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**City of Cape Town  
Solid Waste Directorate**

**Final Draft  
Integrated Waste  
Management Plan**

**October 2004**



Prepared  
By



This report was prepared under Mega-Tech, Inc.'s prime contract with USAID and addresses USAID/South Africa's Strategic Objective No. 6: Increased Access to Shelter and Environmentally Sound Municipal Services

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**City of Cape Town**  
**Solid Waste Directorate**

***Draft (Final) Integrated Solid  
Waste Management Plan***

**EXECUTIVE SUMMARY**

On behalf of USAID, and in terms of Contract No. 0098-0103-SUB-TA37, Mega-Tech Inc (MTI) commissioned Jeffares & Green (Pty) Ltd, in joint venture with Ingeróp Africa (Pty) Ltd, to provide consulting services for the "DEVELOPMENT OF AN INTEGRATED WASTE MANAGEMENT PLAN (IWMP) FOR THE CITY OF CAPE TOWN".

The development of an IWMP is a requirement of the National Waste Management Strategy, the Draft National Integrated Waste Management Bill (due to be submitted to Parliament for promulgation in 2005) and the Unicity's Integrated Development Plan (IDP). The objective of the Contract is to develop an IWMP, using a cradle-to-grave approach that incorporates appropriate, affordable and an environment-friendly mix of solutions which will continually reduce the mass of waste requiring disposal and also serve to provide a dynamic framework to manage the City's waste stream effectively based on the waste hierarchy.

The Project Team, together with officials from the Waste Department of the City of Cape Town and Department of Environmental Affairs and Development Planning, have undertaken an extensive study to obtain and evaluate available "status quo" information covering solid waste relevant to the Cape Town Metropolitan Area (CTMA). The status quo situational analysis was completed at the end of March 2004. From the **Status Quo Report** the shortcomings, described as gaps and needs, were determined and their relevance and importance to the IWMP identified.

An assessment of key findings, including a comparative analysis against national and international best practices, is contained in the **Assessment Report**.

The key findings of the Status Quo Report and Assessment Report were taken forward to develop the strategies, plans and tasks that form the City of Cape Town's **Integrated Waste Management Plan**. Strategies and activities are set out and programmed for implementation on either a short-medium- or long-term basis.

The process of developing the IWMP produced four sub-reports:

1. The **Final Status Quo Report** (March 2004) describes the current situation with respect to the solid waste management operations taking place within the City of Cape town. The report includes a "gap" analysis that identifies actions, policies and by-laws needing review and updating.

2. The **Final Assessment Report** (May 2004) reviews current solid waste management services against recognised international and national best practices and brings forward the key findings from the status quo study and recommends and evaluates specific measures that would be required to address the shortcomings as identified in the Gap Analysis Report.
3. The outcomes of the Final Assessment Report informed the strategies to be presented in the "Activity Schedules" in the **Draft IWMP**. The main content of the report consists of activities in tabular form outlining the strategies that are proposed for the various waste management needs, together with timeframes and priorities. Key performance indicators are also recommended for monitoring of the progress and success of implementation of the plan.
4. The **Draft Solid Waste by-law** takes into account the outcomes of the three reports mentioned above. The City's legal team also assessed the Draft Solid Waste By-law. The Draft Solid Waste By-law integrates the historical plethora of by-laws and new by-laws in line with the current regulatory requirements. The final draft by-laws take into account the outcomes of the IWMP and comments received arising from a parallel public participation process.

The IWMP aimed to achieve the following objectives:

- ◆ To develop a strategy that will address methods of waste management to achieve compliance with the requirements of the waste management hierarchy.
- ◆ To increase waste minimization by promoting the prevention, reduction, reuse and recycling of waste.
- ◆ To ensure that the Solid Waste By-Law is drafted for enforcement.
- ◆ To optimize airspace at landfills by adopting strategies to steadily reduce the amount of waste which is disposed of at landfill.
- ◆ To improve the levels of service in certain areas of the City such that adequate and equitable waste collection services become available to everyone in the CCT.
- ◆ To develop Waste Management Strategies and programmes, which recognize the specific waste management demands and needs reflected by the community and society (including industry, commerce, schools, formal and informal residential developments etc.
- ◆ To ensure an integrated approach to all waste management projects is adopted so as to prevent adverse social and environmental impacts.
- ◆ To identify and develop a plan for future waste management needs and requirements that provides short-, medium- and long-term planning and strategies.
- ◆ To optimise infrastructural and financial requirements so as to ensure that waste management costs are minimised by optimising the efficiency of the waste management system aimed at a "full cost accounting" system to assess waste management costs.
- ◆ To assist the City's planning to ensure that adequate capacity is made available and to encourage political support to meet the targets set within the IWMP.
- ◆ To present the IWMP to the public and all stakeholders and thereby ensure that they have a voice in development of the waste management systems and strategies chosen, as well as to ensure that the institutional, legal and financial frameworks proposed, are accepted for practical implementation.

Based on the objectives of the IWMP the following **guiding principles** formed the cornerstone of the mentioned deliverables for the plan:

- Waste must be managed in a responsible manner according to the “Waste Management Hierarchy” of the National Waste Management Strategy, i.e. (in descending order) promoting avoidance and reduction, reuse, recycling, composting and responsible treatment and disposal of waste. The emphasis of the IWMP is focussed on the minimisation and recycling of waste so as to ensure less waste enters the system and landfill airspace requirements are reduced.
- Ownership of the IWMP is required by the public as well as private sectors to ensure that an acceptable level of cleanliness of the City is achieved and maintained and that effective and sustainable waste reduction takes place. The IWMP was prepared in consultation with the local community, as required by the Municipal Systems Act, 2000.
- The development of the IWMP gave consideration to the City’s Integrated Development Plan (IDP). It is the intention that the IWMP will be reviewed and updated annually and will continuously feed into the IDP. The City is committed towards poverty alleviation and promotion of employment through empowerment projects (e.g. promoting the growth of waste recovery, reuse, recycling and composting through public-private-sector initiatives).
- The Solid Waste Directorate (SWD) developed a strategy document outlining the vision for solid waste and this served as a guiding tool for the development of the IWMP to ensure that the vision of the Directorate is followed through in the plan.

The IWMP prioritises the activities and provides key performance indicators so that the progress and performance of the implementation of the plan may be measured. Key Performance Indicators (KPIs) are variables which together provide a meaningful, concise, overall picture of an organizations performance and are used to report progress of the critical success factors of a program or plan.

An estimate of the cost of implementing the IWMP has been undertaken in order to spread costs over a realistic timeframe.

*The IWMP addresses the following key areas of waste management planning:*

**Institutional Arrangements:** The current management structure largely reflects the structure of the former municipal administrations and it is considered essential that the City’s current restructuring initiatives transform the Solid Waste Management Directorate (SWD) into an integrated, functional and effective entity. The IWMP sets out activities required to integrate and align solid waste management services within a new organisational structure. Key areas of focus include the development of a robust, integrated institutional framework, communication considerations, and human resources development.

**Financial Arrangements:** The financial management of the SWD department is integrated with the overall City’s financial management systems and functions within an operating and capital development budgets set by the SWD and approved annually by the Cape Town City Council. The IWMP sets out the activities required to effectively manage the financial functions of the SWD. Key areas of focus include the development of a financial framework and addressing the needs for revenue, costs and financing, asset management, budgeting and financial planning.

**Waste Minimisation:** Waste minimisation is key to many aspects of waste management and is therefore considered a principal feature in the development of strategies for cost-effective waste management. A key constraint that hinders a more widespread adoption of waste minimisation and recycling – at the domestic, commercial and industrial levels – is the lack of sufficient incentives and enforcement due to an inappropriate regulatory and financial policy framework. The activities set out in the IWMP are aimed at promoting the prevention and source reduction of waste, as well as encouraging a more widespread and cost-effective reuse and recycling of waste. These activities are required by the waste management hierarchy, which forms the basis for the National Waste Management Strategy (NWMS) Action Plan. The IWMP addresses upstream waste minimisation through source reduction, introduces appropriate regulatory, financial, awareness-raising and infrastructural measures encouraging and facilitating increased waste recovery for recycling by households and businesses, as well as developing or strengthening markets for recycled products.

**Waste Education, Awareness and Training:** The City has been actively involved in Waste Education and has supported various projects focussing on awareness raising and training to achieve an improved standard of waste management in the City. It has been established that certain projects and programmes need to be extended to realise their success and that support for these should be ensured over a long period of time. Furthermore the shortcomings and gaps identified the need for transforming and empowering the various affected sectors (industrial, commercial, domestic or governmental) to practice responsible waste management through better understanding, improved access to education and practical training. The activities set out in the IWMP represent a toolbox to enable the City to undertake proper waste education, awareness and training. Key areas of concern addressed in the toolbox relate to the inadequate communication strategies within national, provincial and local government and the historically poor political support for environmental education programmes. The lack of economic and human capacity for the implementation of awareness raising, educational and training programmes is also addressed.

**Waste Information Management:** Information on the quantities and types of waste being generated, recycled and disposed of in the Metro has been obtained from a number of sources. This includes the quantities of waste entering landfills or transfer stations, quantities received at drop-off facilities and information received from recovery operators and collectors. The annual total waste generated within the CTMA in 2002/2003 is estimated to be 2,158,500 tonnes. Household waste accounts for 820,866 tonnes, Commercial waste 567,558 tonnes, Industrial waste 339,991 tonnes, Green waste 111,721 tonnes and Builders rubble 318,392 tonnes of the annual total waste. Some 288,000 tonnes per annum, or some 13% of the total waste generated, is recovered through recycling and composting initiatives. The annual growth rate is estimated to be 3,8% and the projected total waste generation by 2030 will be some 2,750,000 tonnes per annum. A target of 1,250,000 tonnes per annum by 2030 of waste disposed to landfills is proposed, which will require the introduction of bold waste reduction and minimisation measures by the City. A Waste Information Management System is urgently required, as future Waste Management Planning will require data of the highest integrity. The IWMP addresses the measures required for the development and implementation of a Waste Information Management System. The key issues addressed by the IWMP include the lack of a reliable database for determining the quantity of waste generated in the City; the inconsistency of data of waste at the weighbridges; and the characteristics and integrity of waste data.

**Waste Collection and Area Cleaning:** The City of Cape Town currently enjoys the status of being one of the top tourist destinations in the world. The cleanliness of the City is not only important

for the well-being of its citizens, but also to show-case the city to further develop its potential as a tourist destination and thus provide much needed job opportunities. The IWMP sets out the activities required to further integrate, rationalise and improve and extend waste collection and area cleaning services delivery across the City. The key areas of focus in the IWMP include the scope for improvement given that the SWD is constrained by the slow pace of restructuring and transformation, the inefficient deployment of staff, the need to unbundle the cross-cutting of various municipal departments and the lack of physical, human and financial resources.

**Hazardous and Special Wastes:** The City of Cape Town is responsible to ensure that public health and safety is maintained, and it is considered of particular importance that the City's waste by-laws be thoroughly reviewed with respect to the proper management of hazardous wastes. A cradle-to-grave management approach for hazardous waste is proposed (from hazardous waste generation to satisfactory final disposal) and the IWMP sets out the activities required for establishing targets for hazardous and special waste reduction and developing and implementing measures to ensure proper management of hazardous and special wastes. Key issues include the integration of hazardous waste management, the updating and enforcement of legislation, the development of a waste classification system and education and awareness of waste generators and consumers.

