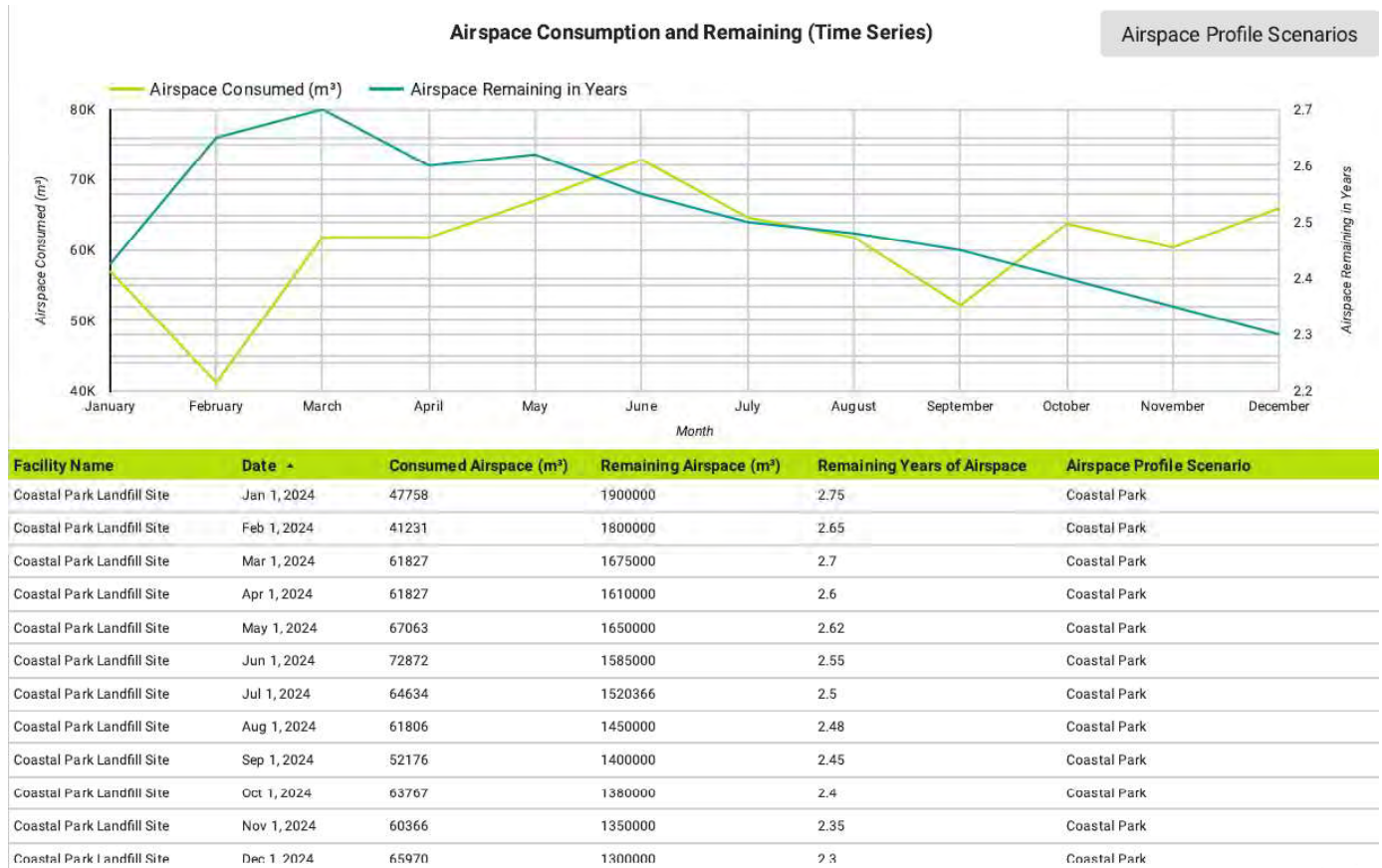


Figure 11: Coastal Park Landfill Airspace consumption

Cleansing

Cleansing's level of service is determined by the current available resources comprising of vehicles and staff. Apart from internal factors comprising staff shortages and the downtime on vehicles, there are external factors attributed to the growth in population size as well as the developments of new informal settlements and suburbs, which place continual increasing demands on Cleansing's services and the Branch's available resources.

The tables below summarise the top 20 highest contributing C3 complaints received by Cleansing for the past 5 financial years. The number of complaints are indicative of the increasing demands experienced by the Branch over and above the capacity of the routine services provided. Population growth, new informal settlements and new suburbs continually increase the demand on Cleansing services and the Branch's available resources. Expansion of the Branch's capacity and resources as well as the rollout of more efficient cleansing technology will be required going into the future.

An analysis of the C3 complaints received for the past 5 financial years (Error! Reference source not found.⁴ and Error! Reference source not found.¹⁵) indicate that approximately 63 percent of all complaints received are attributed to illegal dumping. The trends, as illustrated in **Figure 12**, indicate the increasing demand on cleansing services, which is expected to increase with the increasing population growth and increasing influx of people moving to the City

Table 14: Number of C3 complaints received per C3 type for the past 5 financial years to date (top 20 offenders listed).

C3 Complaint Type	FY20-21	FY21-22	FY22-23	FY23-24	FY24-25* (Q2)
Illegal Dumping	13667	12347	12996	13551	8 222
Street Sweeping	3844	3766	4084	4652	3 750
Litter Bins Not Serviced	764	648	622	734	557
Litter Bins Required	545	591	448	470	338
Animal Carcass Removal	427	1360	285	902	642
Informal Settlements-Dumping	559	455	104	214	69
Illegal Dumping Offenders	163	241	232	15	22
Request for "No Dumping" Signboard	123	141	122	95	67
Beach Cleaning	144	174	204	182	204
Informal Settlements-No Refuse Collect	125	94	22	107	21
Informal Settlements-Ship cont. overflow	69	109	66	64	22
Informal Settlements-Fire Debris Removal	55	62	30	186	243
General Staff Complaints	375	30	15	28	15
Dumping on Parks/Public Open Spaces	1	0	3	1	0
Informal Settlements-No Bags Received	12	112	16	22	4
Special Waste	1	0	6	3	0
EPIC Solid Waste	0	0	0	1	1
Unhealthy/Unhygienic Conditions	3	0	3	0	0
Branch Removal (Fallen/Broken)	0	0	0	0	0
Dumping in/on Stormwater Infrastructure	3	0	0	0	0
Total C3's	20880	20130	19258	21227	14 777

Table 15: Percentage of total C3 complaints received per C3 type for the past 5 financial years to date (top 20 offenders listed).

C3 Complaint Type	FY20-21	FY21-22	FY22-23	FY23-24	FY24-25	Average %
Illegal Dumping	65.5	61.3	67.5	63.4	55.6	62.7
Street Sweeping	18.4	18.7	21.2	21.9	25.4	21.1
Litter Bins Not Serviced	3.7	3.2	3.2	3.5	3.8	3.5
Litter Bins Required	2.6	2.9	2.3	2.2	2.3	2.5
Animal Carcass Removal	2.0	6.8	1.5	4.2	4.3	3.8
Informal Settlements-Dumping	2.7	2.3	0.5	1.0	0.5	1.4
Illegal Dumping Offenders	0.8	1.2	1.2	0.1	1.4	0.9
Request for "No Dumping" Signboard	0.6	0.7	0.6	0.4	0.1	0.5
Beach Cleaning	0.7	0.9	1.1	0.9	0.1	0.7
Informal Settlements-No Refuse Collect	0.6	0.5	0.1	0.5	1.6	0.7
Informal Settlements-Ship cont. overflow	0.3	0.5	0.3	0.3	0.1	0.3
Informal Settlements-Fire Debris Removal	0.3	0.3	0.2	0.9	0.0	0.3
General Staff Complaints	1.8	0.1	0.1	0.1	0.0	0.4
Dumping on Parks/Public Open Spaces	0.0	0.0	0.0	0.0	0.0	0.0
Informal Settlements-No Bags Received	0.1	0.6	0.1	0.1	0.0	0.2
Special Waste	0.0	0.0	0.0	0.0	0.0	0.0
EPIC Solid Waste	0.0	0.0	0.0	0.0	0.0	0.0
Unhealthy/Unhygienic Conditions	0.0	0.0	0.0	0.0	0.0	0.0
Branch Removal (Fallen/Broken)	0.0	0.0	0.0	0.0	0.0	0.0
Dumping in/on Stormwater Infrastructure	0.0	0.0	0.0	0.0	0.0	0.0

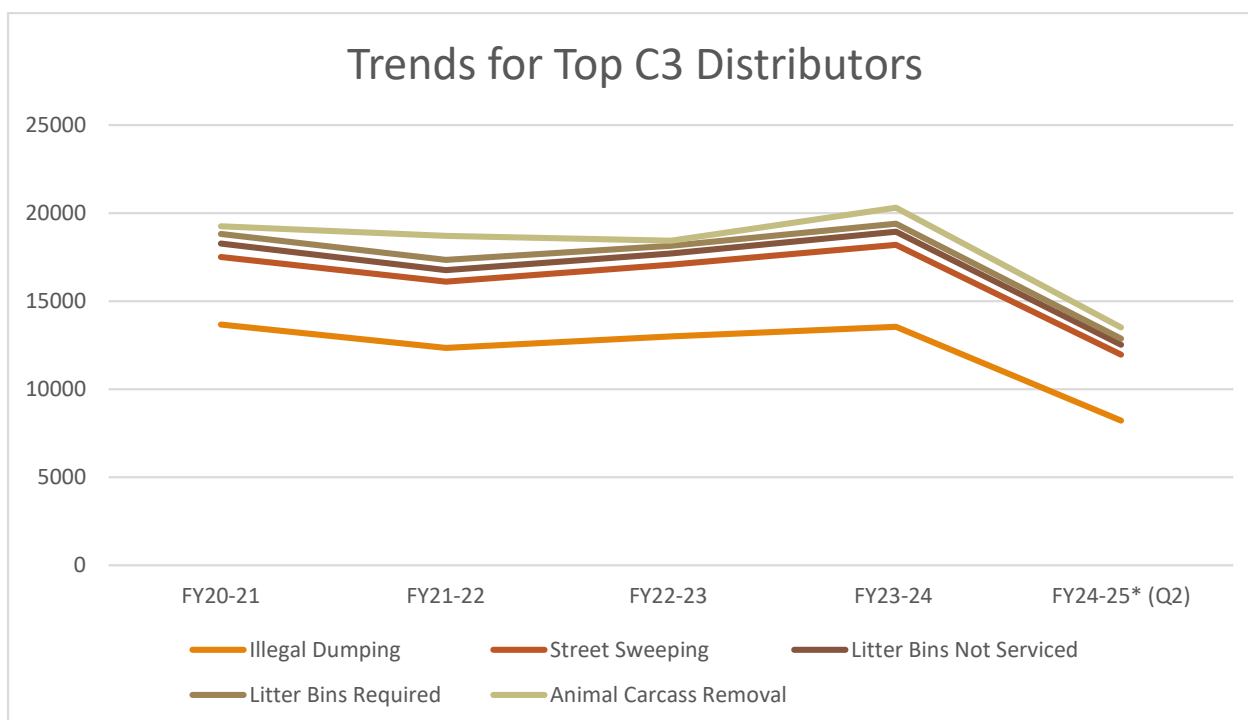


Figure 12: Trends for top C3 contributors for the past 5 financial years (the 5 categories account for over 88% of total C3's per financial year).

Collections

The collection of MSW requires 240L wheelie bins. In order to be effective, this requires reliable refuse compactor vehicles and bin lifters to ensure the City renders uninterrupted refuse services.

It should be noted that one service point does not necessarily translate to one household i.e. one service point can have more than one household and more than one bin.

For the purpose of this review, the following assumption will be made for resource planning.

- One household = one service point.
- Each refuse compactor on average services 1044 households per day (beat)
- Currently a total of 158 vehicles are required to service 825000 collection points on a weekly basis (i.e. approximately 5000 households serviced by one truck on a weekly basis).
- With the estimated growth of 630 000 additional household by 2040 based on LUM, additional 120 vehicles will be required to provide the waste collection service as per the current service level as depicted in **Table 16** below.

Table 16: Current vs required Collections capacity

Current capacity 2024	Required capacity by 2040

Number of HH/service point	Number of vehicles	Number of HH/service point	Number of vehicles
825 000 Service points weekly.	158	1 455 000	278

At present 133 formal beats, receive a refuse collection service on the scheduled day at current resource availability whilst a total of 25 beats are outsourced to contractors through a competitive tender process. This equates to 158 beats in total with 16% of beats contracted). This will then determine the required additional capacity to meet the demand.

Drop-offs

Urban Waste Management has 28 drop-off facilities throughout the City. Drop-offs are classified as major and minor drop-off sites. There is a total of 9 major facilities and 12 minor facilities managed by Waste Services: Waste Minimisation Branch as well as seven facilities managed by the Waste Services: Disposal Branch situated within the landfill sites, classification is based on the capacity to accommodate waste. The Drop offs in their current form do meet the capacity and demand requirements. The reduction of the 7km radius to 3 km creates a demand for additional drop offs to be developed.

As mentioned above there are 28 drop off sites within the City and there is a demand for drop off sites to be closer to residents. This remains a priority, especially in the low income formal and informal areas.

The planned upgrades over the next 10 years will address the capacity issue in its design by increasing the footprint of drop-offs where possible. The intention is to move towards the development of minor drop-offs across the city with a focus on informal areas. The current 10-year capital plan for new sites include the development of drop-offs In Khayelitsha.

10.4 Quality of service

The quality of Waste Services is measured through SDBIPs, environmental audits and the ability to meet service standards. **Table 17** Provides an overview of performance indicators for the past financial year. The Directorate could not meet targets for formal beats receiving refuse collection service on scheduled day. This has a direct impact on the Service standards KPI which was also not met. This contributes towards increased illegal dumping i.e. if bins are not collected as scheduled. Some of the reasons behind this is unavailability of vehicles due to breakdowns. The Capital project pipeline includes the procurement of additional vehicles to replace the aging fleet.

The number of C3 notifications received over a period was used to measure the quality of Service for Cleansing.

Table 17: Key Performance Indicators

KPI	Baseline 2021/2022	Annual Target 30 June 2023	Target Q4	Actual Q4 30 Jun 2023	Actual Q4 June 2024
Adherence to service standards (%)	New	90%	90%	88.76%	92.18%
Informal Settlements receiving waste removal and area cleaning services (%) (NKPI)	99.79%	99%	99%	99.78%	99.84%
Service requests for refuse non-collection resolved within 3 days (%).	New	96%	96%	52.22%	61.06%
"Formal Beats receiving a refuse collection service on scheduled day (%)	New	99%	99%	97.36%	98.26%
Percentage of waste diverted from landfill sites through council waste minimisation initiatives	13.90%	14.9%	14.9%	19.16%	31.53%
Percentage of recognised informal settlements receiving integrated waste handling services	99.79%	99%	99%	99.78%	99.84%
Percentage of scheduled waste collection service users reporting non-collection	New		NOTE: changed in 2023/24 to 0.5% after an error was detected (see screen shot above)	0.02%	0.021%
Percentage Drop-offs facilities open to the public	new	99%	99%	99%	100%
Number of clean-up programmes implemented with residents	new	58	58	58	160

Cleansing

The standard service level for informal settlements dwellings is aligned with the Council's Indigent Policy. This is a once-a-week, bagged door-door waste collection service provided to indigent families. In this category, each informal household will be provided weekly with Council refuse bags, of a size, number and design determined by the City.

The service offered is an integrated area cleaning and refuse collection service provided through external contractors.

Disposal

RTS operations are monitored using KPIs, such as weighbridge flows, plant availability and breakdowns.

Landfill sites are subjected to internal and external audits. This includes the monitoring and reporting for water quality, landfill gas, leachate, availability of cover material, co-disposal ratio, compaction ratio, slope stability and other nuisance management. Environmental auditing against waste management licences should be 90-100%, refer to **Table 9** for frequency and recent audit results .

Closed / historical landfill sites undergoes internal/external environmental auditing and any other reporting requirements as determined (including GRAP 19 - provision for rehabilitation of landfill sites).

10.5 Access

Collections

Collections service, in its current form, is 100% accessible to all formal properties with the same level of service provision. Waste collection from informal settlements is provided through private contractors, it is a door-to-door service where every household is provided with a bag. All recognise informal settlement receive door to door service. There are at present 462 informal settlements comprising 270 693 dwellings in total which receive a waste service through the Cleansing Branch's appointed service providers. One informal settlement is inaccessible.

There is an assessment currently undertaken to quantify the number of containers in all areas that cannot be accessed by a compactor truck as specified on the tender due to poor road infrastructure. This will necessitate relooking at the vehicle specifications and exploring other collection methods. The directorate is reviewing the waste collection model for informal settlements.

Cleansing

Access is dependent on an array of circumstances. Including community uprisings and poor road infrastructure among others.

Cleansing Services is currently accessible to all communities with applicable standards of cleanliness levels; it is however a concern that illegal dumping occurs in some of the formal settlements and frequently in the informal settlements. This is mainly because the density of population and space that affects the smooth movement of the vehicles affects collection of waste in informal settlements. Blue refuse bags are currently being utilised.

Drop-offs

Waste Minimisation Branch, Drop-offs Unit has a total of twenty one (21) drop off sites and the Disposal Branch manages seven (7) spread across the urban (formal) parts of Cape Town. They are within a 7km radius of any resident. This 7km radius is not always adequate in terms of bringing drop off sites closer to the community and therefore we are investigating how we can expand drop off and build on an inclusive model for the urban (formal), informal and low-income areas of Cape Town.

Currently all areas within the City falls within the 7km radius for Drop offs except the Somerset West are where the Macassar facility was closed. There are plans in place to construct a new facility.

Disposal

The Waste Transfer Stations are servicing internal clients and therefore accessibility cannot be measured towards the Public.

The current operating landfill sides, Coastal Park and Vissershok are accessible to internal and external clients. This can be further improved by ensuring that weighbridge are well maintained and functional at all times.

10.6 Risks

Service delivery and Asset risks

The inability of the directorate to deliver on its mandate poses a huge risk for the City. This risks mostly relates to the operations within the directorate. Most of the contributing factors for this risks relates to increasing demand due to growth, safety of personnel, aging fleet, vandalism and availability of resources. The situation is exacerbated by dependency on other directorates for the provision of security and other support functions,

Compliance risk

In the past few months the Directorate was subjected to several litigation matters regarding the appointment of service providers. This action has resulted in service delivery backlogs as reported in the previous section. This has subsequently led to section 28(4) of the National Environmental Management Act, 1998 directives issued against the City. Implementation plans have since been developed and implemented over short to medium term. Some of these actions are briefly discussed in the operational programmes section of this document. **Table 18** below presents risk ratings and mitigation measures for the identified risks within the directorate.

Table 18 : Urban Waste Directorate risk rating and control measures

Risk Number	Risk Title	Linked Objectives	Consequence		Contributing Factor Title	Existing Control Title	Control Effectiveness	Residual Rating			Action Plan Title				
								RI	RL	RR					
1	Safety and security of staff, contractors and infrastructure is at risk	CITY OF HOPE: BASIC SERVICES: 2 Improved access to quality and reliable basic services	- Financial impact - Could lead to poor service delivery - Potential staff and / or public injuries and fatalities	1.1	Dependence on the corporate security tender for the provision of security services and the management of the security services (not sufficient)	Request escort services from Law Enforcement	40% - 49%	9	10	90	Explore costing and quantifying of increasing security costs for staff and facility safety				
		CITY OF HOPE: BASIC SERVICES: 4 Well-managed and modernised infrastructure to support inclusive economic growth				Utilisation of corporate security tender	40% - 49%								
				- Reputational risk - Depot closures / service delivery delays - The City could be exposed to significant fines, prosecutions and/or jail time	1.2	Safety of staff at work sites (criminal element/unlawful land occupation/significant increase in number of salvagers on our land fill sites/inability to prevent them) - currently extremely volatile	Escalation of staff safety issues for consideration during the updating of the Staff Safety Transversal Risk Register				30% - 39%				Drafted a proposal to pitch to the City Manager to roll out a Pilot a program in Delft and Dunoon to deal with instances of extortion and violence in these areas.
							Physical security measures are in place				30% - 39%				
							Reliance on Law Enforcement (slow reaction time)				20% - 29%				

				1.3	The violence, threats, protests, intimidation and extortion by gang members, business forums and construction mafia preventing access, disrupting service delivery & threat to the public facing staff At War Room meeting threats to staff is highlighted as an early warning/alert for commanders to brief members on morning parades Early warnings via War Room/Media /Prov Jocs/Metro & LE Control Room Escalation of staff safety issues for consideration during the updating of the Staff Safety Transversal Risk Register Reliance on Law Enforcement (slow	50% - 59% 50% - 59% 30% - 39% 20% - 29%				Drafted a proposal to pitch to the City Manager to roll out a Pilot a program in Delft and Dunoon to deal with instances of extortion and violence in these areas.
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						reaction time)						
						Reliance on Safety & Security alerts regarding hotspots and volatile areas	40% - 49%					
						Withdrawal of staff from volatile areas/situations	20% - 29%					
				1.4	Vandalism of infrastructure and UWM assets	Bylaw Enforcement officers utilised to protect infrastructure and assets	50% - 59%					Tolerate: This contributing factor is tolerated and will be managed with the existing control environment
						Employment of Safety & Security Law Enforcement Officers on landfill sites	50% - 59%					
						Reliance on loss control unit & implementation of the loss control processes	40% - 49%					

						Submission of reports to Mayoral Committee on losses	50% - 59%				
2	Constraints to providing services to backyarders as no Policy guidance and provision at National level.	CITY OF HOPE: BASIC SERVICES: 2 Improved access to quality and reliable basic services	• Inability to service backyarders within the legislation • Protests • Reputational risk • Illegal dumping	2.1	Inconsistent/inaccurate data on e.g. Backyarders, unidentified informal settlements etc. (External service providers not making their data available to City)	Getting Backyarder Data information from HS	40% - 49%	8	9	72	Tolerate: The contributing factor is tolerated as there is a high reliance on Human Settlements on the coordination and collation of accurate data sets
		CITY OF HOPE: 16 A capable and collaborative City Government				Participation in the Integrated Human Settlement space (dependence on corporate decision making on funding of back-yarders)	50% - 59%				
				2.2	The density and inability to provide service contribute to the illegal dumping	Adhoc surveys of informal settlements and back yarders / overcrowding	50% - 59%				Ensure that a Future Financial Module include provision and allocation of funding and

						UWM: Ad hoc cleaning services for unrecognised settlements	40% - 49%				review of the service delivery model for the densification and backyarders function
				2.3	The lack of a policy directive and cost recovery mechanism for services provided to backyarders	Getting Backyarder Data information from HS	40% - 49%				Give input into the development and implementation of a transversal strategy to deal with Backyarders.
						Lobbying for mechanism to be used for Backyarders with the associated funding	30% - 39%				Highlight to the organisation the need to have a clear policy position on how deal with the Backyarders on a corporate level as well as the

						UWM: Ad hoc cleaning services for unrecognised settlements	40% - 49%				absorption of the costs of running the services.
3	Over reliance on EPWP temporary workers to perform key functions City wide	CITY OF HOPE: BASIC SERVICES: 2 Improved access to quality and reliable basic services	• Failure to achieve SDBIP deliverables and objectives • Non compliance with legislation • AG finding / possible material irregularities • Reputation damage	3.1	Increased demand for services especially within the informal settlement environment	Project Initiation Documents (PID) makes provision for assessment of the nature of work being done by EPWP participants	50% - 59%	8	9	72	Highlight to EMT for consideration, input and support the need for Activity Based Costing by line dept for EPWP staff
		CITY OF HOPE: BASIC SERVICES: 4 Well-managed and modernised infrastructure to support inclusive economic growth		3.2	The staffing model has the reliance of EPWP workers on a ratio of 1:4 City to EPW staff which impacts on city wide service delivery	Execute mandate with the current approved organogram	40% - 49%				Motivate the need for the review of the staffing model and the ratio of permanent staff vs EPWP staff
		CITY OF HOPE: INCLUSIVE									

		ECONOMIC GROWTH: 1 Increased jobs and investment in the Cape Town economy									
4	The lack of implementation of action plans and recommendations that arises from findings, advisories & investigations by all the different service providers	CITY OF HOPE: 16 A capable and collaborative City Government	• Failure to achieve SDBIP deliverables and objectives • Non compliance with legislation • Inefficiencies and duplication of effort leads to re-active responses • Adverse affect on staff morale • Lack of accountability and responsibility • Lack of coordination	4.1	Elements highlighted in AG, IA and Forensic Services that inhibits service delivery	Action all High Internal Audit findings Action the items on the AG Management Action Plan Follow the disciplinary process with regards to Fraud or Forensics investigations	40% - 49% 40% - 49% 50% - 59%	7	10	70	Implement the recommendation of audit findings and remedial action plans

			between departments • Incidents on landfill sites- and AG recommendations • Cost associated to remediation of Illegal dumping • AG finding / possible material irregularities								
5	Pre directives and directives as a result of Illegal Dumping impacting on Waste Services	CITY OF HOPE: BASIC SERVICES: 2 Improved access to quality and reliable basic services CITY OF HOPE: 16 A capable and collaborative City Government	• Failure to achieve SDBIP deliverables and objectives • Non compliance with legislation • Adverse affect on staff morale • Increased costs	5.1	Growth and unplanned nature of informal settlements increasing illegal dumping	Adhoc surveys of informal settlements and back yarders / overcrowding Complaints to 107, dispatched to field staff via Control Room	50% - 59% 60% - 69%	5	10	50	Tolerate: This contributing factor is tolerated and will be managed with the existing control environment

		CITY OF HOPE: BASIC SERVICES: 4 Well- managed and modernised infrastructure to support inclusive economic growth	• Delays collections resulting in need to work longer hours and adversely impacts expenditure (overtime payments) • AG finding / possible material irregularities			Participate in the Integrated Waste management work group, coordinated by Human Settlements	40% - 49%				
						UWM: Ad hoc cleaning services for unrecognised settlements	40% - 49%				
						Weekly monitoring and reporting on Mayoral Program relating to the upscaling of litter cleansing activities along major highways, main arterials and in public spaces.	50% - 59%				

6	Cost of provision of service to Informal Settlements	CITY OF HOPE: BASIC SERVICES: 2 Improved access to quality and reliable basic services	• Failure to achieve SDBIP deliverables and objectives • Inefficiencies and duplication of effort • Leads to re-active responses	6.1	Access to resources, i.e. funding (Rates funded hence limited budget) , human resource (bodies), asset (plant & fleet availability).	Implementati on of the Integrated Waste Management Strategy	50% - 59%	7	7	49	Tolerate: This contributing factor is tolerated and will be managed with the existing control environment
		CITY OF HOPE: 16 A capable and collaborative City Government	• Delays and adverse affect on service delivery including collections • Longer hours/overtime - Adverse affect on			Integrated Waste Management Plan	50% - 59%				
						Participate in the Integrated Waste management work group, coordinated by Human Settlements	40% - 49%				

			staff morale • Mismatch between delegations and the driving policy / signatory levels	6.2	Inadequate collaboration between line departments who is impacted by Informality	Participate in the Integrated Waste management work group, coordinated by Human Settlements	40% - 49%				Tolerate: This contributing factor is tolerated and will be managed with the existing control environment
			• Lack of accountability and responsibility • Lack of coordination between departments	6.3	Insufficient capacity linked to disposal service	Capacity planning	50% - 59%				Development of the Waste Strategy and one of the outcomes is to address the service efficiencies
			• Informal settlement growth - increasing • Financial and resource implications			Current limited resources	50% - 59%				
				6.4	Risk exposure of preferred option of Insourcing vs Outsourcing	Liaison with Informal Settlements (working group) regarding service offering required	40% - 49%				The development of the Waste Strategy to include the review of the operating model for waste services

						Lobby for additional funding to clean in ULO areas	50% - 59%					in informal settlements
						Provision of rudimentary services to informal settlements once observed	40% - 49%					

10.7 Dependencies (Internal and External)

Some of the dependencies identified in the risk register are further detailed in this section. In addition, other dependencies relates to the regulation of waste services by responsible authorities and collaboration with other role players in the waste sector.

