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**BASELINE ASSESSMENT FOR WATER &  
ELECTRICITY CONSUMPTION AT THE CITY HALL IN  
PIETERMARITZBURG FOR THE MSUNDUZI  
MUNICIPALITY**

**SUMMARY OF RECOMMENDED INTERVENTIONS  
WITH HIGH-LEVEL COSTS**

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<b>SYNOPSIS</b> Conduct a baseline assessment to determine the water and electricity consumption, and to recommend interventions at City Hall, PMB.					
<b>KEY WORDS:</b> Baseline Assessment, Water, Electricity, interventions					
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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 ISO 9001: 2015 which has been independently certified by DEKRA Certification.					
					
<b>Verification</b>	<b>Capacity</b>	<b>Name</b>	<b>Signature</b>	<b>Date</b>	
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## 1 INTRODUCTION

JG Afrika (Pty) Ltd was appointed by the Msunduzi Municipality to undertake a baseline assessment of City Hall in Pietermaritzburg in terms of electricity, water and waste and to provide recommendations for increased optimisation of the building.

The following summary report outlines the identified recommended interventions and provides high-level anticipated costs to guide the Municipality in allocating budget. However, formal quotes would need to be obtained to provide confirmation of these costs. In addition, a ranking is given to each intervention to assist the municipality in prioritising which intervention to implement.

This report should be read in conjunction with the baseline report, titled *Baseline Assessment for Water & Electricity Consumption at the City Hall in Pietermaritzburg for the Msunduzi Municipality: Final Baseline Report*.

## 2 PROJECT MOTIVATION

This project forms part of Msunduzi Municipalities agreement to participate in the Building Efficiency Accelerator (BEA) program run by ICLEI (International Council for Local Environmental Initiatives). The former Mayor, Councillor Themba Njilo, signed the agreement with the Building Efficiency Accelerator Program (BEA), which stated the following:

1. Assign a point of contact for activities to be included in this partnership and designate an institution or agency to be responsible for the coordination of this initiative.
2. Engage local and private sector stakeholders in planning and assessment activities, in order to establish a shared vision for building efficiency in the jurisdiction and to identify and prioritize policy actions and projects.
3. Identify and pursue one enabling policy on building efficiency and set a target for achieving it.
4. Identify and pursue one or more pilot projects on building efficiency, as a first step toward and expanded pipeline of projects and set a target for achieving it.
5. Select a methodology by which to track performance against policy and project goals.
6. Communicate and share experiences and best practices with the BEA network

In line with this signed agreement, the pilot project needed to assess a building's efficiency relating to energy and water consumption and waste generation. As such, the City Hall in Pietermaritzburg was identified as the pilot project.

## 3 INTEGRATED DEVELOPMENT PLAN – 2021/2022 FINANCIAL YEAR

The Integrated Development Plan (IDP) for the Msunduzi Municipality includes a project prioritisation model to assist the municipality with decision-making in allocating resources for all projects. Of the 6 criteria listed, one relates to the *Sustainable Development Goals* where the following needs to be ascertained: *Does the project assist the Municipality and its communities to realise the targets set out in the Millennium Development Goals (MDGs)?*

In terms of the Sustainable Development Goals (SDGs), the IDP states the following (page 123):

*"... taking into consideration the Sustainable Development Goals (Specifically Goal 13: Climate Action), Msunduzi Municipality has developed a Climate Change Policy (2015, revised in 2019) and a Climate Change Adaptation and Mitigation Strategy (2016). Both these documents incorporate adaptation and mitigation strategies/responses, focusing on:*

1. *Biodiversity*
2. *Water resources*
3. *Food Security and Agriculture*

4. *Human Health*
5. *Stormwater Water Management*
6. *Waste Management*
7. *Energy Utilisation*
8. *Transportation*
9. *Building Co-Operative Governance and Improved Communication Procedures*

*Both the Climate Change Policy and the Climate Change Adaptation and Mitigation Strategy provides a well-defined direction for responding to climate change risks and challenges. The main goal is to ensure that Msunduzi`s carbon footprint is reduced, and that the City is able to adapt to climate change-related impacts, and to ensure the availability of preferences when decisions need to be made regarding adaptation and mitigation.”*

As such, the IDP highlights the importance and need to address climate change in the municipality and includes a number of projects, completed and proposed, relating to climate change. The baseline assessment of City Hall is included under *Proposed Projects* and is highlighted below (see page 129 of IDP):