**Waste Disposal:** The SWD is responsible for the function of disposal of waste at engineered waste disposal sites within the City of Cape Town, supported by the privately-owned Vissershok Waste Management Facility (VWMF). It is envisaged that over the next three years the planned closure of four of the City's existing landfills and the development of a regional waste disposal site and associated transfer stations, will lead to a significant increase in the unit costs of waste disposal and treatment. Furthermore, the increase in rail and road transportation costs as a result of greater haul distances will place a high priority on waste reduction and minimisation. The IWMP sets out the activities required to implement measures to ensure that adequate provision is made for the City's future disposal needs. These activities include the mobilisation of human and financial resources, provision of adequate landfill airspace, the development of a waste information system and the reduction of waste disposed of at landfills.

The Integrated Waste Management Plan provides a dynamic framework to manage the City's waste stream effectively based on the waste hierarchy and requires full ownership of the plan by the City's politicians, officials, waste practitioners and the general public to ensure a successful outcome. Key performance indicators (KPIs) are used in the IWMP to measure effectiveness of its service delivery mechanisms for the purpose of effecting improvements where they may be necessary. The KPIs quantitatively measure and assess the performance against scheduled activities and targets. The document is set out in tiers comprised of specific programmes measuring performance to ensure the success of the implementation of the broader activities. The sequence of the KPI's align closely with the high-level format of the plan and should be seen as "primary" indicators for the measurement of the success of implementing the IWMP. It will be necessary to develop further "secondary" indicators and targets when more detailed programs or projects are identified by the SWD in the course of implementing the IWMP.

## QUALITY VERIFICATION

		TITLE: Contract No. 0098-0103-SUB-TA37, to provide consulting services for the "DEVELOPMENT OF AN INTEGRATED WASTE MANAGEMENT PLAN (IWMP) FOR THE CITY OF CAPE TOWN".		
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<b>QUALITY VERIFICATION</b>				
This report has been prepared under the controls established by a quality management system that meets the requirements of ISO9001: 2000, which has been independently certified by Bureau Veritas Quality International (BVQi) under certificate number 72238.				
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**City of Cape Town  
Solid Waste Directorate**

**Draft (Final) Integrated Waste  
Management Plan**

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## **ACRONYMS & ABBREVIATIONS**

It is advised that this report be used in conjunction with the Final Status Quo Report and the Final Assessment Report in order to have complete knowledge of the acronyms and abbreviations used throughout the IWMP reports.

## **KEY REFERENCES**

Key references are listed below. Other references are provided separately in the Status Quo Report and Assessment Report.

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- 1-12. Jeffares & Green (Pty) Ltd/Ingerop Africa (Pty) Ltd: *City of Cape Town. Integrated Waste Management Plan: Final Assessment Report - August 2004.*

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The Project Team for the development of an Integrated Waste Management Plan acknowledges support given, and the significant contributions made, by many officials of the City of Cape Town, members of the Cape Town community, companies engaged in the business of waste management, the Department of Environmental Affairs And Development Planning: Western Cape, the Fairest Cape Association, and many other interested and affected parties and stakeholders. Acknowledgement is furthermore given to USAID for their financial sponsorship of the Project and to Mega-Tech Inc for their guidance and inputs as project managers acting on behalf of USAID.

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# **SECTION 1:**

## ***Introduction***

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Section 1 presents an overview of the development of the Draft Integrated Waste Management Plan and describes the Guiding Principles that form the cornerstones of the Plan. Key Issues are summarised that were identified in the Status Quo, Gaps Analysis and Assessment studies and brought forward into the Draft Integrated Waste Management Plan.

## Section 1: Introduction

### 1.1 Background

The City of Cape Town was formed in October 2000 by the integration of seven former municipal local councils into a single "Type A" metropolitan council (Unicity). The services undertaken by the Solid Waste Directorate (SWD) now include the bulk waste services of the former Cape Metropolitan Council as well as the collection and area-cleaning functions of the six former Metropolitan Local Councils (MLC's). The City's solid waste management operations are currently fragmented, with some services and facilities in need of upgrading and modernisation. During the process of developing an Integrated Waste Management Plan (IWMP) for the City, a number of shortcomings and issues were identified that have significant cost and service delivery implications. These shortcomings and issues include:



- ◆ The City of Cape Town is currently engaged in a process of institutional re-structuring and reform that will have significant impacts on the institutional and financial arrangements necessary to provide effective, equitable and sustainable delivery of solid waste services.
- ◆ The City's estimated population of approximately 3,1 million citizens is growing at an estimated current year-on-year growth rate of 1,6%. The City currently disposes of some 1,85 million tonnes of waste per year. This quantity is growing by an estimated 5,5 % pa. Approximately 13% of the waste generated within the metropolitan area is recycled.
- ◆ Currently available landfill airspace is reaching a critical state of short supply and disposal is becoming increasingly expensive as a result of environmental and legislative requirements. Arising out of the identified need for a regional waste disposal facility with associated transfer stations, it is imperative to reduce the total costs associated with transporting waste by substantially reducing the future quantities of waste to be disposed of.
- ◆ The City's previous public initiatives to prevent, reduce and recycle waste have met with limited success. Through the Integrated Waste Management Plan, the City needs to establish a realistic waste reduction target and to develop a strategy and policies to ensure that the targets are met.
- ◆ There is no comprehensive integrated database or overlying management information system in place to produce reliable data and management information.
- ◆ Existing municipal by-laws relating to solid waste management are in need of reform and enforcement.
- ◆ The City continues to face large scale illegal dumping and littering.

## 1.2 Guiding Principles

The overall objective is to develop an Integrated Waste Management Plan (IWMP) for the City of Cape Town, which uses a cradle-to-grave approach that incorporates appropriate, affordable and an environment-friendly mix of solutions which will continually reduce the mass of waste requiring disposal and also serve to provide a dynamic framework to effectively manage the City's waste stream based on the waste hierarchy.

Guiding Principles taken into account in the development of the IWMP included the following:

- ◆ In terms of Section 24 of the Constitution of the Republic of South Africa (Act 108 of 1996), all of the citizens of Cape Town have the right to a clean and healthy environment, protected through reasonable measures which prevent pollution and environmental degradation and which promote sustainable development.
- ◆ The development of an IWMP is a requirement of the National Waste Management Strategy, the Draft White Paper on Integrated Pollution and Waste Management and the Draft National Integrated Waste Management Bill, due to be tabled to Parliament for promulgation in 2005.
- ◆ The development of the IWMP gave consideration to the City's Integrated Development Plan (IDP). It is the intention that the IWMP will be reviewed and updated annually and will continuously feed into the IDP process. The development of the IWMP gave due consideration of the City's Development Strategy (DS), Integrated Metropolitan Environmental Plan (IMEP), the Medium Term Income and Expenditure Framework (MTIEF), the Municipal Structures Act (No.117 of 1998) (MSA), the Municipal Financial Management Act (No. 56 of 2003) as well as the Municipal Systems Act (Section 78).
- ◆ The existing Strategy Plan (2004) as well as policies, strategies and business plans currently used by the City's Solid Waste Directorate, were reviewed and incorporated where considered necessary in the development of the IWMP.
- ◆ Waste must be managed in a responsible manner according to the "Waste Hierarchy" of the National Waste Management Strategy, i.e. (in descending order) promoting avoidance and reduction, reuse, recycling, composting and responsible treatment and disposal of waste.
- ◆ The achievement of equitable levels of service is to be pursued and no person or community shall be discriminated against in the provision of solid waste services.
- ◆ The City is committed towards poverty alleviation and promotion of employment through empowerment projects (e.g. promoting the growth of waste recovery, reuse, recycling and composting through public-private-sector initiatives).
- ◆ Municipal structures must be capacitated to make appropriate and informed decisions regarding solid waste management. Integration of the different municipal functions involved in the provision of waste management services should take place.
- ◆ The IWMP was prepared in consultation with the local community, as required by the Municipal Systems Act, 2000. Steps were taken to bring the draft IWMP to the notice of the local community and comments were invited. The final IWMP will be adapted to meet the needs indicated by the local community.
- ◆ Findings, conclusions and recommendations were made to address general, hazardous and special solid and liquid wastes (special wastes included animal



carcasses, medical and healthcare waste, tyres, construction and demolition wastes as well as water and wastewater sludges).

- ◆ The IWMP is under-pinned by a regulatory framework, where appropriate and enforceable by-laws were developed that consolidate, integrate and update the previously existing by-laws.
- ◆ The IWMP embraced the ISO 14000 (Environmental Management) series with the ultimate goal of ongoing review and assessment, which will lead to continual improvement of the social and environmental well-being of the City.
- ◆ The IWMP was approached on the basis of a 20-30 year planning horizon.
- ◆ Ownership of the IWMP is required by the public as well as private sectors to ensure that an acceptable level of cleanliness of the City is achieved and maintained and that effective and sustainable waste management takes place.

### 1.3 Structure of the Integrated Waste Management Plan

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

- ◆ 1. Status Quo Report incorporating a Gap Analysis: The report describes the “status quo” of solid waste management in the Cape Town Metropolitan Area covering the municipal as well as private-sector situation. The main areas of study include:
  - Institutional arrangements
  - Financial arrangements
  - Policy and regulatory considerations and By-laws
  - Demographical and contextual considerations
  - Waste collection and area cleaning
  - Waste disposal
  - Waste minimisation
  - Waste generation, quantities and characterisation
  - Hazardous and special wastes
  - Waste Information Systems
  - Waste monitoring and auditing
  - Waste education, awareness and training

A “gap” analysis was undertaken to identify gaps in terms of the status quo information and data as well as gaps in terms of identified short-comings in the delivery of waste management services within the City of Cape Town.

- ◆ 2. Assessment Report: The report analyses and assesses the findings of the status quo and gaps analysis studies and compares the functions undertaken in terms of solid waste management against national and international best practices. Key issues and strategies were identified which were carried forward for consideration for incorporation into the IWMP. A target is proposed for the reduction of the City’s waste stream.

- ◆ **3. Integrated Waste Management Plan:** Through a process of interaction with the City's Solid Waste Directorate officials and other stakeholders, a draft IWMP was developed which sets out the key activities of the IWMP, together with timeframes, and priorities. Key performance indicators are recommended for measuring the progress and performance of the future implementation of the IWMP.
  
- ◆ **4. Waste By-laws:** Draft waste By-laws were developed based on an analysis of existing by-laws and by consolidating and integrating existing and new by-laws in line with current regulatory requirements. The final by-laws take into account the outcomes of the IWMP and comments received arising from a parallel public participation process.