Table 19: Internal and external dependencies

INTERNAL DEPENDENCIES		
CITY DIRECTORATES		
DEPARTMENT/SECTION	ROLE	INFLUENCE ON WASTE SERVICES
Fleet Management	Centralisation of Fleet	Centralisation of specialised fleet could lead to service delivery disruptions.
IS&T Services	Maintenance of IT equipment and systems	Waste systems such as weighbridge, accreditation, iPWIS
Safety and Security	Provision of security Services	Dependencies on the provision of security services which is mostly inadequate to protect waste infrastructure and personnel against security threats
Finance	Financial planning and governance	Regulates procurement of goods and services
Water and Sanitation - Waste Water - Catchment Stormwater and River Management (CSRM)	Management of sewage sludge and maintenance of storm water systems	Sewage sludge contributes towards the organic waste diversion targets. Collaboration in the cleaning of catchment areas.
Human settlement	Integrated Human Settlement planning	Planning for waste services in line with HS Sector Plan
Spatial Planning and Environment - BDM - Urban Planning and Design	Spatial and development planning	Planning for waste infrastructure - MSDF/ DSDF/LSDF Waste management Plans - DAMS
EXTERNAL DEPENDENCIES		
PROVINCIAL DEPARTMENTS		
DEADP	Approval and Endorsement of Waste Sector Plans	Required in terms of NEMWA 59 of 2008

	Authorisation of waste facilities- Drop offs/ Transfer Stations	Delays due to lengthy authorization processes Substantial capital investment as a result of license review
	Auditing of Waste management facilities	Section 24 (8) Directives for non-compliance which attracts huge rehabilitation costs and or penalties
	Setting of waste diversion targets	Requires substantial Capital investment in infrastructure development- organic waste diversion
	Monitor overall compliance with environmental legislation	Section 24 (8) Directives for non-compliance which attracts huge rehabilitation costs and or penalties
NATIONAL DEPARTMENTS		
DFFE Water and Sanitation	Authorisation for waste facilities –landfill sites	Delays due to lengthy authorization processes
	Setting of Waste diversion targets	Requires substantial Capital investment in infrastructure development- organic waste diversion
Department of Public Works	EPWP	Job creation opportunities
National treasury	Financial planning and governance	Allocation of grant funding and governance
PRIVATE SECTOR		
PROs	Implementation of EPR plans in collaboration with the City	Cost for waste diversion can potentially be shared with PROs
Business	Suppliers of goods and services	Provides waste services on behalf of the City. Failure to meet contractual obligations – service disruptions.

Table 20: Project dependencies

ID	Description	Planned Start	Actual Start	Description of Dependencies	Technical Category	Project Type	Investment Reason	IDP Priority
CPX.0007920	Vissershok North:Design and develop Airs	2023	2024	Significant delays with the approval of Vissershok designs by the National Department of Water and Sanitation.	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
CPX.0011087	VHS: LFG Infrastructure - Beneficiation	2024	2025	Securing the professional consultant is crucial predecessor stage to CPX.0011087 VHS: LFG Infrastructure - Beneficiation	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
CPX.0010025	CPTS: Transfer Station New	2022	2024	CPX.0007910 Coastal Park:Design and develop (MRF) is a predecessor project to CPX.0010025 CPTS: Transfer Station New	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services

CPX.0014654	VHS: LFG Infr - Beneficiation (Phase 2)	2027	2028	CPX.0011087 VHS: LFG Infrastructure - Beneficiation is a predecessor project to CPX.0014654 VHS: LFG Infr - Beneficiation (Phase 2)	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
CPX.0003136	Purchase of Land Regional Landfill	2025	2028	The identification of potential sites via a feasibility study is a crucial predecessor project to CPX.0003136 Purchase of Land Regional Landfill	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
CPX.0003137	Dev of the Regional Landfill Site	2023	2029	CPX.0003136 Purchase of Land Regional Landfill is a predecessor project to CPX.0003137 Dev of the Regional Landfill Site.	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services

CPX.0023109	Visserhok North:Design&Dev Airs (Phase2)	2024	2025	CPX.0007920 Visserhok North:Design and develop Airs is a predecessor project to CPX.0023109 Visserhok North:Design and develop Airs.	EXPAND/DEVELOP CITY/ASSET	Basic Services (Infrastructure)	New Asset	Basic services
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10.8 End-of-life cycle projects

Landfill sites projects that are discussed in this section. Other Waste Facilities such as Transfer Stations, Drop-offs and MRFs do not have a predetermined lifespan and continue to operate for many years if well maintained. When Coastal Park closes there is an end use plan with concomitant monitoring requirements. The plan is to be revisited given the focus to unlock land for uses such as solar, wind, RTS, drop-off sites and as an MRF. Depending on budgets, a closed landfill can be retained and maintained for waste diversion and possibly energy generation.

Historic and Closed Landfill sites

The City has a number of historic and closed landfill sites that are currently being rehabilitated in terms of closure permits requirements. Most of the facilities are still within the rehabilitation period of 10 - 30 years and as a result, no end-use plans have been determined yet. Given the condition of the land, the establishment of permanent structures on closed sites is not permitted. In most cases the end use of these facilities is 'public open space' for recreational activities.

Historical Landfill sites

The City has ten (10) historical sites spread across the City.

These are facilities that are no longer operational (may not have been licensed). These facilities are monitored in line with permit conditions but are not capped in accordance with engineering standards.

Closed Landfill sites

The City has Seven (07) closed facilities spread across the City. These facilities are undergoing rehabilitation and capped in accordance with engineering standards.

Table 21: List of closed landfill sites

CLOSED LANDFILL SITES	Atlantis	Brackenfell	Faure	Gordons Bay	Swartklip	Table view	Kraaifontein
Permit / Waste license no	19/2/5/1/A1/2/ WL0062/12	B33/2/720/211 /S/P203	12/11/4/P2	E13/2/10/1-A3/193- DWLT404/10/10	E13/2/10/1- A6/257-0001/09	12/9/11/P122	E13/12/10/1- A4/269- 0008/10
Permit / Licence date issued	10-Mar-14	24-Oct-95	14-Sept-2007	06-Apr-10	06-May-10	02-Jun-09	04-Jul-11
Permit / Licence expiry date	10-Mar-24	No expiry day	No expiry date	01-Jan-30	06-May-30	No expiry date	04-Jul-21
Nature/Status of permit / waste licence : Active / Closed Historic	Closed Landfill	Closed Landfill	Closed Landfill	Closed Landfill	Closed Landfill	Closed Landfill	Closed Landfill
ERF number	CA3-3-, CA1183 & 81-2756	ERF 2981	ERF 1905, Blue Downs, District of Oostenberg	ERF 3512	ERF 113181	ERF 10627, 10628 and 10093 of Milnerton	Portions 43 and 45 of farm no. 725
Land Use	Residential Public open space Agricultural	Utility	Residential Public open Space	Public Open Space	Utility	unknown	Utility
Ownership	Owner1 & 2:PGWC, Owner 3: CCT	CMC: Brackenfell Substructure	Provincial Government Western Cape	City of Cape Town	City of Cape Town	unknown	City of Cape Town

Table 22: list of historic landfill sites

11 HISTORIC SITES	Fish Hoek	Noordhoek	Mamre	Macassar	Ocean View	Radnor	Sarepta	Strand	Simons Town	Witsand
Licence/Permit reference #.	19/2/5/1/A-6/97/WL0039/14.	19/2/5/1/A6/57/WL0041/14	19/2/5/1/A1/2/WL0066/14.	19/2/5/1/A3/39/WL0042/14	19/2/5/1/A6/58/WL0037/14	19/2/5/1/A8/98/WL0036/14	19/2/5/1/A5/43/WL0043/14	19/2/5/1/A3/20/WL0044/14	19/2/5/1/A6/79/WL0038/14	19/2/5/1/A6/70/WL0045/14
Date of Issue	29-Sep-14	10 December 2014.	11-Nov-14	10-Dec-14	11-Nov-14	09-Dec-14	07-Nov-14	29-Aug-14	10 December 2014	11-Nov-14
Date of expiry	29 September 2024.	10 December 2024.	11 November 2024.	10-Dec-24	11 November 2024	7 November 2024	9 February 2025	29 September 2024.	10 December 2024.	11 November 2024.
Location of site	Just north of the Silvergate Sports Fields and adjacent to the CCT Fish Hoek Roads Depot	Noordhoek Main Road entrance, adjacent to Lake Michelle, Noordhoe	Remainder of farm No. 971, Groenekloof, Cape Town	Junction of Kramat Road and Macassar Road to the north of the Eerste River	Oceanview residential area, accessible from Cedarber and Buffalo roads.	Southern part of the Parow Industria Industrial Area, Cape Town	Located in the Sarepta residential area of Kuils River on parts of seven separate erven along the western bank of a canalised	Located at the eastern edge of the Mansfield residential area, Gordo	Located on the lower slope of the mountains at the end of Dido Valley above the coastline between	Located in the Southern part of the Farm Sweet Water and accessible from the Lighthouse Road, Witsand Beach

							section of the Kuils River.	n's Bay.	Glencairn and Simons Town.	
ERF number	Erf 8924	Cape Farm No. 933 and Erf no. 3823	Farm 971 Groenekoof.	ERF 5321.	Erf 2558	Cape Farm 515 Erven 523, 524-RE, 525,526,1990 and 10373,	Ervenno. 12783-RE and 12789- RE	ERF No. 4103 and 3512	ERF No 420	Portion of the Farm Sweet Water No. 978, Witsand Beach
Internal audit frequency	Bi- annually	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarte rly	Quarterly	Quarterly
External audit frequency	Yearly	Annually	Annually	Yearly	Annually	Yearly	Annually	Yearly	Yearly	Annually
Land Use	Communit y	Public open space	Public open space	Public open Space	Public open Space	Various,	Public open space	Public open space	Unknown	agricultur al
Ownership	City of Cape Town	City of Cape Town	Gemmenska p V Mamre	City of Cape Town	City of Cape Town	City of Cape Town	City of Cape Town	City of Cape Town	City of Cape Town	City of Cape Town

CHAPTER 11

11. FUTURE SCENARIO

The UWM directorate has developed a view on Cape Town 2040 that it is planning for. This view has been developed through strategic forecasting, scenario planning, or other suitable methodologies.

Purpose:

- To show that alternative futures have been considered:
- To build the capacity of the sector to understand key drivers and the degrees of uncertainty in each
- To understand trends that present risks or opportunities to the sector
- To clarify triggers and how these will impact on programmes, projects or operating models
- To develop a sector plan that is responsive to these trends and triggers, and resilient in the face of different future scenarios
- To make explicit the assumptions and aspirations on which the sector plan is built

Using scenarios for strategic foresight

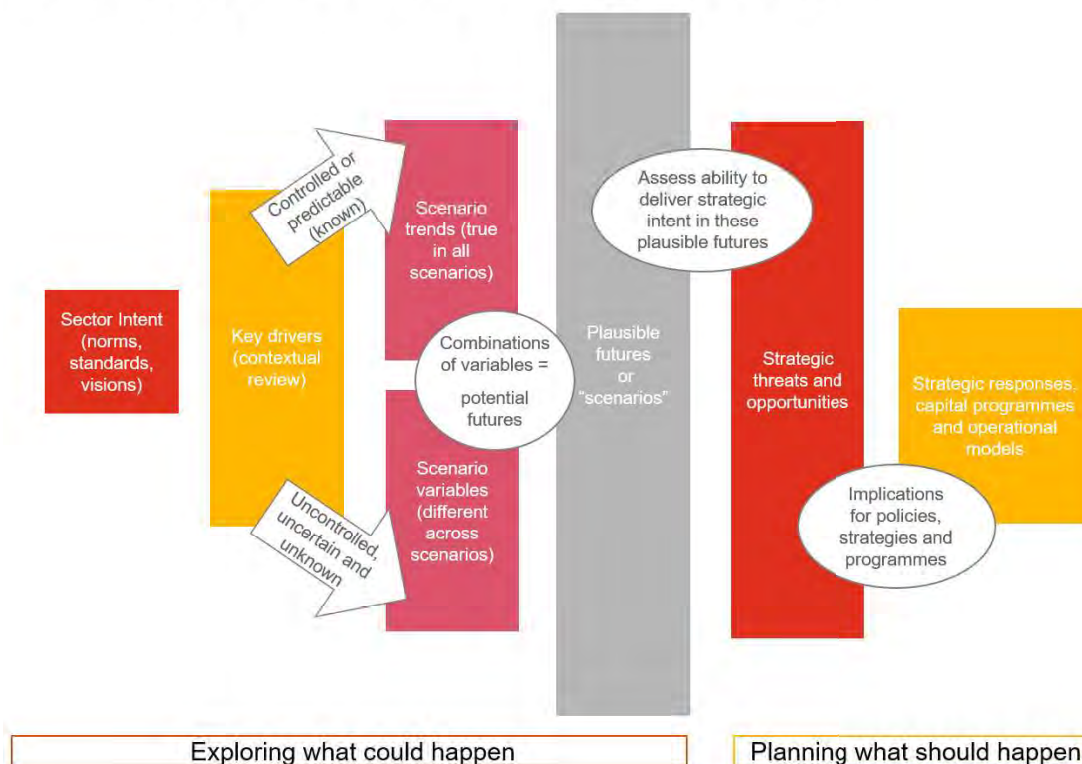


Figure 13: Strategic Foresighting Process

Two possible future visions to frame practical opportunities, risks and boundaries, and to inform recommendations have been developed.

As a point of departure for both future visions, the key strategic intent is for waste to be diverted from landfill. Indeed, the Waste Act (59 of 2008) includes in its preamble:

- “sustainable development requires that the generation of waste is avoided, or where it cannot be avoided, that it is reduced, re-used, recycled or recovered and only as a last resort treated and safely disposed of; and
- The minimisation of pollution and the use of natural resources through vigorous control, cleaner technologies, cleaner production and consumption practices, and waste minimisation are key to ensuring that the environment is protected from the impact of waste”.

There are also several drivers specific to the CCT context, not least, that landfill airspace is a scarce resource and costs to develop future airspace will increase. Furthermore, new landfills will be developed further from generation points, inevitably leading to increased system logistics costs as compared to the current system. There are also environmental, climate change and resource management drivers for diversion from landfill, the mitigation of which are being mandated by legislation. While the two proposed potential future visions are similar in objective and will have comparable diversion targets, the mechanism by which waste is diverted differs in each.

‘Future Vision 1’ considers a future where most Urban Waste is diverted as close to the source of its generation as possible and makes use of both decentralised and centralised facilities (including drop-offs) to maximise diverted organic and packaging waste.

‘Future Vision 2’ contemplates a future where packaging waste is separated at source, collected and sorted at large MRFs. Small scale diversion occurs at selected drop-offs. In this vision, organic waste is extracted from the mixed waste stream at IWMF’s (i.e. centralised facilities) after collection and is separated through a mechanical-biological type process. Large-scale treatment plants convert organics to energy. Residual waste from the MBT process is packaged as refuse derived fuel.

The characteristics of each of these visions is briefly described below.

- **Future vision 1 Intervening at source (upstream of Collections)**

Existing and planned large scale centralised MRFs will be the primary means of extracting packaging waste from the system, but wide scale diversion will also be supported by decentralised mini-MRFs located at drop-offs. These will support small business development by providing opportunities for SMMEs to provide local separate collection of recyclables. The larger MRF operators (established firms) would provide business support and bring the benefits of economies of scale to small operators (for example when procuring vehicles, spares, tyres etc.) and in turn the larger MRF operators would secure recycled material in a form of quasi value chain finance.

Organic waste could follow a similar model to that of packaging waste, with small operators based at drop-offs separately collecting organic waste within defined catchments. The clean organics could be treated at the drop-offs in small, decentralised in-vessel composters (or similar) or sold as clean organic feedstock to private off-takers.

Large-scale clean organic waste treatment facilities (supported by separate collection services) could be located at IWMF's, though it is anticipated that there will be strong market demand for clean organics that may obviate the need for CCT developed facilities.

In this future, the City's collection system changes materially as there is a significantly reduced mass of waste that will be collected because of source separated organics and packaging wastes. The CCT Collections Branch remains the driver of diversion in the system, playing a central role in driving and managing this system, but is less involved in the actual collection and beneficiation activities for the diverted waste streams. **Figure 14** is a proposed diagrammatic illustration of future vision 1.

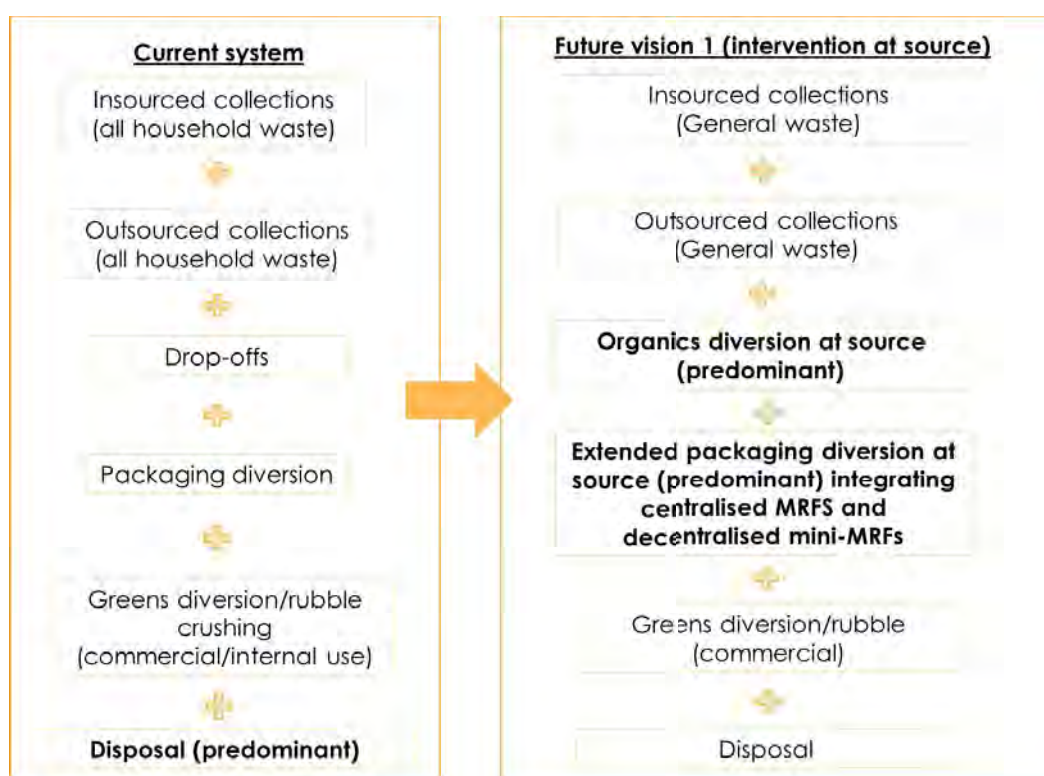


Figure 14: Future vision 1 - Intervention at source and integrated centralised and decentralised diversion

- **Scenario 2 Intervening at end-of-pipe (downstream of Collections)**

This vision is characterised by an increased rollout of separate collection of packaging waste, principally linked to large scale MRFs located at IWMFs. Small scale recycling will be supported at drop-offs (mini-MRFs) but will not necessarily form part of the centralised diversion infrastructure.

The current Collections system (insourced and outsourced) will continue to collect the wet waste fraction (i.e. that remaining after packaging has been separated at source) and will deliver it to large-scale centralised treatment infrastructure typically located at IWMFs. The organic fraction will therefore be extracted after collection. The organics so

extracted will be of less value and would likely require significant capital investment by the City in ensuring there is use for the final product.

In this future the City's collection, system only nominally changes (due to the reduced mass of waste that will be collected because of increased packaging diversion). The CCT plays a central role in diversion and beneficiation of organics.

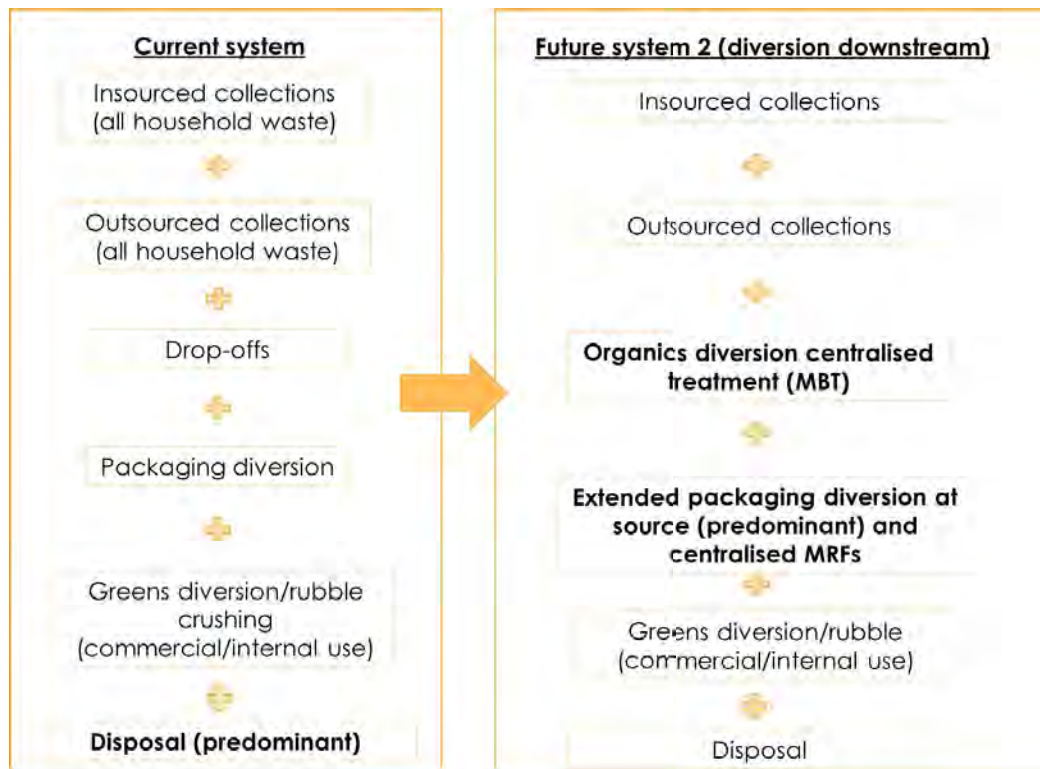


Figure 15: Future vision 2 – Centralised diversion infrastructure and downstream diversion of organic waste

Indicative costs for alternative waste treatment options

The following indicative costs for alternative waste treatment option graphic provides a useful comparison and range of capital and operational costs of alternative waste treatment options compared to a “do nothing” scenario and is part of the Urban Waste foresight.