PROPOSED PROJECTS			
PLAN	COMPLETE (Y/N)	ADOPTED (Y/N)	SUMMARY
1. The local government operations approach: aimed at understanding the GHG emissions of government facilities and operations (e.g., government buildings and other facilities, streetlights and traffic signals, vehicle fleet). This is targeted towards promoting green government operations and reducing emissions under local government operational activities.			
2. The community-wide approach: this aims at understanding the GHG emissions of the community (in this case Msunduzi) as a whole.			
Baseline assessment of city hall in terms of compiling of electrical, energy, waste and water data and noting areas for increased optimization.	In process 2020/21	No	Pending
Appointment of a service provider to implement strategies identified within the Baseline Assessment (dependent of funding) for City Hall			Pending
Appointment of a service provider to undertake Monitoring and evaluation of retrofitting and comparing results with baseline assessment data			Pending

The next project relating to City Hall, which is the implementation phase, is also listed within the IDP as a proposed project. The importance of implementing the identified strategies is a key step in making actual changes that can have a measurable impact in terms of combatting climate change.

#### 4 RANKING OF INTERVENTIONS IDENTIFIED FOR CITY HALL

To assist the municipality in determining which interventions to implement first, a ranking system was developed. **Table 1** sets out the criteria against which each intervention was assessed.

The Sustainability Score Criteria is based on the objectives and steps outlined in the Climate Change Policy (2019) to meet the 9 focus areas referenced in the IDP, which speak directly to SDG 13 (Climate Action).

A final score is given for each intervention, which is further categorised into High, Medium and Low Priority clusters.

Total Ranking Groupings	Total Score
High Priority	≤ 9
Medium Priority	> 9 ≤ 14
Low Priority	> 15

*Table 1: Criteria and ranking scores*

Criteria	Ranking Score				
	1	2	3	4	5
<b>Cost of Intervention</b>	No cost	R1 > R5000	R5001 > R30 000	R30 001 > R200 000	> R200 001
<b>Ease of Implementation</b>	Can be implemented in-house. Does not require budget allocation for a service provider.	Minimal external support (service, device, materials, etc.). Budget could be found in current year.	Budget allocation required – could be allocated in next financial year	Budget allocation required – strong motivation required, may take longer to get budget	Budget allocation required – very strong motivation and planning required to obtain budget
<b>Sustainability Score*</b>	Meet 4 or more relevant Climate Change Policy Objectives or steps.	Meet 3 relevant Climate Change Policy Objectives and or steps.	Meet 2 relevant Climate Change Policy Objective and or steps.	Meet 1 relevant Climate Change Policy Objective and or step.	Does not meet any sustainability criteria.
<b>Potential savings generated</b>	Instant financial savings can be realised (<1 year)	Estimated savings achieved within 1 to 2 years	Estimated savings achieved within 2 – 4 years	Estimated savings achieved longer than 4 years	No direct correlation to monetary savings / unknown at this stage

\* Ability to meet actions and strategies outlined in the Climate Change Policy (May 2019 and adopted in 2020) (dealing specifically with water, energy and waste)

## 5 IMPLEMENTATION PLAN WITH ASSOCIATED HIGH-LEVEL ESTIMATED COSTS AND RANKING

The following summary table should be read in conjunction with the Final Baseline Report, which provides additional information on the recommendations and interventions listed. The table with a breakdown of scores for each criterion can be found in **Appendix A**.

*Table 2: Summary of Interventions with associated high-level estimated costs and ranking.*

No.	Proposed Intervention	Estimate cost for budgeting	Comments	Total
<b>Energy-related Interventions</b>				
1	A demand profile for the building should be established to provide an understanding of when energy is used. A simple demand profile can be obtained by means of a series of manual utility meter readings recorded twice daily (morning and evening) or, if possible, a logger should be installed for a period of one week, as a minimum.	No cost	Manual readings can be done in-house to reduce costs, although a logger would provide more accurate information.	8
2	Consider removing personal bar fridges / reducing current number to realise instant savings.	No cost	Removal of fridges will result in instant electricity savings	6
3	Replace existing lights with LED lighting – estimated payback under 3 years	R 100 000	Excludes installation costs – this can be done inhouse	8
4	Install solar-PV on the carport to supplement up to 60% of the building's annual consumption – estimated payback under 4 years	R 915 000	Cost excludes structural engineer assessment or any other structural aspects that may be required.	14
5	Undertake an inventory of all geysers, with their locations and where hot water is supplied in the building and confirm all current hot water uses. All geysers remaining on should be fitted with a timer and geyser blanket.	R 6 440	Assume 1 day required by plumber at rate of R700/hr (excludes any materials)	9
6	Undertake a comprehensive inventory of all HVAC equipment, complete repairs, remove redundant systems and improve operational efficiencies (e.g. changing thermostat set-points, ensure air-conditioners correctly sized for each room, remove dust build-up, etc.).	R 20 000	Assume professional assesses system (2 days) (excludes materials or any repairs and maintenance)	11
7	Seal any gaps in all doors and windows with self-adhesive weather stripping, which is inexpensive. (A 5m tape ranges in price between R60 and R200.)	R 12 000	Assume 120 m of self-adhesive tape – cost could be reduced by focusing on office windows only	10