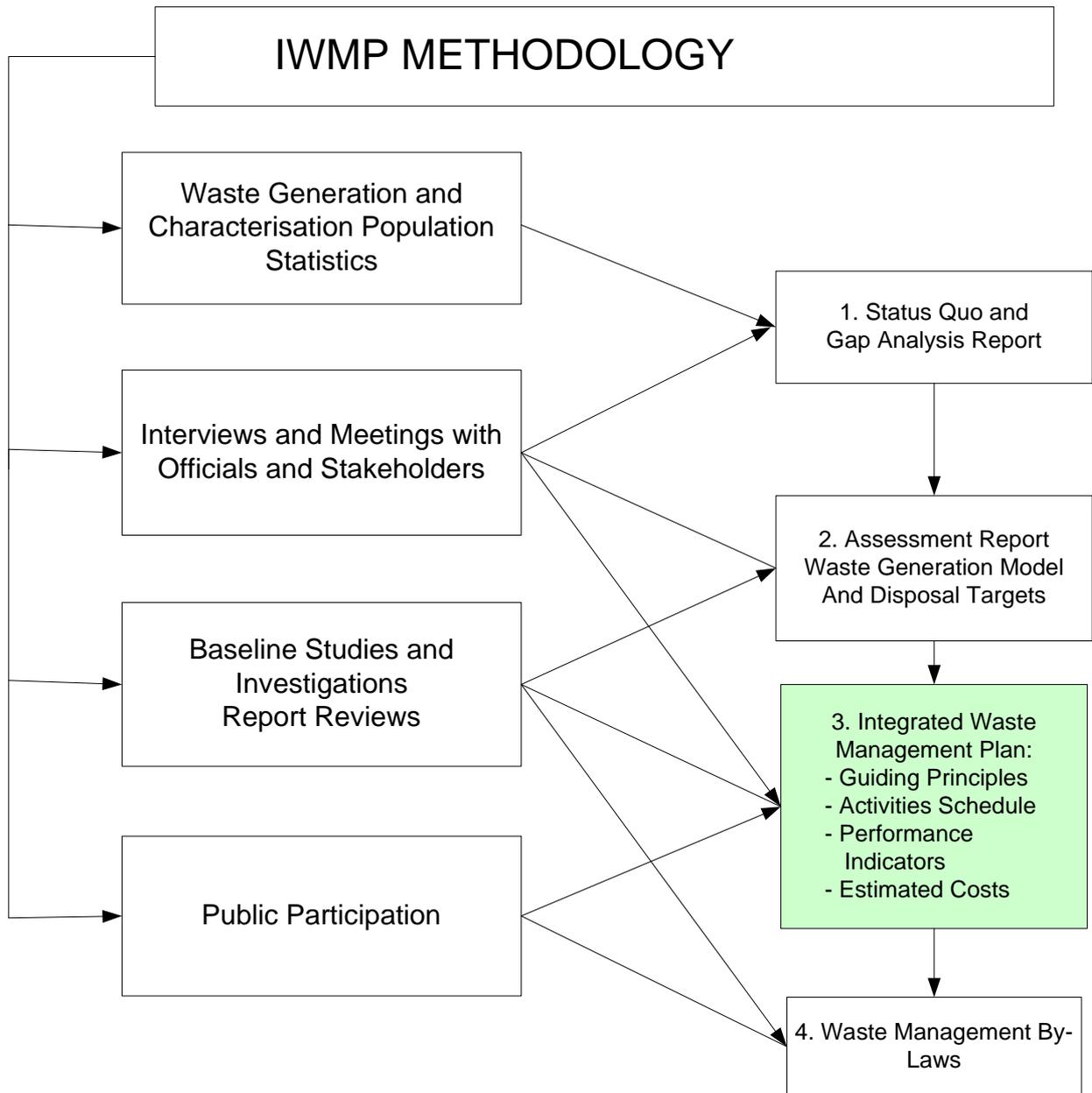


Figure 1.1: IWMP Structure: Flowchart

An independent public participation process was undertaken concurrently with the process of developing the IWMP. Comments received from stakeholders and the public were recorded and will form part of the final Draft IWMP documentation. Comments and inputs received will be evaluated by the Project Team and incorporated into the final Draft IWMP.

Reference is made in the IWMP to Policies, Strategies, Plans and Activities. These can be broadly defined in the context of the IWMP as follows:

1

- ◆ **POLICY:** The City Council approved Solid Waste Management “Policy” comprises philosophies, principles and overall methodologies used for implementing a mainstream solid waste management function within the City’s Solid Waste Directorate. Policies that are currently in force are the “Waste Collection” policy and the “Waste Disposal” policy (Wright-Pierce Report). A draft “Area Cleaning” policy is in the process of being completed. New policies have been recommended for the implementation of “Waste Minimisation” and “Waste Education, Awareness and Training” functions. Existing policies need to be amended and aligned to the IWMP.
- ◆ **STRATEGY:** A strategy is a high level plan describing the vision, goals and objectives to be achieved. The City’s Solid Waste Directorate has developed its Strategy for “achieving an ultimate solid waste service delivery model”.
- ◆ **PLAN:** A plan is a detailed set of actions/activities that sets out the steps to be implemented to achieve the policies and strategies articulated in the IWMP.
- ◆ **ACTIVITY:** An activity refers to the actions and tasks required to implement a plan.

## 1.4 Key Issues

A number of key issues and shortcomings were identified during the course of the preparation of the Status Quo and Assessment reports. These key issues are summarised below.

- ◆ In order for the IWMP to serve as a relevant guideline and management tool to be used on a day-to-day basis by waste practitioners to effectively drive waste management, it is considered essential that the City’s politicians, officials, and the public at large **take full ownership of the IWMP**. Only through full ownership will acceptable levels of cleanliness of the City, appropriate levels of services delivery and effective and sustainable waste reduction be achieved.
- ◆ It is recognised that the City comprises a multiplicity of living and working environments, and there is no “one-size-fits-all” solution to solid waste management. **The IWMP must be robust, flexible and affordable.**
- ◆ The City is currently engaged in a process of **institutional restructuring and transformation**. It is imperative that the Solid Waste Directorate responds swiftly and decisively in order that focus can be given as soon as possible to managing the implementation of the IWMP.
- ◆ **Job creation and poverty alleviation** are issues highly placed on the City’s agenda, and in developing and implementing solid waste management plans and functions, every endeavour must be made to seek solutions to address these issues. However, unrealistic expectations with respect to job creation must be avoided. A proper balance should be sought by supporting, incentivising and engaging with the private-sector to initiate projects that will create meaningful and sustainable employment.

- ◆ The City needs to accept a realistic target for waste reduction, relevant to the particular situation of the City of Cape Town. The financial, social and environmental costs of not achieving significant waste reduction will be vast.

Through the Assessment Stage process of the Project, the following waste reduction goals were developed:

Target Date	0 Years	5 Years	10 Years	15 Years	20 Years	25 Years	30 Years
	2000/2001	2004/2005	2009/2010	2014/2015	2019/2020	2024/2025	2029/2030
Proposed Revised Average Annual Increase/Reduction Target	<b>Base Line Datum</b>	<b>Current Average 6.0% pa Increase</b>	<b>Reduce to 0% pa Increase By 2010</b>	<b>10% Waste Reduction (wrt 2010) by 2015</b>	<b>20% Waste Reduction (wrt 2010) by 2020</b>	<b>30% Waste Reduction (wrt 2010) by 2025</b>	<b>50% Waste Reduction (wrt 2010) by 2030</b>
Estimated Annual Disposal Volume (X 1000 tonnes/year)	<b>1,493</b>	<b>1,985</b>	<b>2,500</b>	<b>2,250</b>	<b>1,875</b>	<b>1,750</b>	<b>1,250</b>
Polokwane Declaration (2001)		-	50% Waste Generation and 25% waste Disposal Reduction (by 2012)		-	Zero Waste Generation (By 2022)	-
Estimated CCT Population (x10 <sup>6</sup> )	<b>2,82</b>	<b>3,10</b>	<b>3,30</b>	<b>3,45</b>	<b>3,60</b>	<b>3,70</b>	<b>3,80</b>
Kg/Person/year Waste Disposed (Total Waste Stream)	<b>530</b>	<b>760</b>	<b>760</b>	<b>660</b>	<b>510</b>	<b>475</b>	<b>330</b>

- ◆ The Solid Waste Directorate of the City is committed to supporting, facilitating and incentivising waste reduction (including recycling). Close engagement between the public and private sectors is considered essential. **Increased public-private partnering** in solid waste management should be encouraged.
- ◆ The City needs to urgently develop a new By-law that effectively reforms, consolidates, and integrates existing by-laws and introduces new by-laws aligned with the IWMP. Measures must be taken to ensure that **new waste by-laws are properly enforced**.
- ◆ The City currently provides a waste collection service to practically all of its citizens and undertakes an extensive area cleaning service (The City received the “Cleanest South African City Award” in 2003). There is still, however, a need for **increased levels of service delivery** so that all households receive a door-to-door waste collection service and that the entire metropolitan area achieves acceptable levels of cleanliness.
- ◆ The IWMP must **integrate all waste-related activities** to ensure that over-lapping and cross-cutting of services is eliminated as far as possible.
- ◆ The procurement of an **Integrated Waste Information Management System (WIMS)** is considered essential so that reliable information can be gathered, analysed and made available for proper planning of waste management functions and activities. The WIMS should be developed so as to interface with the systems of the relevant authorities (e.g. DEADP).
- ◆ **Social issues** such as the impacts of informal street scavenging of refuse containers need to be resolved on an area-by-area basis. Waste collection systems must take into account consequential social impacts and area cleanliness. Street scavenging should be prohibited and alternative employment found through managed mechanisms such as more

widespread drop-off centres, controlled informal recycling at selected locations such as commercial centres, etc.

- ◆ With the imminent closure of four of the City's seven landfills, it is clearly evident that an **airspace shortage is looming**. Urgent measures are required to provide sufficient airspace until such time that the proposed regional waste disposal facility and associated transfer stations are operational.
- ◆ Planning towards a single, **regional waste disposal facility** will require significant reduction of the waste stream requiring final disposal (especially relevant as existing landfills are closed). Separation of materials at source, the need and desirability of materials recovery facilities (say, at transfer stations) and the promotion of sustainable markets for recyclable materials are issues that require urgent attention.
- ◆ The issue of **separation of household wastes at source** needs to be resolved in a holistic manner. Placing of separated recyclables into the street can lead to social problems and alternative methods of collection of household recyclables needs to be determined (e.g. disposal at drop-off centres, private-contractor collection from within property boundaries, etc).
- ◆ The financial implications of implementing the IWMP and providing effective and equitable levels of waste management services, will require a **significant increase in terms of the City's future capital and operating budgets for waste management**. The "user pays" principle is a possible method for achieving an equitable financing methodology.
- ◆ The issue of widespread indiscriminate illegal dumping and littering needs to be addressed. **Waste education, awareness and training** are essential to achieving a successful outcome.
- ◆ The IWMP, once approved and adopted by the City Council for adoption, must be **reviewed regularly against set performance indicators** and updated on a regular basis and fed back into the City's Integrated Development Plan (IDP), Equitable Services Delivery Framework (ESDF) strategy and other relevant authority policies and structures.

The key issues described above have been addressed in the IWMP through a process of developing strategies and plans and setting clear actions with priorities and timeframes.

# **SECTION 2: Activity Schedules**

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Section 2 presents the Activity Schedule for the strategies developed as part of the Draft IWMP for the City of Cape Town indicating time frames and priorities.

## Section 2: Activity Schedules

### 2.1 The Development of Activities

# 2

A series of steps was taken to arrive at the activities presented in the following tables.

**Step (1):** A Final Status Quo Report was prepared that represents a comprehensive situational analysis of solid waste management in the Cape Town Metropolitan Area (CTMA). Various shortcomings, called “gaps”, and issues were identified in this report. The report provided a platform and starting point for the formulation of the IWMP.

**Step (2):** The existing By-laws covering solid waste management that were found to exist in many former and current municipal structures, were reviewed and consolidated into an integrated draft Waste By-law.