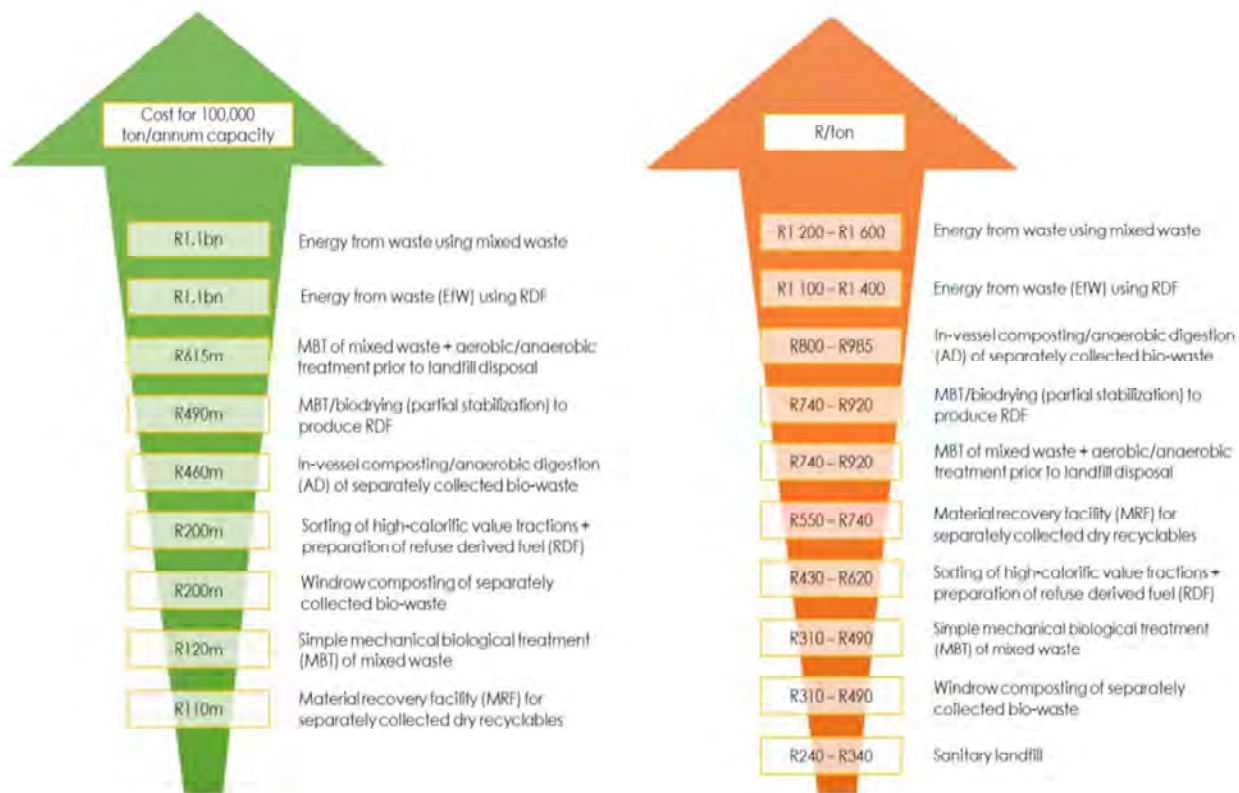


Figure 16: Indicative costs for alternative costs for various waste treatment technologies

Cleansing Strategic Foresight

Cleansing aim is to address the deterioration of cleanliness in the City and a number of scenarios to respond to the issues that affect our services and the branch response is to focus on the current as well as the desired state.

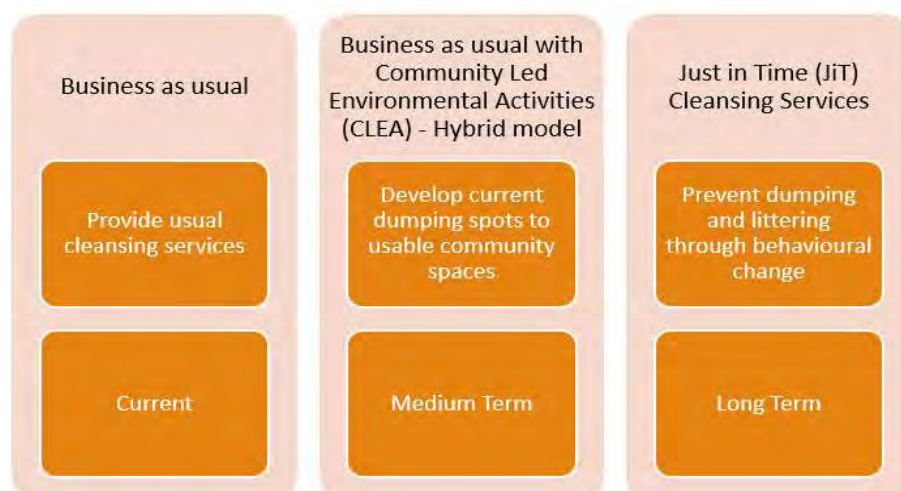


Figure 17: Cleansing Future State

The desired strategic position of Urban Waste Management Cleansing is ultimate provision of world class cleansing services for our clients, partners and stakeholders

through the following mechanism. This is underpinned on the bedrock of human capital of excellence at all levels.



Figure 18: Cleansing Operation Excellence

Disposal Strategic Foresight

Disposal's key objective is to ensure sustainability. This is achieved by:

- Ensuring sustainable waste disposal practice and prioritisation of best practice for landfilling.
- Developing and sustaining integrated approach to provide the required waste disposal services and beneficiation of targeted waste streams.
- Prioritising airspace savings and improving utilisation of available airspace through operational improvements.
- Developing improved capacity and ensuring continuity of services through the establishment of infrastructure for additional or improvement of existing facilities.
- Integrating waste management approach to be further rolled out to facilities where an urgent need exists – organic waste diversion focus.
- Supporting the inclusion of community recycling where diversion of waste can be targeted.
- Possible partnership to be explored (for e.g. with Sishen trains utilising the return trip).

To do this an integrated approach assessing the current states and interventions required in getting to the future perspective and opportunities were identified in and is illustrated in the diagram below.

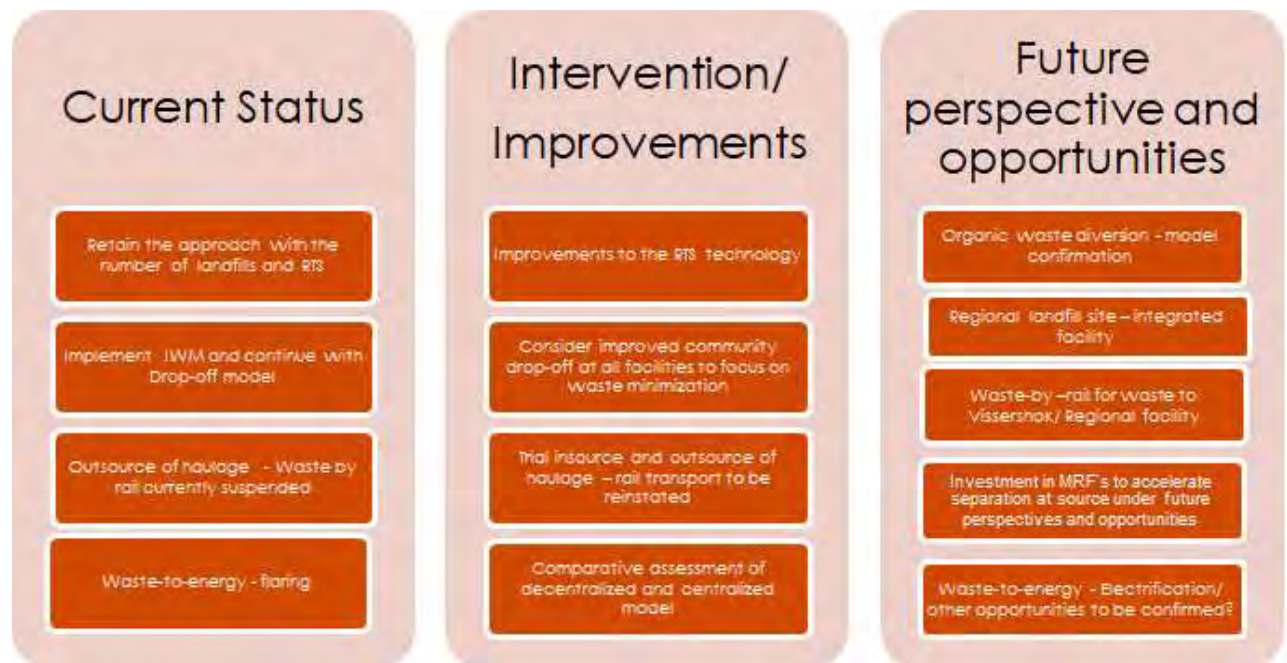


Figure 19 : Disposal Future state

Urban Waste Operations

Due to topographical factors, most waste generated in the City must be “double handled” as it is not taken from source to disposal, but discharged via drop off sites (Micro transfer stations) and refuse transfer stations.

The generations and collection of waste and its final discharge via the transfer stations and drop-off stations gives rise to additional costs, but is a necessity to optimise management operations. Various operational scenarios have been developed to

support this. The interaction is represented in the schematic diagram below.

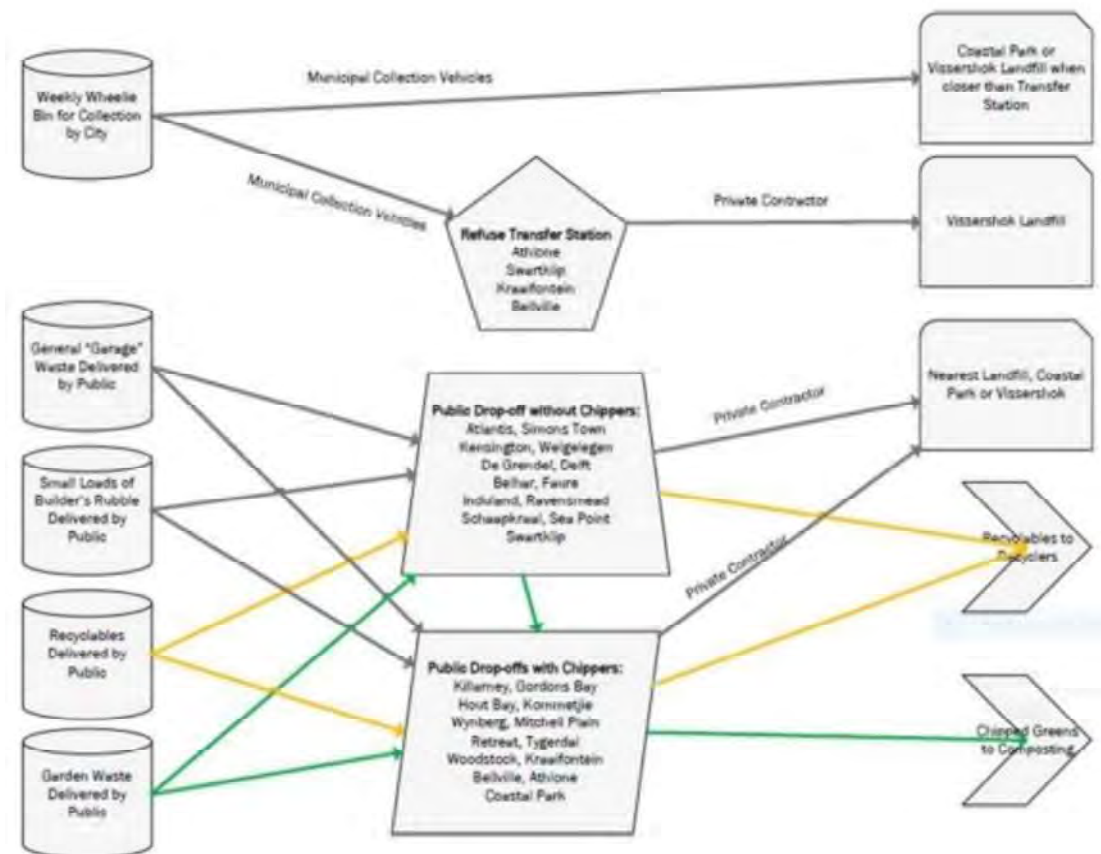


Figure 20 : Urban Waste Operations Schematic

The above diagram is an illustration of the current business as usual scenario that consists of:

- A facility where waste is temporarily stored and ideally sorted before it is transported more economically to other recycling centres or landfills.
- Residential waste minimisations and logistics optimisation initiatives such as the introduction of the Drop-offs has had and will continue to impact on waste minimisation and diversion of green waste and recyclable material away from the two landfills at Coastal Park and Vissershok.
- Green Waste is being chipped at by the Public Drop-offs. These sites are equipped with Chippers, or alternatively where Chippers are not available, transported to the nearest site equipped with an operating chipper. Private Contractors are chipping the green waste at a cost per cubic metre and transporting the chipped green waste material from all the sites to composting facilities at no additional cost to the City for transportation, however, there is a cost to the city associated with chipping is inclusive of transport cost.
- Operators who extracts economic value from this material collect recyclable materials being dropped at the drop-off facilities. This collection happens at no cost to the City.
- Builder's rubble is chipped and used where possible by the roads department otherwise, it is transported to the nearest landfill being Vissershok or Coastal Park.
- General waste eventually is transported to the landfill sites of Vissershok or Coastal Park.

Airspace Strategic Foresight

A number of interventions to extend the remaining life of the airspace stocks in the City have been explored. The range of interventions available have been characterised into three groups:

- **Operational** – these interventions can be implemented by the Disposal branch and are aimed at improving landfill practices such that airspace is used more efficiently. They are distinct from those operational interventions that improve business efficiency. The key objectives of the interventions are to improve operational planning, processing, and compaction of waste such that the full available airspace is utilised, which together with a waste body of optimal density will maximise landfill life. These interventions are described in **Table 23**.
- **Strategic** – these interventions have the potential for greatest impact on airspace longevity. Some of these interventions including upstream waste diversion are not within the mandate of the Disposal Branch and may require wide scale system upstream changes (Directorate level) to realise the airspace benefits. They have the potential to significantly increase the airspace stocks in the CCT or will have a material effect on the rate at which airspace is consumed. They are referred to as strategic as they need both longer planning and implementation timeframes and will have medium to long-term impact. These interventions also require detailed supporting studies to inform their feasibility and cost of implementation e.g. wide scale diversion and Landfill mining. (Refer to **Table 24**).
- **Advanced** – these are interventions that are typically capital intensive and would require a fundamental change in how landfills are managed from waste acceptance, handling through to disposal. They are perceived as high cost and operationally complex and they are not common in the South African context.. The costs of such interventions should be weighed up against the savings in other parts of the waste management system. In a future where the waste character received at landfill is likely to change, particularly where organic fractions are banned, future landfill operations may be better suited to these types of interventions e.g. Pre-processing and pre-compaction of waste (Refer to **Table 25**).

The interventions are discussed in the following sections and are presented in an interventions impact matrix.

Operational interventions to improve airspace usage are distinct from those operational interventions that improve business efficiency. In the context of this report, the key objectives of the interventions are to improve operational planning, processing, and compaction of waste such that the full available airspace is utilised, which together with a waste body of optimal density will maximise landfill life.

Table 23: Identified operational interventions and potential impact on airspace consumption

1. Maximising landfill settlement			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
Landfills settle over time due to biodegradation (conversion of organic matter to landfill gas and leachate) & consolidation (due to an increasing vertical mass of waste). • By actively planning site operations temporally, the landfill operator can strategically fill parts of the site that are then allowed to lay fallow until settlement has taken place. Waste is then only placed in these areas once a planned 'settlement' window has been reached. • If this actively planned filling is not possible, an alternative would be to fill the site beyond the licensed height in anticipation of future settlement. • Stockpile management could also play a part in accelerating consolidation.	This is a passive intervention insofar as there is no material monetary investment or daily operational changes required.	• A detailed filling plan would need to be produced, which may need to be procured externally. • Additional surveys required to actively monitor effectiveness of filling plan • Buy-in to the plan by operational staff will be necessary to ensure full benefits achieved. • Regulatory approval may be required to temporarily exceed maximum permitted height. • When filling above the licensed height the operator will have to rely on assumed settlement rate. These rates vary for different landfills and therefore the final height achieved is unlikely to be optimal. Actively planning and measuring consolidation would lead to more optimal outcomes. • Stockpile 'micro-management' may be an	• Costs to implement are low – requires a master filling plan that would need updating annually (may need to be outsourced, though combined with interpretation of airspace consumed, which is being done already). • Active management of the filling plan by site staff and supported by senior staff. • Impact on RUL expected to be relatively small but given the low cost to implement is likely to pass a cost benefit test.

		additional operational burden.	
2. Maximise available airspace and reduce cost of closure – slope management			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
Often landfill slopes are graded by eye by machine operators. While this is generally adequate for intermediate slopes, final slopes must not exceed maximum grades as set out in the end-use plan. They should also not be flatter than that set out in the end-use plan as the full available will not be utilised.	Passive intervention that will ensure full use of all available airspace. Will also minimise the extent of earthworks required upon closure when slopes closely match the end-use plan.	• A final, optimised end-use plan that extracts maximum airspace within the allowed • Regulatory constraints will need to be developed. This should comprise final levels, final slope grades and toe coordinates. • Will require active management of plant operators to ensure slope grades as set out on site are adhered to • Would require regular installation of batter boards by surveyor • Requires more regular surveys to assess slope grades. Corrective action can be taken earlier if slopes grades are not optimal.	• The cost to develop the plan would be low given that it already exists. May require optimisation by evaluating various terrain models in conjunction with slope stability assessments • Monitoring of final side slope grades for compliance with the plan is also a low-cost intervention, and indeed, it is understood that the CCT does ad hoc monitoring of slope grades. • The net impact on RUL is likely to be low, but relative to the cost of implementation will probably pass a cost-benefit test. Indeed, the opportunity cost of not actively monitoring adherence to end-use plans and final slope grades may be very high at time of closure due to extensive

			remedial works to shape the site to acceptable grades.
3. Maximise available airspace and reduce cost of closure – slope management using alternative daily cover (ADC)/temporary cover			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
Alternative daily covers (ADC) used in lieu of the Standard 150mm soil cover. They are typically placed over the working face at the end of the day and removed before disposal operations continue the next day. Typically, a geotextile is laid over the waste and ballasted down. The following day, operational staff roll-back the geotextile from the area that will then receive that days-worth of waste and then re-use that geotextile (recovered at the end of day).	● Active intervention ● ADC saves valuable airspace. The Minimum Requirements advises adding 25% to annual airspace consumption estimates when estimating RUL to account for cover usage ● Some ADC's are reusable and are therefore a cost-effective alternative to soil (especially if cover has to be purchased) ● Could potentially reduce perched leachate when reusable ADC replaces soil cover with low permeability (such as clay) ● May reduce odours emanating from the working face (if ADC is impermeable) as compared soil.	● Requires a change in operations – removing the ADC before filling starts in the morning and placing it back on the site following cessation of filling ● Daily operations would need to be carefully sequenced and the working face kept as small as possible ● Waste in fallow areas would still need to be covered (i.e. plant will still be needed for this) ● Disposable, impermeable ADC that are left in place each day could create perched leachate layers.	● The investment cost would depend on the type of ADC and the requirements for placing and removing it daily. The real cost is likely to be borne by the additional operational burden ● Given the potential airspace, saving of 25% the impact is theoretically significant. While this full benefit will not be realised since fallow areas of the landfill would still need covered, there is a case for trialling ADC to evaluate the costs and benefits.

4. Proactive cover management			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
Ensuring that the minimum amount of cover is used while remaining compliant with WML conditions. This would entail proactive monitoring of the amount of cover used daily and then adjusting operations to reduce usage by as much as possible.	• Passive intervention • Reduces airspace consumed by inert material • Optimises cover material usage (especially where this is in short supply and/or needs to be imported).	• Additional monitoring required (measuring / tallying loads/day) • May require operational intervention to optimise the working face dimensions to minimise cover area (for example deeper lifts) • Training/experimenting with optimal placement of cover material delivered to the working face prior to spreading to ensure even spread of material across working face.	• There is little direct investment cost involved in this intervention. A formal short-term pilot could be run to ascertain the optimal loads of cover needed each day as well as the optimal placement of the cover prior to spreading. • The impact would depend on the current cover material usage practices. By running the pilot, the data on usage will be known and the opportunity for improvement. • The very low investment costs as compared to potential impact would certainly pass a cost benefit assessment.
5. Optimal use of plant to maximise compaction (and reduce operational costs)			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS

Purposefully organising the working face operations to optimise compaction effort by using each unit of plant for its intended purpose • Dumped waste (from rucks) should be spread in thin layers to ensure full compaction depth. • Landfill compactors are purpose-built machines that should ideally compact waste on relatively flat surfaces/benches and working faces not exceeding 1:4. They are also not meant for dozing waste. The compactor blade is meant to spread waste before the wheels shred and compact the loose waste into a denser matrix • Minimum 4 passes of landfill compactor over same area of waste and following a logical pattern to ensure full coverage of the working face	• Passive intervention • Professionalising the working face operations • More effective compaction • Using machines for their intended purpose lowers operating costs (fuel and maintenance particularly) • Using compactors for compacting only (as opposed to dozing waste) will ensure it spends more time doing what it was designed for • An ordered working face improves on site health and safety conditions.	• Planning & demonstrating the 'organised working face' concept for operational staff will be required • Training on proper use of machines • Acceptance of change by experienced landfill operators – changing the mindset from 'this is how we've always done it' • Will require active monitoring of working face operations to ensure the strategy.	• Improvements in compaction may be in the order of 10% depending on existing compaction effectiveness • RUL impact relatively small but there may be significant ancillary benefits (operational cost savings, ordered, safer working environment) • Essentially a good practice intervention with very low investment costs (training) and will pass a cost-benefit test.
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• Bulldozers are not effective at compacting waste (the tracks being designed to spread load and maximise traction) and should be used to complement the landfill compactor by pushing and spreading waste stockpiles across and/or down the working face while the compactor runs parallel to the slope.			
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Strategic interventions refer to those actions that have the potential to significantly increase the airspace stocks in the CCT or will have a material effect on the rate at which airspace is consumed. They are referred to as strategic as they need both longer planning and implementation timeframes and will have medium to long-term impact. These interventions also require detailed supporting studies to inform their feasibility and cost of implementation. Strategic system interventions (upstream waste diversion for example) will likely be driven at a Departmental level (as opposed to branch level) as there are significant implications across the entire waste management chain if implemented.

Table 24 : Identified strategic interventions and potential impact on airspace stocks

1. Increasing the licensed height of existing landfills			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
Vertical extension of the landfill by amending the licensed height. Where no basal liner exists a "piggyback approach", where a new liner system is installed over existing waste, may	• Passive intervention • Develops a large additional volume of airspace in short time span • Effectively reduces the unit costs of landfill	• Inexpensive intervention but trade-offs include visual impacts and public acceptance • Function of other steps such as applying for	• Relatively low investment cost (environmental impact studies and engineering assessments) for high impact in terms of extending airspace

be considered.	cell infrastructure (basal lining system) • Low historic cost and land already 'contaminated' • Avoids additional economic and environmental costs of a new landfill. • Most significantly it avoids the added logistics costs as it is likely that new landfills will be located further away from the City	a waste license amendment, informed by engineering studies including a visual impact assessment and stability analysis • May discourage implementation of waste diversion projects especially in the absence of other regulatory drivers for diversion of waste • May not be technically feasible (stability) • May not be practically feasible (topographic limitations)	especially when considering the avoided costs of developing new infrastructure (be it landfill or alternative treatment facilities) • Investment cost would increase where piggyback liners are required, but would still be more cost-effective than a new site
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2. Wide scale diversion of waste from landfill

DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
Diversion of waste from landfill to treatment or beneficiation infrastructure (public and private). This reduces the amount of waste to landfill. Diversion could be achieved through extensive	• Active and full system intervention • Wide scale diversion of waste will have a significant positive impact on landfill RUL • Diversion of organics would reduce	• Active intervention and whole system change • The NWMS (2020) sets targets for diversion of waste from landfill with a mainly packaging	• Effective implementation of diversion will extend the RUL of landfills. • Organic waste diversion is likely to have a strong impact initially on airspace consumption but a relatively small

separation at source and beneficiation of clean materials. Another approach is downstream interception of waste fractions from mixed waste, which may be mechanically separated into components and beneficiated and/or used to generate products of treatment (biogas for example). Other options include thermal treatment with/without energy recovery. The residual waste from these treatment processes that would need to be landfilled is a small fraction of the initial volume. The main fractions targeted for diversion should be related to market demand and are typically organic waste (food and garden green waste) and packaging waste ('recyclable waste'). Waste avoidance, minimisation and recycling are at the top of the waste hierarchy and underpin waste policy, legislation and regulation in South Africa.	environmental nuisance and risk (gas and leachate emissions would be diminished) • Promotes a circular approach to materials management • Stimulates uptake markets and hence contributes to GDP • Diversion often requires labour intensive activities (separate collection, sorting and separating recyclables) and so creates employment opportunities, especially for SMMEs • Possible to better integrate communities into the waste management system than a linear 'collect-transport-dispose' system	focus. The DEA&DP have amended the CCT's WMLs, which now include clauses that direct the City to eliminate organic wastes from entering landfill by 2027. • GNR 636 requires 25% diversion (from a 2013 baseline at a particular landfill) of garden waste from landfill within 5 years (by 2018) and 50% diversion by 2023. • Implementing diversion programmes must be done at a system level across UWM, with co-ordination by the Waste Minimisation Branch. • Scale of diversion is contingent on effectiveness of separation at source and the value chain of specialized waste processing activities • Requires broad household and business participation supported by	impact in the long term (as organic waste degrades in the landfill) as the landfill settles due to biological processes • Recyclable waste diversion will have high impact given its relatively low density • The investment for diversion and stimulation of offtake markets is likely to be high and would require a significant change to the current system. A waste diversion strategy that considers separation at source vs. downstream extraction of materials and centralised vs decentralised treatment solutions will need to be developed to inform a cost-benefit assessment. This study would need to take into account whole of system costs and benefits
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		continuous awareness and behaviour change campaigns • Formalised diversion programmes may negatively impact informal waste diversion activities • Large-scale diversion will impact revenues from disposal while operational costs may not reduce at the same pace initially. Full cost accounting will need to be done at a system level rather than cost centre level	
3. Landfill mining			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
The process of extraction and restoration of landfill sites during which buried solid waste is excavated and treated for resource recovery (Interwaste, 2019)	• Alleviate space and local pollution concerns, thereby potentially extending the life of the landfill due to volume reductions • Recovery of	• Cost is directly related to size of the landfill as soil excavation, screening, testing and deposition account for 80% of the total cost of landfill mining (MIT,	• Positive impact on airspace stocks may be high but so too will be the costs. Unless there is a specific market demand for recovered materials (e.g. incinerators or cement kilns for

	various resources: soil reclamation, potential waste-to-energy production and supply of new source material for declining supplies (particularly metals frequently found in electronic products) (MIT, 2016).	2016). • Presence of hazardous waste is an additional cost factor, requiring toxicity characteristic leaching procedures (TCLP) to ensure safe reclamation. • Regulations would need to be in place to for landfill reclamation (e.g. permits) • Current limited uptake of rare earth reclamation is a challenge • Incentives (such as renewable energy credit / support) to promote energy production • Storage of reclaimed materials can affect usefulness (MIT, 2016)	combustible fractions) then this intervention is unlikely to pass a cost-benefit test. Material outputs and their anticipated marketability constitute a key issue of any landfill mining scenario (Krook, et al., 2019) • Gas extraction infrastructure would be lost if landfill mining was pursued (already large investments by CCT) • The foresight to consider landfill mining in the future when landfilling today may reap dividends. There may be an opportunity to landfill in a manner that allows simple recovery of materials once markets are established at a later date – i.e. to use landfills as a store of value for low cost mining in the future. • Note: UNLIKELY TO BE FEASIBLE FOR THE FORESEEABLE FUTURE and currently will only be explored as a last resort as not deemed cost effective
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Advanced interventions are those that are typically capital intensive and would require a fundamental change in how landfills are managed from waste acceptance, handling through to disposal. These interventions are not common in waste management, as they are perceived as high cost and operationally complex. In a future where the waste character received at landfill is likely to change, particularly where organic fractions are banned, future landfill operations may be better suited to these types.