No.	Proposed Intervention	Estimate cost for budgeting	Comments	Total
8	Consider installing or improving roof insulation, specifically above the offices.	R 7 000	Would require service provider to assess the roof space above all the offices and to determine feasibility and effectiveness of new or additional insulation. Cost includes a day's rate for a professional assessment. Excludes costs of actual insulation.	9
<b>Water-related Interventions</b>				
9	Ascertain what the correct water consumption is for the building / ensure water meters are recording accurately.	No cost	Check all water meters / request water department to check meters are recording correctly.	9
10	Undertake an assessment of all water fittings and plumber to complete the following: - Reduce flush time on all flushmaster toilets - Reduce flow rate of urinals to no more than 0.2 litres/use, where possible. - Reduce flow time on all bathroom push taps - Identify and repair leaks immediately.	No cost	Check all water meters / request water department to check meters are recording correctly.	7
11	Replace all water / flush seals on the bottom of toilet cisterns (total of 35 toilets).	R 875	Toilet seal ± R25 each	7
12	Replace all tap seals (total of 23 taps).	R 78	Tap seals ± R26 (pack of 9)	7
13	Install low flow aerators on all bathroom taps (max flow rate of 1.3 l/min). For older taps, add a flow restrictor and re-seater in the tap pillar to restrict flow (alternatively add restrictor before tap).	R 3 300	Assume 23 of the taps can be fitted with low flow aerators (at R78 each) with 5 old taps requiring restrictors within the tap pillars.	7
14	Assume replacement of 10% of taps to modern fittings (optional)	R 1 200	Excludes installation costs – covered under plumber day rate already allowed for	8
15	Replace toilet mechanisms with multi-flush or interruptible flush cisterns (total of 29 highly inefficient flushmaster toilets and 6 single flush toilets)	R 14 000	Estimate of R400 each for single flush toilets. Plumber to confirm feasibility of retrofitting flushmaster toilets.	7
<b>Waste-related Interventions</b>				
16	Remove individual desk bins and have centralised 2-bin systems for general waste and recyclables. Include paper recycling bins at all printers.	R 11 000	Provide 16 new bins in centralised areas	12
17	Include e-waste collections bins for bulbs and batteries prior to correct disposal.	R 1 700	Provide 1 bin for batteries, light bulbs and small electronic waste	12
18	Municipality to identify a local waste management company that could collect recyclables on a weekly basis.	No cost	Municipality would need to appoint a company to collect recyclables (e.g. Ellis Waste Paper cc T/A Central Waste)	5



No.	Proposed Intervention	Estimate cost for budgeting	Comments	Total
19	It is recommended that City Hall use wheelie bins and change to this tariff, costs could be reduced depending on the number of black bags that are disposed of per week (note: on average a wheelie bin contains the equivalent of 4 black bags).	No cost	Requires that a change in tariff is considered internally. General waste volumes will reduce significantly if waste is recycled.	8
<b>General Interventions</b>				
20	Undertake environmental awareness training around energy, water and waste and ensure such campaigns are regularly repeated.	No cost	Can be done in-house by marketing team	8
21	Undertake a staff questionnaire to identify key focus areas to improve energy, water and waste efficiencies.	No cost	Can be done in-house by marketing team	12
22	Identify Sustainability Champions to drive sustainable practices within the City Hall.	No cost	To be done in-house	9
23	Establish easy reporting system to monitor energy and water consumption and waste generated, at least weekly. Include regular feedback to staff via newsletter, email, noticeboards, etc.	No cost	Simple excel capturing sheet to be completed weekly for energy and water consumption and waste (e.g. number of bins/bags)	8
24	Paper conservation measures should be implemented within the Municipality to reduce waste generation. Key considerations should be given to establishing an on-line reporting system, establish default printing settings (e.g. black & white, double sided, user codes for tracking and paying for personal prints, carbon footprint information, etc.).	No cost	To be considered internally	10
25	Develop green procurement guideline for procurement of environmentally sustainable products used within City Hall.	R 160 000	External cost / service provider would need to provide quote	13
26	Develop a building specific Smart Event guide for City Hall which users will be required to comply with and will include submission of a waste management plan, etc.	R 25 000	Estimate cost for a service provider to develop	13
27	Develop an online booking system for all events to track number of attendees, etc.	No anticipated cost	To be done in-house as far as possible before outsourcing – would require internal resources, if available	12