**Step (3):** Following the Final Status Quo Report, a Final Assessment Report was compiled to present an analysis and thorough assessment of solid waste management. The key strategies and plans forming the essence of the IWMP were determined and presented to the public for their input and comment. From these strategies and plans, implementation plans were drawn up presenting and prioritising short-, medium- and long-term activities and action plans of the IWMP.

The above-mentioned documents can be used together with the IWMP to provide complete knowledge regarding the activities.

The activity schedules are divided into short-, medium- and long-term timeframes. Various figures indicate the commencement, duration and on-going review of activities. The dotted line (---) indicates the commencement of preparatory work in order to implement the activity when stipulated. The solid line (\_\_\_) indicates the timeframe used to implement the activity (duration of the activity). The asterisk (\*) indicates the scheduled end of the activity although on-going monitoring, evaluation and improvements occur throughout the lifetime of the activity. For this reason, the document is described as a “living” document.

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>			
2.2	<b>INSTITUTIONAL ARRANGEMENTS</b>						<b>2009-2014</b>	<b>2015-2025</b>	<b>High (H), Medium (M) or Low (L)</b>
2.2.1	<b>Institutional considerations in respect of a robust Integrated Waste Management Plan implementation framework</b>								
2.2.1 (i)	Implement the necessary operational & service links with the City's regulatory and support services authorities	-----	-----	*	*	*	*	*	H
2.2.1 (ii)	Develop and Implement new Organisational Design <i>Footnote: 1) Undertake continuous institutional reviews against agreed benchmarks and in accordance with IDP objectives 2) Adopt a clear Solid Waste vision &amp; Solid Waste value proposition in line with and informed by Council's 2020</i>	-----	-----	*	*	*	*	*	H
2.2.1 (iii)	Develop and Implement a Partnership/Sponsorship Plan <i>Footnote: Include fiscal and non-fiscal initiatives</i>	-----	-----	*	*	*	*	*	H
2.2.1 (iv)	Rationalise Head Office accommodation, depots and facilities	-----	-----				*	*	H
2.2.1 (v)	Integrate operating strategies and align with the relevant City Policies, such as the Equitable Service Framework <i>Footnote: Develop and review Policies related to Waste Collection, Area Cleaning, Waste Disposal and Waste Minimisation</i>	-----	-----		*	*	*	*	H

**Legend:**

- \* Review
- Activity Commenced
- Duration of Activity

2

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term 2009-2014	Long-term 2015-2025	Priority High (H), Medium (M) or Low (L)
		04/05	05/06	06/07	07/08	08/09			
2.2.1 (vi)	Establish a uniform Monitoring System <i>Footnote: Review and update IWMP and inform the City's IDP and relevant authorities.</i>		—————			*	*	*	H
2.2.1 (vii)	Develop and Implement an internal performance measurement system aligned with the City's balanced scorecard	-----	—————	*	*	*	*	*	H
2.2.1 (viii)	Develop & Implement performance measures for service delivery agents	-----	—————	*	*	*	*	*	H
2.2.1 (ix)	Implement regular benchmarking <i>Footnote: Include functions such as financial management, cost recovery, asset deployment, service delivery and social and environmental impacts</i>		—————						M
2.2.1 (x)	Align operating strategies to legislative requirements <i>Footnotes: 1) Ensure compliance with all environmental legislation 2) Ensure compliance with all safety &amp; health standards and performance measures</i>	-----	—————	*	*	*	*	*	H
2.2.1 (xi)	Promulgate, enforce and amend By Laws	-----	—————	*	*	*	*	*	H

Legend:

- \* Review
- Activity Commenced
- Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>2009-2014</b>	<b>2015-2025</b>	
									<b>High (H), Medium (M) or Low (L)</b>
<b>2.2.2</b>	<b>Communication considerations w.r.t. external and internal stakeholders</b>								
2.2.2 (i)	Undertake a Stakeholder Analysis and develop relevant strategies <i>Footnote: 1) Include a consumer survey 2) Investigate an engagement model for labour and industrial relations 3) Undertake registration and accreditation of private waste service providers</i>		—————		*	*	*	*	<b>M</b>
2.2.2 (ii)	Develop and communicate a Citizen's Charter for Solid Waste Management <i>Footnote: Outline philosophies, objectives and services</i>		—————			*	*	*	<b>M</b>
<b>2.2.3</b>	<b>Human Resources Development</b>								
2.2.3 (i)	Develop and Implement Training Programmes <i>Footnote: Procure and Introduce Leadership, Development Programmes</i>	-----	—————		*	*	*	*	<b>H</b>
2.2.3 (ii)	Develop, Implement and Review a Change Management Programme	-----	—————	*	*	*			<b>H</b>

**Legend:**

- \* Review
- Activity Commenced
- Duration of Activity

2

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09			
2.3	<b>FINANCIAL ARRANGEMENTS</b>	04/05	05/06	06/07	07/08	08/09	2009-2014	2015-2025	High (H), Medium (M) or Low (L)
2.3.1	<b>Financial Framework</b>								
2.3.1 (i)	Determine financial constraints and assess risks and impacts <i>Footnote: 1) Determine financial implications of the IWMP. 2) Confirm and agree guiding principles, including:</i> <ul style="list-style-type: none"> <li>• Sustainability, Equity and Affordability</li> <li>• Matching;</li> <li>• User-pays or public service;</li> <li>• Risk transfer</li> </ul>	-----	-----	*	*	*	*	*	H
2.3.1 (ii)	Develop, in accordance with 2020 Vision, a Solid Waste Financial Management Plan <i>Footnote: 1) The Plan to address, inter alia, achieving an acceptable return on assets and inform the budgeting process 2) Align the Plan with the ESF and other relevant City Policies</i>	-----	-----	*	*	*	*	*	H
2.3.2	<b>Revenue, Costs and Financing</b>								
2.3.2 (i)	Determine a revenue base with respect to rates, tariffs, levies and grants <i>Footnote: 1) Audit customer database, billing systems and revenue management systems 2) Identify extent to which current revenue base supports service delivery objectives</i>	-----	-----	*	*	*	*	*	H

**Legend:**

- \* Review
- Activity Commenced
- Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>2009-2014</b>	<b>2015-2025</b>	
									<b>High (H), Medium (M) or Low (L)</b>
2.3.2 (ii)	Identify alternative revenue strategies <i>Footnote: Revise and Implement revenue policy changes</i>	-----	-----	-----	*	*	*	*	<b>H</b>
2.3.2 (iii)	Develop and Implement cost optimisation strategies <i>Footnote: Strategies to include, inter alia, Activity- Based Costing and Full-Cost Accounting</i>	-----	-----	-----	*	*	*	*	<b>H</b>
2.3.2 (iv)	Negotiate structural cost drivers <i>Footnote: Such as direct costs and allocated costs.</i>		-----	-----	-----	-----			<b>H</b>
2.3.2 (v)	Develop and Implement a Financing Plan for Solid Waste	-----	-----	*	*	*	*	*	<b>H</b>
<b>2.3.3</b>	<b>Asset Management</b>								
2.3.3 (i)	Update & review asset register for all SWD assets <i>Footnote: 1) To include Inventory Management 2) Categorise assets by different asset categories</i>	-----	-----	*	*	*	*	*	<b>H</b>
2.3.3 (ii)	Determine capital expenditure requirements <i>Footnote: Prescribed in accordance with the IWMP</i>	-----	*	*	*	*	*	*	<b>H</b>

**Legend:**  
\* Review  
----- Activity Commenced  
----- Duration of Activity

**2**

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term	Long-term	Priority	
		04/05	05/06	06/07	07/08	08/09				
							2009-2014	2015-2025	High (H), Medium (M) or Low (L)	
2.3.3 (iii)	Develop and implement acquisition strategies for different asset categories <i>Footnote: Such as Full-Maintenance Lease and BOOT arrangements</i>	-----								H
2.3.3 (iv)	Develop and implement asset replacement and scrapping policies for different asset categories	-----								H
2.3.3 (v)	Develop and implement an Asset Management Maintenance policy	-----								H
2.3.4	<b>Budgets &amp; Financial Planning</b>									
2.3.4 (i)	Develop a long term cost and revenue forecast, including operational and capital costs. <i>Footnote: 1) To take into account the IWMP 2) To include operating and capital costs 3) Integrate cost and revenue forecasts and identify shortcomings. 4) Develop strategies for dealing with shortcomings and finalise long term forecast</i>	-----			*	*	*	*		H
2.3.4 (ii)	Develop short & medium term budgets	-----								H

**Legend:**  
 \* Review  
 ----- Activity Commenced  
 \_\_\_\_\_ Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09			
2.4	WASTE MINIMISATION	04/05	05/06	06/07	07/08	08/09	2009-2014	2015-2025	High (H), Medium (M) or Low (L)
2.4.1	Regulatory and Co-Regulatory Instruments								
2.4.1 (i)	Develop and Implement a Plan and Set targets for Waste Minimisation	-----	-----						H
2.4.1 (ii)	Develop and Implement regulatory instruments to facilitate and/or enforce Waste Minimisation <i>Footnote: Encourage waste deposit legislation</i>	-----	-----	-----	-----	-----			H
2.4.1 (iii)	Introduce Extended Producer Responsibility Measures to local industry and commerce <i>Footnote: e.g. via voluntary industry commitments and encouraging national initiatives such as Environmental Management Co-operation Agreements (EMCAs).</i>		-----	-----	-----	-----			M
2.4.1 (iv)	Encourage and Implement mandatory national framework outcomes <i>Footnote: including annual Waste Minimisation audits and reviews for key polluters.</i>		-----	-----	-----	-----			M
2.4.1 (v)	Develop and Promote an "Environmental Procurement Policy"		-----	-----	-----	-----			M

**Legend:**

- \* Review
- Activity Commenced
- Duration of Activity

2

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term	Long-term	Priority	
		04/05	05/06	06/07	07/08	08/09				
							2009-2014	2015-2025	High (H), Medium (M) or Low (L)	
2.4.1 (vi)	Ensure that Waste Minimisation concepts are considered with respect to the City's process for building and construction plan approvals. <i>Footnote: EIA studies are to be included</i>		—————							M
2.4.1 (vii)	Develop and Implement a "full cost accounting" model that incorporates fiscal incentives and disincentives for Waste Minimisation <i>Footnote: 1) Air-space credits to be considered 2) Measures in waste wise communities (food garden support, free compost, waste to food systems, surplus community services, City Award initiatives etc) to be considered</i>	-----	—————							H
2.4.2	<b>Waste Minimisation Infrastructure and Methodologies</b>									
2.4.2 (i)	Develop a Plan for the provision of Waste Minimisation Infrastructure	-----	—————							H
2.4.2 (ii)	Upgrade and regular maintenance of the Waste Exchange website service	-----	—————							M
2.4.2 (iii)	Develop and Implement a strategy for community driven Waste Minimisation Initiatives <i>Footnote: 1) Develop a strategy for the recovery of recyclables 2) Development and support of regular communal "swop shop events" and retails outlet for second hand goods.</i>	-----	—————							M
2.4.2 (iv)	Establish and Maintain a Waste Resource / Information Centre		—————							M

**Legend:**  
\* Review  
----- Activity Commenced  
————— Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>			
2.4.2 (v)	Develop and Implement a Waste Minimisation Partnership Plan <i>Footnote: 1) Develop a "community volunteer database"</i> <i>2) A registration form could be linked up to Waste wise website to strengthen current capacity of Waste Wise / SWD team.</i> <i>3) Promote partnerships to assist schools in education and Waste Minimisation implementation.</i>								High (H), Medium (M) or Low (L)
									M