Table 25: Identified advanced interventions and potential impact on airspace consumption

1. Pre-processing of waste on site			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
Pre-processing of waste refers to the process of shredding or pulverising waste into smaller fractions such that it is more conducive to compaction.	Shredded and compacted waste theoretically creates a more homogenised waste mix that is easier to handle and compact at landfill.	- Waste should be screened (to remove large fractions unsuitable for shredding) - Ideally most of the organic fraction should be extracted - Space for offloading, screening, shredding, stockpiling	- Modern landfill compactors are designed to pulverise and shred mixed wastes while compacting rendering pre-pulverisation somewhat unneeded - Shredding of waste will add costs to landfill operations as waste would be double handled. - The capital investment required for pre-processing equipment will likely not provide the airspace benefit relative to cost of implementation / operation - unlikely to be a cost-effective intervention
2. Pre-compacting of residual waste			
DESCRIPTION	CLASSIFICATION	REQUIREMENTS FOR IMPLEMENTATION	IMPORTANT CONSIDERATIONS
Similar to above, in that waste is pre-processed, but with the processed waste then also being compacted (typically into bales), tied and possibly wrapped for transport and	By pre-compacting and securing the waste in a bale, the density is retained when placed in the final storage location or landfill. This in contrast to waste from RTSs,	- Upstream diversion of organics and high value packaging waste. - Residual waste material to be screened of residual organics and waste shredded	- A baled system is best suited to a dry residual waste stream where organics have been removed. - Baled residual waste could represent a store of value for future landfill mining. - Wet waste bales do not retain their structural integrity and may

placement in a bale fill. Pre-compacting for landfill refers specifically to the compression of waste into a block (bale) that is secured by plastic or wire strapping (PWM Waste Systems, 2018). Compression by bailing into blocks can happen post-weighbridge at transfer station or post-weighbridge at landfill.	which is pre-compacted into bins to maximise payloads. • Once the compacted waste is ejected at the landfill, the waste increases in density again. • Bales may be easier to store and more efficiently handled for transport. Bales do not require specialised waste handling equipment for manoeuvring or placement. • Bales can be transported via existing modes (flatbed trailers for example)	• Space for offloading, screening, shredding, baling and storage of bales • Bale handling equipment	collapse during transport and placement. • Moving to a baling system requires an overhaul of the current waste handling equipment and infrastructure (e.g. supply and installation of bailing machines). This will change the way landfills are operated and will require significant reinvestment in waste management equipment at transfer facilities and landfills. • Bailing may be difficult to use on existing landfills if there is a requirement for dedicated cells (DFFE, 2015). • Leachate generation quantities at landfill are unknown and impact on gas generation likely to be negative (DFFE, 2015) • Operating costs may be high (DFFE, 2015), especially considering new capital investments that would be required to change to this system • Pre-compaction of unprocessed waste does not change the characteristics of the waste and it will have the same impact on the environment as un-compacted waste (CIWM, 2020) • Note: This is not a preferred option as significant challenges were experienced in the past due to operational complexity and specialised equipment requirements and the operations at ARTS was abandoned.
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CHAPTER 12

12. PROJECT PIPELINE

The management of pipeline of projects to ensure successful delivery of services is critical. To this end, the following measures are in place within UWM:

- A PMO section has been established to deal with project and contract management, which interfaces with project managers within the respective Branches of UWM.
- A demand plan agreed to with Supply Chain Management showing timelines to ensure contracts are in place as and when required.
- Technical experts that participate in the development of specifications and the evaluation of bids, though the number may not be commensurate with the need.
- Monthly engagements with the Chief Financial Officer to monitor performance against the demand plan and identifying areas requiring focused attention.
- Comprehensive repository of all procurement contracts, including financial performance on contracts, which helps in identifying recurring or repeatable tenders that are up for renewal.

12.1 Major/bulk infrastructure projects

The major capital infrastructure identified programmes have been split into the operational units.

Disposal

- Regional facility – licensing, land alienation and development – land acquisition
- Transfer Station development (2 sites - Helderberg and Coastal Park)
- Development of Material Recovery Facilities
- Complete LFG Infrastructure to flaring/energy
- Development of Organic waste mechanical separation plants
- Develop Drop-off facilities
- Transfer Station development;
 - Coastal Park RTS
 - Helderberg RTS
- Airspace development;
 - Vissershok
- Regional Landfill (procurement of land, licensing, land alienation and development).

The detailed information on CAPEX projects in excess of R10m and projects less than R10m are included in the attached **Annexure A**. The capital projects information is categorised in accordance with the following criteria;

- New projects/replacement
- Refurbishment; and
- Improvement/expansion.

12.2 Projects in support of other Sector pipelines

UWM projects align with the following IDP initiatives for informal settlement and Backyard support.

2. Improved access to quality and reliable basic services.

2.1 Mainstreaming basic service delivery to informal settlements and backyard dwellings programme.

2.2. Informal settlements waste collection project.

2.3. Backyard dwelling service support project.

12.3 Intergovernmental project support

Urban Waste Services are not a prerequisite to the provision of other infrastructure Services because it is demand driven.

CHAPTER 13

13. TRIGGERS

This section describes the trigger framework for Capital Projects within the Urban Waste Directorate. It describes the reasons behind the initiation of current directorate projects, which ranges from legislative requirements to service demand.

In conducting project prioritisation, Projects were scored against the following matrix.

a) **Land Acquisition**

This entails the availability of land i.e. reservation, zoning, procurement for project development. Projects in the more advanced stage of acquiring land were scored higher on the matrix.

b) **Licencing Requirement (legal)**

Compliance with legislative requirements in terms of environmental authorisations.

c) **Locality (based on formal/informal) 1 formal 10 informal**

Projects in informal / densely populated areas attracted more points than projects in urban areas. This is meant to enhance waste management services and promote equity in densely populated areas.

d) **Supports Organic waste diversion/Potential**

Most waste facilities has a built in capacity to accept organic waste . In order to meet organic waste diversion targets, projects which have potential to attract more organic waste than others attracted a higher score.

e) **Support Dry Recyclable (diversion from landfill)**

This is still in line with legislative requirements . The directorate has adopted 28% target for waste diversion in the 2023/24, with with adjustments for the outer years. Projects with high potential for waste diversion obtained more points than those which do not. Specific focus on areas with existing waste minimisation programmes in place.

f) **Supports Job creation**

Directly linked to the waste diversion is the element of job creation. Drop offs with high recyclables materials have a potential to support local economic development and create job opportunities.

g) **Project Dependencies/ Risks**

Projects were assessed for risk based on their locality, likelihood of risk, and impact.

The following tables depicts the prioritised projects for Disposal and Drop offs as supported by the project pipeline. The four (04) prioritised projects for each category are highlighted below.

Table 26: Scoring of Drop offs

Items	Khayelitsha Drop -off (New)	Bothasig (New)	Belhar (Upgrade)	Durbanville (New)	Kuilsriver (New)	Macassar (New)	WesBank (New)	Mitchell's Plain (New)	Simons Town (New)
CPX Number	CPX.0014 679-F1	CPX.001 4676-F1	CPX.0014 646-F1	CPX.0014 677-F1	CPX.0014680-F1	CPX.0014678-F1	CPX.0014681-F1	CPX.0023130-F1	CPX.0023129-F1
Measurement Indicator									
Approved Budget	10	10	10	10	10	10	10	10	10
Land Acquisition	5	5	1	5	10	5	5	5	5
Licencing Requirement (legal)	1	1	5	1	1	1	1	1	1
Locality (based on formal/informal) 1 formal 10 informal	6	1	1	1	1	1	6	5	1
Supports Organic waste diversion/Potential	10	10	10	10	10	10	10	10	10
Support Dry Recyclable (diversion from landfill)	10	10	10	10	10	10	10	10	10
Supports Job creation	5	5	5	5	5	5	5	5	5
Project Dependencies/ Risks	5	5	5	5	5	5	5	5	5
Subtotal	52	47	47	47	52	47	52	51	47
Weighting Priority: 1-2 Low; 3-5 Medium; 6-10 High	8	5	5	6	6	6	5	5	5
Grand Total	416	235	235	282	312	282	260	255	235

Table 27: Scoring for Disposal projects

	Low	Med	Hig h	CP - Piggy back cell	CP MRF	CP RTS	CP Organic Diversio n	VLS exp ansi on	ARTS mod ernis ation	BRTS upgra de and MBT (BCP organi c waste facility)	CP Increa se in height (very new and still to be approv ed.	Upgr ade of KWM F	CP LFG	VLS LFG	Gantry Crane Project	Mining of closed Landfills	Upgr ade of RTS	OWF - Decent ralised model (Very new)	Region al Facility
Project				CPX.000 7924	CPX. 0007 910	CPX.00 10025	various	CP X.0 007 920	CPX. 0007 847	CPX.00 10026	New	CPX. 0010 028	CPX. 00 1106 7	CPX.00 14654 CPX.00 14655	CPX.00 14696	In planning	vario us	In planni ng	CPX.00 03136 CPX.00 03137
Measurement Indicator	#1	#5	#10																
Approved Budget				10	10	10	10	10	10	7	1	10	10	10	7	1	5	5	5
Land Acquisition				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5
Licencing Requirement (legal)				1	1	1	1	1	5	5	8	1	1	1	5	5	5	5	10
Locality (based on formal/informal) 1 formal 10 informal				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Supports Organic waste diversion/Pote ntial				5	5	5	5	5	10	10	5	10	1	1	5	5	10	10	10
Support Dry Recyclable (diversion from landfill)				1	10	5	1	1	10	10	1	10	5	5	5	5	10	5	10
Supports Job creation				1	10	5	5	5	5	10	5	10	1	1	1	1	5	5	10

Project Dependencies / Risks				1	1	10	10	1	10	5	5	1	1	1	1	10	5	5	10
Subtotal				21	39	38	34	25	52	49	27	44	21	21	26	29	42	37	61
Weighting Priority: 1-2 Low; 3-5 Medium; 6-10 High				6	8	10	8	8	6	10	10	5	4	4	6	4	8	8	10
Grand Total				126	312	380	272	200	312	490	270	220	84	84	156	116	336	296	610

13.1 Land requirements

13.1.1 Land availability assessment

The actual land needed for the development of the new regional facility still needs to be identified. Feasibility to identify suitable land will be conducted in the 2024- 2025 financial year.

The following table depicts the status of land identified/ required for pipeline projects

The land reservation process not finalised for most Drop offs. Due to this, the implementation dates shifted to the outer years.

Table 28: Land Availability Assessment

NEW INFRASTRUCTURE PLANNED									
Facility name	Location GPS Coordinates (where applicable)	Alignment with MSDf (Y/N)	City land Reservation status	Acquisition plan identifying correct area to purchase	Environmental Authorisation	Current land use	Change of land use required	Land acquisition budgeted for	Planned Project start date
Bellville complex (transfer station and compost plan) Regional landfill site	Bellville South Industrial	Yes	Yes required from water and sanitation	n/a	Waste licence	Utility	To be determine	n/a	2027
	To be identified	Yes	n/a	Yes	Waste licence	Unknown-pending identification of land	unknown	yes	2028
Bellville drop-off	To be finalised	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017 will be required when the construction is completed	Unknown-pending identification of land	unknown	n/a	Not confirmed
Bothasig drop-off	To be finalised	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017 will be	Unknown-pending identification of land	unknown	n/a	Not confirmed

					required when the construction is completed				
Durbanville drop-off	To be finalised	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017 will be required when the construction is completed	Unknown-pending identification of land	unknown	n/a	Not confirmed
Khayelitsha drop-off	To be finalised	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017 will be required when the construction is completed	Unknown-pending identification of land	unknown	n/a	Not confirmed
Macassar drop-off	To be finalised	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017	Unknown-pending identification of land	unknown	n/a	Not confirmed

					will be required when the construction is completed				
Kuilsriver drop-off	To be finalised	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017 will be required when the construction is completed	Unknown-pending identification of land	unknown	n/a	Not confirmed
Mitchell's Plain 1 & 2 drop-off	To be finalised	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017 will be required when the construction is completed	Unknown-pending identification of land	unknown	n/a	Not confirmed
Simons' Town drop-off	To be finalised	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017 will be	Unknown-pending identification of land	unknown	n/a	Not confirmed

					required when the construction is completed				
Wesbank drop-off	To be identified	Yes	Not started	n/a	NWMA: Norms and Standards for sorting shedding grinding and baling 2017 will be required when the construction is completed	Unknown-pending identification of land	unknown	n/a	Not confirmed
Mitchell's Plain minidrop-off	Judo Street Public Space,Eastridge,Mitchell's Plain.	Yes	In process	n/a	Duty of care to be registered	Open space 2	Yes	n/a	01.03.2024
	Zither Street,Steenberg&Symphony Avenue	Yes	In process	n/a	Duty of care to be registered	Open space 2	Yes	n/a	01.03.2024
Scottsdene mini drop-off	Eoan Avenue(next to VGK Scottsdene)	Yes	In process	n/a	Duty of care to be registered	Single Residential 1	Yes	n/a	01.03.2024
Joe-slovo mini drop-off	Democracy Park-Cnr Atlas Drive&Democracy Way	Yes	In process	n/a	Duty of care to be registered	Open space 2 (Court Order : 1780/2021)	Yes	n/a	01.03.2024

Kuilsriver mini drop-off	Cnr 35 th Avenue&Old Stellenbosch Road	Yes	In process	n/a	Duty of care to be registered	Open space 2	Yes	n/a	01.03.2024
Delft mini drop-off	Leiden Ave,open space between Koonap&Mkuze Str	Yes	In process	n/a	Duty of care to be registered	Community 2 Regional	Yes	n/a	01.03.2024
Philip mini drop-off	Tokwana street at Better life close to the graveyard	Yes	In process	n/a	Duty of care to be registered	Community 1 Local	Yes	n/a	01.03.2024
	Green belt behind erf 60148, 4 Zelani Mkhonza Street	Yes	In process	n/a	Duty of care to be registered	Community 2 Regional / 102	Yes	n/a	01.03.2024

13.1.2 Land procurement

Disposal facilities

The Regional facility has yet to be procured and the cost is estimated at R300 million. The feasibility study is underway to identify suitable land for the facility. The project will also need to include an extensive Environmental Impact Assessment.

Depots

The cleansing branch will require additional land for the development of new depots. Currently the Parow depot of Area Central is experiencing significant space constraints and there is a need to source land for the development of a new Cleansing depot to replace the Parow facility. It is anticipated that land being considered is registered to the City of Cape Town so it will not require any procurement.

Land for depots and drop offs should be identified at the conceptualisation stage of the township development, as it is done with recreational spaces, parks, church lands etc. This will enable the directorate to have pockets of land identified for possible use as depot. This will be influenced by the operational strategic model adopted by the directorate (i.e. insource or outsource). This should be driven by the principle of the spatial development framework where all factors that influence the sustainability and efficiencies to services are being considered. A resource determination (i.e. land for depots) prior to approval should be standard which will be activated by the size of the development. Factors that will influence that will be densification, type of development (i.e. single residents' v/s block of flats and or estates and business mix).

Drop-offs

City land is considered for the development of drop offs and mini drop offs, no procurement of land is required.

CHAPTER 14

14. OPERATING MODEL

This section outlines and analyses the sources and elements required for the successful operations of the Urban Waste Management business.

14.1 Operating areas/ Service delivery areas

Operating areas

Table 29 summarises the facilities excluding depots operated by Urban Waste Management, the area, type of facility and expansion possibilities are where budgets are being allocated in the next 10 years for expansion, upgrades and new facilities

Table 29: Urban Waste Management operating facilities.

NUMBER ON THE MAP	NAME	TYPE	STATUS	POINT_X	POINT_Y	Expansion Possibility
1	Bonteheuwel	Drop-off	Planned	18.56239992	-33.95686312	Space Avail
2	Athlone	Drop-off	Current	18.51580704	-33.94868313	MBT, MRF, RTS upgrade
3	Vissershok	Drop-off	Current	18.54441487	-33.77392690	Expansion / LFG
4	Kraaifontein	Drop-off	Current	18.73735336	-33.83822942	MRF refurbishment
7	Ravensmead	Drop-off	Current	18.60548196	-33.92853668	No Space
9	Schaapkraal	Drop-off	Current	18.53468705	-34.03684712	Space Avail
12	Sea Point	Drop-off	Current	18.38202588	-33.92600201	Cannot expand
13	Coastal Park	Drop-off	Current	18.50186827	-34.08820555	New RTS, MRF, LFG
14	Welgelegen	Drop-off	Current	18.56939017	-33.87317476	Space Avail
15	De Grendel/ Fifth Avenue	Drop-off	Current	18.57673749	-33.89366815	Space Avail
16	Simons Town Blue Waters	Drop-off	Current	18.42258213	-34.17921176	Space Avail
17	Belhar	Drop-off	Current	18.63521319	-33.95144472	Space Avail

18	Delft	Drop-off	Current	18.64214181	-33.97812537	Space Avail
19	Tygerdal	Drop-off	Current	18.54794112	-33.89337671	To close
20	Atlantis	Drop-off	Current	18.47566317	-33.57481990	Space Avail
22	Faure	Drop-off	Current	18.69650783	-34.01566076	Space Avail
23	Kensington	Drop-off	Current	18.51493062	-33.91567367	No Space
24	Beaconvale	Drop-off	Planned	18.58090395	-33.91100005	Space Avail
25	Helderberg	Drop-off	Planned	18.80124904	-34.05712280	Proposed new LF, MRF Drop off
26	Parkwood	Drop-off	Planned	18.49316108	-34.03599120	Space Avail
27	Killarney	Drop-off	Current	18.52682412	-33.82928956	Space Avail
28	Kommetjie	Drop-off	Current	18.36822597	-34.13492881	Space Avail
29	Gordon's Bay	Drop-off	Current	18.88723690	-34.14889776	Space Avail
30	Hout Bay	Drop-off	Current	18.35785961	-34.03109002	No Space
31	Woodstock	Drop-off	Current	18.45083682	-33.92235981	Space Avail
32	Wynberg	Drop-off	Current	18.47991524	-34.00533214	No Space
33	Retreat Tenth Avenue	Drop-off	Current	18.47947796	-34.06127375	Space Avail
34	Swartklip	Drop-off	Current	18.65188943	-34.05190108	Space Avail
35	Induland	Drop-off	Current	18.51624842	-33.98945584	Space Avail
36	Mitchells Plain	Drop-off	Current	18.59625803	-34.06647068	Space Avail
38	Bellville Waste Management Facility Drop- off	Drop-off	Current	18.64828363	-33.92882041	LFG to flaring
39	Kraaifontein	Landfill	Closed	18.70640794	-33.82150128	MRF refurbishment
44	Atlantis	Landfill	Proposed	18.48302892	-33.64762452	Proposed
45	Kalbaskraal	Landfill	Proposed	18.65349595	-33.63620370	Proposed
46	Coastal Park	Landfill	Current	18.50248054	-34.09113946	Current

47	Bellville	Landfill	Closed	18.65326833	-33.93885996	LFG to flaring
48	Vissershok South	Landfill	Current	18.54232455	-33.77768699	Expansion / LFG
49	Kraaifontein	Waste Management Facility	Current	18.74035859	-67.77275198	MRF refurbishment
51	Swartklip	Refuse Transfer Station	Current	18.64915111	-34.04927222	Current
52	Athlone	Refuse Transfer Station	Current	18.51609631	-33.95201280	Current
53	Vissershok North	Landfill	Current	18.54319288	-33.77094685	Expansion / LFG
54	Coastal Park	Refuse Transfer Station	Planned	18.49956742	-34.09310730	New RTS, MRF, LFG
55	Helderberg	Refuse Transfer Station	Planned	18.79640686	-34.05724864	Planned
56	Bellville	Waste Management Facility	Current	18.64901180	-33.93200045	LFG to flaring
57	Vissershok North Leachate Plant	Leachate Plant	Current	18.53761461	-33.78058441	Expansion / LFG

These facilities are further categorised in terms of operational, function and service area as depicted in the figures below.

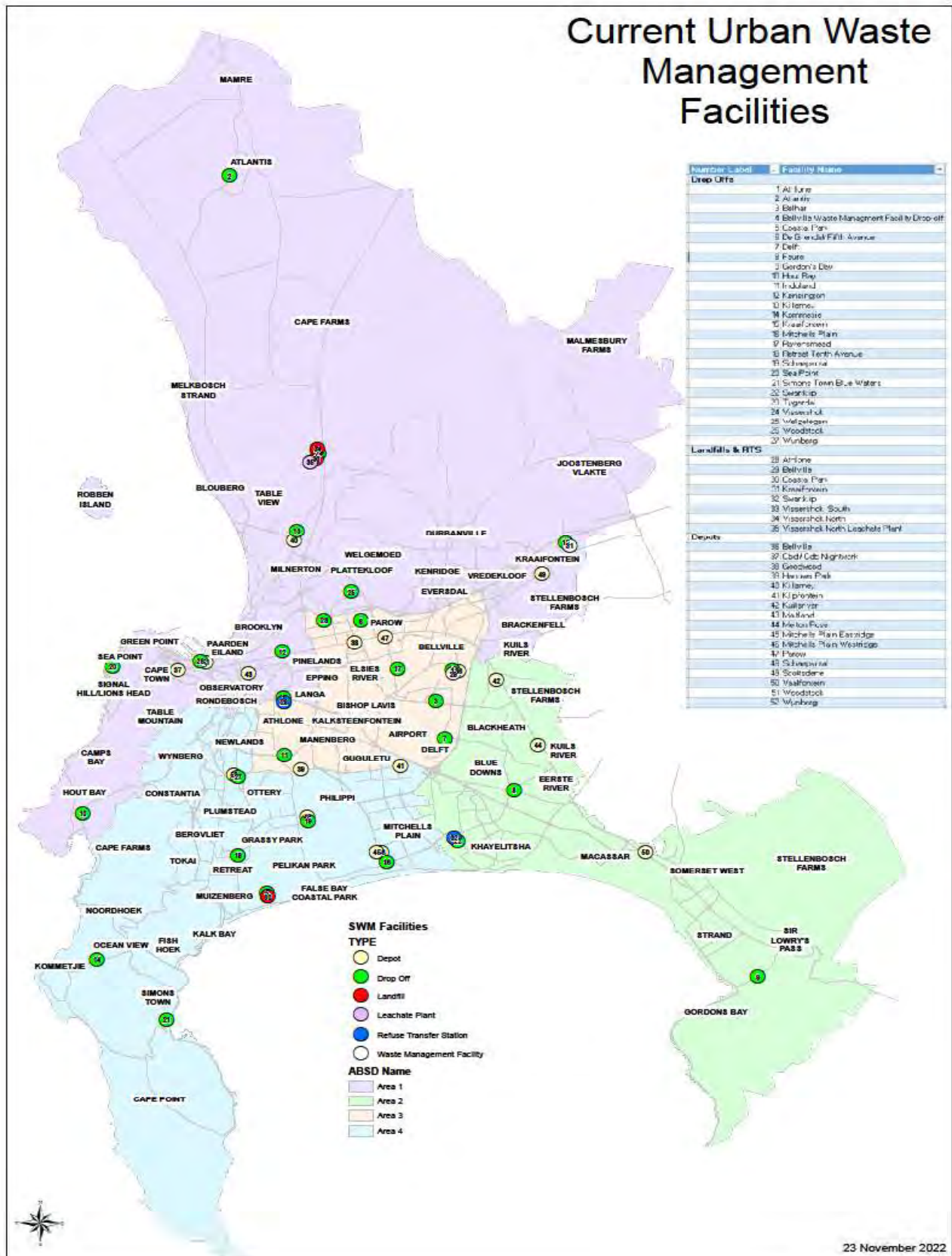


Figure 21: The location of the facilities that are within UWM

Collections and cleansing

Collections and Cleansing main household operations are classified into two main categories, which are formal and informal households and respond to the ever-growing needs of the city.

Collections branch Facilities

The Collections Branch has divided the City into four (4) service areas (see **Figure 22**) with roughly equal numbers of weekly lifts. The four service areas are Atlantic, Impuma, Tierberg and Two Oceans. Each service area is further divided into districts covering various suburbs receiving the refuse collection service. Collection beats in turn cover a portion of one suburb; a whole suburb; or more than one suburb. Each district is serviced out of at least one depot. Depots assist one another when operations are affected due to breakdowns or labour issues. When a depot requests assistance from another depot to complete a beat, a truck (with its staff complement) is sent to complete the beat.

