

Mandeni Local Municipality

ASSET MANAGEMENT PLAN

SECTOR:	ELECTRICITY
PERIOD:	2019 - 2028
DATE:	31 MAY 2019
VERSION NUMBER:	2.5
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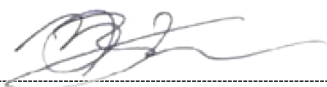
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APPROVAL AND CHANGE HISTORY

DOCUMENT REVIEW:

DOCUMENT VERSION NO.	REVIEWER NAME	CHANGE HISTORY DETAILS	DATE
V1.0	<i>Hilton Baartman</i>	First Draft	14 April 2019
V2.0	<i>Knowledge Nkala</i>	Update Financial Plan	24 April 2019
V2.2	<i>Hilton Baartman</i>	Updated modelling	31 May 2019
V2.3	<i>Knowledge Nkala</i>	Updated Annexure A & B	02 June 2019
V2.4	<i>Rob Childs</i>	Review	2 June 2019
V2.5	<i>Hilton Baartman</i>	Update Summaries	3 June 2019
V2.6	<i>Lwazi Tshabalala</i>	Project Background	2 August 2019

SUBMITTED:



5 August 2019

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Selby Msweli *Electrical Superintendent*

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Date

ACRONYMS AND INDEX

TABLE OF ACRONYMS:

AFS	Annual financial statement
AM	Asset management
AMP	Asset management plan
AR	Asset register
CAPEX	Capital expenditure
CRC	Current replacement cost
DRC	Depreciated replacement cost
EPWP	Expanded public works programme
ERM	Enterprise risk management
EUL	Expected useful life
FY	Financial year
GMR	General Machine Regulations
IDM	iLembe District Municipality
IDP	Integrated development plan
EMP	Electricity master plan
KLM	KwaDukuza Local Municipality
KPA	Key performance area
KPI	Key performance indicator
LOS	Level of service
MLM	Mandeni Local Municipality
mSCOA	Municipal standard chart of account
MTREF	Medium term revenue and expenditure framework
NERSA	National Energy Regulator of South Africa
No.	Number
OPEX	Operational expenditure

<i>Pa</i>	Per annum (yearly)
<i>PAMO</i>	Physical asset management office
<i>PMU</i>	Project management unit
<i>R</i>	Rand
<i>RUL</i>	Remaining useful life
<i>SDF</i>	Spatial development framework
<i>SDBIP</i>	Service delivery budget and implementation plan
<i>SMME</i>	Small, medium and micro-sized enterprises
<i>SOS</i>	Standard of service

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E EXECUTIVE SUMMARY

Summary of the main aspects of the plan: scope and objectives; strategic context and status; key challenges, risks and opportunities; and proposed short, medium, and long-term tactical responses.

1	PLAN OBJECTIVES	Plan effective and efficient infrastructure-based service delivery with available resources. The plan reviews the municipal assets and the management practices within the electricity sector in the Mandeni Local Municipality (MLM).
2	OPERATIONAL CONTEXT	
2.1	Municipal mandate	MLM is required to supply reliable electricity to the Mandeni Suburb (ward 3) of the municipality as well as supply resources to electrify areas currently within Eskom’s mandated area inside the municipal boundaries.
2.2	Asset scope	The asset scope includes the electrical network assets belonging to MLM. It excludes electrical network assets and areas managed by Eskom (within the MLM boundaries). The MLM electrical network mainly comprises ward 3, Mandeni Town. There is a dedicated 33kV supply to Umgeni Water.
2.3	Developmental context of the municipality and key statistics	<p>The municipality has a dispersed rural population, currently projected at 148 637 people in 2018, showing migration trends toward urban areas and transport routes. The area has high unemployment but has identified tourism potential in some areas, as seen by the nodes in Figure E1.</p> <p>The urban areas account for only 20% of MLM. MLM supplies approximately 1000 customers from its own electricity network.</p> <p>There are four Traditional Council areas with the Ingonyama Trust holding the majority of its land mass. There is a need to stimulate economic growth, the current commercial operators in the area are the Amatikulu sugar milling operations, the Sappi paper mills and Isithebe Industrial Area.</p> <p>Financially the municipality is challenged with significant debt and relies heavily on grant funding for service provision which make it difficult to meet all the statutory requirements. The GMR of the OSH Act requires a GMR 2(1) responsible person (engineer) for the municipality – a post not currently filled. Under staffing in the project management unit is also affecting service delivery and the ability to spend grant funding, having a circular effect on available budget.</p>
2.4	Stakeholders	<p>The following are key stakeholders and their focus of interests in relation to the sector:</p> <ul style="list-style-type: none"> • Eskom – supply to MLM and distribution within MLM boundaries • The electricity sector- focus on providing a proper sustainable service that generates revenue. • The (physical) asset management office and broader municipality – focused on maintaining the assets to allow for service provision. • Customers – focus on receiving sustainable and affordable service. • Private service providers – focus on providing the service at a profit. • Tourists and other visitors to the municipality – focus on the environment and the outcomes of the service in public areas.

2.5	Plan maturity (and implications on its use)	<p>Currently the municipality does not implement a lot of formal asset management systems. This initial asset management plan (AMP) is a high-level document to start steering the municipality towards implementing quality asset management and asset management planning. The AMP will output projects over the ten-year planning period in line with strategic vision and documents to prioritise the spending of the limited budget. Due to its initial nature it is at a high level and so gives a guide towards what the sector spending should be and at what proportion between types of spending.</p> <p>The main input documents include the Integrated Development Plan (IDP), Electrical Master Plan (EMP) of 2011 as well as the municipal 2018 asset register (AR). The asset register is predominantly accounting based without any supporting technical information.</p> <p>Table E.1 summarises the key data issue areas in the AMP and suggests areas for improvement as well as highlighting key data gaps.</p>
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Table E.1: Summary of data confidence

Chapter	Data confidence grade	Key information not available or unreliable and/or improvement areas
1	90%	<ul style="list-style-type: none"> The asset register is accounting based and not technical (current replacement cost is thus a best approximation), some information gaps EMP context is dated – new document due out 2019/20
2	75%	<ul style="list-style-type: none"> Current detail of customers serviced not available – only some indication Improvement area for accuracy would be to obtain running costs and customer numbers to obtain accurate rate for providing service per customer.
3	75%	<ul style="list-style-type: none"> Current census data would be an improvement (non-existent)
4	70%	<ul style="list-style-type: none"> Modeling would improve with accurate maintenance figures Accurate replacement costs would be an improvement on estimates
5	75%	<ul style="list-style-type: none"> Much of this information has been gained from multiple sources with different grades of confidence and has not been independently verified
6	75%	<ul style="list-style-type: none"> Some areas of estimation, but an assessment was carried out
7	90%	<ul style="list-style-type: none"> Informed from risk register, suggested mitigation is the only less certain aspect
8	90%	<ul style="list-style-type: none"> Informed from SDBIP
Overall:	80%	This confidence will increase with each iteration of AMP

3	CURRENT STATUS	
3.1	Infrastructure status	Error! Reference source not found. summarises the assets in the sector – it highlights the higher cost to replace the portfolio (Current Replacement Cost) compared to the purchase price of the assets. The street lights and MV/transformers have the lowest health status of the asset groups – very poor – indicating an immediate need for renewal of the assets (highlighted as a technical backlog).

Table E.2: Asset extent summary (values in R'm)

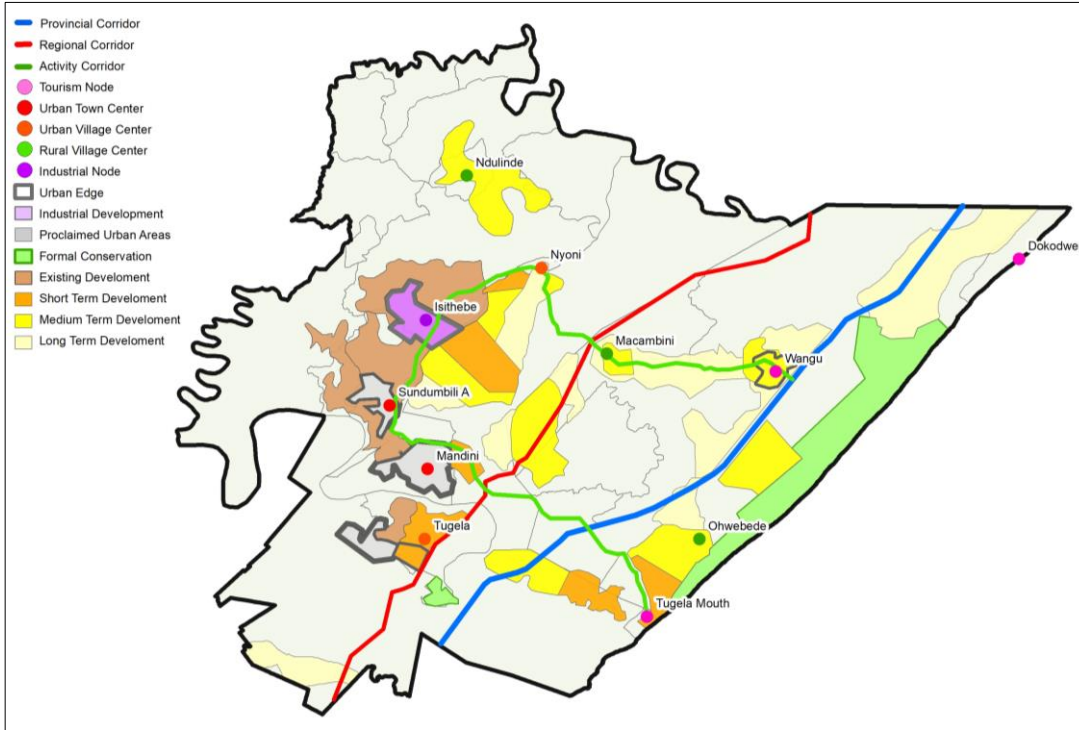
Asset Group	Extent	Extent unit	Replacement value	DRC	Portfolio Health	RV	Annual consumption	Maintenance budget need pa	AFS Cost opening	AFS Carrying value opening
HV Conductor	8	km	12.79	13	100%	-	0.64	1.28	12.79	12.79
LV Conductor	16	km	4.75	3	58%	-	0.08	0.24	0.00	0.00
MV Conductor	14	km	23.50	12	46%	-	0.47	2.35	2.19	2.04
Mun Service Connection	1000	No	1.70	1	50%	-	0.03	0.09	-	-
MV Substation	1	No	6.00	3	50%	-	0.12	0.30	-	-
MV Mini-Sub	28	No	4.07	2	58%	-	0.08	0.41	0.47	0.34
MV/LV Transformer	6	No	0.68	0	36%	-	0.01	0.07	0.20	0.15
RMU	7	No	2.72	1	49%	-	0.05	0.27	1.19	1.08
LV Kiosk	389	No	1.95	1	50%	-	0.04	0.10	0.64	0.46
Meters	972	No	4.86	2	50%	-	0.24	0.24	0.79	0.70
Streetlights	250	No	4.39	2	22%	0.78	0.10	0.44	4.39	3.09
			67.39	40	59%	0.78	2	6	23	21

3.2	Spatial structure	Main urban centres, village centres and tourism centres are shown in	
		3.3	Service delivery operations
Figure E.1 highlighting the nodes of potential tourism and the intended development areas highlighted in the spatial development framework (SDF). The municipality wants to focus on tourism and has highlighted the need to regenerate existing industrial areas.			
3.3	Service delivery operations	A strategic approach to packaging and scheduling of capital and operational activities, needs to be developed and implemented in the sector. There is limited spending on capital projects in the sector with budget being directed to operational and maintenance activities. Maintenance is done regularly on most electrical assets of MLM. There is currently no manager for the sector who complies with GMR 2.1 and OSH Act requirements.	

MLM has an energy efficiency and demand side management program it runs. This EEDSM programme has seen the replacement of older inefficient lights being replaced by low energy usage LEDs.