Legend:

- \* Review
- Activity Commenced
- \_\_\_\_\_ Duration of Activity

2

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09			
							2009-2014	2015-2025	High (H), Medium (M) or Low (L)
2.5	<b>WASTE EDUCATION, AWARENESS AND TRAINING</b> <i>Footnote: Includes internal and external arrangements. Internal means within the City Structures, including the Solid Waste Directorate</i>								
2.5.1	<b>Education, Awareness, Training and Communication Instruments</b>								
2.5.1 (i)	Develop, Implement and Review a Waste Education, Awareness and Training Plan <i>Footnote: Engage with LGWSETA regarding training and internships</i>	-----	-----	-----	-----	-----			H
2.5.1 (ii)	Develop, Implement and Review a plan for waste communication <i>Footnote: 1) To be undertaken in conjunction with Item No. 4.4 under Institutional Arrangements. 2) Publish progress and achievements on the City's web-site. 3) The plan is to include a review of the extent and scope of the Waste Wise Programme. The Waste Wise Programme is to include waste education and awareness programmes. 4) Incorporate waste information into the database of the City's Corporate Call Centre. 5) Undertake a systematic upgrade of the existing Waste Wise website, providing a platform for waste exchange, advisory information sheets, waste reduction targets, internet links, etc</i>	-----	-----	-----	-----	-----			H

**Legend:**  
\* Review  
----- Activity Commenced  
----- Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>			
<b>2.5.2</b>	<b>Initiatives / Programmes</b>								
2.5.2 (i)	Develop, Implement and Review a Schools' Waste Awareness and Education Plan. <i>Footnote: 1) Accredit existing training program (in line with SETA) for teachers e.g. FCA roll out of teachers training manual and merge these.</i> <i>2) Teachers training workshop (as per FCA) to form part of Curriculum.</i> <i>3) Develop Environmental Education database - key NGO's in areas, key stakeholders, etc.</i> <i>4) Evaluate &amp; measure training programmes against benchmarks e.g. questionnaires to teachers.</i> <i>5) Develop projects or research strategies for schools on environmental waste management. Link up with YES festival.</i> <i>6) Implement reward programmes e.g. quizzes at schools, Cleanest School Awards etc. with incentives to schools.</i>	-----							H

Legend:

- \* Review
- Activity Commenced
- \_\_\_\_\_ Duration of Activity

2

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>			
							<b>2009-2014</b>	<b>2015-2025</b>	<b>High (H), Medium (M) or Low (L)</b>
2.5.2 (ii)	Develop and Implement a Plan for Waste Education and Awareness with respect to the Industrial and Commercial sectors. <i>Footnote: 1) Eco-labelling campaign with DTI for awareness raising. 2) Roll out of WM success stories and best practices to government departments, industry, commerce, schools, tertiary institutions, households, recyclers, collectors, etc 3) Directory of Cape Town businesses and households on green consumerisms, green procurement and recyclables market 4) Promote waste recovery at source (eg mandatory on site waste separation in shopping centres) and provision of sorting facilities/infrastructure of new industrial/commercial developments</i>	.....	—————						<b>H</b>
2.5.2 (iii)	Develop, Implement and Review a Plan for Waste Education and Awareness with respect to Institutions and Tertiary Educational Institutions. <i>Footnote: Institutions include hospitals, universities, etc</i>	.....	—————						<b>H</b>
2.5.2 (iv)	Develop, Implement and Review a Plan for Awareness Raising for public events	.....	—————						<b>H</b>

**Legend:**  
\* Review  
..... Activity Commenced  
————— Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>			
							<b>2009-2014</b>	<b>2015-2025</b>	<b>High (H), Medium (M) or Low (L)</b>
2.5.2 (v)	Develop, Implement and Review a Plan for Special Projects relating to Waste Education, Awareness and Training <i>Footnote: 1) Actively promote "Clean City" Awards, special events, etc.</i> 2) Design & implement education and awareness training for associations (NGO's) & other bodies e.g. Navy, City Police. 3) Mobile Waste Wise vehicle for township areas. Develop a plan for implementation & review.								<b>H</b>

Legend:

- \* Review
- Activity Commenced
- \_\_\_\_\_ Duration of Activity

2

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09			
2.6	WASTE INFORMATION MANAGEMENT						2009-2014	2015-2025	High (H), Medium (M) or Low (L)
2.6.1	Waste Information Management Systems								
2.6.1 (i)	Develop a waste classification system. <i>Footnote: Purpose: To facilitate the uniform recording of the different components in the waste stream</i>	-----	-----	-----					H
2.6.1 (ii)	Develop and Implement a standardised waste data collection system. <i>Footnote: 1) All large waste receiving facilities to have weighbridges with suitable software for capturing and analyzing of load data. 2) Smaller facilities such as drop-offs to have a standard visual recording system. 3) Private landfill operators and recyclers to be required to provide data 4) Data to include type, mass, source etc.</i>	-----	-----	-----	-----	-----			H
2.6.1 (iii)	Develop and Implement a Waste Characterisation Protocol and Programme <i>Footnote: Purpose: To standardise all future waste characterization studies and to ensure that data obtained is at the level required to make informed decisions on waste minimization strategies.</i>	-----	-----	-----	-----	-----			M
2.6.1 (iv)	Develop and Implement a Waste Information Management System <i>Footnote: Specifications for the WIS database to be prepared and to ensure that data inputs and resultant outputs meet the requirements of the various IWMP strategies.</i>	-----	-----	-----	-----	-----			H

Legend:

- \* Review
- Activity Commenced
- Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>			
									<b>High (H), Medium (M) or Low (L)</b>
<b>2.6.2</b>	<b>Waste Minimisation Targeting</b>								
2.6.2 (i)	Develop and Review a waste generation/disposal model <i>Footnote: 1) Establish baseline data 2) Total waste generated and disposed of in City as of December 2000.</i>	-----	-----	*	*	*	*	*	<b>H</b>
2.6.2 (ii)	Establish and Review targets for the reduction of waste to landfill <i>Footnote: Practical targets for reducing components in the waste stream can be set when data is of an acceptable standard.</i>	-----	-----		*	*	*	*	<b>H</b>

Legend:

- \* Review
- Activity Commenced
- Duration of Activity

**2**

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09			
2.7	WASTE COLLECTION						2009-2014	2015-2025	High (H), Medium (M) or Low (L)
2.7.1	Municipal Waste Collection Policy and Management Plans								
2.7.1 (i)	Review, update and implement the Refuse Collection Policy	.....	—————	*	*	*	*	*	H
2.7.1 (ii)	Develop operational boundaries and optimise collection beats	.....	—————		*	*	*	*	H
2.7.1 (iii)	Develop and Implement a plan for service delivery to backyard dwellings in formal areas		—————	*	*	*	*	*	H
2.7.1 (iv)	Develop and Implement a plan for the collection of waste from formalised informal traders on Council-owned property	.....	—————	*	*	*	*	*	H
2.7.1 (v)	Develop and Implement a plan for the collection and regulation of trade waste	.....	—————	*	*	*	*	*	H
2.7.2	Fleet Management								H
2.7.2 (i)	Develop and Implement a fleet management policy for refuse collection	.....	—————		*	*	*	*	H

Legend:

- \* Review
- ..... Activity Commenced
- Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09			
2.8	AREA CLEANING	04/05	05/06	06/07	07/08	08/09	2009-2014	2015-2025	High (H), Medium (M) or Low (L)
2.8.1	Area Cleaning Policy and Management Plans								
2.8.1 (i)	Finalise, Implement and Review an Area Cleaning Services Policy	-----	-----	-----	-----	-----			H
2.8.1 (ii)	Develop operational boundaries and optimise beats for Area Cleaning	-----	-----	-----	*	*	*	*	H
2.8.1 (iii)	Finalise, Implement and Review an Integrated Area Cleaning and Collection Service to Informal settlements	-----	-----	-----	-----	-----			H
2.8.1 (iv)	Unbundle Area Cleaning functions (and related resources) undertaken by other departments, to fall under the responsibility of SWD	-----	-----						H
2.8.1 (v)	Develop, Implement and Review a plan to co-ordinate all Area Cleaning related activities <i>Footnote: Activities to include those undertaken internally by Council and externally by others, eg cutting of verges, cleaning of stormwater drains, etc</i>	-----	-----	-----	-----	-----			H
2.8.2	Fleet Management								
2.8.2 (i)	Develop and implement a fleet management policy for Area Cleaning	-----	-----	-----	*	*	*	*	H

**Legend:**

- \* Review
- Activity Commenced
- Duration of Activity

**2**

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>			
2.9	HAZARDOUS AND SPECIAL WASTE MANAGEMENT						2009-2014	2015-2025	High (H), Medium (M) or Low (L)
2.9.1	Hazardous and Special Waste Management: General								
2.9.1 (i)	Develop, Implement and Review a Hazardous Waste Management Strategy and Plan in accordance with National and Provincial Imperatives <u>Footnotes:</u> 1) <i>The Plan is to incorporate the identification and provision of resources and infrastructure.</i> 2) <i>The Plan is to include "Special" wastes such as moto car tyres, fluorescent tubes, electronic waste, etc.</i> 3) <i>The Plan is to consider the registration of new and existing hazardous waste producers (e.g. Port Authority, HCRW, military and parastatal authorities, etc).</i> 4) <i>The Plan is to consider the compulsory submission of records/information by waste generator, tax incentives and the establishment of an environmental court for offenders.</i> 5) <i>The plan is to develop a methodology for co-ordinating all hazardous waste management functions.</i> 6) <i>The Plan is to review roles to capacitate/employ competent staff and to provide medical facilities for staff exposed to hazardous waste (e.g. vaccinations, annual medical examinations, etc).</i>	.....	—————						H

Legend:  
\* Review  
..... Activity Commenced  
————— Duration of Activity

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09			
							2009-2014	2015-2025	High (H), Medium (M) or Low (L)
	7) The Plan is to promote hazardous waste minimization, develop a waste exchange strategy, consider a public reporting system, developing a hazardous waste transport manifest, disposal of hazardous wastes at drop-off facilities and co-disposal of hazardous wastes. 8) The Plan is to consider long-term waste disposal options and future research and development related to hazardous waste management.								
2.9.1 (ii)	Develop, Implement and Review a Hazardous Waste Information Management System <u>Footnotes:</u> 1) The hazardous waste information management system is to be integrated into the general WIS described in Strategy 5.2.1 2) The Plan is to include the listing of hazardous waste generators, transporters, "importers" disposal and treatment facilities. 3) The Plan is to determine a uniform classification system for hazardous waste types, and determine a uniform method of analysis, auditing, monitoring and reporting.	-----	-----	-----	-----	-----	-----	-----	H

Legend:

- \* Review
- Activity Commenced
- \_\_\_\_\_ Duration of Activity

2

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
<b>No.</b>	<b>Activity</b>	<b>Short-term</b>					<b>Medium-term</b>	<b>Long-term</b>	<b>Priority</b>
		<b>04/05</b>	<b>05/06</b>	<b>06/07</b>	<b>07/08</b>	<b>08/09</b>	<b>2009-2014</b>	<b>2015-2025</b>	
2.9.1 (iii)	Develop, Implement and Review Performance Indicators for Hazardous Waste Management <i>Footnotes:</i> 1) Performance Indicators are to be determined in conjunction with DWAF and DEADP 2) Monitor contamination levels at receptors such as landfill sites, groundwater quality, air quality. Monitor biogas generation, carbon loading to atmosphere. 3) Review of the Performance Indicators by an independent entity to ensure sustainable management of hazardous waste in the City.	-----	-----	-----	-----	-----	-----	-----	H