## 5.1 Comments on Intervention Rankings

It is recommended that all High Priority interventions are considered for implementation as soon as possible, and budget allocated within the next financial year. A number of the High Priority interventions do not have any associated costs and can be implemented in-house and it is thus recommended that these are considered in the current financial year, where possible.

Of the Medium Priority interventions, the following interventions should be the key focus as they will result in a direct reduction in electricity consumption, as well as continued long-term savings which will have a direct positive impact, i.e. cost saving, as well as reducing greenhouse gas emissions from City Hall:

- No. 4 (*Install solar PV*)
- No. 6 (*Undertake comprehensive inventory of all HVAC equipment, repairs, etc.*)

In addition, No. 25 (*Develop Green Procurement Guideline*), should also be seriously considered, as such a document will enable the Municipality to meet a large number of the Climate Change Policy Objectives and Steps and can be implemented across the Municipality and not just at City Hall.

It is acknowledged that financial limitations may delay or prevent the implementation of a number of interventions, especially those with a large capital outlay. As such, a projected savings over 10 years was forecast for the key interventions relating to energy and water to illustrate the financial benefit and as a further motivation for their serious consideration.

### 5.1.1 Electricity

A projected savings was forecast for 10 years if a solar photovoltaic (PV) system is installed on the carport<sup>1</sup>. A conservative annual increase in electricity costs of 11.52%, based on the average increase over the last four years, was used. Should the increase in electricity costs be higher, the projected savings would also increase. As can be seen from **Table 3**, the **solar PV system would be paid off in 2.71 years and a cumulative saving of R 4 218 904 would be realised by 2032<sup>2</sup>**.

This does not take into account any other recommended energy efficiency measures or operational changes, which would see further financial savings. This is a significant return on investment and the sooner implemented the sooner these savings can be realised.

In addition, a **solar PV system would ensure business continuity during times of power cuts and load-shedding**. Although this is hard to quantify in financial terms, it would ensure that all municipal office functions are resilient and can continue without interruption, which should be viewed as a key benefit.

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<sup>1</sup> A conservative assumption was made that the PV system can provide 60% of the electricity required, thus only requiring 40% of electricity from the grid, as the solar PV system provided excludes batteries for storage.

<sup>2</sup> This saving includes an annual OPEX cost of 7% of the project cost over 10 years. However, this is a high-level estimate and would need to be guided by the service provider upon quoting as it depends on the lifespan of equipment, such as inverters, maintenance requirements, etc.

*Table 3: Projected savings from solar PV installation.*

Solar PV System	Year 0 2022	Year 1 2023	Year 2 2024	Year 3 2025	Year 4 2026	Year 5 2027	Year 6 2028	Year 7 2029	Year 8 2030	Year 9 2031	Year 10 2032
CAPEX	910 965										
OPEX	63 768	68 231	73 007	78 118	83 586	89 437	95 698	102 397	109 565	117 234	125 440
<b>INCOME / SAVINGS</b>											
230 758kWh	304 993	340 122	379 298	422 985	471 705	526 036	586 625	654 193	729 543	813 572	907 279
CASH FLOW	-669 739	271 891	306 290	344 867	388 119	436 599	490 927	551 796	619 978	696 338	781 839
<b>PROJECTED SAVINGS</b>	<b>-669 739</b>	<b>-397 848</b>	<b>-91 558</b>	<b>253 309</b>	<b>641 428</b>	<b>1 078 026</b>	<b>1 568 953</b>	<b>2 120 749</b>	<b>2 740 727</b>	<b>3 437 065</b>	<b>4 218 904</b>