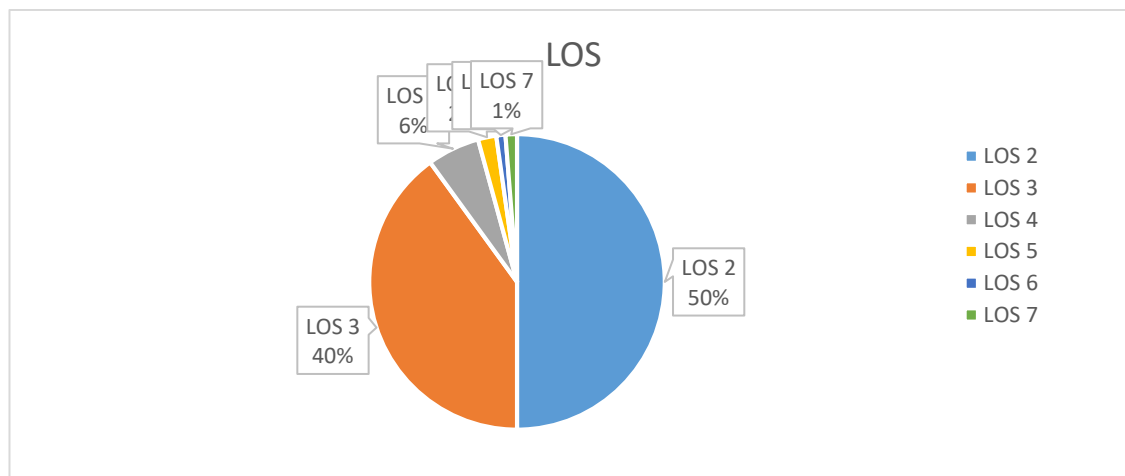
Electrification is funded through grants and occurs predominantly within Eskom supplied areas inside MLM's boundaries. MLM is thus not responsible for operating and maintaining these new networks.

Figure E.1: Predominant development areas in the municipality



3.4	Levels and standards of service	<p>The municipality has no backlog within its supply area. However, there exists a backlog of approximately 3000 households within the Eskom supplied area in MLM. The level of service (LoS) aimed for by the municipality is a minimum of a grid connected supply and metered single phase at 230V up to 20A. The LoS levels within the municipality's supply area is summarised in Figure E.2.</p> <p>Standards of service (SoS) metrics are not tracked nor measured currently. The SoS can be improved through ensuring the power connection to Eskom. This will be achieved with a second substation intake from Eskom.</p>
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Figure E.2: Level of Service within MLM supply area

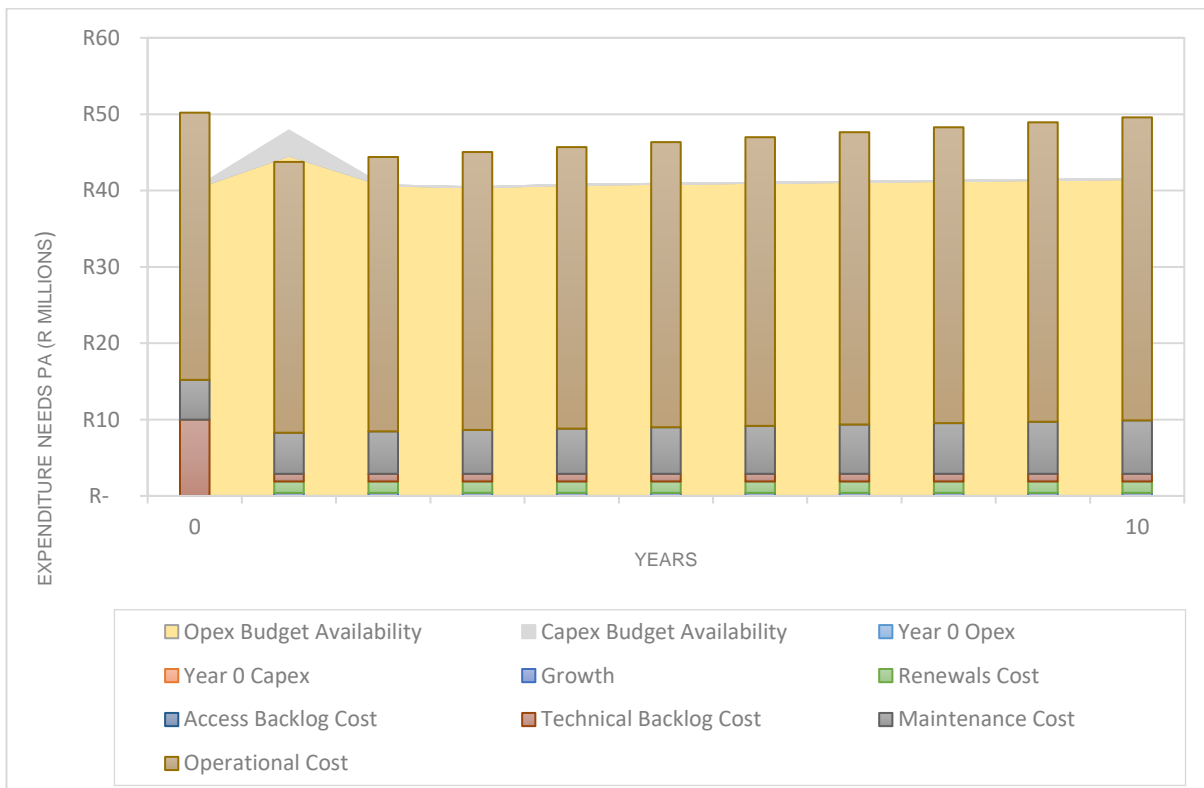


3.5	Financial status	<p>MLM budgets the majority of spending for the sector on operational spending as opposed to capital expenditure. Currently there is minimal budget for capital spending for the sector planned in the next three years.</p> <p>The municipality relies largely on grant funding and has a notable challenge in terms of revenue collection, with the gross debtors' balance increasing yearly. MLM budget for grants received in the past 3 years versus actual grants in not consistent as actual spent in 2016/17 was 64% higher than the budget while in 2017/18 actual expenditure decreased. The cost coverage ratio indicates that the municipality will find it difficult to meet its monthly fixed operating commitments without collecting any additional revenue. Total bad debts increased by 50% in 2017/18 indicating the affordability challenge for consumers.</p>
3.6	Reported risk exposure	<p>Key risks relating to the electricity sector include oversight and administration of the electricity department, shortage of skills, workshop space and monetary resources.</p> <p>Mitigation of the risks include appointment of a manager for oversight (GMR 2.1), additional grant funding, review of skills retention and attraction policies as well as renewal spending in the sector. The municipal manager is the identified risk owner.</p> <p>The municipality needs to develop a set framework to measure against in order to inform if the resulting risk is acceptable in terms of its risk appetite.</p>
3.7	Reported performance	<p>The 2018 target of providing electricity to 287 households was achieved. Further to this, the target of installing 540 new streetlights in various ward in MLM was not achieved. Only 2 of the 11 performance indicators were achieved for the sector. The municipality does well in achieving electrification targets but does poorly in the targets for maintenance, replacement or upgrading of existing failing infrastructure. With the current budget the target for each year should be re-assessed for practicality and alternative approaches should be considered.</p>
4	FUTURE DEMAND	

4.1	Demand forecast	<p>Growth for the municipality has been forecast at a rate of 0.28% per annum based on previous census data. No large impacting factors were identified to adjust these, and it is assumed to be representative.</p> <p>MLM has an EEDSM programme which encourages energy efficiency to reduce overall system demand. The load trends of the past 5 years show the load is relatively stable and decreasing slightly over time.</p> <p>Growth within the supply area of MLM is expected to be limited over the 10 year planning period. Planning needs to be done for the addition of an additional Eskom in take substation to ensure redundancy as loss of the current Eskom in feed would mean no electricity supply within the MLM supply area.</p>
4.2	External bulk infrastructure implications	A second intake substation from Eskom will be needed. The surrounding Eskom networks should be upgraded to cater for load growth within the area and the electrification of an additional 3000 households on electrical networks that are already constrained.
4.3	Municipal infrastructure implications	The growth within the MLM electricity supply area will not have a significant impact on the current network demand. Load trends suggest that the demand will remain stable or just slightly increase for ward 3 which is an urban area.
5	LIFE-CYCLE PLAN	
5.1	Short and medium-term plan	<p>Currently there are very few capital projects planned for the MTRF with mainly operational expenditure. However, as part of the lifecycle plan it has been identified that more capital needs to be made available for renewal of assets.</p> <p>It is suggested that the budget be adjusted to include provision for renewal spending in the sector. Renewal per year needs to be in the order of R 3 500 000, however as there is currently very limited renewal budget, it has been adjusted to R1 500 000 per annum. This is supported by a proposed spend of approximately R20m for new or upgrading of assets over the planning period of ten years.</p> <p>It is also important that budget be allocated to the current assets in poor condition and for maintenance expenditure. The operational budget for the baseline / reference year (2017/18) was in line with the estimated need but will need to be adjusted to fund capital projects (new, upgrades or renewals). Operational and maintenance spending accounts for the majority of spending per year.</p> <p>Growth will be limited in the MLM supply area for electricity as it is a built up and occupied urban area. An additional amount of R400 000 pa is proposed as provision to supply new customers and growth within the MLM supply area (ward 3).</p>
5.2	Long term lifecycle plan	The long-term focus of the electricity sector lifecycle plan is to provide a sustainable service to their existing customers. There is also emphasis on maintaining the existing assets including some capital renewal/replacement. This allows proper management and maintaining of the portfolio to provide service to the customers in line with the municipality's objectives.

		<p>The overall lifecycle needs over the period are fairly capital intensive and so the lifecycle plan has been adjusted in line with the budget. It is assumed that additional budget can be procured for the sector due to the renewal and new asset capital need over the period. The long-term plan is to increase spending on renewals in line with the growing portfolio and to steadily address the backlog each year. Operational spending should remain fairly constant over the period.</p> <p>The total spend each year is shown in Figure E.3, the comparative budget is also depicted – highlighting the need to secure additional funding for the sector.</p>
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Figure E.3: Combined lifecycle adjusted spending for the portfolio

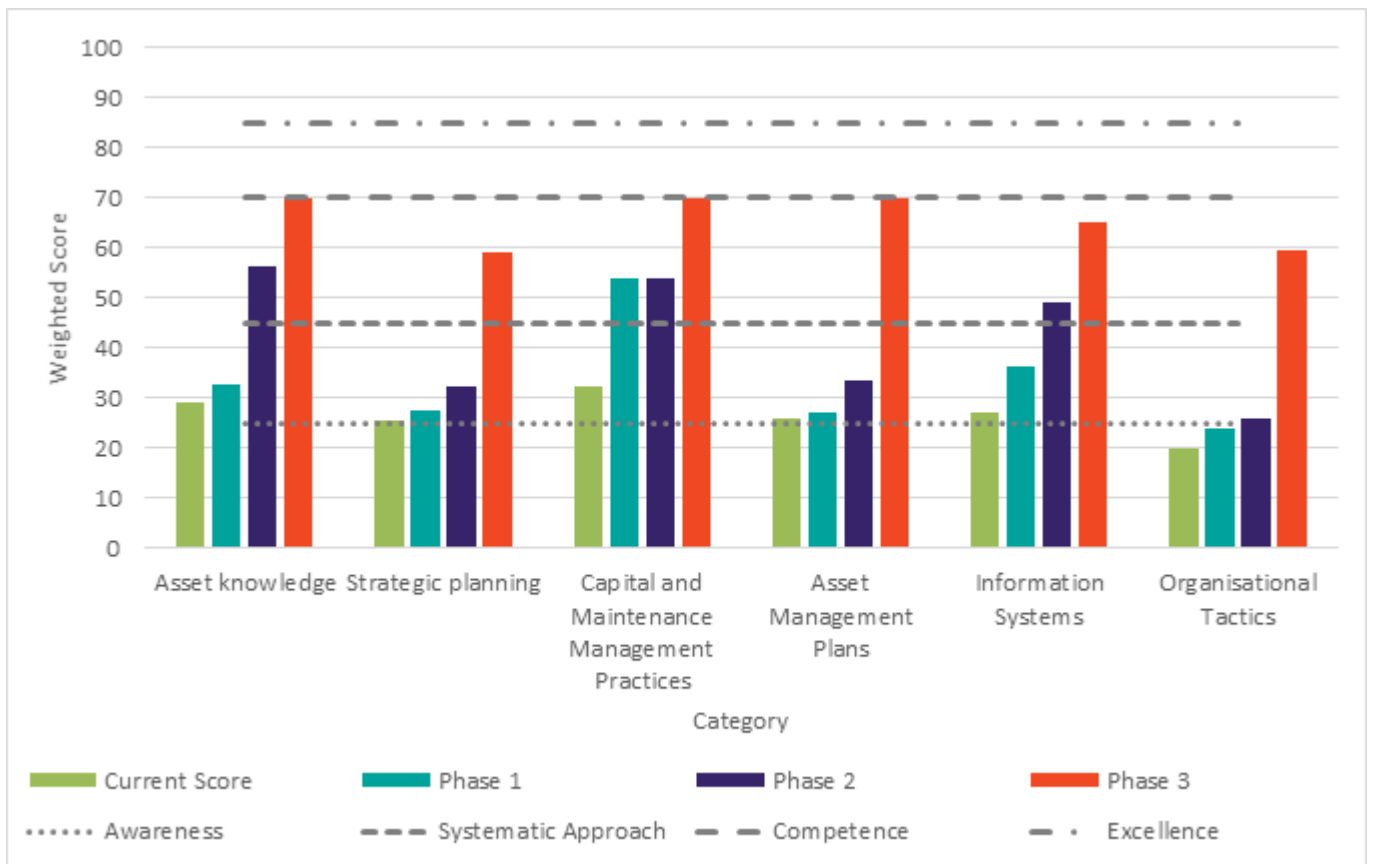


6	FINANCIAL PLAN	
6.1	Financial health, budget availability, trends, forecast	<p>MLM budgets the majority of spending for the sector on operational spending as opposed to capital expenditure. Currently there is minimal budget for capital spending for the sector planned in the next three years.</p> <p>The Electricity sector generates approximately R 13 million revenue per annum, however not all of this is collected with consumer debtors increasing by 18% from 2015/16 to 2016/17 and a further 6% increase in 2017/18. This challenge also hinders the municipal ability of increasing the tariffs on service provision to generate more revenue. The municipality is faced with high unemployment rates and payment of tariffs is a problem.</p>