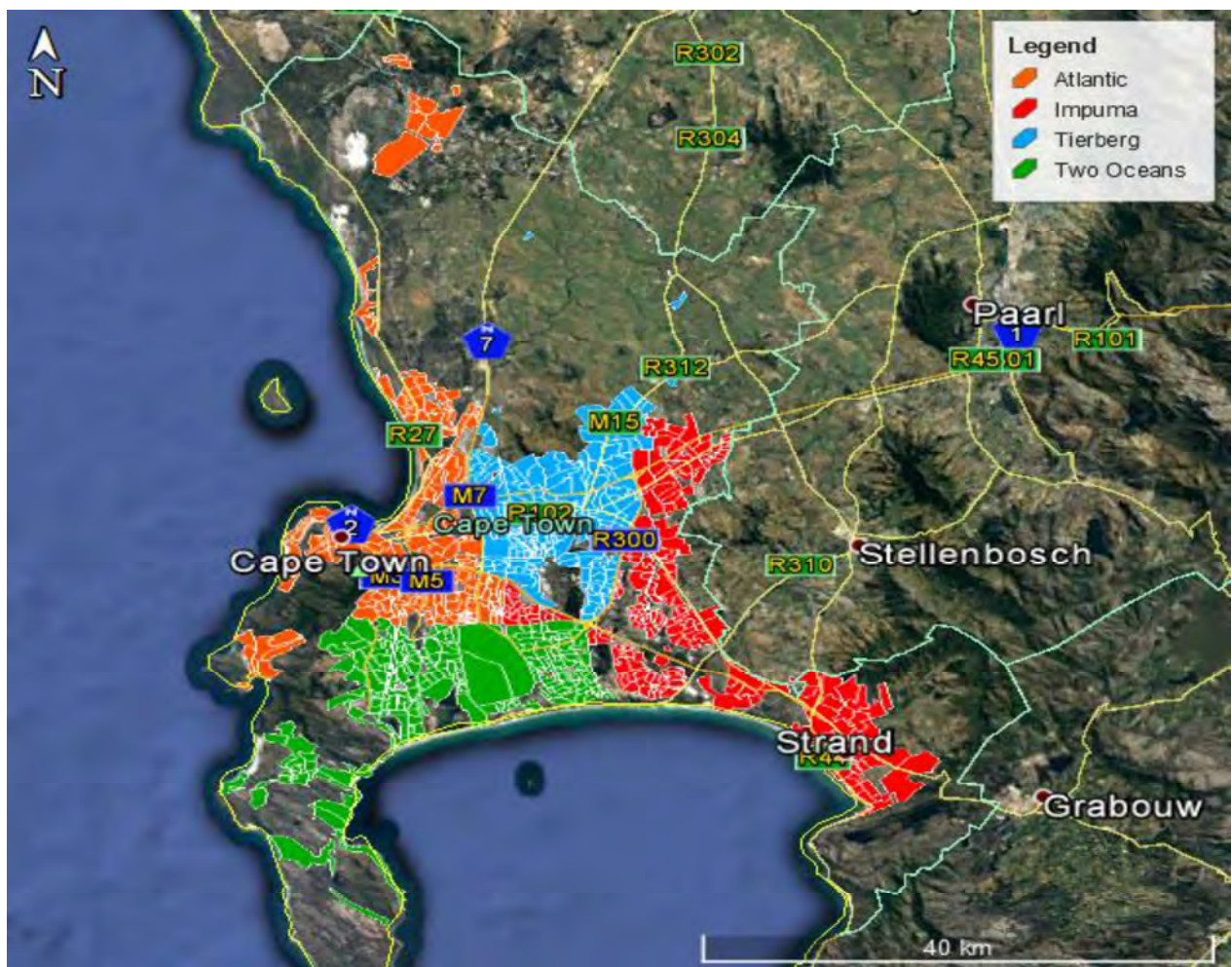


Figure 22: Collections Branch Service Areas

Formal collections

All formal residential properties (as defined in the CCT Tariff Policy) receive a collection service from the City. All formal households, including backyard dwellings where practicable, are provided with a 240L wheelie bin for all general waste. Households receive the kerbside waste collection service once a week, which is defined as the standard (basic) service level. The Collections Branch makes use of contractors to deliver the service to approximately 25% of customers.

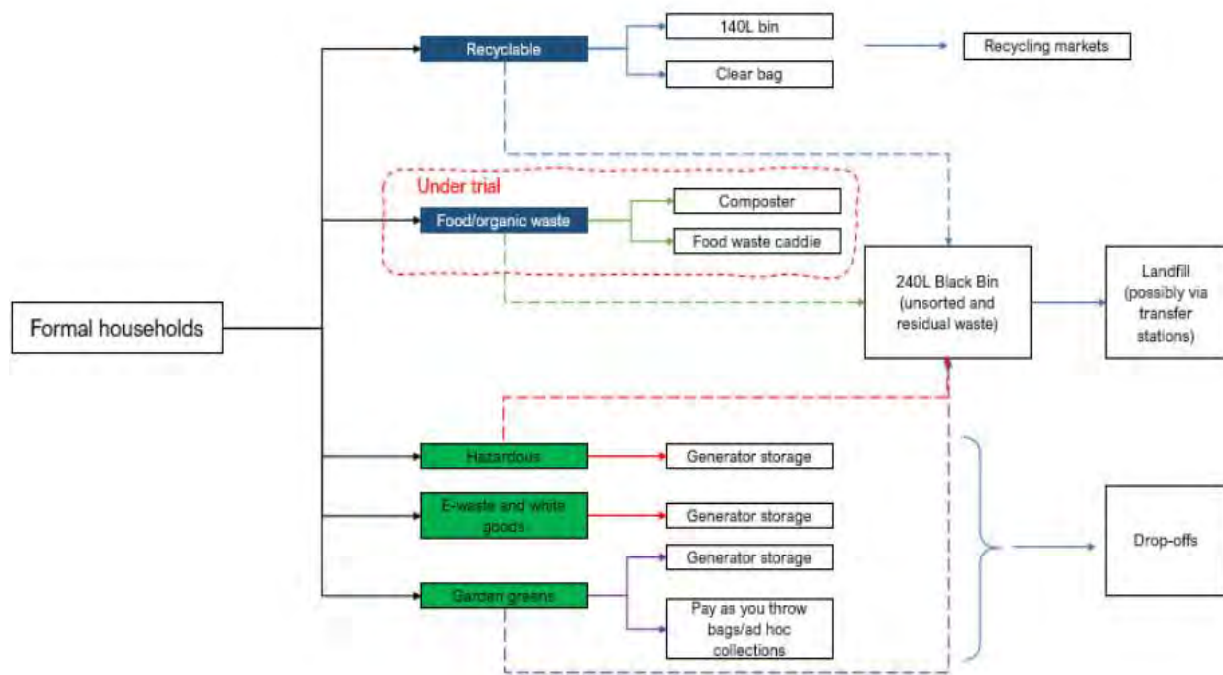


Figure 23: Collections formal household process

Informal collections

The standard service level for informal settlements is a once-a-week, bagged door-to-door waste collection service, provided by external service providers contracted by the Cleansing Branch. Each informal household is provided with blue refuse bags each week, of a size, number and design determined by the City. In addition to the refuse bag collection service, the Cleansing Branch provides communal bins/skips and "shipping containers" in informal areas as part of an integrated area cleaning and refuse collection service.

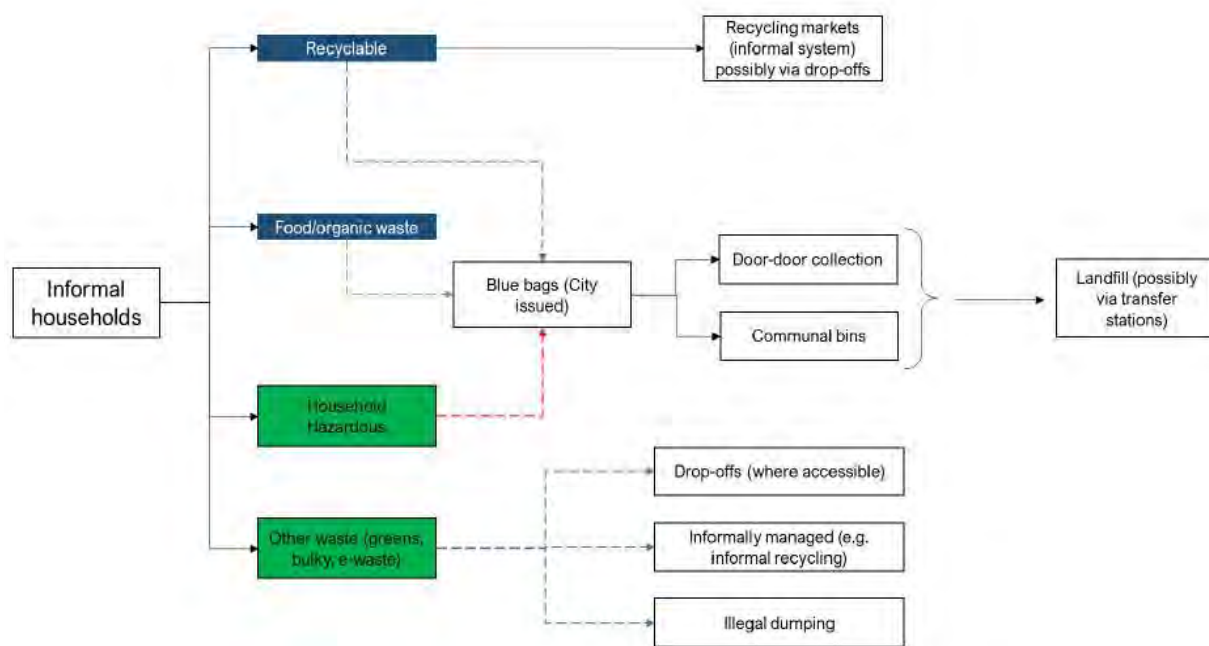


Figure 24: Cleansing informal household process

Drop-offs

The purpose of Drop-offs is to provide a self-service to residents for the disposal of bulky general waste and other waste streams such as garden refuse, builders' rubble and recyclables.

Some drop-offs also accept "garage waste", but only Athlone and Bellville drop-off facilities accept household hazardous waste.

Sorting of waste (into the various streams accepted at each drop-off) prior to arrival at a drop-off aids in the efficient operation of the facility. The public is therefore encouraged to do this beforehand, or upon arrival with assistance from drop-off staff. Vehicle and/or trailer capacity may not exceed 1.5 tonnes and a maximum of three loads per day per vehicle is allowed. The drop-offs' model focuses on enabling waste beneficiation through diversion of waste from landfill. The City contracts services from the private sector for chipping of green waste (and hauling to a composting facility), sorting and separation of recyclable waste and haulage of residual waste (not able to be beneficiated by the previous contractors) to landfill.

Presently there is a 7km radius coverage standard for waste drop-off facilities throughout the City, however the strategy is to change the coverage to a 3km radius as there is a demand for drop offs to be closer to communities, with prioritisation in low income and informal areas. Improving the coverage would require additional drop-offs to be implemented in areas such as Philippi, Mitchells Plain, Khayelitsha, Bellville and Durbanville.

Disposal branch facilities

Approximately 60% of waste is managed in the Athlone, Bellville and Swartklip catchment areas. These areas form part of the City's Urban Inner Core, where land use intensification (e.g. TOD) or diversification will be prioritised. The areas comprise of many informal settlement and low-income areas. MRFs, additional drop off facilities, buy back centres, partnerships with Buy-Back Centres (BBC)/private recycling collection companies and other waste minimisation initiatives may be required in these areas to accommodate anticipated waste growth due to land use densification and consequent increase in population in these areas. The waste management areas and the estimated waste managed in these areas are shown in diagram below.

Disposals

The key disposal points in the City and associated flow of waste goes through three RTS and one IWMF facilities or go directly to the two landfill sites as shown in **Figure 25**. Vissershok landfill receives less waste directly (over its weighbridge) as compared to Coastal Park, but more waste is disposed of at Vissershok as all RTS waste is transported to Vissershok, which has the appropriate infrastructure and systems to manage the RTS containers.

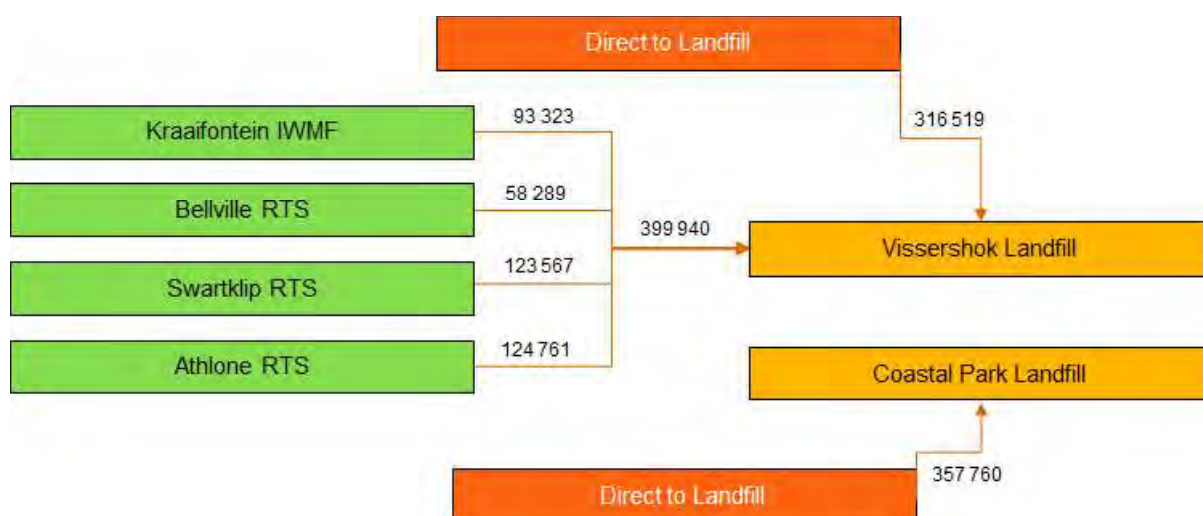


Figure 25: Waste flows through the City's physical infrastructure 2018/19 financial year

Urban Waste has an airspace challenge at the two-landfill sites with Coastal Park expected to reach capacity in 2026 and Vissershok Landfill to reach capacity in 2036. This scenario is based on CPK YOY ~ 10% growth airspace consumption growth and waste diversion measures. The interventions proposed by collections and drop offs and waste minimisation will have an effect of extending the life of these sites.



Figure 27: Catchment areas for the respective Transfer Stations in the City

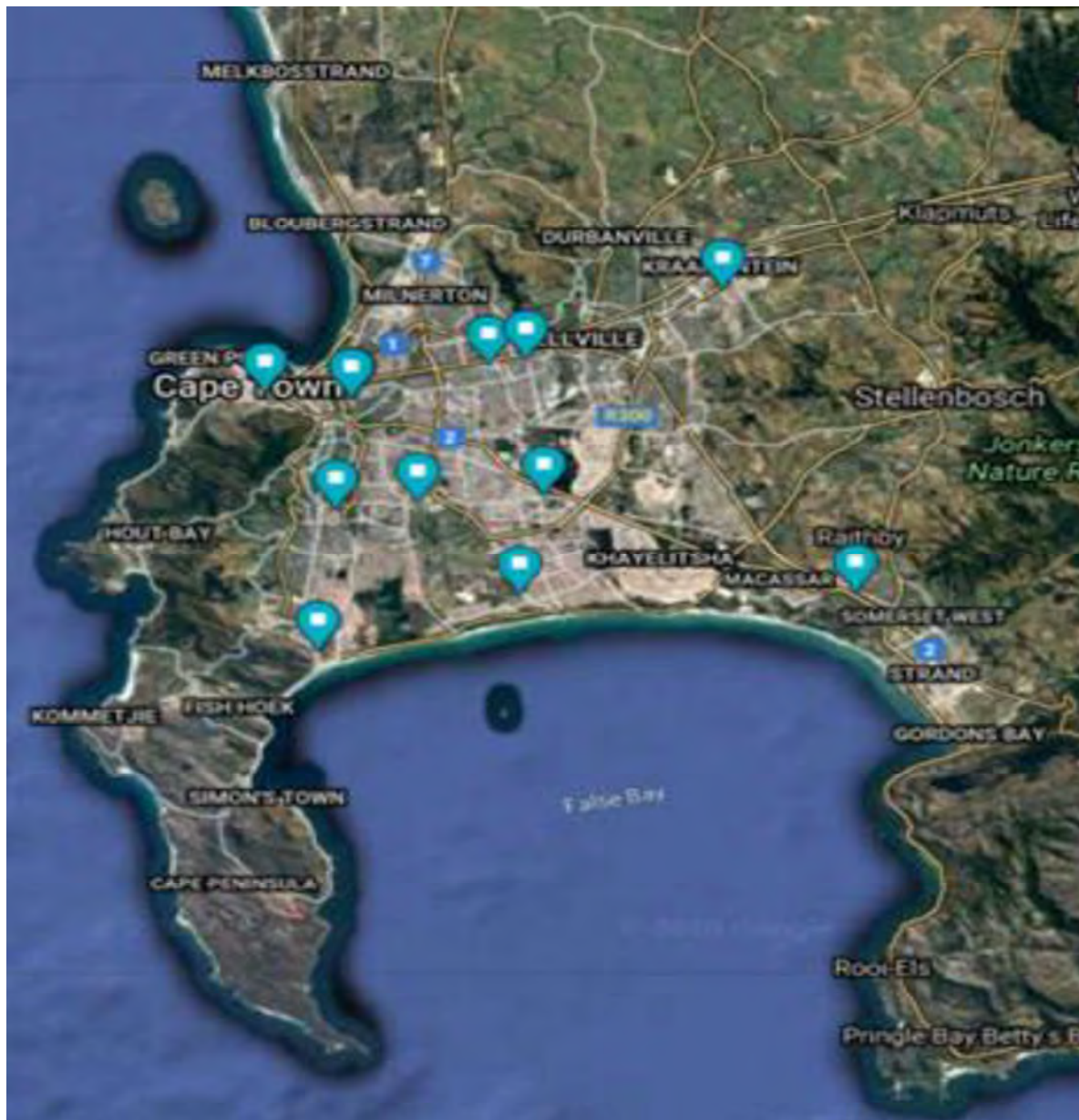


Figure 28: Distribution of cleansing facilities across the city

Drop off facilities and Micro Waste Transfer Stations are used synonymously and are classified into two classes (levels) namely minor and major. Macro Transfer Stations (RTS) is a large facility where waste is compacted before going to landfill. The distinction between the two is based on the size of the station and the type of processing that takes place.

Waste Minimisation

Separate collection of recyclables

The city also provides a separate recyclable collection service to 22% of the formal households "Think Twice" separation at source (S@S) programme as part of its waste diversion strategy. Private contractors collect co-mingled recyclable waste on a weekly basis. The City traditionally provided clear plastic bags to households that receive the service but now issue 140L "green lid" bins to households in new service areas.

Informal collection of recyclables

Swop shop

Although a separate collection of recyclables is not currently offered in informal areas, the City's Swop Shop Trailer, which was trialled in 2020 and 2022/23, has been redesigned, and the new (smaller) trailer is earmarked to potentially service a minimum of five informal areas weekly, resulting in a tangible incentive for communities to sort their recyclable waste. Residents swop their recyclable waste for vouchers, to be redeemed for items in the City's custom branded swop shop (pictures available). The new swop shop trailer has been completed, and the service will continue in 2024/25. There are plans (pending budget approval) to construct additional trailers and expand the service to additional areas.

Organic waste separation by/from fruit and vegetable traders

Following various trials, the separate collection of organic waste from fruit and vegetable traders is being expanded, both in various PTI/Trading areas, namely Bellville, Wynberg, Mitchellsplain, Cape Town and Epping, as well as Langa. Ongoing collection of tonnage and costing data is strengthening the business model to further expand this service.

The following are key cross cutting functions and activities for Urban Waste Directorate. A waste minimisation action plan, bringing together roles and responsibility from all role-players in urban waste management, is being developed.

Waste Minimisation

NWMS waste diversion targets

- Increase the roll-out of dry waste collection services to 180 000 households in the next 5 years - the Coastal Park Materials Recovery Facility is being constructed (to be completed in 2024), which should facilitate the expansion of this service to

approximately 100 000 additional service points, some of which are blocks of flats. In addition, the above . Prince George Drive catchment areas should facilitate an additional 15 000 households. The kraaifontein catchment is also progressively being expanded. Discussions and trials of alternative business models, in partnership with the PROs, are also in progress, potentially contributing to this expansion.

- Make use of both decentralised and centralised facilities (including drop-offs) to maximise diverted organics and packaging waste. Various trials are being undertaken to understand different business models for organic waste diversion, as well as comparative costing. This will inform the business models to be adopted.

MRFs and Drop-offs, and this will be expanded.

- Maximise green waste diversion, chipping, composting and or processing
- Maximise builder's rubble crushing and reuse (departmentally or externally)
- To in collaboration with City departments and external stakeholders develop and implement a Circular Economy Action Plan (cross cutting intervention in the City) and ensure aggressive communication and marketing campaigns to champion circular economy to effect behaviour change to achieve waste avoidance behaviour change in Cape Town - This action is pending a corporate City decision to move forward with such a cross cutting CE Action Plan. Such a decision has not yet materialised.

Waste pickers / SMME's / Job creation and PRO Engagement/Partnership in terms of new Extended Producer Responsibility Regulations

- Amend UWM regulatory instruments to allow unrestricted, but regulated access to certain waste streams
- As required by the National Waste Management Strategy and Extended Producer Responsibility Regulations, engage and partner with various stakeholders in terms of new business models for separation at source of packaging waste, including the Producer Responsibility Organisations, and the formal and informal recycling industry (including waste pickers), to integrate separation at source systems.

Climate change / circular economy

- Implement the strategy of accelerated accreditation of waste service providers to meet the NWMS waste diversion targets
- Increase the roll-out of dry waste collection services to 180 000 households in the next 5 years
- Make use of both decentralised and centralised facilities (including drop-offs) to maximise diverted organics and packaging waste.
- Maximise green waste diversion, chipping, composting and or processing
- Maximise builder's rubble crushing and reuse (departmentally or externally)
- To collaborate with City departments and external stakeholders develop and implement a Circular Economy Action Plan (cross cutting intervention in the City) and ensure aggressive communication and marketing campaigns to champion circular economy to effect behaviour change to achieve waste avoidance behaviour change in Cape Town

Waste pickers / SMME's / Job creation

- Amend SWM regulatory instruments to allow unrestricted, but regulated access to certain waste streams

Public Awareness and Education

It was realised that we need various approaches/ interventions that are tailor to the real time issues and in particular those communities in question. On the other hand, time has also shown that the current state of the City, the cleanliness, people's ownership, responsibility toward their own environment has taken a back seat, being not important and also not critical as dire issues such as housing, having food on the table and having a job are more essential than waste.

Therefore bringing the culture of ownership, responsibility, pride and care back to our immediate environment- our communities; our society will require more sustainable integrated waste management approach from all stakeholders.

Key activities and or interventions as follow:

- Overall awareness raising on littering, illegal dumping, waste avoidance and minimisation of waste .
- Encourage people participation in the use of waste management services and infrastructure use with the purpose to avoid illegal dumping.
- Create awareness on other resources available to encourage waste avoidance and diversion with the emphasis on landfill lifespan availability.
- Create indirect benefits through community waste capacity building sessions.
- Using repetitive messaging to change behaviour and instil compliance.
 - Leverage from digital and traditional means to communicate about waste to support waste avoidance and waste minimisation.
 - Leverage from data and research to inform waste awareness and education activities / interventions or programmes.
 - Building strong relationships with various stakeholders for awareness raising on waste management, waste minimisation and environmental improvements by collaborating with various organizations, communities, institutions both government and non-governmental to amplify efforts and resources.

Engineering Asset Management (EAM)

Table 30 : Technical services strategic response

Strategic Response	Description	Benefit
All information on digital Enterprise Asset Management (EAM) system (currently SAP)	All information, including: • Master data • Transactional data • Usage data • Decommissioning data Creating a “digital twin” in the Enterprise Asset Management (EAM) system (currently SAP) in order to accurately track and manage the lifecycle of assets.	All asset information and history are located at a central point. This makes analysis and management of the asset lifecycle easier as well as storing information that can impact future decision-making.
Customised Asset Care Plans for each equipment category.	Customised Asset Care Plans for each equipment category based on working environment and conditions. All Asset Care Plans to be programmed in the Enterprise Asset Management (EAM) system (currently SAP) to read and trigger work orders based on usage data fed into the system.	By customising the Asset Care Plans to our conditions and working environment, we ensure that we get the optimum working life from the equipment. By having all Asset Care Plans on SAP we ensure that the plans are executed and it will also assist in future budget planning for repairs and maintenance.
Building in-house capacity to take over the Asset Care Centre from Consultants	Appointing resources permanently that will take over all tasks related to the Asset Care Centre service that has been executed by Pragma.	Building in-house capacity and capabilities will ensure that gains made during consultancy is carried forward and Asset Management becomes a focus-area in SWM.
Holding long lead-time / critical spares	Keeping a minimum stock of long lead-time and/or critical spare parts for assets in stores.	By holding long lead-time / critical spares, the downtime of assets are reduced (better availability).

Operator Asset Care programmes	Involving Operators as the first line of Asset Care and Maintenance.	Involving the operators in the Asset Care programmes as the first line, we ensure that our assets are properly maintained, but it also assists in ensuring that the asset is properly operated. In turn, a reduction in breakdowns (better availability & reliability) should occur. This has a direct financial and operational impact.
Term tenders for maintenance of equipment	Ensure that term tenders are in place for all types of repairs and maintenance for all asset categories. Consider Section 33 tenders to enable implementation and feasibility of Public Private Partnership (PPP) workshops.	Tenders are the preferred procurement method and will alleviate current procurement challenges experienced. It would also ensure that Vendors buy into and are held accountable to a standard contract.