### 5.1.2 Water

A projected savings was forecast for 10 years if all water-related interventions were to be implemented at the same time (see **Table 4**). The projection was based on the total kilolitres consumed, as indicated on the utility bills for 2019, even though the baseline assessment revealed that the annual water consumption is likely to be considerably higher. An annual escalation in water price per kilolitre of 13.1% was used, based on the last four years. **The payback period is 1.19 years with an estimated cumulative saving of approximately R 518 159 by 2032.**

*Table 4: Projected savings from all water-related interventions (based on utility bills).*

All Water Interventions	Year 0 2022	Year 1 2023	Year 2 2024	Year 3 2025	Year 4 2026	Year 5 2027	Year 6 2028	Year 7 2029	Year 8 2030	Year 9 2031	Year 10 2032
CAPEX	31 397										
OPEX	2 198	2 352	2 516	2 692	2 881	3 083	3 298	3 529	3 776	4 041	4 323
<b>INCOME / SAVINGS</b>											
453kL	26 627	30 117	34 064	38 529	43 579	49 290	55 750	63 057	71 321	80 669	91 242
CASH FLOW	-6 968	27 765	31 548	35 836	40 698	46 208	52 452	59 528	67 545	76 629	86 918
<b>PROJECTED SAVINGS</b>	<b>-6 968</b>	<b>20 798</b>	<b>52 346</b>	<b>88 182</b>	<b>128 880</b>	<b>175 087</b>	<b>227 539</b>	<b>287 067</b>	<b>354 612</b>	<b>431 241</b>	<b>518 159</b>

## 6 CONCLUSION

Understanding the baseline consumption of electricity, water and waste is vitally important and a regular monitoring programme should be established as a matter of priority. Regular maintenance should be carried out to ensure electrical systems operate efficiently and to detect and fix any water leaks. Ongoing education of staff and visitors is also critical, as behaviour change can result in savings without any capital expenditure.

The expected environmental benefits and financial savings should be the driver behind the interventions, rather than the upfront costs, which, as highlighted above for solar PV as an example, can be recovered in less than 3 years.

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# **APPENDIX A: DETAILED INTERVENTION AND RANKINGS TABLE**

## Recommended Interventions ranked in terms of priority

Key:

Total Ranking Groupings	Total Score
High Priority	≤ 9
Medium Priority	> 9 ≤ 14
Low Priority	> 15

No.	Recommended Intervention	Estimate cost for budgeting purposes	Comments	Cost	Ease of Implementation	Sustainability Score – Ability to meet actions and strategies outlined in the Climate Change Policy (May 2019)	Potential Savings generated	Total
1	A demand profile for the building should be established to provide an understanding of when energy is used. A simple demand profile can be obtained by means of a series of manual utility meter readings recorded twice daily (morning and evening) or, if possible, a logger should be installed for a period of one week, as a minimum.	No cost	Manual readings can be done in-house to reduce costs, although a logger would provide more accurate information.	1	1	1	5	8
2	Consider removing personal bar fridges / reducing current number to realise instant savings.	No cost	Removal of fridges will result in instant electricity savings	1	1	3	1	6
3	Replace existing lights with LED lighting – estimated payback under 3 years	R 100 000	Excludes installation costs – this can be done inhouse	4	1	2	1	8
5	Undertake an inventory of all geysers, with their locations and where hot water is supplied in the building and confirm all current hot water uses. All geysers remaining on should be fitted with a timer and geyser blanket.	R 6 440	Assume 1 day required by plumber at rate of R700/hr (excludes any materials)	3	2	2	2	9
8	Consider installing or improving roof insulation, specifically above the offices.	R 7 000	Would require service provider to assess the roof space above all the offices and to determine feasibility and effectiveness of new or additional insulation. Cost includes a day's rate for a professional assessment. Excludes costs of actual insulation.	3	3	2	1	9
9	Ascertain what the correct water consumption is for the building / ensure water meters are recording accurately.	No cost	Check all water meters / request water department to check meters are recording correctly.	1	1	2	5	9
10	Undertake an assessment of all water fittings and plumber to complete the following: · Reduce flush time on all flushmaster toilets · Reduce flow rate of urinals to no more than 0.2 litres/use, where possible. · Reduce flow time on all bathroom push taps · Identify and repair leaks immediately.	No cost	Check all water meters / request water department to check meters are recording correctly.	3	1	2	1	7
11	Replace all water / flush seals on the bottom of toilet cisterns (total of 35 toilets).	R 875	Toilet seal ± R25 each	2	1	3	1	7
12	Replace all tap seals (total of 23 taps).	R 78	Tap seals ± R26 (pack of 9)	2	1	3	1	7
13	Install low flow aerators on all bathroom taps (max flow rate of 1.3 l/min). For older taps, add a flow restrictor and re-seater in the tap pillar to restrict flow (alternatively add restrictor before tap).	R 3 300	Assume 23 of the taps can be fitted with low flow aerators (at R78 each) with 5 old taps requiring restrictors within the tap pillars.	2	1	2	2	7
14	Assume replacement of 10% of taps to modern fittings (optional)	R 1 200	Excludes installation costs – covered under plumber day rate already allowed for	2	2	2	2	8
15	Replace toilet mechanisms with multi-flush or interruptible flush cisterns (total of 29 highly inefficient flushmaster toilets and 6 single flush toilets)	R 14 000	Estimate of R400 each for single flush toilets. Plumber to confirm feasibility of retrofitting flushmaster toilets.	3	1	2	1	7