		<p>The majority of MLM’s annual budget is funded through grants (about 70%) with the balance funded through MLM’s own revenue (about 30%). MLM is highly dependent on grant funding as revenue streams are too small.</p> <p>Capital grants and transfers totalled R 43.9 million in the 2015/16 financial year and increased to R 47.1 million 2017/18.</p> <p>The electricity sector is currently being funded from operating grants and transfers. The operational grants and transfers totals R161.5 million in the 2018/19 financial year and steadily increases to R192.6 million by 2020/21. The Integrated National Electrification Programme grant to be received is forecasted at an amount R22.8 Million over the next 3 years.</p>
6.2	Revenue management status	<p>As part of the financial sustainability strategy, an aggressive revenue management framework has been implemented to increase cash inflow, not only from current billings but also from debtors that are in arrears in excess of 90 days. The intention of the strategy is to streamline the revenue value chain by ensuring accurate billing, customer service, and credit control and debt collection.</p> <p>The average collection rate on electricity is 72%. Service Charges on electricity and refuse removal are billed simultaneously, therefore an average collection rate of 72% is assumed for services charged due to controls that are in place as per the credit control policy.</p> <p>The revenue growth on service charges for electricity is on average 10%. MLM does not have control on the tariff increases by Eskom which is higher than the consumer inflation rate. Forecast revenue for the sector increases from R 20 million in 2017/18 to R29 million and R 34 million in 2018/19 and 2020/21 respectively. However, with the strategy of providing only communal collection the revenue will only increase if the collection rate from currently billed customers also increases. There has been budget allocated in the FY 2019 to FY 2021 for a debt collection contractor to address this.</p>
6.3	Cost management	<p>The cost of bulk purchases of electricity is significant, currently increased over the 2017/18 adjustment budget to 2018/19 period escalating from R16.1 million to R17.3 million. This increase is attributed to the substantial increase in the cost bulk electricity from Eskom; The municipality needs to explore alternative power generation sources (energy mix).</p> <p>Contracted Services have been identified as a cost saving area for MLM. As part of the compilation of the 2018/2019 MTREF this group of expenditure was critically evaluated and operational efficiencies were enforced as the municipality is trying to reduce the outsourcing of services.</p> <p>As part of the process of identifying further cost efficiencies, a business process reengineering project was scheduled for 2018/19 to identify alternative practices and procedures, including building in-house capacity for certain activities that are currently being contracted out.</p>
6.4	Financial management strategy and plan	<p>The inadequate electricity bulk capacity and the impact on service delivery and development remains a challenge for the Municipality. The budget for the Electricity Distribution Division can only be utilised for certain committed upgrade projects and to</p>

		strengthen critical infrastructure (e.g. substations without back-up supply). It has been estimated that special funding for electricity bulk infrastructure to the amount of R9.6 million for 2018/19 would be necessary to steer the Municipality out of this predicament.
7	ASSET MANAGEMENT PRACTICES	
7.1	Context	There is a relatively low level of asset management practice maturity, especially in the field of physical asset management, in the municipality.
7.2	Asset management practice context	There was a practices assessment carried out in 2019 for MLM and an improvement plan suggested as an output.
7.3	Current and target performance	Current practice is assessed to be predominantly “awareness” of good practices -the municipality aims to move towards a level of competence as shown in Figure E.4.

Figure E.4: Overview of practice assessment and improvement plan



7.4	Priority improvement needs	The proposed improvement plan prioritises an improvement of the maintenance management process followed by an enhancement of the asset register and finally improving the management processes associated with projects, all of which to be implemented over a 3-year period.
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8	CONCLUSIONS AND RECOMMENDATIONS	
8.1	Objectives, challenges, and proposed response strategies	<p>The electricity sector aims to provide for the urban growth within MLM as it supplies ward 3, Mandeni Town with electricity. It further aims to secure funding for rural electrification which are within the municipal boundaries but within Eskom supply areas. Further the sector aims to provide a reliable service that provides a quality of supply that meets national standards. The sector faces a human resource challenge which impacts on the standard of service it is providing.</p> <p>The sector needs to place emphasis on adequate renewal to ensure the portfolio health remains in a good state. There is no access backlog to address but there is a technical backlog which will address the need for a backup in take supply point from Eskom.</p>
8.2	Proposed programmes and budgets	<p>The main expenditure in the sector is capital in nature, aimed at new infrastructure and upgrading existing infrastructure. The sector has been improving spending on renewals and maintenance.</p> <p>The emphasis on adequate renewal is proposed to continue throughout the planning period with a limited budget to meet growth. Currently the service performance in the sector needs to improve – through upgrades of the bulk infrastructure and addition of human resources as needed.</p>
8.3	Recommendations	<p>It is recommended that Council:</p> <ul style="list-style-type: none"> a) Note the content of this first rudimentary AM Plan, which has been prepared through the Vuthela-Ilembe LED Programme; b) Confirm that the report findings be used to inform; <ul style="list-style-type: none"> ▪ the preparation of budgets, strategies and plans relating to the lifecycle management of the electricity department; and ▪ Proposed improvements to the management of the electricity infrastructure, subject to securing the required funds.

1 PROJECT BACKGROUND

This report is the Close-Out Report for the contract to deliver the following documentation - Portion A: asset management plans & Portion B: scoping study for an asset management system for iLembe District and KwaDukuza, Mandeni Local Municipalities as set out in the Scope of Work (SoW).

The project forms part of the Vuthela LED Programme which was officially launched on 29 November 2017 by the iLembe District Municipality, together with the Switzerland State Secretariat for Economic Affairs (SECO) and the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (KZN DETEA).

The Vuthela iLembe LED Programme footprint comprises the iLembe District Municipality (IDM) and its local municipalities of KwaDukuza (KDM), Mandeni (MLM), Ndwedwe and Maphumulo. The primary purpose of the programme is improvement of the economic future of the iLembe District residents through sustainable economic growth of the local economy and the creation of higher, better and more inclusive employment and income generating opportunities. The programme comprises five components, namely:

- Public Financial Management Component.
- Municipal Infrastructure Component.
- Private Sector Development Component.
- Building Inclusive Growth Component.
- Partnership and Coordination Component.

This contract falls under the Municipal Infrastructure Component (MIC). The MIC focuses on the improvement and development of municipal infrastructure and services and has three sub-components:

- Reduced infrastructure constraints (improved scope and quality of basic infrastructure services);
- Increased planning capacity and financing strategies for an integrated and systematic expansion of (urban) infrastructure, as a basis for sustainable development of regional centres; and
- Enhanced planning and management of key infrastructure sectors.

The initial project was conducted as part of the Inception Phase of the Vuthela LED Programme, which focussed on the scoping, preparation and assessment of implementation-readiness for support projects during the Implementation Phase.

1.1 Project Consultant and Sub-Consultants / Contractors

The project consultant was IMQS Software (Pty) Ltd and the Sub-Contractor was Amaqhawe Asset Management Solution. The workshare percentage split was 90/10 respectively.

1.2 Objectives of the Assignment as per the ToR

The appointment is for two particular assignments, consisting of Portion A for the development of asset management plans and Portion B for the scoping of an asset management system. Both assignments relate to the particular infrastructure functions of the IDM, KDM and MLM.

Objectives of the Asset Management Plan (AMP)

The Asset Management Plan (AMP) should enable the municipality to have an overview of its infrastructure assets' worth, condition and suitability to meet current and future service requirements based on the assets' life cycle. The AMP should enable the development of a strategy to support the optimal, functional management of existing assets whilst considering the financial and technical decision-making aspects for future service requirements.

The AMP should assist in project identification and selection, thereby integrating planning and development needs to ensure efficient and effective budgeting and implementation of projects. It should aid project prioritisation when considering available budget, service levels and required service levels.

The AMP should further be aligned to the available budget and revenue of the municipality and the development objectives of the municipality.

Objectives of the Asset Management System

References in this document to an Asset Management System (AMS), are considered as reference to each participating municipality's AMS. It was assumed at the time of writing the scope of work for this assignment, that there will be separate, but similar systems planned, designed and implemented in each municipality. Cognisance should however be given to the potential of information sharing, across platforms and between municipalities.

The AMS should enable the municipality to have access to detailed information on infrastructure assets' worth, condition and suitability to meet current and future service requirements based on the assets' life cycle. This means the incorporation or maintenance of the asset register, for financial and technical compliance and planning.

The AMS should enable the development of an Asset Management Plan (AMP) and strategy to support the optimal, functional management of existing assets whilst considering the financial and technical decision-making items for future services.

The AMS, through the AMP, should assist with project identification and prioritisation when considering available budget, existing service levels and required service levels. The AMS should further allow for integration with the financial management and planning of the municipality.

a. Main Project Components or Deliverables

The main deliverables as extracted on the tender document page 30 are as follows:

C.1.8 Deliverables and Outputs

The following is a summary of the list of the deliverables; refer to the prior sections for more detail.

1. Inception Report.
2. iLembe District Municipality AMP, three hard copies, one electronic copy.
3. KwaDukuza Local Municipality AMP, three hard copies, one electronic copy.
4. Mandeni Local Municipality AMP, three hard copies, one electronic copy.
5. Workshop per municipality, to discuss the financial plan and prioritisation, for inclusion in the municipal budget.
6. Workshop per municipality (IDM, KDM, MLM) to present and discuss the final AMP & results of the Scoping for an asset management system.
7. Scoping report, for the design and implementation of an Asset Management System (applies to three municipalities).
8. Attendance of tri-weekly progress meetings and provision of meeting notes.
9. Submission of weekly progress reports.
10. Close-out report.
11. Presentation to the Municipal Infrastructure Forum.
12. Presentation to the Vuthela Programme PSC.

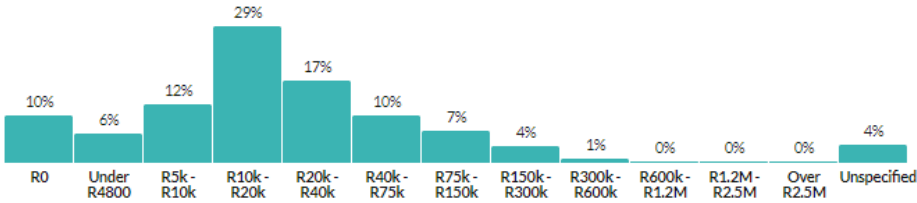
1.4 Contractual Dates

IMQS Software (Pty) Ltd was officially appointed on the 08th August 2018 and project duration was for 5 months but due to unforeseen circumstances the project was officially closed out on the 2nd August 2019.

2 INTRODUCTION

The purpose and scope of the plan, its stakeholders, an overview of relevant internal and external context, the asset and asset management system status, and approach to reporting the level of confidence in the plan's outputs.