14.2 Support functions

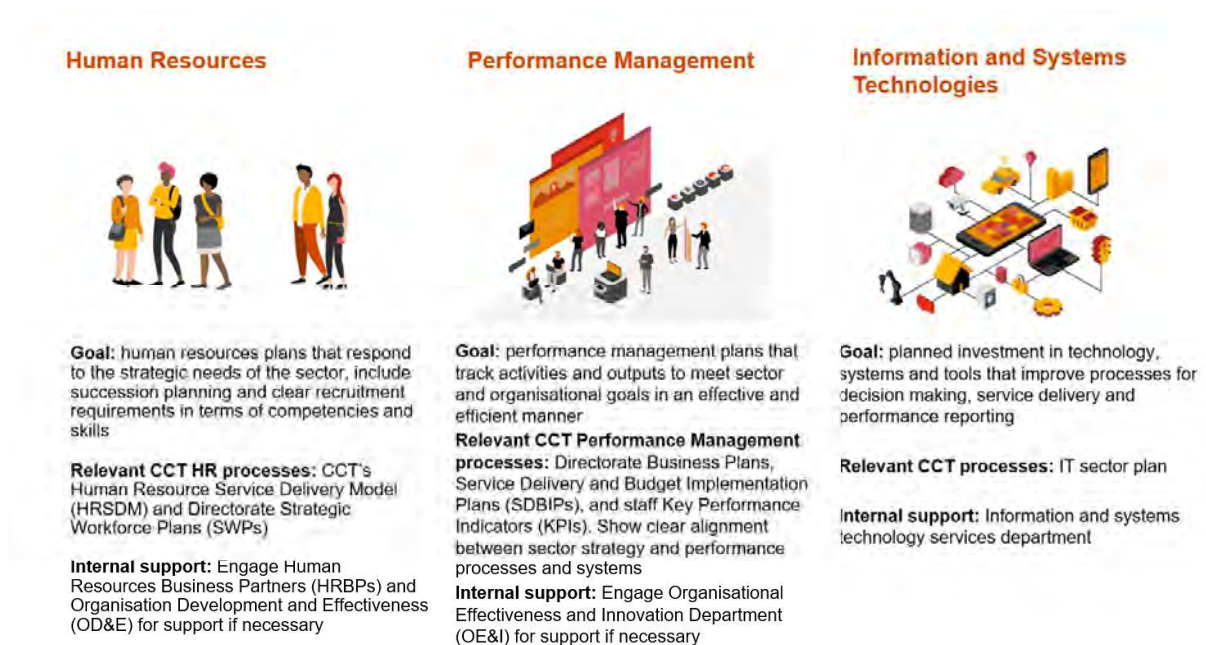


Figure 29: Summary of Core Operations Information Requirements

14.2.1 Human Resource plan

Introduction and high level strategic linkages

The CCT Urban Waste Management HR Plan find its mandate in the agreed strategic intent of *"Build an efficient, effective, future-focused and sustainable waste utility - Develop an agile workforce with requisite skills for a wider range of business processes"*.

As such it needs to reflect a Human Resources / Organisational Development response in support of -

- (i) Giving effect to and aligning to the organisational strategic objectives (as detailed in the Integrated Development Plan and related documents and plans)
- (ii) Executing its constitutional, legislative and statutory mandates,
- (iii) Realising the approved departmental strategic intents, and
- (iv) Addressing the service delivery operational realities.

The core purpose of waste management is often defined as "reducing and eliminating adverse impacts of waste materials on human health and the environment, to support economic development and superior quality of life". The achievement of this purpose is both vital to and enmeshed in the CCT strategies and initiatives to establish the City as "a destination of choice" and "a forward looking globally competitive business city", where the state of cleanliness and aesthetic appeal is of utmost importance. Accordingly, the strategic significance of Waste Management is evident in its direct linkage to the majority of the City's Integrated Development Plan (IDP) priorities, objectives and Programmes as discussed in (4.5)

In similar vein, the Local Government Municipal Systems Act defines a "basic municipal services" as meaning "a municipal service that is necessary to ensure an acceptable and reasonable quality of life and, if not provided, would endanger public health or safety or the environment.

The "essential" nature of Urban Waste Management is echoed in that in terms of Government Gazette No. 18276 of 12 September 1997 (Department of Labour Notice No.1216), specifically clause 2(e), the Essential Services Committee declared "the collection and disposal of refuse at a disposal site" as designated, and in terms of clause 2(f)), "the collection of refuse left unattended for 14 days or longer including domestic refuse and refuse on public roads and open spaces" as essential. The essential nature of Urban Waste Management Services significantly affects the organisation of human resources and execution of the Urban Waste Management mandate, especially during disasters and labour or service interruptions.

- (i) Operational realities, representing service delivery constraints, have been identified through a series of Workforce Planning Workshops,

discussions and engagements and will be expanded on in discussing the directorate's human capacity needs.

As-is analysis

A combination of engineering, scientific, professional, technical, management and core operational skills are harnessed towards ensuring that a clean and healthy environment is sustained and protected for the benefit of future generations.

The UWM Directorate is currently organised (as at January 2024) into 4 departments;

- Waste Services
- Public Empowerment & Development
- Integrated Planning & Waste Strategy and
- Finance & Capital Implementation.

The departments are supported by the Shared Services component consisting of 3 (three) units; Directorate Support Services, Project Management Office and Human Resources Business Partner. The high level organizational structure is illustrated in the **figure 30** below.

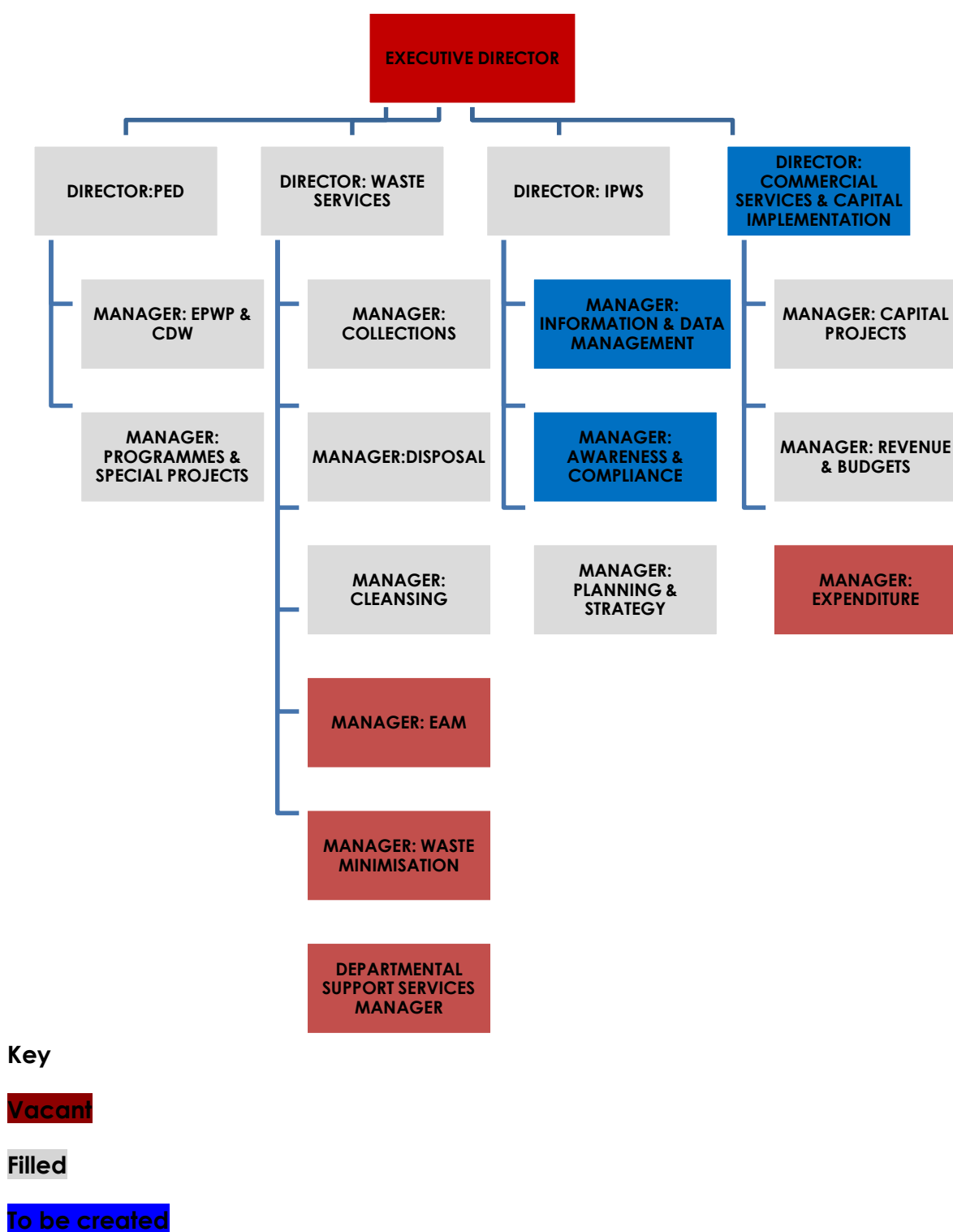


Figure 30: Urban Waste Management organogram

The Urban Waste Management (UWM) Directorate's vacancy filling rate is a key performance indicator, reflecting the capacity to execute service delivery. As of December 2024, the UWM achieved a vacancy rate of **6.47%**, outperforming the target vacancy rate of **10%**.

Table 31: key vacancy statistics

DIRECTORATE	FILLED POSTS	VACANT POSTS	TOTAL POSTS	Turnover Rate	Target Vacancy Rate	Achieved Vacancy Rate
URBAN WASTE MANAGEMENT	3319	358	3 677	12.11%	10.00%	6.47%

The following table highlights key vacancy statistics

Table 32: Permanent staff establishment

UWM DIRECTORATE	FILLED POSTS	VACANCIES	APPOINTMENTS
Office of the Executive Director	0	1	0
Finance and Capital Implementation Department	45	12	2
HR Business Partner	11	0	0
Integrated Planning and Waste Strategy Department	81	6	1
Project Management Office	7	4	1
Public Empowerment & Development Department	35	9	0
Support Services: UWM	4	0	0
Waste Services Department	3136	326	89
TOTAL ESTABLISHMENT	3319	358	93

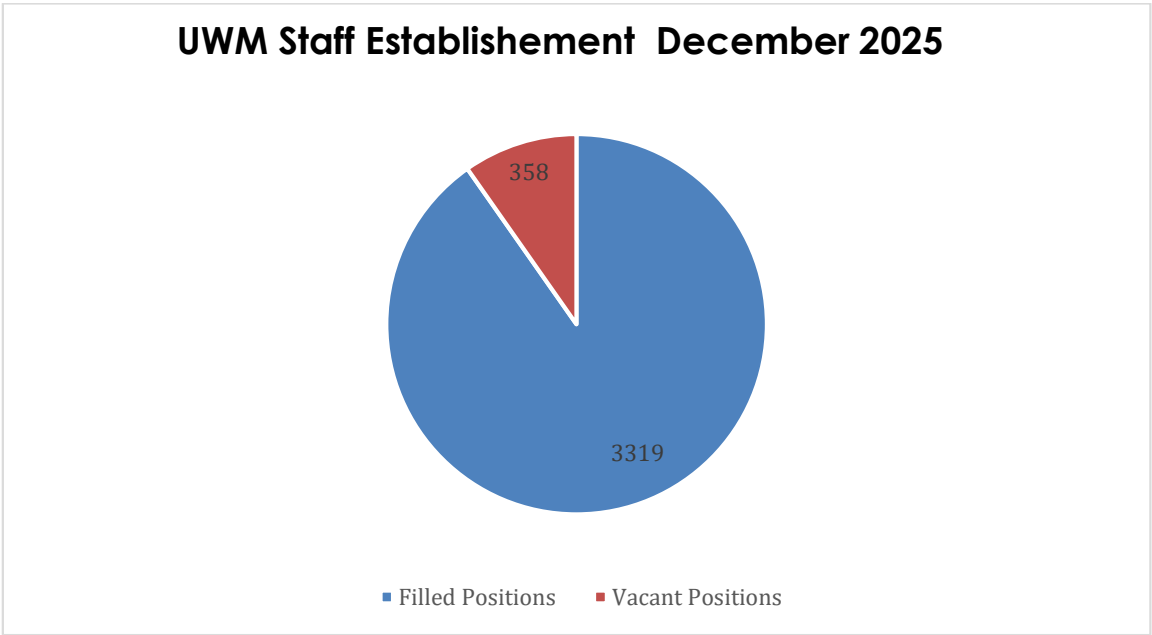


Figure 31: Number of filled and vacant positions

Table 33: Post Analysis- December 2024

POST ANALYSIS	
Total number of vacancies	358
Appointments - December 2023	93
Bulk (80)	
Standalone fill (13)	
Pending (Abolish, Change JD, Transfer)	44
TOTAL ACTIVE VACANCIES	221

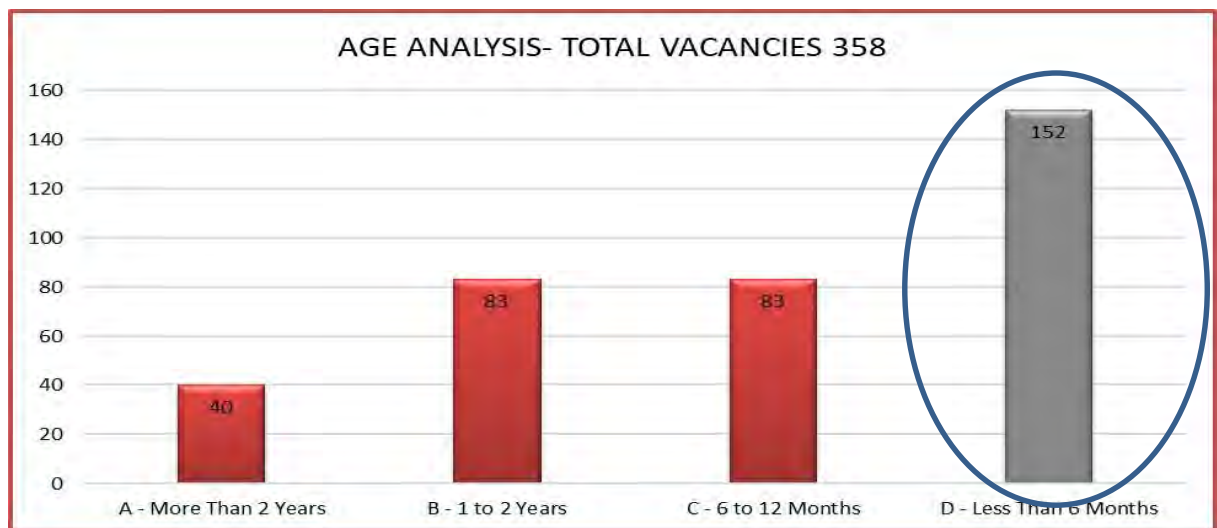


Figure 32: Vacancy Analysis

The vacancy status for December 2024 indicate that **152 vacancies** are less than 6 months old. These are new vacancies or consequential vacancies as a result on internal promotions.

93 Appointments were made in December and this number will reduce the number of open vacancies as the candidates assume duty and contracts are loaded in to the system.

We have 44 in active vacancies that are marked for fill via transfer, incapacity, change JD process or position is to be repurposed in the directorate.

The total number of active vacancies in the Directorate is standing at **221**. Vacancy fast track project has been implemented to address both the vacancy backlog and to deal with consequential vacancies.

Efforts are underway to address both bulk recruitment and standalone positions. A breakdown of active vacancies and appointments follows

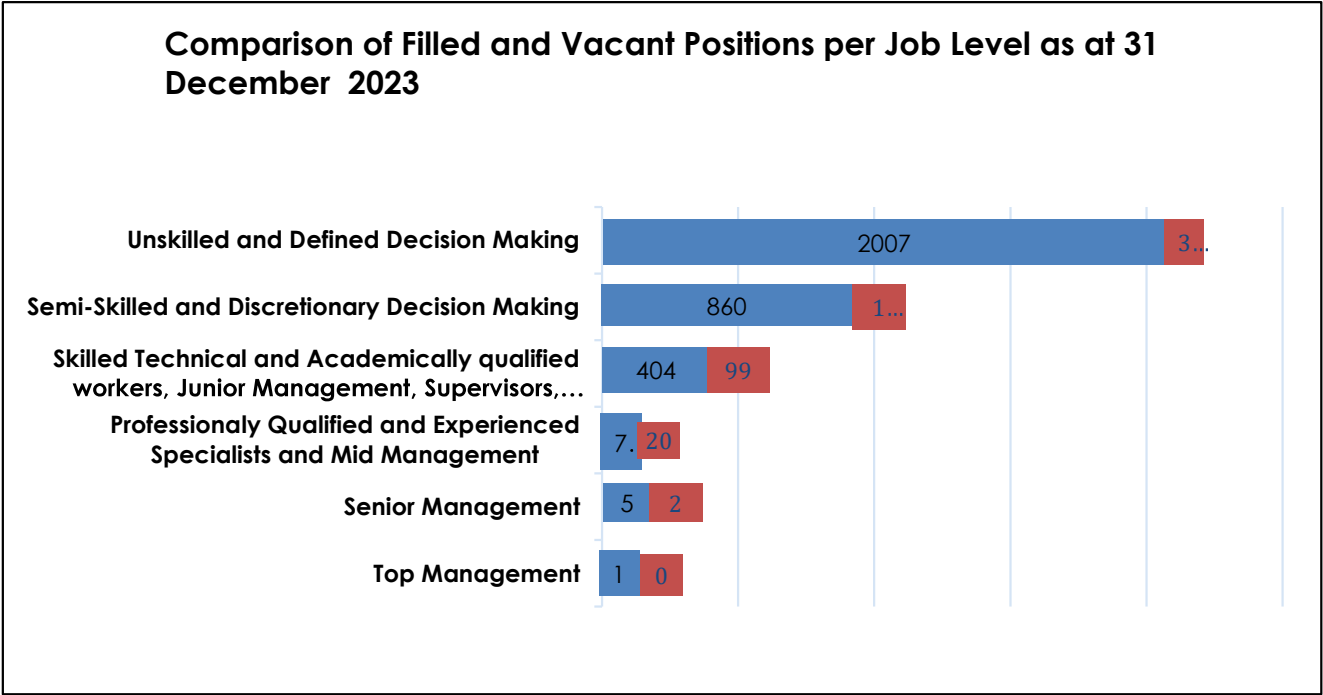
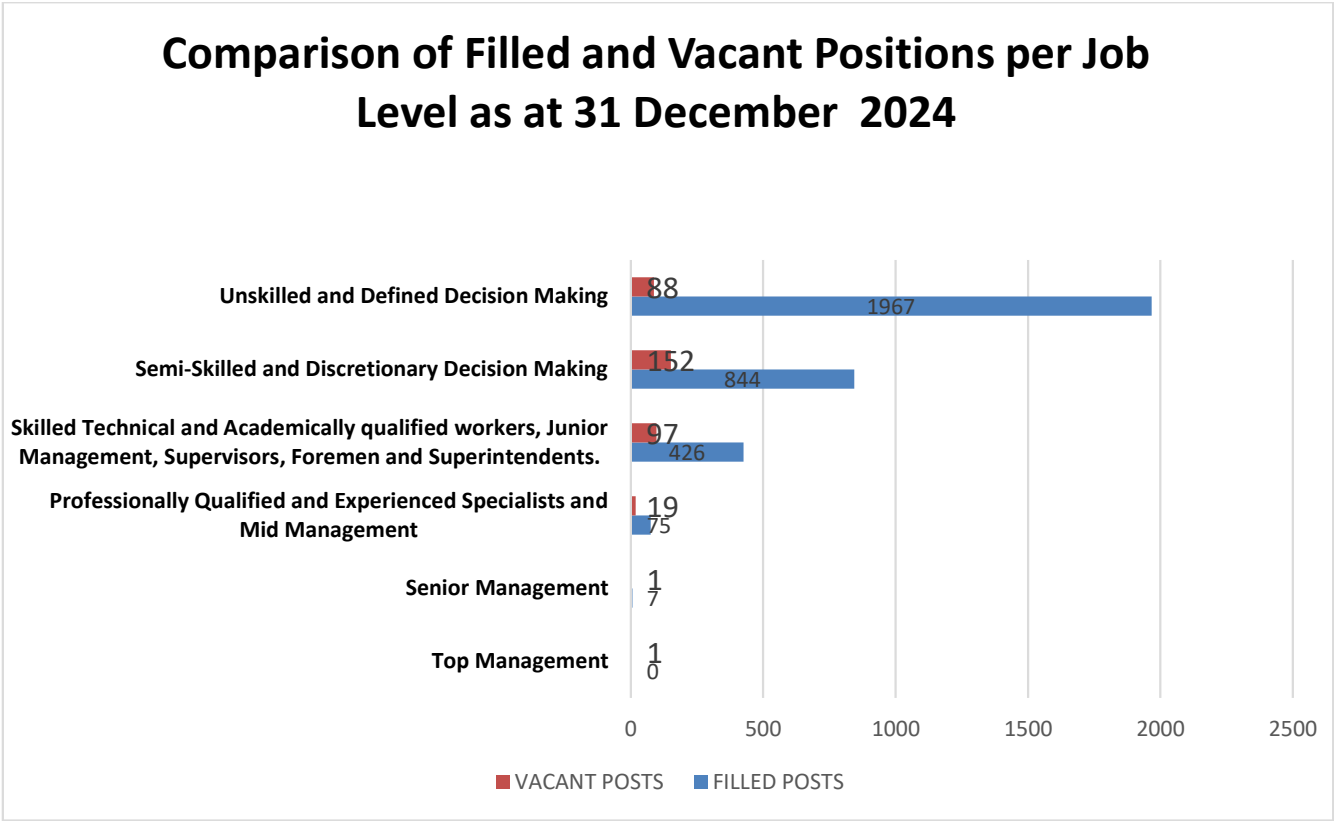


Figure 33: Comparison of filled and vacant positions per job level

Human capacity needs & constraints

Misalliance between staff resources and service demands

- Over the last 4 to 5 years, the total staff number of the current Waste Services department (and its forerunner SWM department) has remained relatively constant around +/- 3100 (excluding components currently linked to other departments within the new UWM directorate). Over the same period service demands, service points, expansion of the client base (due to a myriad of factors including urbanisation, population, growth, new residential developments). The appropriate resourcing in combination with innovations and alternate methodologies requires implementation and would be justifiable in the context of the City strategic objective of “mainstreaming basic service delivery to informal settlements”.
- This evident misalliance of human resource capacity with service demands led to an over reliance on temporary relief in the form of Expended Public Work Program resources and Temporary Employment Service (Labour Broker) staff. The numbers of these temporary resources point to a need to staff the department appropriately. Whilst especially the Cleansing and Collections branches are exploring innovations and alternatives, the need for additional resources seems to remain a reality.
- The Cleansing branch petitioned a work-study and determination of required resources to be conducted, to inform the efficient resourcing of the branch. Over reliance on temporary employment services does pose a risk to the Directorate and City. It also threatens the stability of the directorate in terms of skills and knowledge. Also comes with a cost of constantly training new staff members. In addition, the heavy reliance on Labour Broker staff needs to be reduced or phased out, in line with the City's resolve to this end and the inherent risk of not utilising Labour Broker resources for ad-hoc, justifiable, temporary purposes.

Organisational structure & alignment considerations

During the initial stages of the development of the Sector Plan, it was reiterated that the future structure of the directorate should be “fit for purpose”. In addition, that it should adhere to the Corporate People Management Strategy principles of “Agility/Flexibility”. To an extent, the requirement of “fit for purpose” has been supported through the establishment of the new Urban Waste Management directorate, with the objective of elevating and prioritising “basic services”. This led to the split of the Water & Waste Directorate, with Water & Sanitation becoming a stand-alone directorate and Urban Waste Management and the Corporate EPWP & CDW department joining to form the Urban Waste Management directorate. Fit for purpose and “agility/flexibility” however require a people and resource response to business challenges, developments and constraints:

- In this regard, it has been motivated that the Waste Services will be entering a build phase, where there will be a strong reliance on engineering, contract management, project management and capital implementation skills requirements. Whilst a number of staff members with engineering qualifications are employed in the Capital Projects unit, the numbers are small and not in line with the significant number of capital implementation projects that these staff members need to manage, leading to the limited critical staff resources being overburdened.
- The 2020 Sector plan requirement, that “Capital Implementation” needs to be prioritised, resourced and elevated institutionally, has been addressed through the closer alignment between Capital Projects and Finance & Commercial as well as the establishment of a new Project Management Office as part of the Shared Services component in the UWM directorate.
- Data analysis and information management has been accepted as critical in the strategic approach to the directorate, going forward and the need for relevant components to be integrated and ideally positioned structurally/institutionally to the benefit of the whole department has been confirmed. An organisational realignment exploration of especially the GIS/MIS, IT and OCC (Operations Command Centre) components has been formalised (in line with the objectives of the 2020 Sector plan) with the findings implemented and the appropriate structural positioning of these units concluded.
- Waste to energy initiatives (including Landfill Gas Harvesting) have been initiated and are almost exclusively dependent on external skills acquired via either outsourced arrangements and/or consultant support. The newly (2020) approved National Waste Management Strategy however guide that, firstly, municipal services should shift from focusing exclusively on collection and disposal of waste, to separation at source and waste beneficiation. Secondly, that technical capacity and innovation for beneficiation of waste (including Waste-to-Energy) be increased. As this seems to develop into an accepted municipal competency, there is a requirement to develop the inherent scientific skills within the department, to enable self-sufficiency in the medium to long term.
- Rapid Developments in the waste management sector and dictates in the National Waste Management Strategy (2020) necessitate the expansion of the department's Waste Minimisation mandate, approach and ideal organisational arrangement to cater for best-practice emerging Waste management trends and realities, including the institutionalisation of “Waste markets”, “Creating a secondary resource economy”, prudently increasing access to municipal infrastructure, giving effect to circular economy principles and initiatives and developing and structurally accommodating the knowledge, skills and competencies inherent to “liaison with industry” and “liaison with community stakeholders”. The prioritisation and elevation of Waste Minimisation has been addressed through the establishment of “Waste Minimisation” as a stand-alone

branch (with Waste Markets as one component) and closely aligned and positioned to the Waste Operation functionalities

- The strategies that are focusing on waste avoidance will rely significantly on achieving behaviour and attitude changes in stakeholders, including industry and community stakeholders. The development and acquisition of advanced communication, facilitation and interpersonal skills as part of core waste management competencies are fast becoming a priority. The National Waste Management strategy accordingly advocates the need for “Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping, coupled with “compliance promotion and awareness” (clarified as being separate from “compliance and enforcement”).

Emerging themes from strategic workforce plan engagements:

- Perfecting the balance between insourcing and outsourcing of service:
 - Mechanical Workshops and Maintenance (whilst to an extent impacted by announced/intended Corporate centralisation of Fleet and Workshops);
 - Gas-flaring at Landfill Sites;
 - Security Services
 - Fleet Management and Transport Logistics
- Safety of Staff in Operational Areas
- Customer requirements: All hours Service Culture requiring the extension of normal operational hours and necessitating the establishment of shift systems and formalised work schedule arrangements, to be consulted with trade unions and phased in.
- Working transversally with other City departments
- Leadership and Supervisory Skills
- Expanding Service Areas & Failing Contractors
- Traffic Congestion and Rail Services decay
- Flexible Work Arrangements (De Loitte 2018 survey – direct correlation between 1) diversity and loyalty and 2) flexibility and organisational commitment)
- Work on Public Holidays and Overtime Complications
- HR Strategic, Operational and Transactional aspects per HR Functional Areas
- City values, culture, work environment and staff morale are more and more impacting a business' ability to attract and retain key talent, and hence the business' ability to be competitive or deliver services at a high level. In this context, the periodic employee survey's requires prioritised attention and the emerging themes will be addressed.
- The feedback from Corporate Employee Wellness and ICAS (Employee Wellness Service Providers) points to Mental Health red flags increasing.