Legend:

- \* Review
- Activity Commenced
- \_\_\_\_\_ Duration of Activity

<b>IMPLEMENTATION AND PRIORITISATION PLAN</b>									
No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09			
2.10	<b>WASTE PROCESSING AND DISPOSAL</b> <i>Footnote: Purpose of Strategy: To provide effective and affordable levels of waste processing and disposal. Waste Processing includes the treatment and processing of waste prior to final disposal to a landfill, i.e. includes waste transfer stations, materials recovery facilities, drop-off facilities, composting facilities, etc.</i>						2009-2014	2015-2025	High (H), Medium (M) or Low (L)
2.10.1	<b>Management Plans</b>								
2.10.1 (i)	Develop, Implement and Review a Waste Processing and Disposal Policy	-----	-----	-----	-----	-----			H
2.10.1 (ii)	Develop, Implement and Review a suitable Public-Private partnership model for alternative processing and disposal services delivery.	-----	-----	-----	-----	-----			H
2.10.1 (iii)	Develop, Implement and Review a plan for on-going short-medium-long-term disposal of health-care, special and hazardous wastes.	-----	-----	-----	-----	-----			H
2.10.1 (iv)	Review and Implement alternative waste processing and disposal technologies <i>Footnote: e.g. waste digestion, gas management, pilot studies, etc</i>	-----	-----	-----	-----	-----			L
2.10.1 (v)	Develop and Implement a Plan for cost-effective landfill closures <i>Footnote: Includes review of alternative capping systems such as "store and release".</i>	-----	-----	-----	-----	-----			M

Legend:

- \* Review
- Activity Commenced
- Duration of Activity

2

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term	Long-term	Priority
		04/05	05/06	06/07	07/08	08/09	2009-2014	2015-2025	
									High (H), Medium (M) or Low (L)
2.10.1 (vi)	Develop and Implement a Plan for on-going maintenance of rehabilitated landfills. <i>Footnote: Includes maintenance of planted areas, servicing of irrigation equipment, etc.</i>	-----	—————	—————	—————	—————			M
2.10.1 (vii)	Develop and Implement a Plan for on-going monitoring and testing of landfill gas and leachate production at landfills. <i>Footnote: Includes operating and closed landfills.</i>	-----	—————	—————	—————	—————			M
2.10.2	<b>Waste Disposal Facilities</b>								
	REGIONAL WASTE DISPOSAL FACILITY								
2.10.2 (i)	Complete EIA and public participation process	-----							H
2.10.2 (ii)	Permit the preferred site		—————	—————					H
2.10.2 (iii)	Design and construction of the disposal facility			—————	—————	—————			M
2.10.2 (iv)	On-going site development and rehabilitation <i>Footnote: Development includes the on-going development of air-space and facilities such as gas and leachate management services, etc. Rehabilitation includes progressive site remediation.</i>						—————	-----	L

**Legend:**  
 \* Review  
 ----- Activity Commenced  
 ——— Duration of Activity

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term 2009-2014	Long-term 2015-2025	Priority High (H), Medium (M) or Low (L)
		04/05	05/06	06/07	07/08	08/09			
	VISSERSHOK LANDFILL (City-owned) - GLB <sup>+</sup> /Hh								
2.10.2 (v)	Ongoing site development	-----	-----	-----	-----	-----	-----	-----	H
2.10.2 (vi)	EIA and Public participation (proposed Vissershok North)	-----	-----	-----					H
2.10.2 (vii)	Permit Vissershok North		-----	-----					H
2.10.2 (viii)	Design and construction			-----	-----				M
2.10.2 (ix)	On-going development and rehabilitation					-----	-----	-----	M
	VISSERSHOK WMF (Privately owned) - GLB <sup>+</sup> /Hh/ HH								
2.10.2 (x)	Continue to receive general/hazardous/special wastes <i>Footnote: Planning to extend beyond the closure date for the Vissershok WMF for continuity of Hh and HH disposal.</i>	-----	-----	-----	-----	-----	-----	-----	H
	COASTAL PARK LANDFILL - GLB+								
2.10.2 (xi)	On-going development and rehabilitation	-----	-----	-----	-----	-----	-----	-----	H

Legend:

- \* Review
- Activity Commenced
- Duration of Activity

2

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term 2009-2014	Long-term 2015-2025	Priority High (H), Medium (M) or Low (L)
		04/05	05/06	06/07	07/08	08/09			
	BELLVILLE SOUTH LANDFILL (GLB+)								
2.10.2 (xii)	On-going development and rehabilitation	.....	—————	—————	—————	—————			H
2.10.2 (xiii)	Development of landfill gas (LFG) management system	.....	—————	—————	—————	—————			L
2.10.2 (xiv)	Extension of permit to operate site	.....							H
	FAURE LANDFILL (GMB+)								
2.10.2 (xv)	Formal closure for general waste disposal <i>Footnote: Closure may include continued disposal of selected wastes, e.g. builders' rubble.</i>	.....	.....	—————	—————	—————			M
	BRACKENFELL LANDFILL - GMB <sup>+</sup>								
2.10.2 (xvi)	Formal closure for general waste disposal	.....	—————	—————	—————	—————			M
2.10.2 (xvii)	SWARTKLIP LANDFILL								
2.10.2 (xviii)	Formal closure for general waste disposal	.....	—————	—————	—————	—————			M

**Legend:**  
 \* Review  
 ----- Activity Commenced  
 ——— Duration of Activity

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term 2009-2014	Long-term 2015-2025	Priority High (H), Medium (M) or Low (L)
		04/05	05/06	06/07	07/08	08/09			
	CLOSED WASTE DISPOSAL SITES								
2.10.2 (xix)	Develop and Implement rehabilitation plans for all identified sites <i>Footnote: These include old abandoned dumps. Rehabilitation plans to consider land-use for Council purposes.</i>	-----	-----	-----	-----	-----			M
2.10.3	Transfer Station and Materials Recovery Facilities								
	ATHLONE (ARTS) - 800t/day								
2.10.3 (i)	Develop and operate materials recovery facility (MRF)	-----	-----	-----	-----				M
	SWARTKLIP (SRTS) - 800t/day								
2.10.3 (ii)	Design and construct a rail facility		-----	-----	-----				M
2.10.3 (iii)	Investigate and implement suitable waste reduction facilities		-----	-----	-----				M
	OOSTENBERG (ORTS) - 400t/day to 800t/day								
2.10.3 (iv)	Permit site	-----	-----						H
2.10.3 (v)	Design and construct transfer station			-----	-----	-----			H

Legend:

- \* Review
- Activity Commenced
- Duration of Activity

**2**

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term 2009-2014	Long-term 2015-2025	Priority
		04/05	05/06	06/07	07/08	08/09			
2.10.3 (vi)	Investigate and implement suitable waste reduction facilities			—————					M
	BELLVILLE (BRTS) - 800-1600t/day								
2.10.3 (vii)	EIA process	-----	—————						H
2.10.3 (viii)	Permit site		—————						H
2.10.3 (ix)	Design and construct transfer station			—————					M
2.10.3 (x)	Investigate and implement suitable waste reduction facilities					—————			M
	HELDERBERG (HRTS) - 400t/day								
2.10.3 (xi)	EIA process and economic assessment		—————						H
2.10.3 (xii)	Permit site			—————					M
2.10.3 (xiii)	Design and construct transfer station			—————					M
2.10.3 (xiv)	Investigate and implement suitable waste reduction facilities								M

Legend:  
 \* Review  
 ----- Activity Commenced  
 ——— Duration of Activity

**IMPLEMENTATION AND PRIORITISATION PLAN**

No.	Activity	Short-term					Medium-term 2009-2014	Long-term 2015-2025	Priority High (H), Medium (M) or Low (L)
		04/05	05/06	06/07	07/08	08/09			
	PROPOSED AND ADDITIONAL TRANSFER STATIONS								
2.10.3 (xv)	Determine and Review prioritisation, economic assessment and programming of implementation of additional transfer stations.			—————		*	*	*	M
2.10.3 (xvi)	Permitting, design and construction of additional transfer stations.					—————		L	
<b>2.10.4</b>	<b>Drop-Off Facilities</b>								
2.10.4 (i)	Review Policy and previous study to optimise design and locations of existing and new drop off facilities.	*	*	*	*	*	*	H	
2.10.4 (ii)	Design & construct drop off facilities. <i>Footnote: These include extensions of existing drop-off facilities (e.g. ARTS). Consider new drop-off facilities at closed landfill sites.</i>	—————							H
<b>2.10.5</b>	<b>Compost Facilities</b>								
2.10.5 (i)	Develop a plan in conjunction with the Policy, to optimise the removal and processing of organic wastes in the waste stream and review on a regular basis.	-----	—————	*	*	*	*	*	H
2.10.5 (ii)	Review operations at the Radnor and Sacks Circle composting facilities <i>Footnote: Composting of unsorted general household wastes is to cease. Composting of selected organic wastes to be maximised.</i>	-----							H
<b>2.10.6</b>	<b>Builders' Spoil and Rubble Facilities</b>								
2.10.6 (i)	Develop & implement a plan for the management of builders' rubble and spoil.	-----	—————						H

Legend:

- \* Review
- Activity Commenced
- Duration of Activity

# **SECTION 3:**

## **Key Performance Indicators**

3.1	Monitoring the Integrated Waste Management Plan .....	3-2
3.2	Key Performance Indicators .....	3-2
3.3	Schedule of Key Performance Indicators .....	3-3

Section 3 presents a schedule of Key Performance Indicators to be used to monitor and measure the success and performance of the implementation of the Integrated Waste Management Plan.

## Section 3: Key Performance Indicators

### 3.1 Monitoring the Integrated Waste Management Plan

3

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

In order to assess the outcomes of the measurement system the City's Solid Waste Directorate (SWD) requires a set of informative, measurable and reliable Key Performance Indicators to measure effectiveness of its service delivery mechanisms for the purpose of effecting improvements where they may be necessary.

Key Performance Indicators (KPIs) are variables which together provide a meaningful, concise, overall picture of an organizations performance and are used to report progress that is chosen to reflect the critical success factors of a program or plan. KPI's reflect long-term considerations.

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

A Key Performance Indicator that is generally looked upon as barometer to measure the overall performance of solid waste management is the year-on-year reduction of waste generated and/or disposed of. KPI No.21 contained in the following schedule provides an indicator for waste reduction.

The overall cleanliness of a city is also considered to be another key parameter to be measured, and is scheduled under KPI No.39.