1	Plan objectives	<p>The objective is to effectively and efficiently plan infrastructure-based service delivery.</p> <p>This plan aims to:</p> <ul style="list-style-type: none"> • Determine the current state of the Mandeni Local municipality's electricity sector assets • Quantify the current backlog of customers without service provision • Determine the resources and approaches needed to provide for the backlog • Forecast the new capital, operational and maintenance needs of the portfolio going forward (in line with new growth in the area) • Suggest alternative approaches and demand management tactics • Highlight the minimum input required on a renewal basis to maintain the portfolio • Prioritise an approach in-line with available budget and sector risk • Highlight areas for practices improvement
2	Mandate	<p>The Mandeni Local Municipality (MLM) is required to supply reliable electricity to the Mandeni Suburb (ward 3) of the municipality as well as supply resources to electrify areas currently within Eskom's mandated area inside the municipal boundaries.</p>
3	Stakeholders	<p>Stakeholders who are impacted by, or have an impact on the electricity sector include, but are not limited to:</p> <ul style="list-style-type: none"> • Eskom • NERSA • Department of Energy • MLM Electricity Sector • Customers • Broader MLM • iLembe District Municipality • Umgeni Water Board • Sappi (residential compound) • Ingonyama Trust • Traditional Councils • Community of Mandeni LM
4	Social context	<p>MLM's population is around 147 807 as per a Community Survey done in 2016 by Stats SA. The LM has over 45 000 households within its supply area, however MLM only supplies approximately 1000 customers (which include residential and commercial) directly. The rest are supplied through Eskom.</p> <p>MLM has a very young population with the median age in the LM being 23. About 10% of the community within MLM does not have access to electricity, however MLM does not have any backlogs under its own supplies. The LM has a largely African Zulu speaking population. Education levels are below that of the</p>

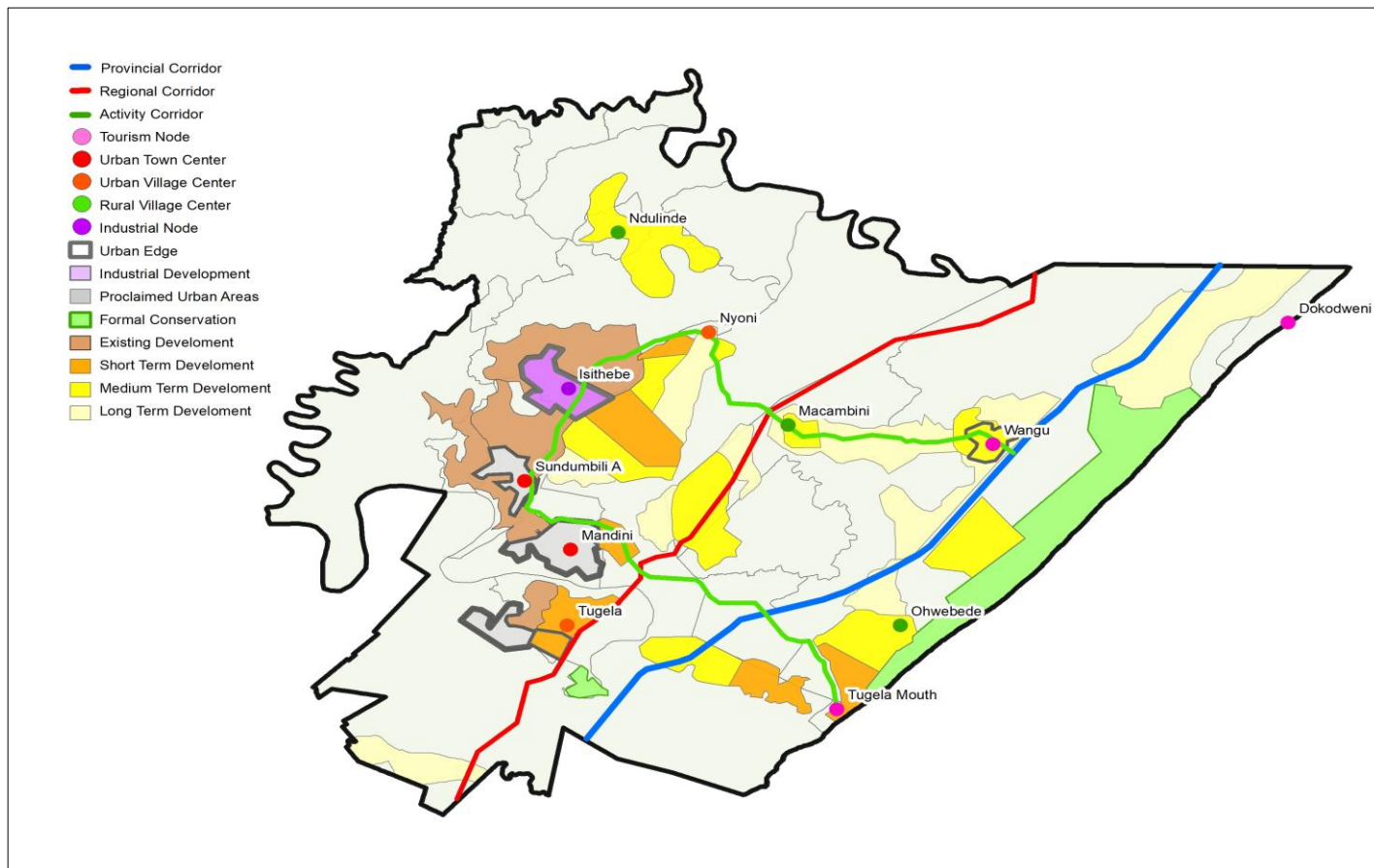
		KZN provincial average levels with only 39.1% having completed matric or higher. This is in comparison to the provincial average of 45.85%.																												
5	Political context	<p>There are 18 wards within the municipality. The ANC and the IFP are the two largest political parties.</p> <p>The Ingonyama Trust owns about 60% of the land mass of MLM. Traditional Council Areas within MLM are:</p> <ul style="list-style-type: none"> • Sikhonyane (eLangeni) Traditional Council area, which includes wards 6, 11, and 16. This area is located along the municipality’s north-western boundary. • Mathonsi Traditional Council area, which covers wards 5, 7, 12, 13, 14, 15, 17 and 18 • Macambini Traditional Council area, which covers the electoral wards of 1, 2, 3, 8 and 9. This area is located between the N2 and the coast. It has huge potential for tourism, commercial and industrial activities and leisure and upmarket housing development. • Hlomendlini (Ngcobo) Traditional Council located along the south-western boundary 																												
6	Economic context	<p>MLM has limited economic activity and high levels of poverty. Some of the key points in relation to economic context include:</p> <ul style="list-style-type: none"> • Sundumbili Township and Mandeni Town are the only notable urban centres with some additional urban areas in Tugela and Tugela Mouth; • The key industrial activity is agriculture- farming sugar cane, or subsistence farming and mostly in the traditional land areas; • There is an emphasis on the need for local economic development projects to help reduce poverty levels. Additionally, with communities communicating the need for job opportunities among youth. • There is a need to stimulate economic growth with little to no recent private sector investment or notable expansion of the residential or commercial space in the municipality. • The major commercial operators in the area are the Amatikulu sugar milling operations and the Sappi Paper mills at Mandeni, there is also an Isithebe Industrial area; <p>MLM has a large rural population segment who are moving into rural centers and into urban areas such as Mandeni. The median income within the LM is R15,000 per annum which is well below the provincial figures of R29,500 per annum. Population growth is still happening but the rate at which it is occurring is slowing down.</p> <p>Employees by annual income Chart Options</p>  <table border="1" data-bbox="405 1547 1326 1749"> <thead> <tr> <th>Annual Income Bracket</th> <th>Percentage</th> </tr> </thead> <tbody> <tr><td>R0</td><td>10%</td></tr> <tr><td>Under R4800</td><td>6%</td></tr> <tr><td>R5k - R10k</td><td>12%</td></tr> <tr><td>R10k - R20k</td><td>29%</td></tr> <tr><td>R20k - R40k</td><td>17%</td></tr> <tr><td>R40k - R75k</td><td>10%</td></tr> <tr><td>R75k - R150k</td><td>7%</td></tr> <tr><td>R150k - R300k</td><td>4%</td></tr> <tr><td>R300k - R600k</td><td>1%</td></tr> <tr><td>R600k - R1.2M</td><td>0%</td></tr> <tr><td>R1.2M - R2.5M</td><td>0%</td></tr> <tr><td>Over R2.5M</td><td>0%</td></tr> <tr><td>Unspecified</td><td>4%</td></tr> </tbody> </table> <p>* Universe: Employed individuals Source: Census 2011</p> <p>The formal employment rate is 34.3% as per Census 2011 figures.</p> <p>Main sector contributions are shown the GVA per sector chart.</p>	Annual Income Bracket	Percentage	R0	10%	Under R4800	6%	R5k - R10k	12%	R10k - R20k	29%	R20k - R40k	17%	R40k - R75k	10%	R75k - R150k	7%	R150k - R300k	4%	R300k - R600k	1%	R600k - R1.2M	0%	R1.2M - R2.5M	0%	Over R2.5M	0%	Unspecified	4%
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7	<p>Technical context</p>	<p>The MLM supply area is shared between MLM and Eskom. MLM covers mainly the urban areas with Eskom supplying more of the rural areas as well the indigent communities. MLM take on all new greenfield networks. MLM pays Eskom for provision of Free Basic Electricity (FBE) of indigent households.</p> <p>The MLM electricity sector does not have any current software for asset management nor electrical network modelling software.</p> <div style="text-align: center;"> <p>Supply split within MLM</p> <table border="1"> <caption>Supply split within MLM data</caption> <thead> <tr> <th>Supplier</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Eskom</td> <td>96%</td> </tr> <tr> <td>MLM</td> <td>4%</td> </tr> </tbody> </table> </div>	Supplier	Percentage	Eskom	96%	MLM	4%																											
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8	<p>Financial context</p>	<p>The majority of MLM's annual budget is funded through grants (about 70%) with the balance funded through MLM's own revenue (about 30%). Collection of revenue in the municipality is below norm due to non-payment by customers and an incomplete indigent register.</p>																																	

		<p>The current assets of MLM exceeds the liabilities and MLM can thus pay its current obligations. Loss trends within MLM electricity sector seems to be unstable and uncertain. Losses are mainly due to theft and technical losses.</p> <table border="1"> <thead> <tr> <th>Electricity Distribution Losses</th> <th>2015/2016</th> <th>2016/2017</th> <th>2017/2018</th> </tr> </thead> <tbody> <tr> <td>Number of units purchased</td> <td>11 137 494</td> <td>10 337 913</td> <td>4 796 328</td> </tr> <tr> <td>Number of units sold</td> <td>11 461 584</td> <td>7 800 606</td> <td>4 491 077</td> </tr> <tr> <td>norm</td> <td>3%</td> <td>26%</td> <td>6%</td> </tr> </tbody> </table>	Electricity Distribution Losses	2015/2016	2016/2017	2017/2018	Number of units purchased	11 137 494	10 337 913	4 796 328	Number of units sold	11 461 584	7 800 606	4 491 077	norm	3%	26%	6%
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9	Legal context	<p>MLM holds the license for electricity distribution within the MLM area as issues by NERSA. There are a number of statutory documents that govern the electricity distribution sector in South Africa. These include:</p> <ul style="list-style-type: none"> • The Electricity Regulation Act of 2006 • National Energy Act, Act 34 of 2008 • National Energy Regulator Act, 2004 (Act No.40 of 2004) • Electricity Pricing Policy of the South African Electricity Supply Industry, 2008 • Free Basic Electricity Policy • Electricity regulations for compulsory norms and standards for reticulation services, 2008 • Occupational Health and Safety Act 1993 • General Machine Regulations (GMR) 																
10	Institutional context	<p>The MLM has various institutional challenges. These include skilled staff as well as procurement delays. The electricity master plan is very outdated. Although, currently no documented procedures exist, a municipal wide asset management procedures document is being developed.</p>																
11	Procurement strategy	<p>One procurement approach was for the municipality to implement a <i>Contractor Development Policy and Implementation Strategy</i>, which provides previously disadvantaged entrepreneurs with opportunity in the civil, construction and electrical sectors. While uplifting and empowering individuals the programme also sets out too:</p> <ul style="list-style-type: none"> • Increase the active participation of Mandeni Municipality SMME's and cooperatives in the local economy by 5% every year; • To formulate a policy enabling improved quality of life for citizens/customers, by optimising employment and economic empowerment; • To mainstream the local and previously disadvantaged SMMEs and cooperative development in the affairs and structures of the municipality through annualised planning, implementation, monitoring and evaluation of black economic empowerment programme utilising an escalating budget of at least 10% of the municipal budget. <p>Currently under spending on conditional municipal grants is a risk area for the MLM. There is a strategy to mitigate delays in the tender process. Additionally the project management unit (PMU) is under staffed causing a delay with service delivery.</p>																
12	Sector strategic objectives	<ul style="list-style-type: none"> • Provide electricity infrastructure to all targeted households. • Installation and maintenance of streetlights within Mandeni. • Repair and maintenance of existing electricity infrastructure assets. 																