Once again directly linked to how employees experience the context and culture in the directorate.

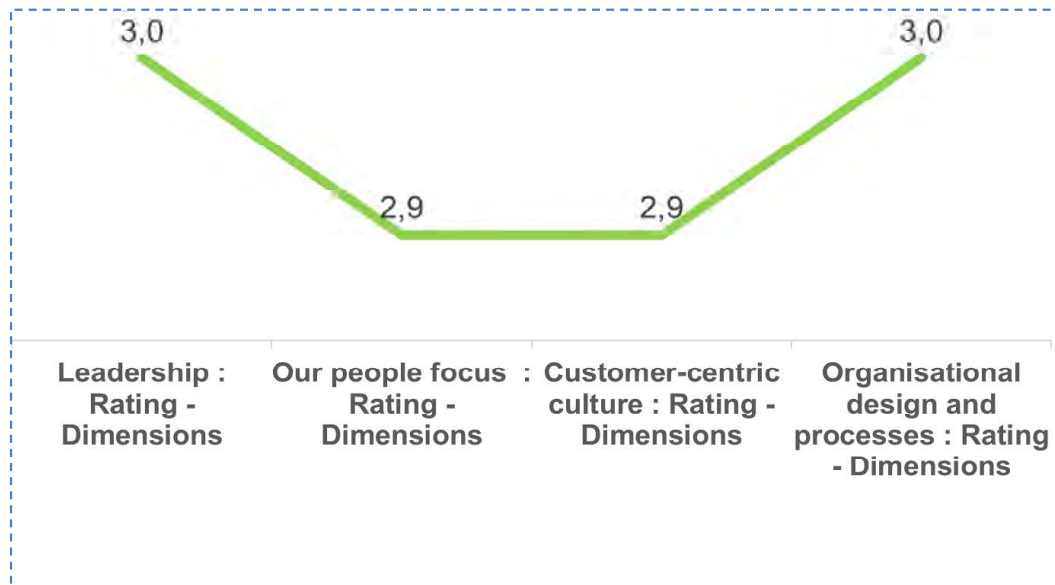


Figure 34: Average Score of Attributes

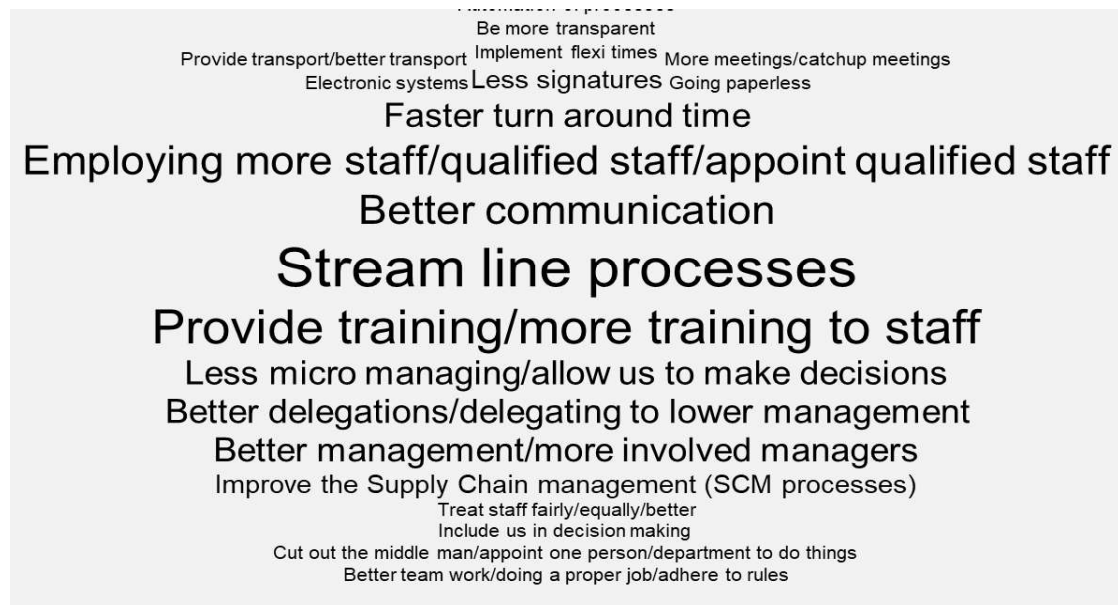


Figure 35: Average Score of Values

Considered "Red-Tape" by Employees:



Advice from Employees:



UWM People Strategy Objectives (subject to validation) to be driven:

Training

1. Target engineering, scientific and professional skills identified through the SWP and Sector Planning Processes as critical to realising the directorate strategy;

2. Continue the shift to Waste Management Core training, with critical and scarce skills being prioritised.
3. Prioritize Leadership initiatives- Leadership Development programme (T19+) and People Management Programme (T10-T13)
4. Entrenching technical literacy as a priority at all post levels;
5. Embedding Mentoring & Coaching as the norm within Urban Waste Management;
6. *Integrating* ETD as part of normal business, empowering supervisors to lead (through train-the-trainer initiatives), insourcing critical training components and embedding Learning Organisation guidelines within UWM department;
7. Ensure equitable coverage of all post levels in training opportunity distribution as per previous directives.
8. Approval of Bursary opportunities in line with UWM core business and critical need
9. Implementation of T14-and- above Personal Development Plans (PDP's) and Integration with TNA's
10. Implementation of T5-T13 PDP's and Integration with PDP's in conjunction with GIS, IT, BI units;
11. Emerging Waste Management Training in Line with 2020 National Waste Management Strategy requirements;
12. Investigate, report and draft a management plan linked to future certification requirements for Disposal Services staff;
13. The importance and strategic significance of professional exposure and networking via (amongst others) Waste Management related workshops, seminars and conferences be reflected in strategy and lobbied at Corporate.
14. ECSA path to PrTech and PrEng Registration/Certification be consolidated and formalised in support of strategic skills development, professionalization of Waste Management Services and Retention of critical Staff;
15. The current significant investment in Adult Education & Training (AET), representing a national and organisational priority, be continued;
16. Leadership capabilities and relevant Practical Supervision to represent a priority inclusion in WSP.

Recruitment and Selection

1. Review and update fast-tracking mechanisms for Recruitment & Selection and the "Filling of Vacancies" action plan;
2. Continue with Bulk recruitment and selection projects for Operational and Administrative roles

3. Reduce time to fill by establishing database of alternate candidates ready for placement
4. Proactively recruit for imminent retirees to ensure that there is smooth transition in critical vacancies; Utilize 'designate' positions created for imminent retirees
5. Analyse staff turnover trends in order to establish mitigation strategies; continue conducting exit interviews
6. Resource and Investigate alternatives to the utilisation of Labour Brokers (considering various union and national drives to limit or outlaw use);
7. Enhance the quality of appointments through the promotion and implementation of Fit-for-purpose best practice methodologies;
8. Introduce a service level agreement between corporate HR and Line Departments on filling of vacancies; HRBP Office to oversee this process and ensure that timelines are met and roles and responsibilities are clearly outlined.
9. HRBP Office to partner with Corporate HR to tailor recruitment strategies linked to UWM critical and scarce skills- professional, scientific and engineering skills
10. Introduce a Candidate Experience Survey to help us better improve our R&S processes

Labour Relations

1. Formalise an integrated strategy to (1) enhance supervisors' practical skills in handling labour-related matters and (2) reduce the number of disciplinary finding reversals.
2. Track and Monitor the initiation and conclusion of disciplinary matters to ensure that they are resolved in time.
3. Facilitate Human Resource Roadshow on new policies to improve awareness and compliance

Individual Performance Management

1. Link T14-and-above IPM deliverables to key UWM and SDBIP focus areas, Set appropriate targets, and align competency data.
2. Fine-tune T10-T13 IPM implementation and prepare for roll out to all other job categories
3. Commence implementation of fit-for-purpose best practice methodologies

4. Training and planning of IPM roll out for Non PC users
5. Facilitate IPM awareness sessions in UWM (for managers and staff)

SDBIP-related HR objectives

1. Develop an integrated Absenteeism Management Plan,
2. Develop an integrated Overtime Management Plan, consult with UWM Management Team and implement major aspects.
3. Monitor and ensure full compliance with OHS agreement.
4. Align existing Succession Plan framework with Corporate Succession Plan and finalise specific plans for the priority critical & scarce positions

Reward and Recognition

1. Improve employee reward and recognition programmes within the directore,
 - 1.1. Improve employee reward and recognition programmes within the directore,
2. Introduce ad hoc reward and recognition for operational teams to improve staff morale; partner with OE &I to introduce Monthly and Quarterly Recognition initiatives for operational teams in a consistent manner
3. Raise awareness as well as identify & implement initiatives to actively support the values, norms and behavioural standards contained in the Municipal Systems Act, Employment Equity Act, Code of Conduct and CoGTA guidelines.
4. Implement and measure City Pulse action plans in order to address the 2023 City Pulse low scoring factors that was identified by staff as impacting City culture.
5. Improve staff engagement as a measure of Staff Motivation / productivity by addressing the Pulse Survey indicators and also (a) "Treat employees as most important asset", (b) "Assign right number of people to get job done", (c) "Provide process for feedback and ideas", (d) "Ask for ideas", (e) "Public recognition" and (f) "Communicate considering feelings".
6. Support the attraction and retention of staff by addressing key staff retention benchmark indicators (including lack of autonomy & respect, lack of professional development program, lack of recognition, health problems and job burnout, poor leadership and management relationships, transportation expenses, challenging job roles, desire to pursue new/different career).
7. Continuously Conduct exit interviews with staff in critical and scarce positions and address staff retention aspects identified.

8. Continued roll-out of the Employee Wellness projects including Trauma, Financial Wellness, Physical Wellness, Substance Abuse, Stress Management and Life Skills for employees at all occupational levels
9. Collaborate with Employee Wellness for tailor-made psychological preparedness for permanent employees

Equity and Diversity

1. Monitor the compliance with EE targets; manage areas of over and under representation, special focus on representivity of women in management level and persons with disabilities at all level positions.
2. Implementing measures removing equity barriers and discriminatory practices (including nepotism, favouritism and unfair discrimination in HR processes and the work environment).
3. Address sexual harassment and reported gender intolerance/discrimination especially amongst operational staff.

14.2.2 Performance management

The following key legal and other guidelines govern the Urban Waste Management Department, namely:

- Section 20 (1) Operations or Operations-to-Closure Permits in terms of the Environment Conservation Act, 1989 (Act 73 of 1989)
- National Environmental Management: Waste Management Act, Act 58 of 2009 (NEMWA)
- Record of Decision in terms of section 21, 22 and 26 as well as listed activity (No 8) in terms of the EIA regulations promulgated in terms of the Environment Conservation Act, 1989 (Act 73 of 1989)
- Amendments by DWAF to the section 20 (1) Permit in terms of the Environmental Conservation Act, 1989 (Act 73 of 1989)
- Status Quo Reporting in the quarterly external audit by Naude Associates
- In-house standards
- Special projects such as the HG air disposal study requested by the Morningside
- Residents Monitoring Committee
- Other studies or guidelines may occur from time to time.

Waste management facilities operated by the CCT are monitored for the following:

- Waste types, waste volumes/mass
- Groundwater quality and management (except for ARTS), groundwater trends, leachate quality and management, surface water quality and management
- Biogas monitoring, air analysis (where required)

- Health of workers, reporting of incidents, annual figures to DWAF
- Continuation of first aid training and stock, continuation of fire register upkeep, stock and usage of personal protective clothing
- Management of contractors employing salvage workers (where required), other compliance requirements in the said permit and RoD, construction and engineering operations in the DWAF approved permit, monitoring of FFS audit compliances by the ROSE Foundation and other parameters when required.

14.2.3 Action on Culture surveys

Develop an action plan to address areas of improvement in line with latest city pulse survey results. Engage employees in order to improve the participation rate in the culture survey.

Table 34: Latest city pulse survey results

Lowest rated attributes according to the Pulse survey	
Dimension Statement	Score
The City of Cape Town provides sufficient flexibility to help employees balance the demands of work and personal life.	3.1
My line manager regularly provides me with feedback about my performance	3.0
Policies are applied in the same way to all staff	3.0

The following SDBIP-related HR Objectives have been identified.

- Develop an integrated Absenteeism Management Plan with the aim of increasing staff availability in the directorate
- Develop an integrated Overtime Management Plan, to reduce overtime expenditure and health and safety risks associated with excessive overtime.
- Monitor and ensure full compliance with the OHS agreement.
- Compile and Finalise the directorates strategic workforce plan in line with service delivery priorities.
- Introduce a UWM Talent Forum
- Develop succession plan to address talent pipeline in the directorate for key and critical position
- Establish Talent Pools in the directorate close talent gaps created by eminent retirements and consequential vacancies. Intensify Employee wellness initiatives to reduce the high staff turnover
- Introduce a UWM Career Expo

- Introduce a quarterly UWM Induction
- Develop an integrated plan for training, absorption and retention of critical skills in the directorate
- Identify opportunities for Job Enrichment and Job Shadowing in the directorate to improve staff engagement and morale
- Link T14-and-above IPM deliverables to key waste management focus areas, set appropriate targets, and align competency data.
- Complete preparations for IPM roll out at all levels
- Facilitate and prioritize JD review projects to ensure all outdated JDs are updated and aligned.

14.3 Systems and Data

The UWM Data and IT management unit focussing on:

- Geographic Information Services – spatial enablement and integration of business information through spatial applications.
- Business Information Services – manage the development of integrated information platforms cross cutting SWM departments, other City departments and external stakeholders.
- Knowledge Management Services – development of platforms to improve data accessibility and sharing of information within the department.
- Statistical and Compliance Reporting – manage reporting to different stakeholders as per legislative requirements.
- Project Management – manage the development of systems/applications to improve data management.
- Technology procurement - manage the procurement of hardware and services through Corporate IS&T department bulk tenders.

The unit's key performance areas and indicators are associated with:

- Development and implementation of Urban Waste Management Information Services (statistical, business, operational and spatial);
- Development, implementation and maintenance of Urban Waste Geographic Information Services;
- Development and implementation of Urban Waste Knowledge Management Methodologies;
- Establishment of effective reporting structures and lines on Urban Waste Directorate's strategic and operational information;
- Enablement of UWM departments to take ownership of their data, by managing the development of systems, processes, standard operating procedures and integration to improve monitoring of service delivering, the reporting there of, and support future scenario planning.
- The procurement, management and maintenance of:
 - Hardware and software procurement
 - Maintenance of IT infrastructure
 - Development of IT systems based on business requirements

- Project management of IT related programs
- Development of standards, processes and guidelines for the UWM department
- Development of databases based on business requirements
- Maintenance of the departments weighbridge hardware, database and reporting
- Research on new technologies
- CCTV management
- SCADA management

The overall data maturity of UWM is inconsistent, with the existence of pockets of excellence, while other parts have very low levels of data maturity. This presents a challenge in terms of the availability and usefulness of data for decision-making as when good and bad quality data is used together, the result may be based on the lowest denominator making it unreliable. There is an urgent need to enhance UWM's data maturity levels in order to support UWM to become a data and evidence-led organisation. The UWM straddles levels 1 & 2 on the Data Maturity Progression Model as defined in the TDA Data Management Strategy.

UWM has developed a data and information framework in support of the City's Data Strategy, supported by an operational plan containing the deliverables to be implemented over the next 5 years. The framework has the following application:

- Applies to all explicit data and information unless specified otherwise.
- Applies to all permanent and non-permanent employees of the City.
- Applies to all UWM branches.
- Strategic information – broad based and mixture of information gathered from both internal and external sources.
- Tactical information – mostly internal information with fewer external sources being used.
- Operational information based on tactical information.
- Unstructured information.

The data management plan will amongst other things give a clear direction on how to manage data and information within UWM and facilitate the identification of clear roles and responsibilities within line departments, and also for the departments to take ownership of their information and data (data custodianship/ stewardship). All branches within UWM are obliged to give effect to the City Data Management Strategy. Hence the Urban Waste Management Team (UWMT) established the working team to coordinate and facilitate the Implementation plan. The working team will provide oversight and direction for the strategic management and sharing of data and information within UWM.

Current Systems and Data:

- Automated Weighbridge System – database records waste types, categories and quantities and caters for extensive data capturing on asset detail, cost centres, associated costs, date, time etc.
- Bin Lift Counting System – refuse compactor vehicles are fitted with devices which reads the RFID tags in the black refuse bins – tracking of compactor vehicles and refuse bins.
- Spatial Data Information System – hosts a variety of waste related geographical data to inform operational and strategic planning.
- Waste Statistics Database – hosts all waste data pertaining to waste management initiatives.
- Refuse Beat/Billings Database – contains data relating to actual refuse accounts on the City's billing system including the number of bins allocated to municipal accounts and the frequency of refuse collection.
- Waste Accreditation System
- Development and Application Management System

Future Data Interventions:

- Development of mobile applications for infield data recording and tracking of services.
- Resuscitation of the Operations Coordination Centre which contains a video wall for monitoring of waste services.
- Integrated dashboard development for service tracking.

14.4 Operational Programmes

Operating impact of new proposed projects over the next 5 financial years for waste management facilities over the next 10 years

Table 35 depicts a list of projects that were budgeted for operating impact when looking at the long-term financial plan. The existing sites already have operating budgets, so no additional funding is required

Table 35: Operating impact of CAPEX projects

Project Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
ARTS: Material Recovery Facility / MBT	-	-	-	-	12 224 520
Coastal Park: Design and develop (MRF)	-	10 584 000	7 386 750	2 976 750	-
Construction of CBRF - Fisantekraal D/O	-	2 650 979	979 020	-	-
Construction of Workshop - Vissershok	-	-	10 000 000	-	-
De Grendel Drop-off Upgrade Waste Min	3 871 449	2 823 450	-	4 452 166	3 246 968
Killarney Drop-off Upgrade Waste Min	-	-	-	-	4 645 739
New Prince George Drop-off	7 883 794	3 696 000	-	-	-

Grand Total	11 755 243	19 754 429	18 365 770	7 428 916	20 117 226
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Operating programmes per service area

The main operational programmes within Urban Waste are linked to three main functions namely, Collection, Cleansing & Disposal.

Cleansing Programmes

The Cleansing branch has a number of operational programmes that require top-up services during specific periods, and these have been identified as;

- The **Winter Preparedness Programme** which encompasses an increased top-up cleaning service in leafy and sandy areas to avoid stormwater blockages and flooding and covers the period from May to the end of September of the same year.
- The **Festive Season Programme** entails an increased top-up cleaning service for beaches, scenic routes and business areas and covers the period from October to the end of April of the following year.
- The winter and Festive Programmes are in the process of being integrated into one single service, namely the Provision of Waste Management Cleansing Services for Annual Seasonal Programmes, which will be implemented from 01 July.
- Additional operational projects and programmes include the **Mayoral Clean-Up Campaign, Ward allocation projects** as well as the **Mayor's Visible Service Acceleration (MVSA) Programme**
- The Rapid Response Programme for FY23/24 has again received funding from National Treasury to the amount of R51 million rand to assist in upscaling and delivering public employment. The aim is to eradicate the scourge of illegal dumping with specific focus on behavioural change and provision of alternatives to residents.

Waste minimisation Programmes

- Provide infrastructure for both separation at-source and end-of-stream interventions. This will support small business development by providing opportunities for SMMEs.
- Investigate and increase collection at source services (organic waste, packaging waste recyclables), through a combination of commercial contracts, business initiatives (EPR), entrepreneurs, waste pickers and SMME's (Pilot Projects).

Compliance and enforcement of IWM Bylaw

- Accelerate the accreditation of waste service providers to compel the private sector to report waste diversion figures. UWM cannot reach the NWMS waste diversion targets without private sector diversion.
- The EPWP Auxiliary By Law Enforcement project
 - o Recruit unemployed youth and train them as peace officer's before deploying them into the field.
 - o The project started in 2022 recruited approximately 90 unemployed youth between 2022-2025,

14.5 Institutional

Institutional Arrangements

Touchpoints between the Urban Waste sector plan and other sector plans

- The MSDF and City Population growth projections as a general service demand planning tool.
- Human Settlements Policy, recorded trends in Informal Settlement growth, and informal establishment of informal settlement areas.
- Strategic and resilience planning supported by management information, operational data, statistical analyses, trends and demand assessments.
- Technology changes, change management, organisational review, and skills development.

CHAPTER 15

15. ASSET MANAGEMENT

i. Urban Waste fixed assets,

The table below provides a summary of all Urban Waste Management fixed assets (Land and buildings). An estimated R 1 Billion, 236 Million is the book value of the Urban Waste Management Directorate's fixed assets. Despite the varying remaining useful lives of the various asset classes, it is worth noting that all three landfills collectively have remaining airspace of fourteen years. Detailed description of assets detailing asset location, Current value, financial value and other related information is attached as an annexure to this report.

Table 36: Urban Waste fixed assets

Remaining useful life/ Category	No of Assets	Acquis.val.	Accum.dep.	Book val.
CARPORTS	7	1 640 018.27	- 92 573.17	1 547 445.10
45-50	7	1 640 018.27	- 92 573.17	1 547 445.10
DROP-OFFS/ TIP SITES	20	240 098 189.42	- 23 235 289.36	216 862 900.06
10-14	7	79 153 302.82	- 11 308 269.18	67 845 033.64
15-19	3	2 093 500.76	- 519 858.66	1 573 642.10
20-24	3	51 468 983.92	- 5 833 840.79	45 635 143.13
25-29	6	21 373 051.09	- 2 706 342.37	18 666 708.72
30-34	1	86 009 350.83	- 2 866 978.36	83 142 372.47
DROP-OFFS/ TIP SITES - DISPOSAL	4	74 111 224.29	- 54 651 191.14	19 460 033.15
0-4	1	60 333 917.68	- 51 352 884.72	8 981 032.96
10-14	1	897 915.50	- 538 749.32	359 166.18
15-19	1	163 600.00	- 68 884.20	94 715.80
20-24	1	12 715 791.11	- 2 690 672.90	10 025 118.21
LANDFILLS	3	1 006 417 107.83	- 610 179 454.77	396 237 653.06
0-4	3	1 006 417 107.83	- 610 179 454.77	396 237 653.06
OFFICES	52	30 235 231.94	- 7 091 115.44	23 144 116.50
10-14	1	146 532.88	- 83 035.31	63 497.57
25-29	14	3 257 216.32	- 2 180 861.81	1 076 354.51
30-34	26	3 873 871.53	- 1 962 513.39	1 911 358.14
35-39	9	14 259 680.34	- 2 140 287.53	12 119 392.81
40-44	1	238 190.86	- 47 638.20	190 552.66
45-50	1	8 459 740.01	- 676 779.20	7 782 960.81
OPEN LAND/ERF	4	5 536 598.55	-	5 536 598.55
0-4	4	5 536 598.55	-	5 536 598.55
OTHER WASTE FACILITIES	13	476 844 490.47	- 155 012 932.65	321 831 557.82
5-9	1	2 143.94	- 1 616.70	527.24
10-14	6	20 098 144.87	- 8 685 796.99	11 412 347.88

15-19	4	217 153 192.95	- 86 442 636.29	130 710 556.66
20-24	2	239 591 008.71	- 59 882 882.67	179 708 126.04
STORE ROOM	4	4 715 545.60	- 741 024.48	3 974 521.12
25-29	2	422 891.99	- 287 734.01	135 157.98
40-44	1	376 948.08	- 60 311.68	316 636.40
45-50	1	3 915 705.53	- 392 978.79	3 522 726.74
WORKSHOPS/DEPOTS	30	268 204 921.08	- 39 377 211.58	228 827 709.50
15-19	1	5 301 654.49	- 1 861 105.08	3 440 549.41
25-29	4	32 707 237.35	- 13 124 909.68	19 582 327.67
30-34	7	18 334 150.73	- 11 055 171.43	7 278 979.30
35-39	6	96 816 320.74	- 6 016 946.58	90 799 374.16
40-44	5	56 689 484.53	- 3 837 194.99	52 852 289.54
45-50	7	58 356 073.24	- 3 481 883.82	54 874 189.42
OTHER ASSETS		49 882 008.92	- 31 269 632.40	18 612 376.52
(blank)		49 882 008.92	- 31 269 632.40	18 612 376.52
Grand Total	137	2 157 685 336.37	- 921 650 424.99	1 236 034 911.38

ii. Plant and equipment (including vehicles):

A summary of fleet and equipment is indicated below. Detailed information of all plant and equipment is detailed in the annexure attached to this report. The yellow plant & equipment, as well as the yellow vehicles, are presented in this section. The Directorate owns approximately 1300 pieces of plant and equipment (including vehicles), valued at more than R643 million. It is estimated that more than 50% of refuse collectors for waste collection have a remaining useful life of less than one year.