### 3.2 Key Performance Indicators

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

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

### 3.3 Schedule of Key Performance Indicators

SCHEDULE OF KEY PERFORMANCE INDICATORS					
Perspective	Key Performance Area	No.	KPI Unit	Key Performance Indicator	Output Measure
1. INSTITUTIONAL	Implement New Organisational Structure	1	%	Placement of staff in new structure	Staff placed in structure
		2	%	Implementation of operational and service links with City as regulatory Authority	Assessment Rating by Regulator
		3	%	Integration of operating strategies and alignment with City structures	Adherence to Plan
	To Promote a Business and Performance Culture	4	%	Implementation of Business Improvement processes	Degree of improvement achieved
	Communication with Internal and External Stakeholders	5	%	Development and Implementation of a Citizens Charter for Solid Waste Management	Charter implemented and response from citizens
	Human Resource Development	6	%	Develop and Implement a Workforce Skills Training Programme, including audit baseline study	Achievement of Skills Development targets as per plan
		7	%	Budget spent on implementing the Workforce Skills Training Programme	Percentage of total annual budget
		8	%	Development of Top and Middle Management using CPM business improvement techniques	Managers empowered according to plan
		9	%	Compliance with Corporate Employment Equity Plan	Adherence to Plan

**SCHEDULE OF KEY PERFORMANCE INDICATORS**

Perspective	Key Performance Area	No.	KPI Unit	Key Performance Indicator	Output Measure
<b>2. FINANCIAL</b>	Risk Management	10	%	Development and Implementation of a Risk Management Plan	Adherence to Plan
	Revenue	11	%	Assessment of Revenue Base (Internally and Externally)	Degree of completion of Assessment.
		12	%	Optimisation of Revenue	Revenue optimised according to plan.
	Expenditure	13	%	Optimisation of Costs through improved internal efficiencies	Reduction in costs to overall budget
		14	%	Optimisation of Expenditure	Reduction in costs to overall budget
	Asset Management	15	%	Development and Implementation of an Asset Management Plan	Plan Developed and adhered to
	Budget	16	%	Capital Expended against Budget	Capital Spent
		17	%	Adherence to Operating Budget	Opex Spent

**SCHEDULE OF KEY PERFORMANCE INDICATORS**

Perspective	Key Performance Area	No.	KPI Unit	Key Performance Indicator	Output Measure
<b>3. WASTE MINIMISATION</b>	Regulatory and Co-Regulatory Instruments	18	%	Development and Implementation of a Waste Minimisation Plan	Adherence to Plan
	Waste Minimisation Infrastructure and Methodologies	19	%	Development and Implementation of a Waste Minimisation Infrastructure Development Plan	Adherence to Plan
		20	No.	Development and Implementation of a Waste Minimisation Partnership Plan	Number of Partnerships developed
	Waste Minimisation Targeting	21	tonne	Reduction of Waste disposed of to landfills	Waste entering all landfills (Baseline date = 2000)
<b>4. WASTE EDUCATION, AWARENESS AND TRAINING</b>	General Waste Education, Awareness and Training	22	%	Development and Implementation of a Waste Minimisation Communication Plan	Adherence to Plan
		23	No.	Development and Implementation of a Schools' Waste Awareness and Education Plan	Number of Projects initiated
		24	No.	Development and Implementation of a Waste Awareness and Education Plan for Industry and Commerce	Number of Projects initiated
		25	No.	Development and Implementation of a Waste Awareness and Education Plan for Institutions and Tertiary Education Institutions	Number of Projects initiated
		26	%	Development and Implementation of a Waste Awareness and Education Plan for Public Events and Special Projects	Adherence to Plan

**SCHEDULE OF KEY PERFORMANCE INDICATORS**

Perspective	Key Performance Area	No.	KPI Unit	Key Performance Indicator	Output Measure
<b>5. WASTE INFORMATION MANAGEMENT</b>	Management Systems	27	%	Development and Implementation of a Waste Information Management System	Award of Capital Credits
<b>6. WASTE COLLECTION</b>	Policy and Management Plans	28	No.	Improvement of Service Delivery to all formal households	Total number of households serviced
		29	No.	Improvement of Service Delivery to all informal households	Total number of households serviced
		30	tonne	Development and Implementation of a Plan for collection of waste from formalised informal traders on Council property	Waste collected
		31	No.	Optimisation of Collection Operations	Properties serviced per vehicle
		32	No.		Properties serviced per employee
		33	tonne		Tonnage collected per employee
		34	R		Average cost per tonne collected
	35	R	Average cost per property serviced		
Fleet Management	36	%	Improvement in Fleet Maintenance	Reduction in Downtime	
<b>7. AREA CLEANING</b>	Policy and Management Plans	37	%	Finalisation of Area Cleaning Services Policy	Policy finalised
		38	%	Implementation of Area Cleaning Services Policy	Total extent of public areas serviced
		39	%	Overall cleanliness of the City	Photographic Cleanliness Index
	Fleet Management	40	%	Improvement in Fleet Maintenance	Downtime

**SCHEDULE OF KEY PERFORMANCE INDICATORS**

Perspective	Key Performance Area	No.	KPI Unit	Key Performance Indicator	Output Measure
<b>8. HAZARDOUS AND SPECIAL WASTE MANAGEMENT</b>	Management Systems	41	%	Development and Implementation of a Hazardous Waste Management Plan	Adherence to Plan
		42	%	Monitoring of contamination levels at Waste Facilities	Level of contamination (Reduction)
<b>9. WASTE PROCESSING AND DISPOSAL</b>	Management Systems	43	%	Development and Implementation of a Waste processing and Disposal Policy	Adherence to Policy
	Disposal Facilities	44	%	Compliance with Regulatory Requirements	Degree of Compliance
		45	%	Development and commissioning of Regional Waste Disposal Facility by Year 2011	Adherence to project programme
	Transfer Stations and Material Recovery Facilities	46	No.	Implement development of transfer stations in accordance with Policy plan.	Number of facilities provided
	Drop-off Facilities	47	No.	Implement development of drop-off facilities in accordance with Policy plan.	Number of facilities provided
	Compost Facilities	48	%	Development and Implementation of a Plan to address organic wastes	Plan developed and adhered to.
	Builders' Rubble Facilities	49	%	Development and Implementation of a Plan to address organic wastes	Plan developed and adhered to.
<b>10. GENERAL</b>	IWMP	50	%	Implementation of Plan	Adherence to Plan

# **SECTION 4:**

## ***The Cost of Implementing the IWMP***

4.1	Operating Costs .....	4-2
4.2	Planning and Development Costs .....	4-3
4.3	Capital Costs .....	4-4

Section 4 presents a preliminary estimate of the costs envisaged to implement the strategies and activities that constitute the Integrated Waste Management Plan.

## 4.1 Operating Costs

The Operating Costs can be defined as those costs expended by the Solid Waste Directorate (SWD) in managing and implementing the day-to-day operations required for solid waste management services rendered by the City of Cape Town. These costs include the SWD's overhead and general costs allocated by the City. The operating cost structure of the SWD, taken from the Status Quo Report, is summarised below.

Table 4.1 Solid Waste Directorate: Operating Costs

Expenditure Element	2000/01 R'm	2001/02 R'm	2002/03 R'm	2003/04 R'm	2004/05 R'm
Salaries, Wages & Advances	155.4	162.8	197.5	204.4	214.6
General Expenses	87.4	135.3	121.3	93.0	95.4
Bulk Costs	40.3	55.8	42.5	103.9	105.5
Allocated Costs	174.2	262.8	138.2	189.7	144.2
Repairs & Maintenance	31.8	34.0	31.8	44.3	55.6
Capital Charges	48.7	60.0	62.8	(10.4)	13.4
Contribution to Reserves	1.1	0.1	0.0	0.0	0.0
Contribution - Bad Debt	-	0.2	0.4	50.3	0.0
Contribution to Capital	-	0.1	0.0	50.9	0.0
<b>Gross Expenditure</b>	<b>538.9</b>	<b>711.1</b>	<b>594.5</b>	<b>726.3</b>	<b>628.7</b>

The operating costs include the cost of external service providers, consultants and contractors employed by the SWD. The operating costs furthermore include the costs of repairs and maintenance of existing infrastructure, plant and equipment as well as the purchase of new plant and equipment.

Until the recommendations and activities set out in the Implementation and Prioritisation Plan of the IWMP have been carried out, it is not possible to forecast the projected operating costs with meaningful accuracy. A comparative analysis shows that the operating costs of the SWD are not out of line with other South African cities of comparable size.

The IWMP envisages significant restructuring of the SWD as part of the overall institutional reform process that the City is currently engaged in, and the financial implications of this process are yet to unfold. The IWMP endeavours to achieve a balance between excellence in service delivery versus affordability, and performance in terms of achieving this balance will need to be measured by appropriate Key Performance Indicators.

Whereas the progressive "rolling-out" of the IWMP will lead to more effective and cost-efficient waste management practice, it can be expected that there will nevertheless be increased costs for raising levels of service delivery. The City has, in particular, fallen behind in terms of waste reduction practices and provision of future waste disposal facilities. The operating costs for achieving meaningful waste reduction, providing an equitable collection service, improving

levels of area cleanliness, developing and operating future waste processing and disposal facilities will inevitably require an increase in operating costs. Careful and responsible planning, management and execution of solid waste services will be required, with "ownership" and support from the politicians and the public, if Cape Town is to remain a leading city insofar as solid waste management is concerned.

## 4.2 Planning and Development Costs

The implementation of the tasks and activities set out in the IWMP associated with the planning and development of the City's solid waste management services will be undertaken by the SWD with the costs to be met as provided for in terms of annual operating budget of the SWD. Due to the lack of capacity of the SWD and because of the specialist nature of certain of the planning services, it is envisaged that external consultants and waste specialists will be engaged to assist the SWD in implementing certain of the strategies and activities recommended in the IWMP. An estimate of these "external" costs is tabulated below.

Table 4.2: Planning and Development: Summary of External Costs



Cost Element	2004/05 R million	2005/06 R million	2006/07 R million	2007/08 R million	2008/09 R million
1. Institutional Arrangements	0.150	0.350	0.150	0.075	0.050
2. Institutional Arrangements	0.075	0.075	0.200	0.025	0.025
3. Waste Minimisation	0.150	0.380	0.125	0.110	0.110
4. Waste Education & Awareness (Includes WasteWise 2)	5.700	6.500	6.500	6.000	5.500
5. Waste Information Management	0.300	1.000	0.500	0.100	0.750
6. Waste Collection Services	0.000	0.150	0.000	0.000	0.000
7. Area Cleaning Services (Includes Informal Area Services Consulting/Management)	4.000	2.400	2.000	2.000	2.000
8. Hazardous Waste Management	0.000	0.150	0.050	0.050	0.050
9. Waste Processing & Disposal (Excludes Capital Infra-structure Costs)	3.050	5.050	1.100	1.000	1.000
<b>Gross Cost</b>	<b>13.425</b>	<b>16.055</b>	<b>10.625</b>	<b>9.36</b>	<b>9.485</b>

With respect to the 2004/05 Financial Year, the SWD has already initiated the appointment of consultants to undertake the implementation of the WasteWise 2 Programme and the appointment of external consultants to assist with improving waste collection and area cleaning within the informal settlement areas of the metropolitan area.

The cost estimated for waste processing and disposal makes provision for technical studies, permitting of sites, environmental studies and assistance with the development of further strategic planning and studies identified in the IWMP.

### 4.3 Capital Costs

The table below sets out the estimated costs of providing infrastructure for waste processing and disposal. These costs include design and project management professional fees and are gross cost estimates that include VAT.