13	AM objectives - AMS	Ensure that a complete, accurate and up-to-date computerised assets management system is maintained
14	AM objectives - Infra	Ensure assets controlled and owned by the municipality are properly accounted for, maintained and managed to continue to provide service to the customers as per the municipal objective.
15	Key developmental themes	<p>Several developmental themes are highlighted in the SDF and IDP:</p> <ul style="list-style-type: none"> • Industrial regeneration to support industry in Mandeni becoming major contributors at a provincial level. • Focus on tourism opportunities along the Mandeni coastline • Planning basic services to support the development activities • Promoting conservation and sustainable/responsible development, implementing conservation management • Encouraging densification along transport routes and in urban areas • Promoting development by introducing incentives • Focus on regular maintenance and upgrade of existing infrastructure
16	Spatial structure, ongoing development initiatives	<p>There is a large amount of scattered rural development in the municipality, as population increases it continues to add pressure to existing services. The municipality is comprised of 63% tribal land but is seeing a trend of urbanisation as people move away from rural areas and settle along major transport routes and developmental nodes. This is due to accessibility (including to public transport), social facilities and basic services. Currently there is still a need for better administration of land around the urban edge.</p> <p>Main urban centres, village centres and tourism centres are shown in Figure1.1 The figure also shows the main transport routes where greater densification is occurring – as well as municipal planning for development as set out in the SDF. Spatially in the municipality there is a series of settlement areas parallel to the coast, this is influenced by physical access (mountainous in areas), access to land, large areas of commercial agriculture in the east and coastal opportunities. Land tenure and the customary allocation of households by the Traditional Authorities through Amakhosi are also contributors.</p>

Figure 2.1: Predominant development areas in the municipality



17	Key sector AM roles (and suppliers)	<p>The electricity sector of MLM falls under the Directorate for Infrastructure Development and Technical Services. The Director of the department manages the planning, project management, operations and maintenance of the electricity sector and vehicle fleet of the municipality. The Director is supported in this role by the following managers:</p> <ul style="list-style-type: none"> • Manager: Project Planning & Implementation (Vacant) • Assistant Manager: Project Management (Vacant – Grant Funded) • Manager: Electrical & Mechanical Fleet (Vacant) <p>These management positions within the electricity sector should be filled asap as the LM has recently seen their notified maximum demand (NMD) grow from 3.5MVA to 23MVA due to the addition of the Lower Tugela Bulk Water Supply Scheme from the Umgeni Water Board. This NMD requires a competent person of type 1(c) and 1(d) to be appointed as per the General Machine Regulations 2(1)(ii). There is no such competent person within MLM currently.</p>
18	Overview of infrastructure	<p>The electricity sector owns and manages a small portion of the electrical network within MLM’s boundaries. Eskom owns and operates the vast majority of the electricity supply network in MLM. MLM has one intake substation from Eskom at 11kV for its own supply area. The existing Eskom network in the area is constrained.</p> <p>Most of the electricity network within MLM’s supply area was designed or strengthened in the early 1980’s with an expected life of 25 years. The existing infrastructure is thus at the end of its useful life and will require capital investment to replace or refurbish the infrastructure.</p>

		The current replacement cost of MLM's electricity distribution infrastructure is estimated to be around R67 million.
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Table 2.1: Asset extent summary (values in Rm)

Asset Group	Extent	Extent unit	Replacement value	DRC	Portfolio Health	RV	Annual consumption	Maintenance budget need pa	AFS Cost opening	AFS Carrying value opening
HV Conductor	8	km	R 12.79	R 13	100%	R -	R 0.64	R 1.28	R 12.79	R 12.79
LV Conductor	16	km	R 4.75	R 3	58%	R -	R 0.08	R 0.24	R 0.00	R 0.00
MV Conductor	14	km	R 23.50	R 12	46%	R -	R 0.47	R 2.35	R 2.19	R 2.04
Mun Service Connection	1000	No	R 1.70	R 1	50%	R -	R 0.03	R 0.09	R -	R -
MV Substation	1	No	R 6.00	R 3	50%	R -	R 0.12	R 0.30	R -	R -
MV Mini-Sub	28	No	R 4.07	R 2	58%	R -	R 0.08	R 0.41	R 0.47	R 0.34
MV/LV Transformer	6	No	R 0.68	R 0	36%	R -	R 0.01	R 0.07	R 0.20	R 0.15
RMU	7	No	R 2.72	R 1	49%	R -	R 0.05	R 0.27	R 1.19	R 1.08
LV Kiosk	389	No	R 1.95	R 1	50%	R -	R 0.04	R 0.10	R 0.64	R 0.46
Meters	972	No	R 4.86	R 2	50%	R -	R 0.24	R 0.24	R 0.79	R 0.70
Streetlights	250	No	R 4.39	R 2	22%	R 0.78	R 0.10	R 0.44	R 4.39	R 3.09
			R 67.39	R 40	59%	R 0.78	R 2	R 6	R 23	R 21

19	Overview of the level of performance	<p>The MLM electricity sector does not have any backlogs within its supply area. However, there exists backlogs within MLM’s boundaries and the electrification of this backlog is mostly funded through MLM and the grant funding it receives.</p> <p>Some key sector risks include:</p> <ul style="list-style-type: none"> • No electrical sector manager with proper qualifications in terms of the GMR of the OHS Act • Municipality has a challenge of funding and current debtors due to non-payment of services • Lack of resources and necessary skills
20	AM maturity	<p>Currently the municipality does not formally implement a lot of asset management systems. This AMP is a high-level initial document to start steering the municipality towards implementing quality asset management and asset management planning. The AMP will indicate proposed lifecycle projects over the ten year project in line with strategic vision and documents to prioritise the spending of a limited budget.</p>
21	Availability and quality of key data and information, lifecycle models	<ul style="list-style-type: none"> • The asset register was not used for the extent of the assets in MLM as it ot considered sufficiently reliable. • No asset health information exists.
22	Key data / modelling assumptions	<ul style="list-style-type: none"> • LV network extent assumed • Straight-line depreciation was applied to obtain the DRC from the CRC • RUL was assumed based on date of purchase and EUL. • Condition was assumed based on RUL
23	Chapter summary	<p>MLM has an obligation to supply reliable electricity to the municipality as a whole and to Mandeni Suburb (ward 3) in particular. MLM directly supplies ward 3 whilst Eskom supplies the rest of the wards inside the municipal boundaries.</p> <p>Key stakeholders in the sector include the municipality, Eskom, private service providers, community members and the environment. Currently the key position of electrical engineer in the municipality is still vacant highlighting the sector risk of human resources.</p> <p>The portfolio value is at approximately R 67 million with a health grade of ‘good’ (60%) overall The portfolio also carries residual value on its assets.</p> <p>Key constraints, risks and opportunities include:</p> <ul style="list-style-type: none"> • Dispersed, rural nature of the settlements, • Communities struggling with employment, • Opportunity due to current trend of urbanization, • Opportunity on focusing on reduction and awareness initiatives, • Municipality promoting tourism – will need associated removal services in key areas, • Tight budgetary constraints internally, and • Shortage of human and skill resources within the sector and municipality as a whole.

3 LEVELS OF SERVICE

An overview and assessment of the prevailing levels and standards of service; current backlogs, historic and existing initiatives; summary of needs, challenges, associated strategic risks, opportunities and priorities; and proposed strategic and tactical responses.

1	Existing levels and standards	<p>MLM has a large rural and indigent community. Around 91% of MLM residents have access to electricity. The current backlog of 9% or about 3,000 households falls within the Eskom supply area of MLM.</p> <p>There are no backlogs within MLM’s supply area of the electrical network. Customers have metered connections within their dwellings or place of business.</p> <p>Street and public lighting is operated and maintained by MLM. There is a 48 hour turnaround system in place for repairing streetlights that are not working.</p>
2	Historic trends and ongoing initiatives	<p>Historically the backlog of MLM has decreased. Free Basic Electricity (FBE) is provided to about 1100 indigent households however these indigent households fall within Eskom’s supply area. MLM pays Eskom a monthly fee to supply the FBE to indigents within the MLM boundaries. FBE amounts to 50kW per month.</p> <p>The municipality has qualified for Integrated National Electrification Programme (INEP) Grant Funding under schedule 5B of the Division of Revenue Act over the next three years. A further once off grant was obtained under the Massification Programme at the KZNCOGTA to supplement the programme. This will enable the municipality, in partnership with Eskom and the Department of Energy to electrify an estimated additional 2613 households. This intervention together with Eskom’s planned interventions is projected to see Mandeni gain universal access to basic electricity by 2019.</p> <p>There are ongoing initiatives to install, replace and refurbish street and public lighting as necessary. Streetlight patrols are being done frequently to identify streetlights that are not working. These patrols are done to facilitate the planning of street light repairs.</p>

Figure 2-1 INEP Funded Electrification Projects (as per 2018-19 IDP)

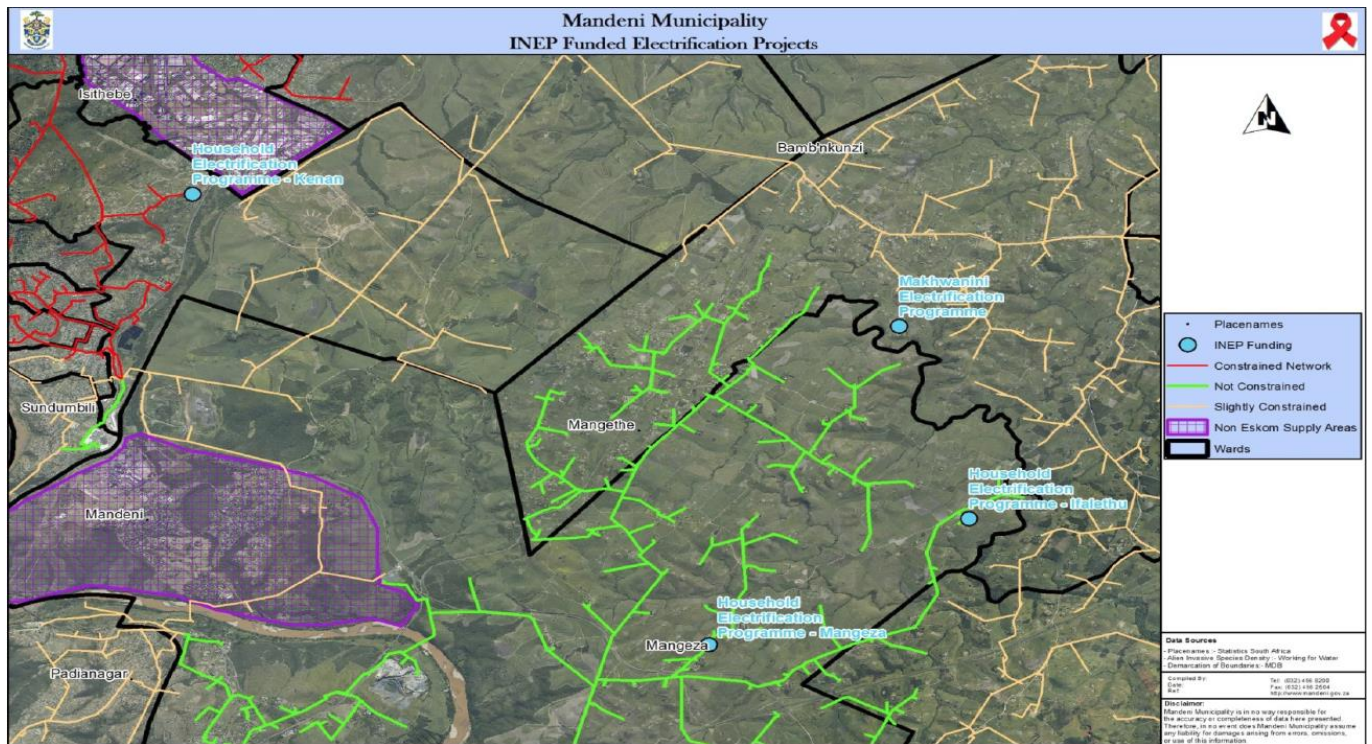
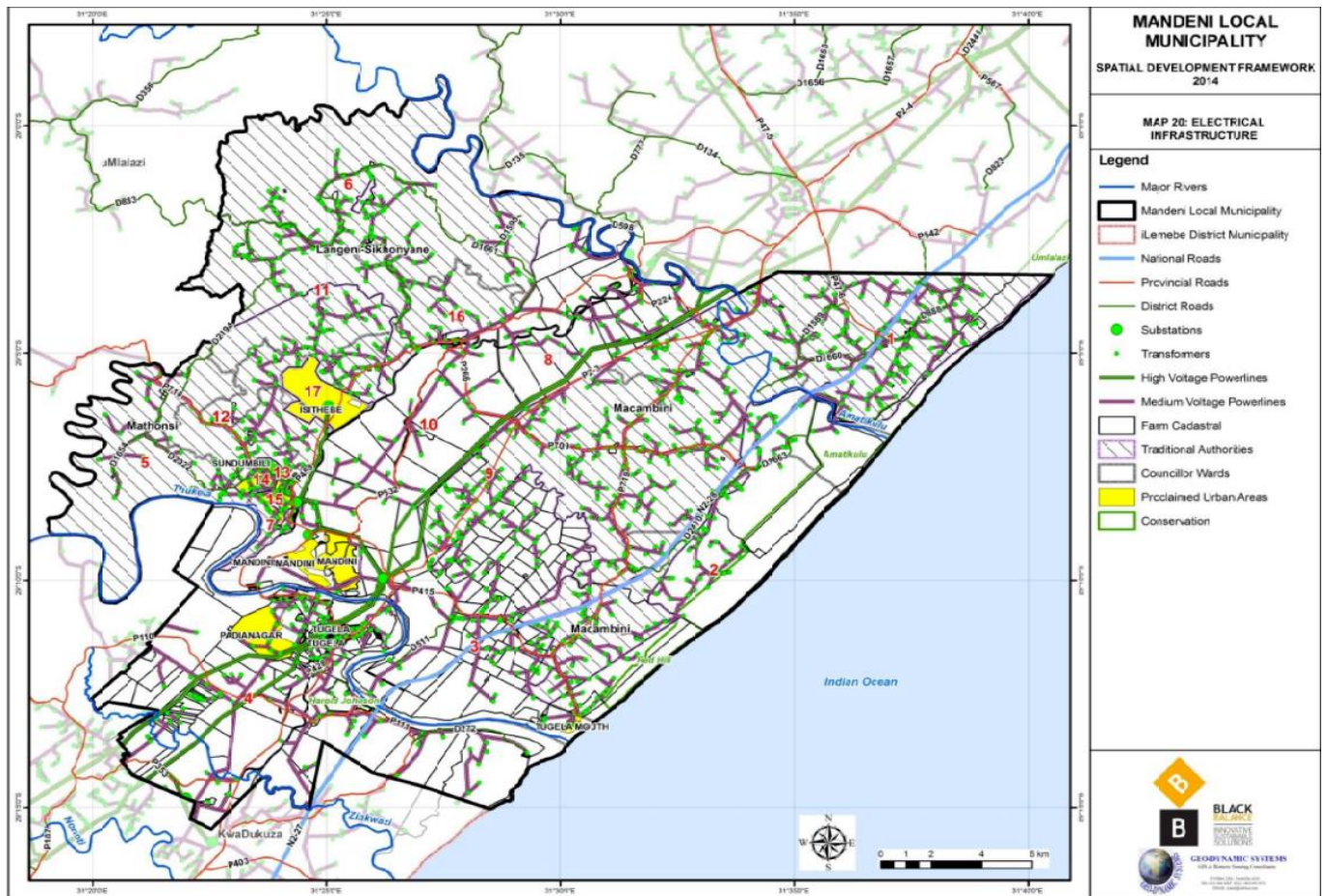