Table 37: Plant and equipment

Remaining useful life/ Category	No of Assets	Acquis.val.	Accum.dep.	Book val.
LANDFILL COMPACTOR	14	81 784 326.36	- 45 074 650.58	36 709 675.78
0-1	4	17 427 672.40	- 16 809 292.40	618 380.00
2-3	3	11 209 500.00	- 10 371 321.05	838 178.95
6-7	2	14 656 921.49	- 7 879 284.36	6 777 637.13
8-9	4	30 037 989.47	- 9 329 899.19	20 708 090.28
12-13	1	8 452 243.00	- 684 853.58	7 767 389.42
LOCOMOTIVE	1	2 750 000.00	- 1 650 321.63	1 099 678.37
6-7	1	2 750 000.00	- 1 650 321.63	1 099 678.37
OTHER - Trucks	135	88 205 668.85	- 57 581 187.30	30 624 481.55
0-1	57	34 024 309.77	- 29 923 951.69	4 100 358.08
2-3	34	25 489 541.00	- 18 565 729.11	6 923 811.89
4-5	20	10 676 553.07	- 5 651 403.88	5 025 149.19
8-9	9	6 561 636.70	- 2 055 327.52	4 506 309.18
10-11	5	3 453 762.20	- 764 951.15	2 688 811.05
12-13	10	7 999 866.11	- 619 823.95	7 380 042.16

OTHER - Vehicles	516	128 478 111.36	- 79 219 071.35	49 259 040.01
0-1	259	45 417 857.34	- 38 188 367.34	7 229 490.00
2-3	88	22 453 518.41	- 15 203 180.26	7 250 338.15
4-5	119	43 718 229.98	- 21 886 344.10	21 831 885.88
6-7	46	16 888 505.63	- 3 941 179.65	12 947 325.98
8-9	4	-	-	-
REFUSE COLLECTOR	172	182 403 172.81	- 70 330 484.86	112 072 687.95
0-1	67	31 990 310.09	- 24 826 294.42	7 164 015.67
2-3	22	17 102 444.05	- 12 443 281.33	4 659 162.72
4-5	25	25 635 585.43	- 16 537 707.79	9 097 877.64
6-7	3	10 693 023.00	- 4 144 009.20	6 549 013.80
8-9	4	4 409 374.08	- 1 509 984.54	2 899 389.54
10-11	19	27 944 942.86	- 5 570 836.05	22 374 106.81
12-13	32	64 627 493.30	- 5 298 371.53	59 329 121.77
REFUSE COMPACTOR	311	675 186 136.70	- 412 341 672.89	262 844 463.81
0-1	167	295 470 957.71	- 267 688 872.09	27 782 085.62
2-3	7	13 563 459.00	- 11 634 763.01	1 928 695.99
4-5	35	93 006 403.84	- 59 303 835.61	33 702 568.23
6-7	36	97 203 477.00	- 41 470 751.20	55 732 725.80
8-9	4	13 245 549.00	- 5 135 398.13	8 110 150.87
10-11	39	103 145 211.03	- 20 152 651.78	82 992 559.25
12-13	23	59 551 079.12	- 6 955 401.07	52 595 678.05
SWEEPER	48	76 861 309.41	- 43 187 393.00	33 673 916.41
0-1	10	5 177 472.50	- 4 306 522.50	870 950.00
2-3	11	9 114 440.00	- 6 774 928.56	2 339 511.44
4-5	12	30 862 670.59	- 19 153 938.32	11 708 732.27
6-7	4	18 639 732.00	- 9 620 108.20	9 019 623.80
8-9	8	10 228 646.32	- 2 914 337.41	7 314 308.91
10-11	3	2 838 348.00	- 417 558.01	2 420 789.99
YELLOW PLANT	103	215 252 648.77	- 98 078 639.35	117 174 009.42
0-1	14	11 661 459.88	- 10 772 129.88	889 330.00
2-3	8	13 777 800.00	- 12 283 928.09	1 493 871.91
4-5	21	31 669 001.35	- 21 931 076.55	9 737 924.80
6-7	18	53 519 031.03	- 30 294 148.28	23 224 882.75
8-9	6	9 011 652.16	- 3 754 785.88	5 256 866.28
10-11	21	53 159 103.09	- 12 435 992.35	40 723 110.74
12-13	5	16 253 480.54	- 4 310 591.12	11 942 889.42
14-15	10	26 201 120.72	- 2 295 987.20	23 905 133.52
Grand Total	1300	1 450 921 374.26	- 807 463 420.96	643 457 953.30

CHAPTER 16

16. FINANCIAL MODEL

This section of the Sector Plan demonstrates the financial model associated with the delivery of UWM services.



Figure 36: The Urban Waste Management value chain

The above Urban Waste Management value chain is incorporated into the decision-making and into the directorate's budget structures

Though in its complete whole it is deemed to be a trading service by National Treasury, Waste Management has a funding model that sets it apart from most, if not all, Directorates in the City in that it is funded from both tariffs (Collections and Disposal) while the remainder of the business is funded from Property Rates. The services provided by Waste Services fall into the following categories:

- *Public good* – maintenance of clean beaches and the operating of drop-off facilities where people can take excess waste not suitable to go into the 240-litre wheelie bin, which are available to the end-user free of charge.
- *Private good* – a benefit that is attributable to the end-user and therefore attracts a service charge based on consumption e.g. the number of 240-litre wheelie bins on site or tons of waste disposed of.

Funding for waste management services comes from a combination of:

- Cost-reflective tariffs - the businesses of both Collections and Disposal (the latter previously partially relied on co-funding from Property Rates) are fully funded from income or revenue derived from tariffs.
- Equitable share – the national government acknowledges the inability of indigent households to pay for basic municipal services and partly contributes to the coffers of municipalities to make up for the shortfall in revenue. The equitable share allocated to Waste Services is inadequate to cover the social package (sliding scale) offered by the City to its indigent households in formal residential areas. The difference is covered by the Collections Tariff.
- Free basic services – households living in Informal Settlements receive free basic services that are partly funded from the equitable share and the Property Rates. However, as a result of pressure on the Rates Account, there is a drive over the next two to three financial years to have it wholly funded from Tariffs.
- Infrastructure Grants (e.g. USDG) - although Urban Waste Management has not been a beneficiary in the last decade or so, national government takes cognizance of the ideal position of local government to the provision of services and accordingly allocates conditional grants to municipalities largely for infrastructure projects that will impact poorer households.
- Property Rates – of the operational Branches Drop-offs and Cleansing are funded from Property rates while the cost of all the support Branches is fully absorbed by the Operational Branches, namely Cleansing, Collections & Drop-offs as well as Disposal.
- Fleet - though Engineering Asset Management is a support Branch, its Fleet Section (the custodian of the Department's plant & vehicles) operates as a business and therefore its operational costs (licensing fees, tyres, repairs & maintenance and overheads) are fully recovered from its fleet & equipment rental "paid" by the end user.
- Alternative funding – though not particularly explored by the Directorate, there are other sources of funding external to the government sphere that are available to municipalities, but these often come with onerous conditions, which must be clearly understood before entering into any agreement.
- The drop-offs linked to Collections were previously funded from Tariffs but are now classified as a Rates-funded service. However, due to ongoing under-funding these drop-offs have over the years assumed a dual funding in that the activities associated with waste minimisation (chipping of garden greens and collection of dry recyclables), for instance, are funded from Tariffs, as explained below.
- For the Rates-funded services there is no modelling of tariffs as growth parameters are dependent on what the Property Rates can afford in total for all such services, as assessed by Corporate Finance, which is usually not enough to adequately respond to demand for services.

TARIFFS

- **Consumptive refuse collection tariff** – contrary to what is suggested in the National Pricing Strategy for Waste Management, the refuse collection in the City is not based on actual quantity of waste generated, but is rather based on the number of waste receptacles (240-litre wheelie bin) issued. There is a logic behind the decision otherwise some customers may end up paying for waste that is not theirs as some might be inclined to deposit their waste in neighbours' bins.
- **Waste minimisation** – the Department presently has a universal refuse collection tariff for domestic clients applicable to all users regardless of whether one receives separate collection of dry recyclables or not. The intention to introduce a tariff that is not zero-rated has previously been tabled at the Budget Steering Committee with no objection, except emphasis on the need to first take it through a rigorous public participation process. An area of sensitivity has been modelling such a tariff in such a way that it is not viewed as punitive (an added cost to the end-user), but as an incentive to encourage participation.
- **Landfill Sites versus Transfer Stations** – the City previously had a transfer station tariff separate and lower than a landfill tariff. This was in an effort to encourage waste disposal clients to take their waste directly to the transfer station to facilitate beneficiation. However, the two tariffs were subsequently equalised, though there is now growing sentiment to revisit that position.
- **Tariff interconnectivity** – the provision of bulk infrastructure, namely transfer stations and material recovery facilities for the handling and further processing of waste as well as licensed landfills with engineered cells for the safe disposal of waste attracts a huge cost and therefore generally higher tariffs. However, those opting for the refuse collection service of the City only see the refuse collection tariff on their municipal accounts, which (though inclusive of waste disposal fees) we try to keep affordable.
- **Waste Disposal Surcharge** – a punitive tariff for waste emanating from outside of the municipal boundary of the City in order to protect the interests of the people of Cape Town. Although distance could be a deterrent, it must be highlighted that the said tariff is very difficult to administer as a number of service providers render services across municipal boundary and are unlikely to declare the origin of the waste to avoid a surcharge.

Table 38: Rebates based on residential property values

2023/24 Financial year			2024/25 Financial Year (Provisional)	
Residential Property Values	No. of Customers	% Rebate	Residential Property Values	No. of Customers
R1 - R450,000	192,217	100%	R1 - R450,000	196,061

R450,001 - R500,000	22,165	50%	R450,001 - R500,000	22,608
R500,001 - R650,000	52,648	25%	R500,001 - R650,000	53,701

Please note that the value of the rebate excludes households living in Informal Settlements.

The rebate categories above reflect the social package available to indigent households based on the value of the property (for the first 240-litre wheelie bin). Further rebate on refuse collection is based on joint monthly household income, as depicted below.

Table 39: Adjusted rebate categories based on household income

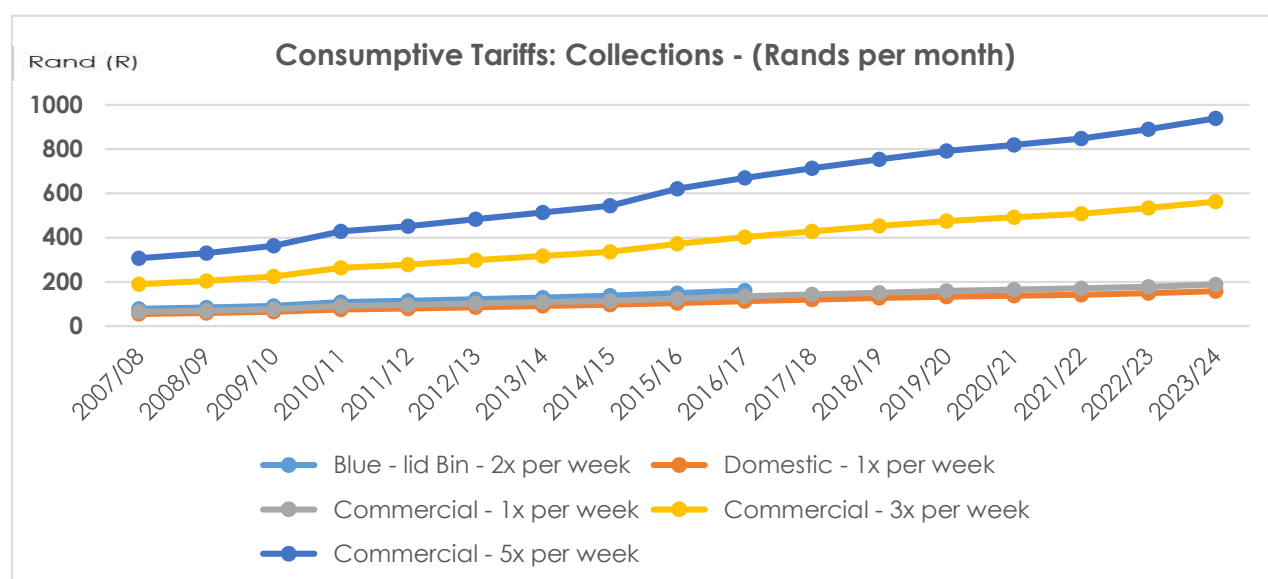


Figure 37: Refuse Collection Tariffs: 2007/08 – 2023/24

Monthly Household Income	% Rebate (2023/24)	% Rebate (2024/25)
Less than R7,500	100%	100%

The inference that can be drawn from the graph above is that:

- The once per week domestic and commercial tariffs differ only marginally.
- An increase of approximately 3 times for most of the domestic tariffs between 2007/08 and 2023/24.
- The discontinuation of the twice per week service as it was not economical as the number of customers was small and far in between.
- Widening gap between the once per week versus thrice per week and the thrice per week versus five times per week services.

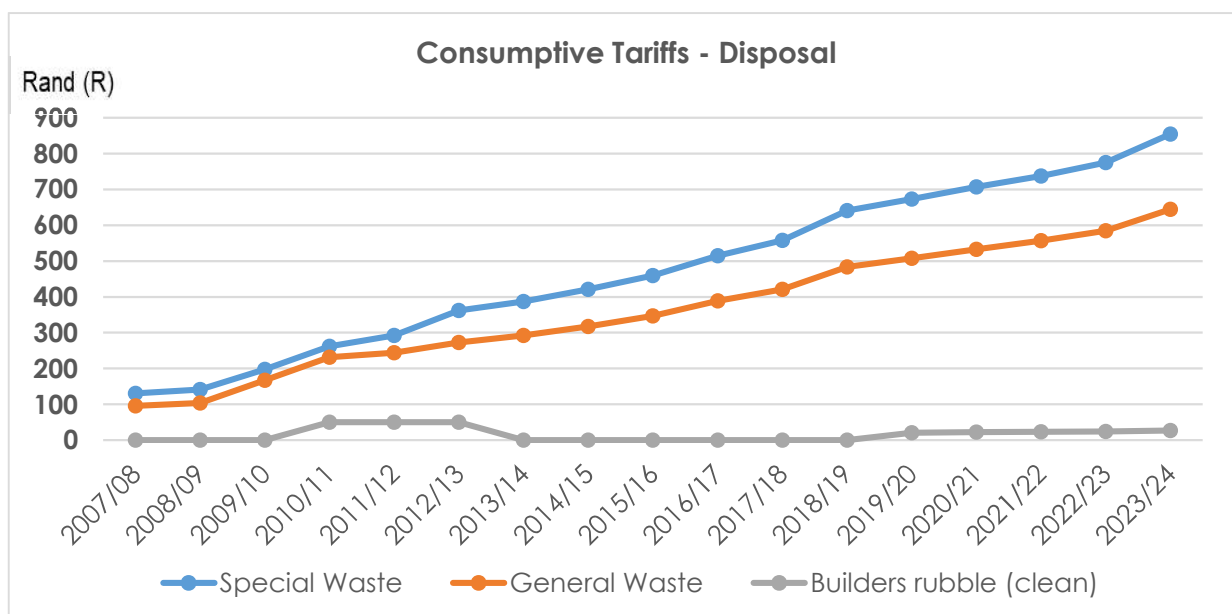


Figure 38: Waste disposal tariffs between 2007/08 and 2023/24

The following deductions can be made from the foregoing graph:

- The General Waste and Special Waste tariffs increase fivefold between 2007/08 and 2023/24.
- Widening gap between the General Waste and Special Waste tariffs over the years.
- Introduction of a Demolition Waste or Builders' Rubble Tariff for three years between 2010/11 and 2012/13, which was discontinued for six financial years before being reintroduced in 2019/20 though at less than 50% of the earlier nominal tariff.

Mindful that proposed tariff increases are only indicative and could change (and often) depending on circumstances, including shifts in the capital programme, it is considered prudent to show projections up to three financial years, as indicated below:

Tariff	2025/26	2026/27	2027/28
City-wide Cleaning	-	6.00%	6.00%
Collections	7.36%	6.00%	6.00%
Disposal	5.28%	8.65%	5.68%

An important consideration is that the Disposal Tariff is already included in the Collections Tariff and is shown here for completeness and does not reflect in the municipal account – only the private party who frequents the waste disposal facility experiences the Disposal Tariff directly.

16.1 REVENUE MANAGEMENT

Section 15 of the MFMA expressly mentions that a municipality may, unless stated otherwise, incur expenditure only

- (a) In terms of an approved budget; and
- (b) Within the limits of the amounts appropriated for the different votes in an approved budget.

The above statement further emphasises the fact that budgets must be fully funded and therefore makes no room for deficit budgets.

Table 40: Planned Income for Urban Waste Management for 2024/25

Revenue Item	Budget (Full Year)
Refuse Charges	1 777 628 142
Availability	14 164 460
Interest Earned on Arrears	37 561 870
Indigent Relief : Refuse	470 417 406-
Primary Income (Cash)	1 358 937 066
Refuse Removal	182 161 574
Grants and Subsidies : Equitable Share	379 702 641
Other	2 227 605
Total Income - Collections	1 923 028 886
Disposal Coupon Fees	216 364 563
Special Waste Fees	6 115 804
Builders' Rubble	2 859 087
Primary Income (Cash)	225 339 453
Bulk Refuse	569 487 944
Dumping Cost	72 691 624
Development Contribution	13 531 182
Other	12 343 916
Total Income - Disposal	893 394 120
Rates Contribution to UWM	2 097 316 177
Grants and Subsidies : Conditional	55 341 549
Grants and Subsidies : Equitable Share	169 314 421
Profit on Sale of Assets	409 000
Contributions Received by R&G	120 209 793
Other	60 428 601
Total Income - Rates	2 503 019 541
Grand Total	5 319 442 546

Accordingly, in terms of Table 40 above in excess of 40% of the operating costs of the Directorate are funded from Property Rates and the remainder is funded from tariffs associated with Collections and Disposal. In terms of the latest billing data domestic customers make up more than 85% of the revenue for Collections while

business, which have the option to engage the services of the City or alternatively procure the services of another accredited service provider, contribute only approximately 10% of the Branch's total revenue. Disposal on the other hand has Cleansing and Collections (excluding contractors) as their biggest clients and are responsible for approximately 70% of the Branch's revenue, which does not involve the exchange of cash (internal transaction). Some of the things that come to mind will be:

- Work on complete integration of systems, adequately mitigate all risk exposure and consider the centralisation of revenue oriented functions to enhance effectiveness and accountability.
- Move past periodically reporting on performance to introducing strong financial oversight.

A healthy collection ratio for Collections (Disposal is on prepaid for its external customers) is at the heart of a fully funded budget based on realistically anticipated revenue. There is a direct relationship between the collection ratio and the economic climate. The financial year 2022/23 had seen a collection ratio of 92%, which has been sustained in the first 5 months of the 2023/24 financial year, which informs the expenditure budget.

Table 41: Collection ratio – latter part of 2024/25

Description	Sept-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25
Balance Brought Forward	715 799 804	716 913 578	720 045 057	715 424 002	725 421 213	732 340 174
B/C/O	716 913 578	720 045 057	715 424 002	725 421 213	732 340 174	744 974 027
Billed	178 394 363	174 718 238	177 293 715	172 295 767	180 390 341	176 778 518
Internal	14 700 733	15 472 965	15 038 583	14 892 985	15 514 529	14 843 588
Write Off	11 455 252	4 867 830	8 819 326	103 341	2 340 305	3 714 843
Credit	180 526 069	182 191 894	188 134 026	177 088 200	186 645 605	175 273 410
Monthly Payment Ratio	93.49%	95.79%	97.82%	94.60%	95.27%	91.47%
6 Months Credit	1 060 400 513	1 068 584 215	1 082 637 713	1 089 331 964	1 100 906 795	1 089 859 203
6 Months Invoiced + VAT	1 101 751 109	1 113 790 773	1 126 269 809	1 135 912 745	1 151 710 327	1 150 334 325
6 Months - Payment Ratio	96.25%	95.94%	96.13%	95.90%	95.59%	94.74%
12 Months (Year) Credit	2 098 161 661	2 102 011 725	2 114 366 425	2 124 067 195	2 146 587 737	2 140 345 794

12 Months (Year) Invoiced + VAT	2 189 466 358	2 191 437 612	2 201 127 224	2 208 576 248	2 228 198 964	2 233 000 951
12 Months - Payment Ratio	95.83%	95.92%	96.06%	96.17%	96.34%	95.85%

16.2 COSTING

The Accounting & Financial Management Section has developed a costing model initially premised on Collections and carefully identifies the activities that consume resources (cost drivers) such as employee-related costs, contracted services, fleet & equipment rental, disposal costs. Acknowledging that there are nuances in Cleansing and Disposal, the conversation has now been formally extended to these Branches as it is imperative that the model be developed further to encapsulate these sections of the waste management business.

With assumptions made in respect of growth in client base and/or number of bins serviced, waste generation patterns, consumer price index etc., the model can and has been adapted to build in other capabilities, including the modelling of tariffs over a much longer time horizon. It is important to emphasise the following about the model, which does not

- ✓ Address issues of operational efficiency around the utilisation of resources e.g. fleet
- ✓ Take away the need for technical input from experts on engineering and other type projects

16.3 OPERATING BUDGET

Operating Budget – at least R1bn or a quarter of the budget is collectively for;

- Refuse collection contracts
- Think Twice (separation of waste at source) contracts
- Chipping of garden greens
- Haulage of waste from drop-offs/transfer stations to landfills
- Maintenance of plant/vehicles/machinery

Table 42: High level breakdown of the operating budget for UWM 2024/25

Expenditure Item	Budget (Full Year)
Employee Related Cost	1 539 876 909
Contracted Services	1 229 741 888
Debt Impairment	81 241 535
Repair & Maintenance (Primary)	155 239 140
Repair & Maintenance (Secondary)	36 326 894
Depreciation & Asset Impairment	248 470 402

Finance Charges	14 661 006
Bulk Charges	569 487 944
Activity Based Recoveries	36 171 580
Support Charges	475 876 169
Other expenditure	967 017 310
Total Expenditure	5 319 442 562

16.4 FINANCIAL GAPS

Drop off site funding is both tariff and rates funded as noted in diagram below.



Figure 39: Drop off funding dual funding

Consequently, it is evident that the Directorate will have to consider the following propositions:

- Drop-offs – the current cross-subsidisation arrangement needs to be formalised and possibly thresholds be established.
- Cleansing (funded from Property Rates) picks up waste dumped illegally a sizeable fraction of which is waste that should have gone into a wheelie bin that ordinarily would have been serviced by Collections (Tariff funded). A clear basis exists for cross-subsidisation of Cleansing services from Tariffs, subject to transparency.
- In an effort to bridge the divide between Tariffs and Rates, there is a need for an investigation on a project-based approach to providing services in areas with specific peculiarities (mix of formal and informal plus high backyarder presence) such as Dunoon and Joe Slovo (Milnerton) where

the demarcation of services is impractical. The plan will further unpack the various interventions

- We are looking into reinstating the CRR funding for assets with a shorter lifespan such as Fleet and IT equipment. Even though budgeting for CRR is seen as budgeting for a surplus. In our view, the impact of taking up loans from an Interest on Loan perspective is on an annual basis quite costly.

Tariff Reform

In view of the Metro Trading Services Programme (MTSP) spearheaded by National Treasury, Urban Waste Management is presently on a new path that will see it functioning as a proper ring-fenced trading services wholly funded from tariffs with effect from 1 July 2025. As part of this initiative, some of the obvious benefits are that:

- The Directorate will cease to depend on the Rates Account to fund more than 40% of its business.
- Previously under-funded services such as street cleaning, clearing of illegal dumping, beach cleaning, area cleaning, drop-off sites etc., including the support functions, will be funded from the City-wide Cleaning Tariff and therefore,
- The full cost associated with the provision of waste management services will be more transparent to the end user.

The proposed tariff is embedded in the “polluter pays” principle, the cornerstone of the National Environmental Management Act, Act 107 of 1998, which amply specifies that all generators of waste (including businesses and households) are responsible for the costs of managing the waste generated. Unlike Collections and Disposal, the range of services covered by the City-wide Cleaning Tariff cannot be linked to actual consumption – a drop-off is a convenience hub enjoyed specifically by those visiting it to dispose of waste while a clean environment arising from the obviating of illegal dumping, because of the drop-off, extends to a much broader community. For this reason, the City-wide Cleaning Tariff is based on property-value bands as a means of determining recoverability and affordability.

In addition, as with most tariffs, the City-wide Cleaning Tariff will make provision for rebates in order to rebate will be offered to safeguard vulnerable groups as follows:

- R1 – R500 000 receive 100% rebate
- R500 001 – R1.5m receive a rebate of R33.58 per month
- R1 500 001 – R2m receive a rebate of R16.79 per month

CHAPTER 17

17. STAKEHOLDERS

For the purposes of this section, there will be a distinction between:

- a) Stakeholders that must be identified for the purposes of the sector plan development and review process, and
- b) Identification of stakeholders as part of an on-going stakeholder management / communications plan or strategy/policy/SOP as part of day-to-day management of the service delivery or the specific function.

Both preceding sections identifies categories of stakeholders in terms of:

- Legislative requirements;
- Minimum requirements (a National or Provincial Department that may have concurrent or higher powers);
- Key role-players of the different spheres of government (National and provincial Departments);
- Key organisations/associations/NGO's etc. at a municipal level;
- Customers/consumers (may also have customer segmentation if customers have different needs);
- Internal department that may have dependencies or which may be affected by the planning and implementation of planned services/maintenance/upgrades. Most of the dependencies listed in **Table 43** are part of the UWM stakeholders as depicted below

The objective, different approaches and point in time at which communications/ engagement must happen must be designed in relation to the specific category.

The Stakeholder base for Waste Management Services rendered is vast and includes various actors such as:

Table 43: Stakeholder base

Internal: Urban Waste Stakeholders	City Directorates	External Stakeholders
• Waste Collections	• Environmental health • Environmental Management -	• Residential – a combination of formal and informal

• Cleansing & By-law enforcement • Disposal • Human Resources • Commerce and Finance • Technical Services • Planning: All Internal sections	(Environmental Planning and Sustainability) • Water and Sanitation directorate • Communications- media and marketing • Transport (Planning) • Metro Police • Social development • Human Settlements • Sub councils and Councillors • Energy (climate change and sustainable energy) • Recreation and Parks • IS&T • Finance	communities, lower, middle and upper • Commerce and Industry (esp the waste industry, PROs) • Schools, places of learning and other institutions (e.g. churches, old age homes, etc.) • Special Interest Groups – Partnerships (NGO's and CBO's) including Green Cape • Tourism and Events • Provincial and National Government) including Department of Environmental Affairs and Development Planning (DEADP) DFFE, Water and Sanitation, DST, DTI, DoE and DMR
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Rosina Lesoetsa

Head Integrated Waste Strategy and Policy

Shaazia
Wiggins

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Shaazia Wiggins

Manager Planning and Strategy

Velaphi
Mabiletsa

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Velaphi Mabiletsa

Director Integrated Planning and Waste Strategy