Table 4.3: Capital Costs

Cost Element	2004/05 R million	2005/06 R million	2006/07 R million	2007/08 R million	2008/09 R million
1. Landfill: Airspace Development					
1.1 Regional Site	0.000	0.000	2.000	2.500	22.000
1.2 Vissershok Landfill	8.000	10.000	18.000	18.000	18.000
1.3 Coastal Park Landfill	5.000	13.000	0.000	12.000	0.000
1.4 Bellville South Landfill	6.000	5.000	0.000	0.000	0.000
1.5 Faure Landfill	0.000	2.500	0.000	0.000	0.000
2. Rehabilitation and Closure of Landfill Sites	0.000	10.000	10.000	10.000	10.000
3. Transfer Stations and MRF's					
3.1 ARTS	0.750	0.250	0.250	0.250	0.250
3.2 Swartklip	3.150	15.700	10.000	1.000	0.250
3.3 New Transfer Stations	0.000	10.000	40.000	40.000	40.000
4. Drop-Off and Composting Facilities	1.300	3.000	3.000	1.000	0.500
<b>Gross Cost</b>	<b>24.200</b>	<b>66.500</b>	<b>83.250</b>	<b>84.750</b>	<b>91.00</b>

Clearly, the cost of providing waste processing and disposal facilities represents a substantial capital investment, requiring a far greater allocation of the City's budget than has previously been the case. Environmental and regulatory requirements have necessitated the recent and imminent closure of a number of existing facilities, and the cost of providing a new (regional) disposal facility and associated transfer facilities will place an onerous burden on the City over the next decade. It will be essential that the planning of the phasing of the provision of these facilities is undertaken so as to place the least financial burden on the City. A meaningful reduction in the waste generated and quantities requiring final disposal onto a landfill site, will also have significant impacts in terms of extending the lifespan of existing facilities and reducing disposal costs.

Alternative technologies for waste processing and disposal need to be considered. Whereas there is currently no alternative technology to disposal by landfill that has proven to be more cost-effective and environmentally acceptable within the context of conditions prevailing in South Africa, there is growing world-wide technological advancement that needs to be assessed and reviewed on a constant basis.

# ***SECTION 5: The Way Forward***

5.1 The Way Forward .....5-2

Section 5 presents a brief overview of the way forward in terms of finding acceptance for, and implementing the strategies and activities set out in the Draft Integrated Waste Management Plan.

## Section 5: The Way Forward

The City of Cape Town is a leading South African city regarding waste management, providing satisfactory levels of service to most of its three million citizens at a relatively reasonable cost. Cape Town was adjudged the “Cleanest South African City” in 2003 and is acknowledged as one of the foremost tourist destinations in the world.

### 5

In spite of the good progress the City has made in integrating waste management services since its formation as a Unicity in 2000, there remains a great deal of work still to be done. In order to improve upon and sustain appropriate, equitable and affordable levels of service delivery, the Solid Waste Directorate of the City (SWD) will need to address many shortcomings identified in the Integrated Waste Management Plan (IWMP). To continue along the current “as-is” path will result in a rapid decline of all the good work achieved since 2000. Some of the reasons for the current need to apply a more rigorous approach to integrated solid waste management, and the way forward in terms of addressing the various shortcomings, are summarised as follows:

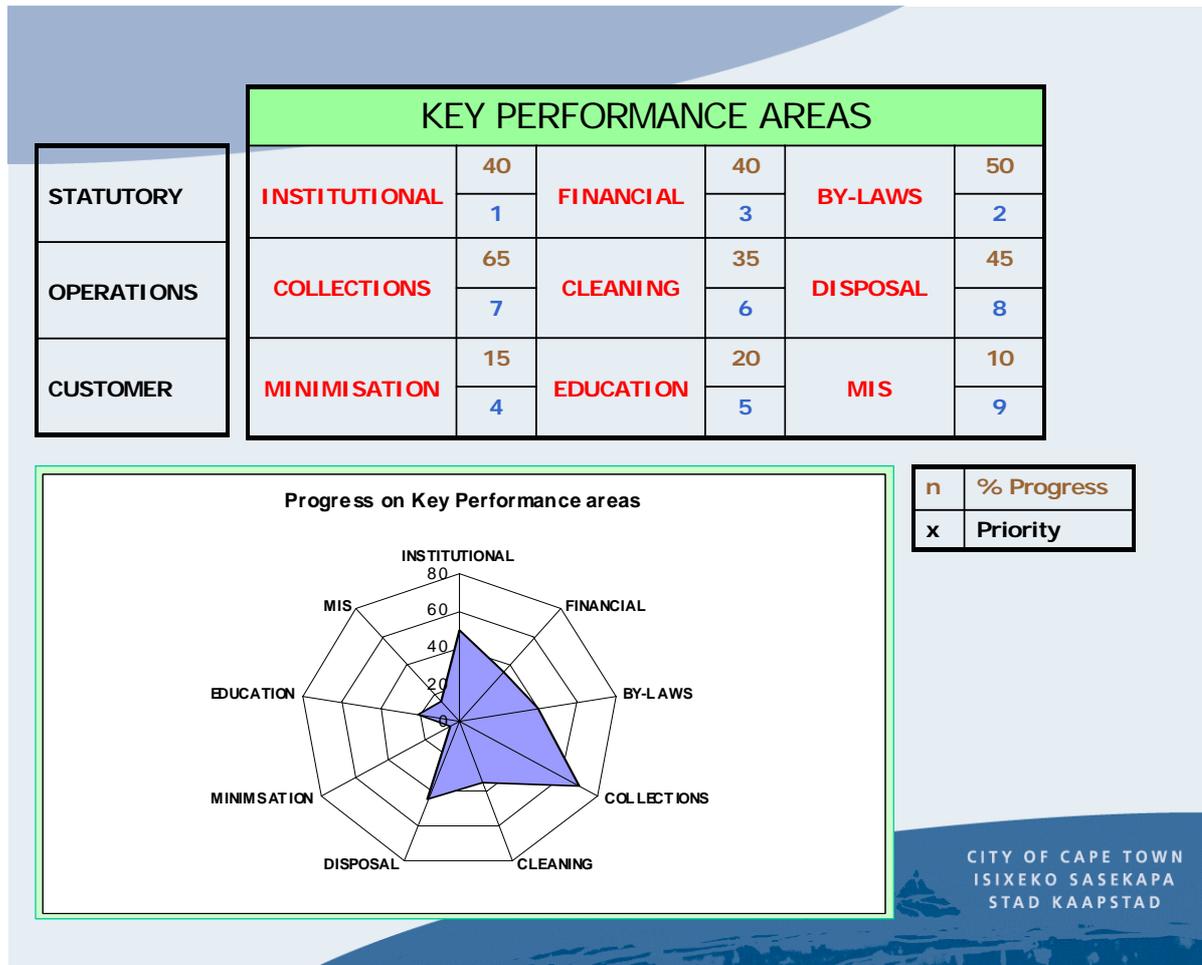
- ◆ The City’s current initiative to bring about a process of **institutional restructuring and transformation** has been slow, and is hampering effective management by the SWD. Rationalisation and integration of human and physical resources inherited from the previous administrations still has to take place. The lack of institutional stability and a clear institutional model is considered to be the primary issue to be addressed before the SWD can finalise and implement its IWMP.
- ◆ The financial implications of implementing the IWMP and providing effective and equitable levels of waste management services, will require a **significant increase in terms of the City’s future capital and operating budgets for waste management**. A shift in mindset of the public and politicians towards the need and desirability for proper waste management will be required, as waste management is often perceived to be of a low order priority, a situation reflected in the annual budget allocations. Furthermore, a **full cost accounting model** that takes into account social and environmental factors should be developed to inform future solid waste management financial decision-making.
- ◆ In order for the IWMP to serve as a relevant guideline and management tool to be used on a day-to-day basis by waste practitioners to effectively drive waste management, it is considered essential that the City’s politicians, officials, and the public at large **take full ownership of the IWMP**. Only through full ownership will acceptable levels of cleanliness of the City, appropriate levels of services delivery and effective and sustainable waste reduction be achieved. The SWD will therefore need to ensure that the IWMP is properly communicated and explained through a broad-based public communication process.

- ◆ **Job creation and poverty alleviation** are issues highly placed on the City's agenda, and in developing and implementing solid waste management plans and functions, every endeavour must be made to seek solutions to address these issues. However, unrealistic expectations with respect to job creation must be avoided. A proper balance should be sought by constantly supporting, incentivising and engaging with the private-sector to initiate projects that will create meaningful and sustainable employment.
- ◆ The City needs to accept a realistic **target for waste reduction**, relevant to the particular situation of the City of Cape Town. The financial, social and environmental costs of not achieving significant waste reduction will be vast. The SWD must take responsibility to drive the IWMP to ensure that waste reduction goals are met.
- ◆ The SWD of the City is committed to supporting, facilitating and incentivising waste reduction (including recycling). Close engagement between the public and private sectors is considered essential. **Increased public-private partnering** in solid waste management should be encouraged.
- ◆ The City needs to urgently develop a new By-law that effectively reforms, consolidates, and integrates existing by-laws and introduces new by-laws aligned with the IWMP. Measures must be taken to ensure that **new waste by-laws are properly enforced**.
- ◆ The procurement of an **Integrated Waste Information Management System (WIMS)** is considered essential so that reliable information can be gathered, analysed and made available for proper planning of waste management functions and activities. The WIMS should be developed so as to interface with the systems of the relevant authorities (e.g. DEADP).
- ◆ **Social issues** such as the impacts of informal street scavenging of refuse containers need to be resolved on an area-by-area basis. Waste collection systems must take into account consequential social impacts and area cleanliness. Street scavenging should be prohibited and alternative employment found through managed mechanisms such as more widespread drop-off centres, controlled informal recycling at selected locations such as commercial centres, etc.
- ◆ With the imminent closure of four of the City's seven landfills, it is clearly evident that an **airspace shortage is looming**. Urgent measures are required to provide sufficient airspace until such time that the proposed regional waste disposal facility and associated transfer stations are operational. On-going advancement of alternative technologies for the processing and disposal of waste are taking place around the world, and the City should constantly review new technologies against current practices.
- ◆ The issue of widespread indiscriminate illegal dumping and littering needs to be addressed. **Waste education, awareness and training** are essential to achieving a successful outcome in combating illegal dumping and encouraging waste reduction.
- ◆ The IWMP, once approved and adopted by the City Council for adoption, must be **reviewed regularly against set performance indicators** and updated on a regular basis and fed back into the City's Integrated Development Plan (IDP), Equitable Services Delivery Framework (ESDF) strategy and other relevant authority policies and structures. Figure 5.1 sets out a simple summary of the key solid waste management areas for key performance evaluation, with a priority ranking and

estimated percentage attainment. This diagram can furthermore be viewed as a baseline indication of the gap between the current “performance” levels of waste management services, and the ultimate goal to which the SWD aspires in terms of the IWMP.

Figure 5.1: Estimated Baseline Performance Indicators of the Key Solid Waste Priority Areas

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The key issues described in Section 1.4 and again highlighted above, have been addressed in the IWMP through a process of developing strategies and plans and setting clear actions with priorities and timeframes.

The way forward therefore, is for the SWD is to achieve broad acceptance of the IWMP by the City Council, municipal officials, regulatory bodies and the general public. Once approval and support are in place, the SWD will need to draw up a detailed programme that clearly sets out how and when the strategies and activities will be implemented and quantifies the extent of human and financial resources needed to implement the plan. The IWMP should then be regularly reviewed and audited to measure its success and make on-going adjustments that will lead to continuous improvement in solid waste service delivery.