Figure 2-2 Electrical Network of Mandeni Local Municipality including Eskom network



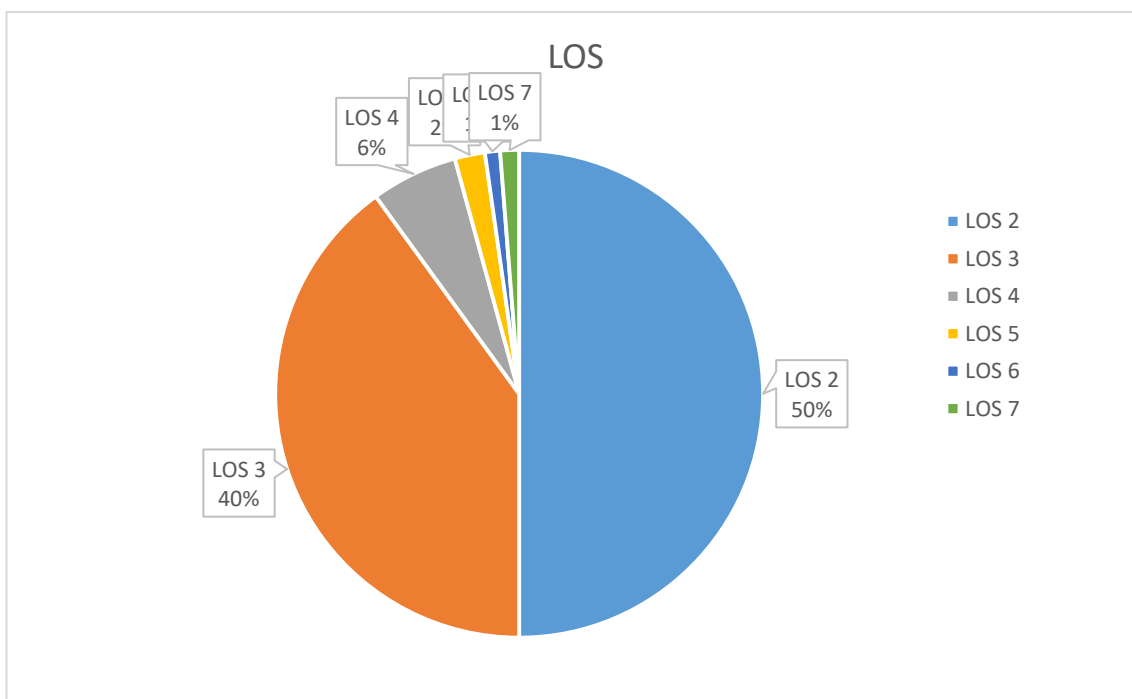
3	Strategic directives	The key focus of MLM is to eradicate the access backlog to electricity in rural areas in particular. Further to this the MLM aims to provide a reliable electrical power supply to current customers within their supply network.
4	LOS / SOS criteria	The practice of providing a higher level of service in urban areas was an adoption of prevailing practice – adding services into the more rural and informal areas was targeted at a lower LOS to provide the service to more customers within budget limitations.
5	Targets	The current target for Electricity Supply within MLM is the provision of electricity (LOS 2) to all customers and households and the provision of street lights on primary and secondary roads (LOS2). LOS 2 is the national acceptable LOS as per the Department of Energy’s Free Basic Electricity program. The Standard of Service (SoS) is not currently being tracked through applicable metrics.
6	Lifecycle cost implications	There is currently no backlog to provide LOS 2 level services within the MLM supply area. Standards of Service however can be improved by having redundancy of network connection from Eskom. The costs implication of building a new intake substation would be around R20 million. This is covered in chapter 4 of this AMP.

Table 3.1: Level of service model and target for MLM

ELECTRICITY SERVICE				
Level of service	Power supply		Public Lighting	
	Power supply	Customer consumption measure	Street Lighting	Customer consumption measure
LOS 0	No electricity service - basic energy sources such as open fires, paraffin/coal stoves	kWh pm	None	NA
LOS 1	No grid electricity service - natural and alternative energy sources such as solar (photovoltaic energy for lighting), gas or coal	kWh pm	High mast area lighting	kWh pm
LOS 2	Grid connected and metered - Single phase 230V up to 20A or 4.6 kVA	kWh pm	Street lights on primary and secondary roads	kWh pm

LOS 3	Grid connected and metered - Single phase 230V up to 60A or 13.8 kVA	kWh pm	Street lights on all roads including access roads	kWh pm
LOS 4	Grid connected and metered - Single phase 230V up to 150A or 35 kVA	kWh pm		
LOS 5	Grid connected and metered - Three phase / Multi phase 230/400 V up to 150A or 100kVA	kWh and kVA pm		
LOS 6	Grid connected and metered - Bulk supply 230/400 V at least 25kVA	kWh and kVA pm		
LOS 7	Grid connected and metered - Bulk supply 230/400 V, supplied directly from a substation at least 25kVA	kWh and kVA pm		

Figure 2-3 Electricity power supply levels of service summary



Electricity Access		
Energy Source	LOS	Percentage
No electricity - use of open fires, paraffin etc.	LOS 0	0%
No electricity - use of alternative energy such as solar	LOS 1	0%
Grid connected - single phase at 20A	LOS 2	50%
Grid connected - single phase at 60A	LOS 3	40%
Grid connected - single phase at 150A	LOS 4	6%
Grid connected - three phase at 150A	LOS 5	2%
Grid connected - metered bulk supply up to 150A	LOS 6	1%
Grid connected - metered bulk supply directly from substation (min 25kVA)	LOS 7	1%

7	Service delivery backlogs	<p>There currently is no backlog within the MLM supply area. The existing backlog which is supplied by Eskom is planned to be eradicated in 2019.</p> <p>MLM currently only has one connection in feed point from Eskom. This poses a risk as the supply to the MLM electricity area can be interrupted should the singular connection to Eskom be lost.</p> <p>No further data points for standards of service exist currently.</p>
8	LOS / SOS backlog reduction tactics	<p>The municipality has qualified for Integrated National Electrification Programme (INEP) Grant Funding under schedule 5B of the Division of Revenue Act over the next three years. A further once off grant was obtained under the Massification Programme at the KZN COGTA to supplement the programme. This will enable the municipality, in partnership with Eskom and the Department of Energy, to electrify an estimated additional 2613 households. This intervention (together with Eskom's planned interventions) is projected to see Mandeni gain universal access to basic electricity within the next two years by 2019.</p> <p>Standards of service can be improved by ensuring redundancy in terms of the Eskom supply point connections to the MLM network.</p>
9	Chapter confidence	<p>There is 75% confidence in this chapter due to the finite area which the MLM electricity network covers. Major assumptions are:</p> <ul style="list-style-type: none"> • There is no backlog within MLM service area

		<ul style="list-style-type: none"> • The split between residential and non-residential customers was estimated based on meter data • The % share per LOS is estimated • LOS 7 1% represents the Umgeni Water Board dedicated supply from Matthew Substation
10	Chapter summary	<p>There exists no backlog within ward 3 which MLM supplies customers directly with electricity. There is an electrification backlog of approximately 3000 households within the rest of MLM where Eskom supplies electricity to consumers. The electrification programs are currently funded through various grants.</p> <p>The Standards of Service metrics are not currently being tracked. A back up Eskom in take substation will improve the SoS of the MLM network.</p>

4 FUTURE DEMAND

An overview of customer growth trends; existing and proposed demand management techniques; associated infrastructure implications; summary of needs, challenges, risks and opportunities, and proposed strategic and tactical responses.

1	Historic growth trends	<p>Growth in the municipality between the census 2011 and the community survey in 2016 was increasing at a rate of 0.28% per year for a total of 1.4 % increase. This was a smaller increase than that of the previous census. Notably Mandeni still had a positive population growth unlike Ndwedwe and Maphumulo (two other local municipalities in the district), but smaller than the growth of KwaDukuza.</p> <p>The positive growth is linked to some urban opportunities in the municipality as the current trend is a population shift towards economic opportunities.</p>
2	Demand drivers	<p>It is anticipated that the population growth will not increase. Despite a focus on tourism and increased industrial potential for the area which may have a positive impact on growth there is also an anticipated negative impact from people moving to larger urban centers in search of job opportunities, thus the net is assumed to remain constant at a slow growth factor per annum.</p> <p>Energy efficiency and demand side management initiatives will lower existing demand even further with renewable energy technologies also possibly having an impact on demand.</p> <p>New development areas (greenfield developments) are expected to drive growth of electricity demand mainly within the MLM supply area.</p>
3	Growth strategy	<p>Due to the current dispersed nature of the customer base and the negative impact on the ability to provide basic services, there is a focus on developing specific identified nodes in the area. There are urban nodes and tourism nodes identified in the SDF that will have a growth focus.</p>
4	Sector demand forecast	<p>Currently the customer demand is forecast to increase at a slow but steady rate per year. MLM will absorb any new greenfield developments within their supply area. This is of course limited by the proximity of the development to existing MLM electrical networks (that do not belong to Eskom).</p> <p>Notably though the growth trend is to more developed areas or along transport routes – such a pattern of more dense and localized development should be encouraged as it makes service provision more feasible.</p> <p>As areas become more dense and urban, there will be a greater demand on the service. The current sector budget won't be able to cover any new developments or densification within Ward 3 (Mandeni Town). Electrification of the backlog will continue until 2019/20 and is provisioned within the MTREF.</p>

		<p>Over the 10 year planning period the number of households in the municipality is expected to increase by 1 302, as shown in Table 3.1. It should be noted that the current existing demand with the MLM supply will not increase as much due to appliances becoming more energy efficient and the rising cost of electricity.</p> <p>Whilst there is growth within MLM, the growth within the MLM electricity network area will be minimal as it grows from the current 1020 customers to approximately 1049 customers over the 10 year planning period as shown in Table 3.2.</p>
5	Infrastructure impact	The growth within the MLM electricity supply area will not have a significant impact on the current network demand. Load trends suggest that the demand will remain stable or just slightly increase for ward 3 which is an urban area.