No.	Recommended Intervention	Estimate cost for budgeting purposes	Comments	Cost	Ease of Implementation	Sustainability Score – Ability to meet actions and strategies outlined in the Climate Change Policy (May 2019)	Potential Savings generated	Total
18	Municipality to identify a local waste management company that could collect recyclables on a weekly basis.	No cost	Municipality would need to appoint a company to collect recyclables (e.g. Ellis Waste Paper cc T/A Central Waste)	1	1	2	1	5
19	It is recommended that City Hall use wheelie bins and change to this tariff, costs could be reduced depending on the number of black bags that are disposed of per week (note: on average a wheelie bin contains the equivalent of 4 black bags).	No cost	Requires that a change in tariff is considered internally. General waste volumes will reduce significantly if waste is recycled.	1	1	5	1	8
20	Undertake environmental awareness training around energy, water and waste and ensure such campaigns are regularly repeated.	No cost	Can be done in-house by marketing team	1	1	1	5	8
22	Identify Sustainability Champions to drive sustainable practices within the City Hall.	No cost	To be done in-house	1	1	2	5	9
23	Establish easy reporting system to monitor energy and water consumption and waste generated, at least weekly. Include regular feedback to staff via newsletter, email, noticeboards, etc.	No cost	Simple excel capturing sheet to be completed weekly for energy and water consumption and waste (e.g. number of bins/bags)	1	1	1	5	8
4	Install solar-PV on the carport to supplement up to 60% of the building's annual consumption – estimated payback under 4 years	R 915 000	Cost excludes structural engineer assessment or any other structural aspects that may be required.	5	5	1	3	14
6	Undertake a comprehensive inventory of all HVAC equipment, complete repairs, remove redundant systems and improve operational efficiencies (e.g. changing thermostat set-points, ensure air-conditioners correctly sized for each room, remove dust build-up, etc.).	R 20 000	Assume professional assesses system (2 days) (excludes materials or any repairs and maintenance)	3	2	1	5	11
7	Seal any gaps in all doors and windows with self-adhesive weather stripping, which is inexpensive. (A 5m tape ranges in price between R60 and R200.)	R 12 000	Assume 120 m of self-adhesive tape – cost could be reduced by focusing on office windows only	3	1	2	4	10
16	Remove individual desk bins and have centralised 2-bin systems for general waste and recyclables. Include paper recycling bins at all printers.	R 11 000	Provide 16 new bins in centralised areas	3	1	3	5	12
17	Include e-waste collections bins for bulbs and batteries prior to correct disposal.	R 1 700	Provide 1 bin for batteries, light bulbs and small electronic waste	2	1	4	5	12
21	Undertake a staff questionnaire to identify key focus areas to improve energy, water and waste efficiencies.	No cost	Can be done in-house by marketing team	1	1	5	5	12
24	Paper conservation measures should be implemented within the Municipality to reduce waste generation. Key considerations should be given to establishing an on-line reporting system, establish default printing settings (e.g. black & white, double sided, user codes for tracking and paying for personal prints, carbon footprint information, etc.).	No cost	To be considered internally	1	1	3	5	10
25	Develop green procurement guideline for procurement of environmentally sustainable products used within City Hall.	R 160 000	External cost / service provider would need to provide quote	4	3	1	5	13
26	Develop a building specific Smart Event guide for City Hall which users will be required to comply with and will include submission of a waste management plan, etc.	R 25 000	Estimate cost for a service provider to develop	3	2	3	5	13
27	Develop an online booking system for all events to track number of attendees, etc.	No anticipated cost	To be done in-house as far as possible before outsourcing – would require internal resources, if available	1	1	5	5	12