Table 4.1: Mandeni population growth forecast

Current Population (2018)	Growth Rate (p/a)	Population at end of Planning period (2028)	Population Increase	Household Increase
148 637	0.28%	152 852	4 215	1302

Table 4.2: Mandeni customers growth forecast

Number of Customers											
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Residential	963	966	968	971	974	977	979	982	985	988	990
Non-Residential	57	57	57	57	58	58	58	58	58	58	59
Total	1020	1023	1026	1029	1031	1034	1037	1040	1043	1046	1049

6	Demand management tactics	<p>The electricity sector has an energy efficiency and demand side management (EEDSM) program. As part of this program MLM is replacing several old Sodium street lights with more energy efficient LED lights.</p> <p>Energy saving measures are actively encouraged by the municipality. The municipality will continue to drive the education campaign and is constantly looking for new interventions to reduce electricity consumption within its area.</p> <p>MLM have also started a program of rolling out smart meters to monitor unaccounted for energy usage.</p>
7	Chapter confidence	The growth forecast is based on a number of assumptions on future economic, social and behavioral trends. Despite this it still gives an overview of the direction the growth is

		headed in and what factors need to be considered when planning for such growth. As such the alternative demand management approaches and impacts should be considered.
8	Chapter summary	<p>Growth is never predictable but sound assumptions have been used to assume that the growth will remain at a low percentage increase per year going forward (a total of 1 302 additional households predicted over the 10-year period). The growth within MLMs supply area is manageable and will be within budget reach.</p> <p>Key notes:</p> <ul style="list-style-type: none"> • MLM will continue to support growth within the wider MLM boundaries, including the Eskom supply areas. • EEDSM and smart meter roll out will be continued • This forecast assumes low uptake by MLM of green field development

5 LIFE-CYCLE PLAN

An overview of the infrastructure life-cycle needs, affordability, constraints, delivery tactics, risks and opportunities, and proposed short, medium and long-term responses (projects, programmes and budgets).

1	Life-cycle risk profile	<p>Currently the overall portfolio health status is “fair”. It should be noted that the portfolio is made up of long life assets (average EUL is 47 years) and thus this portfolio health will change gradually as the assets continually deteriorate each year. If there is insufficient investment in the portfolio the asset value will move steadily towards a state of ‘very poor’ condition. This concept is represented in Figure 5.1. The figure also shows how addition of new assets will improve the health status, but only briefly as these assets will then start the deterioration cycle and only through capital renewal can the portfolio health status be effectively maintained.</p> <p>Table 5.1 highlights key operational and delivery risks, critical infrastructure and opportunities in the lifecycle of the electricity portfolio.</p>
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Figure 5.1: Current portfolio health status

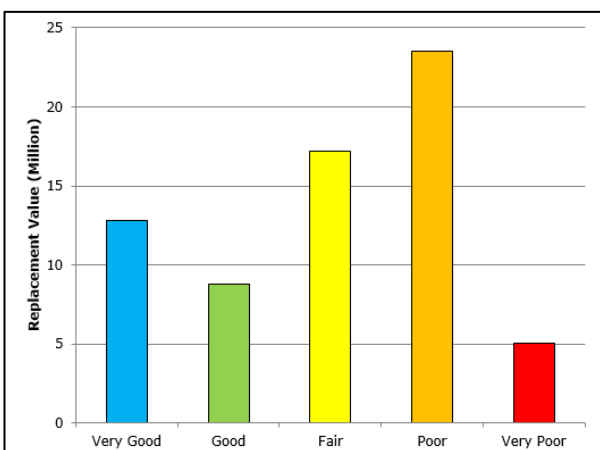
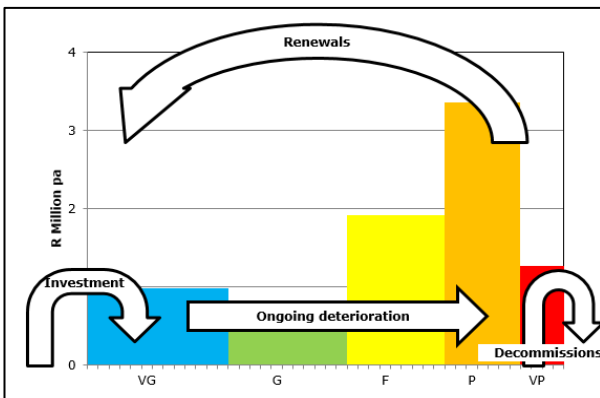


Table 5.1: Summary of electricity portfolio life cycle risk and opportunity

Asset Group	Operational / delivery risks	Critical infrastructure	Opportunities
LV Conductor		Low Criticality	
MV Conductor	Overloading of conductors which will shorten RUL	Critical as large areas will be affected with electricity service these assets are not functioning	
Municipal Service Connection		Low Criticality	
MV Substation	No back up MV Substation in take from Eskom	Critical as large areas will be affected with electricity service these assets are not functioning	Increased regular (annual) maintenance can increase RUL
MV Mini-Sub	Current low health of assets - needs investment	Important as large areas will be affected with electricity service these assets are not functioning	Increased regular (annual) maintenance can increase RUL
MV Pole Transformer	Current low health of assets - needs investment	Important as large areas will be affected with electricity service these assets are not functioning	Increased regular (annual) maintenance can increase RUL
MV Switch Kiosk		Critical as large areas will be affected with electricity service these assets are not functioning	Increased regular (annual) maintenance can increase RUL
LV Kiosk	Hot connections; illegal connections	Low Criticality	
Meters		Moderate criticality due to revenue impact if these assets are not functioning	Install newer smart meters to ensure better revenue collection
Streetlights		Moderate criticality due to public safety impact	Replace existing sodium streetlights with new energy efficient LED lights
Public Lighting		Moderate criticality due to public safety impact	Replace existing sodium public lighting with new energy efficient LED lights

2	Capital programmes	<p>The electricity sector is currently addressing its backlogs through the Integrated National Electrification Programme (INEP). It should be noted that The LM funds the programme through grant funding and that these networks are part of the Eskom part of the MLM network.</p> <p>The cost for electrification per household is approximately R15 000. The current backlog is around 3,000 households for the whole of KLM including the Eskom areas. The capital need to address this backlog is estimated at R45 million. The current INEP grant funding as well as the budgeted INEP funding in the MTREF will see R35 million going to the electrification of households over the next 3 years. This amount includes expenditure in 2017/18 financial year. The current backlog cannot be eradicated with the current INEP grants. Eskom’s own electrification projects and initiatives are not taken into account in this plan. There are no other current capital programmes for the electricity sector.</p>
2.1	Growth capital requirements	<p>The current Electricity Master Plan is outdated and does not speak to the MLM growth needs. MLM does not currently have a firm supply intake from Eskom for the supply area of MLM. A back up take in point substation (point of connection) must be established. The capital cost of this substation is estimated at R15 million.</p> <p>Growth requirements for the natural growth of Mandeni Town and the supply area of MLM is estimated to cost R880 000 over 10 years. Network strengthening for future growth will be required and the capital cost provision for this is estimated to be R4million.</p>
2.2	Renewal capital requirements	<p>Table 4.2 shows the capital renewal requirements for different scenarios going forward over the next 10 years. Scenario 3 which shows the moderate recovery expenditure scenario indicates an amount of almost R4 million per annum needed for asset renewal whilst investing R2 million per annum on new assets for growth. This R2 million per annum incorporates the costs of a new back up substation for in take from Eskom.</p> <p>Holding expenditure at current levels will see the portfolio state remain the same over the 10 years. Increased capital expenditure on new or upgrading infrastructure will see the portfolio health drastically increase but this may not be affordable.</p>

Table 5.2: Different capital renewal investment scenarios (R CRC value)

	Constant Expenditure Scenarios R per annum				
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Scenario Type	Existing Expenditure	Holding Expenditure	Moderate Recovery Expenditure	Increased capital expenditure	Renewal equivalent to annual depreciation
New/Upgrading	500 000	500 000	2 000 000	22 322 082	1 500 000
Renewal	1 578 333	1 532 622	3 893 099	2 328 297	1 849 081
Decommissioned	100 000	100 000	100 000	100 000	100 000

Total Spending	Portfolio	2 078 333	2 032 622	5 893 099	24 650 379	3 349 081
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Note the New/Upgrading and Renewal amounts for Scenario 1 (Existing) is based on the average spend over the last 3 years.

Figure 5.2: Portfolio health as a result of different renewal investment scenarios

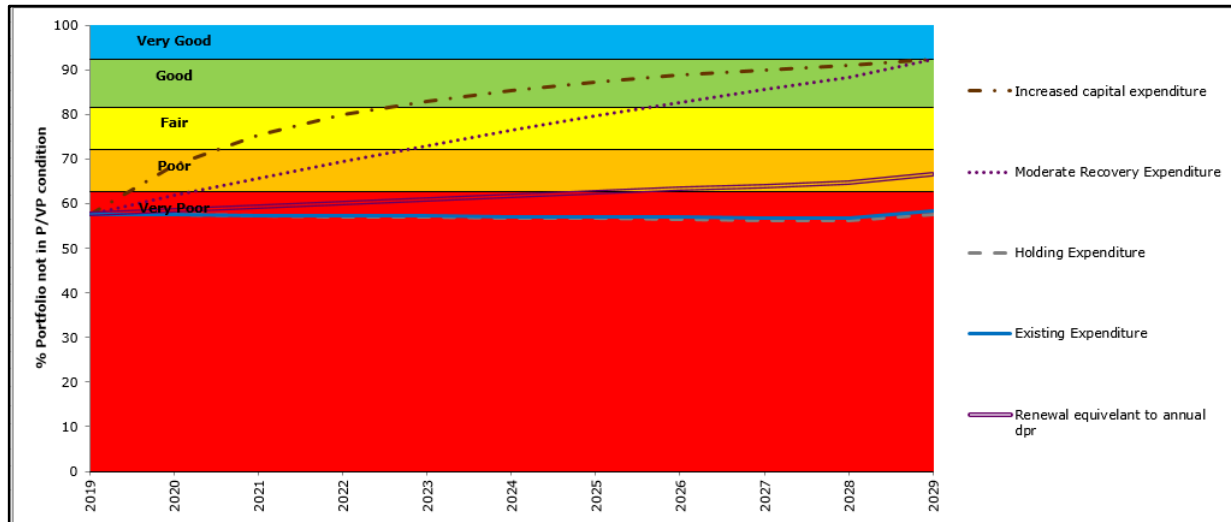


Table 5.3: Operational Maintenance Requirements (taken from 2018/19 IDP)

Assets	Budget	Reg. Maintenance
Street lights	R 1.000.000,00	DAY TO DAY ACTIVITY – Replacement of globes, ballast, etc.
Transformers		YEARLY BASIS – cracking test, silica gel replacement, etc.
OHL (Over Head Line)		TWICE A YEAR – Compulsory in terms of Machinery Regulations
Cabling (MV and LV)		TWICE A YEAR – Visual inspection from termination
Municipality Buildings	R 200.000.00	DAY TO DAY ACTIVITY – Electrical installation
Air conditioners	R 200.000.00	YEARLY BASIS

3	Maintenance management	<p>MLM electricity sector established an Electrical Operation and Maintenance Plan in 2018. The majority of the maintenance in the sector is corrective maintenance. Maintenance activities are funded through the municipal revenue operational budget. The Electrical Maintenance Superintendent is responsible for planning the maintenance activities of the sector according to the O&M Plan of 2018. The sector has severe staff and skill shortages which result in very little to no predictive maintenance occurring.</p> <p>Budget constraints also exist for the sector. Procurement delays for materials and key parts causes delays in maintenance activities. The maintenance of key infrastructure such as maintenance of mini substations and transformers is outsourced via open tender.</p> <p>Table 4.4 shows the operational maintenance needs currently and shows the required total maintenance cost projected for the 10-year growth period. The maintenance needs grow from around R5.2m to around R5.6m within ten years (based on the low growth forecast).</p>
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Table 5.4: Required annual maintenance expenditure if projected capital investment occurs (R '000)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Maintenance Cost	5 272	5 580	5 685	5 435	5 451	5 468	5 484	5 501	5 517	5 534	5 550

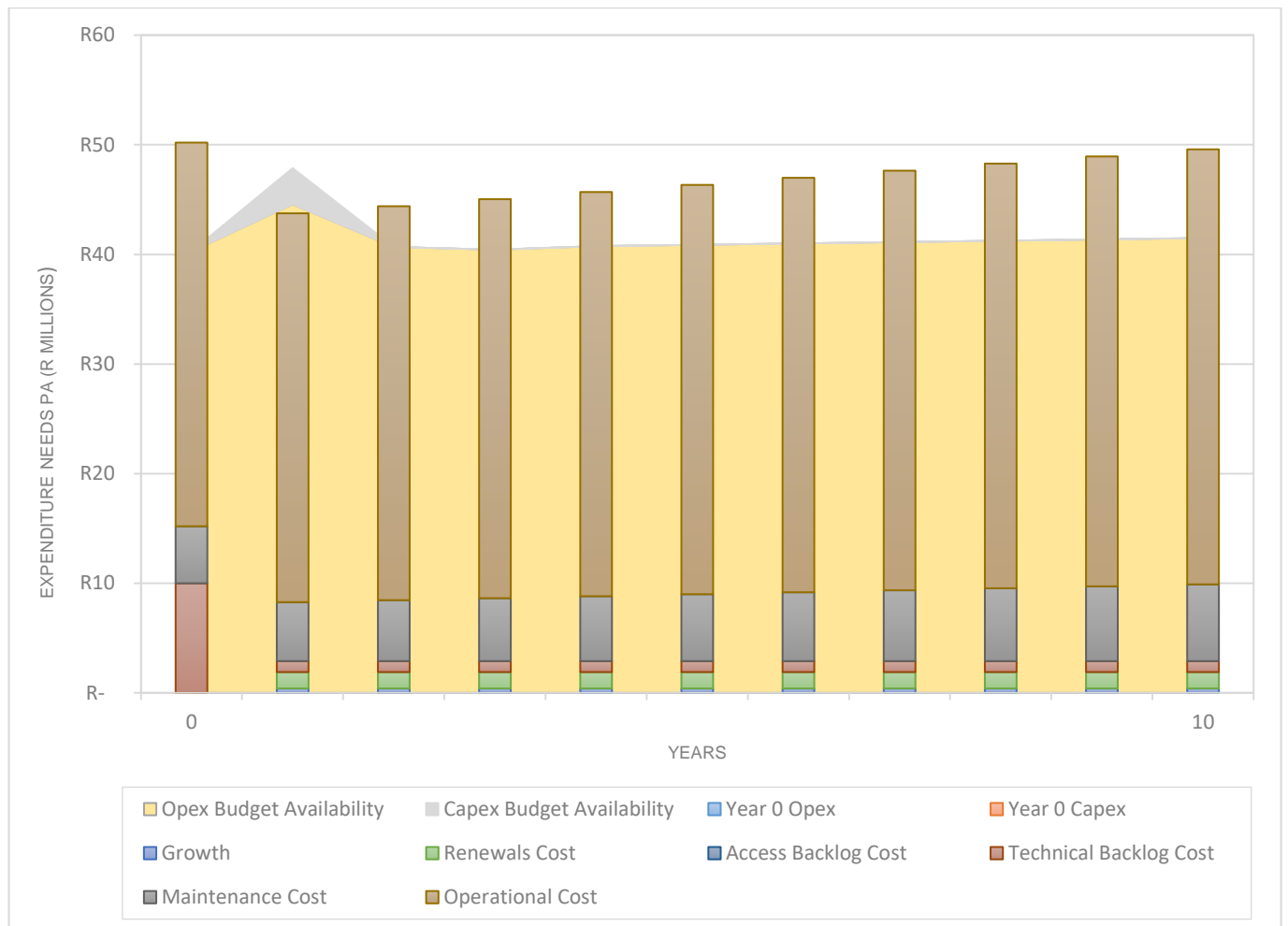
4	Operations management	<p>MLM electricity department established an Electrical Operation and Maintenance Plan in 2018. Operations in the sector consists mainly of maintenance activities.</p> <p>The total budget for operations is approximately R35m pa. The majority of this is to purchase bulk electricity from Eskom. This excludes major maintenance activities which are covered under section 4-3 in this document. The total Operations and Maintenance budget is set at R40m pa initially rising to 47m pa at the end of the 10 year planning period. The growth is due in the main to the increase in the cost of bulk electricity over the planning period.</p>
5	Life-cycle plan	<p>The total lifecycle plan for the electricity sector is made up of all the individual aspects discussed earlier in the chapter. Figure 5. and Table 5.5 show the combined sector needs for the planning period – a projection based on what the directives are but without constraint – though in reality there are indeed budget constraints.</p> <p>Figure 5.3 illustrates the funding gap with the available operational budget being fairly high (shown as shadows behind the bar graph) but currently very little capital budget forecast for the sector – adjusted to indicate the capital investment planned in the MTREF for 2019/20 and then no further capital investment.</p> <p>The sector requires significant renewal and upgrades over the next ten years to avoid the sector portfolio health ending up in a very poor condition. Further, as noted previously, the technical backlog of a new take in substation should be taken into account. This will require significant capital investment over the planning period.</p>

Table 5.5: Combined lifecycle needs for the electricity sector for the planning period

Mandeni budget need (R m)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Growth	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Renewals Cost	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Access Backlog Cost	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Technical Backlog Cost	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Maintenance Cost	5.4	5.6	5.7	5.9	6.1	6.3	6.5	6.6	6.8	7.0
Operational Cost	35.5	35.9	36.4	36.9	37.3	37.8	38.3	38.7	39.2	39.7

Total:	43.7	44.4	45.0	45.7	46.3	47.0	47.6	48.3	48.9	49.6
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Figure 5.3: Combined lifecycle needs for the portfolio



6	Chapter confidence	<p>The confidence in the data that informed this chapter varies for different aspects of the life cycle. Overall the confidence in the chapter is at 65% with “some areas of estimation”. Key estimates include:</p> <ul style="list-style-type: none"> • The portfolio health is estimated for certain asset groups in the sector • The maintenance costs required are estimated as a % of the portfolio value • The operational cost was based on the information supplied in the 2018/19 IDP • The renewals are suggested based on current value and status of assets – but a full investigation could be done to refine this figure.
7	Chapter summary	<p>The overall portfolio health status is considered good, though there is a skewed distribution of assets in a Fair to Poor state. The MV Conductors and MV/LV Transformers are in a poor to very poor state and needs urgent renewal. Street lights have very poor health. An additional Eskom take in substation to provide redundancy and security of supply is needed. A large part of the electricity sector portfolio is in a Fair state and this will deteriorate at current rates of renewal spending.</p>

		<p>Overall, the sector has significantly less budget than the projected needs; if budget wasn't an issue the required lifecycle needs are:</p> <ul style="list-style-type: none">• Technical Backlog: a new substation for intake from Eskom to be established. An amount of R1m pa is budgeted per year for this need.• Growth is budgeted at R0.4m pa with the majority of this being urban growth around Mandeni town (ward 3)• Renewal of R 1.5million is required yearly to maintain the current portfolio based on the existing asset life, this minimum increases with new investment into the portfolio.• The projected maintenance increases from R 5.4m per year in 2019 to R7m in 2028, this is directly in line with new asset growth.• The operational needs increase with a reduction in backlog due to the associated costs of providing the service to additional customers from R 35m in 2019 to about R 40m in 2028. <p>MLM will need to apply for grant funding to facilitate growth into the planning period.</p>
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6 FINANCIAL PLAN

An overview of the financial objectives, historic financial performance, revenue forecast (where applicable) and funding strategy, and associated challenges, risks and opportunities.

1	Financial objectives and targets	<p>MLM managed to meet 79% of its financial targets in terms of KPIs.</p> <p>Some objectives, directives and targets include:</p> <ul style="list-style-type: none"> • Mandeni is expected to gain universal access to basic electricity by 2019. • Plan for upgrading of electricity infrastructure in Mandeni and nodal areas. • The investment policy notes that all reasonable steps should be taken to ensure monies owed are collected as soon as possible after due date. • The municipality has commissioned an urban regeneration strategy to regenerate CBD areas. • Sufficient funds need to be collected and generated to ensure a sustainable and viable municipality. • The municipal investment policy aims at gaining optimal return without incurring undue risks.
2	Financial performance	<p>Revenue generated from rates and service charges forms a significant percentage of the revenue basket for MLM. Rates and service charge revenues comprise just below one third of the total revenue mix. Service charges from electricity is forecasted to be R20 million in 2018/19 and a growth of 10% is anticipated in 2019/20 and 12% anticipated in 2020/21. The revenue from electricity makes up a proportion of an average of 10% of the total MLM revenues excluding capital and transfers.</p> <p>The majority of MLM’s annual budget is funded through grants (about 70%) with the balance funded through MLM’s own revenue (about 30%). MLM is highly dependent on grant funding as revenue streams are too small. Capital grants and transfers totaled R 43.9 million in the 2015/16 financial year and increased to R 47.1 million 2017/18.</p> <p>The grant funding is forecast to increase by 5.4% in the next two FYs. The municipal budget for the grant received in the past 3 years versus actual grants in not consistent as the actual spent in 2016/17 was 64% higher than the budget while 2017/18 actual decreased (13% decrease for 2017/18 financial year).</p> <p>The total 3-year capital expenditure MTREF budgeted amount is R131 million, only R1.5 million is allocated to the upgrading of existing electric infrastructure. No budget has been made for renewal of existing assets and additions of new electricity networks.</p> <p>The electricity sector is currently being funded from operational grants and transfers. The operational grants and transfers totals R161.5 million in the 2018/19 financial year and steadily increases to R192.6 million by 2020/21. The Integrated National Electrification Programme grant to be received is forecasted at an amount of R22.8 Million over the next 3 years.</p>

		<p>Loss trends within MLM electricity sector seems to be unstable and uncertain. Losses are mainly due to theft and technical losses.</p> <p>The total expenditure for MLM in the financial year 2017/18 amounted to R 220 million (FY2016/17: R248 million). Figure 6.1 indicates that the municipality spends significant amounts on employee related costs.</p> <p>The repairs and maintenance budget were 5% and 3% in the 2015/16 and 2016/17 financial years respectively. Which is below the targeted 8%, shown in Table 6.1.</p> <p>Actual expenditure for repairs and maintenance was reflected as 4% in 2015/16 and 2% in 2016/17 financial years, underspending on the already low budget.</p> <p>The different ratios investigated in Table 6.1- Table 6.6 shows the following regarding the financial viability of the municipality:</p> <ul style="list-style-type: none"> • The municipal cost coverage ratio achieved in 2017/18 is 1 month which is within the target of 1-3 month and this ratio indicates that the municipality will find it difficult to meet its monthly fixed operating commitments from cash and short-term investments without collecting any additional revenue. • MLM current ratio attained in 2017/18 is 2.23 which is within the targeted current ratio of a range between 1.5-2.1, indicating that the municipality's current assets exceed its liabilities and has the ability to pay its current obligations and continue operations at a desired level. • The capital expenditure, as a proportion of total expenditure, is above the norm of 20% for two financial years, this then reflects higher spending on infrastructure and acceleration in service delivery. In 2017/18 this ratio was at 10% (only half the norm) – which should not set the trend going forward. • The collection rate is below the norm as the municipality is not collecting revenue as billed. This poses a threat as MLM needs the revenue to adequately fund service provision while maintaining its assets in an acceptable condition. • The current assets of MLM exceeds the liabilities and MLM can thus pay its current obligations. • R 13.7 million in unconditional grants were not spent in 2017/18, an increase in underspending from the previous two years.
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Table 6.1: Repairs and Maintenance ratios (R '000)

Repairs and maintenance ratio	2015/16		2016/17		2017/18	
	Budget	Actual	Budget	Actual	Budget	Actual
Repairs and maintenance	16 530	14 017	14 804	10 530	17 756	18 288
PPE and investment property	355 197	386 215	444 411	444 802	457 302	457 302
Ratio of R&M to PPE and Inv property	5%	4%	3%	2%	4%	4%
Target	8%	8%	8%	8%	8%	8%

Table 6.2: Value of grants received in the past 3 years versus total budget (R '000)

	2015/16		2016/17		2017/18		2018/19		2019/20	
	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual
MIG		34 263	25 757	33 757	35 940	35 936	37 857		39 882	
NDG		9 623		8 569	11 178	4 898				
Total		43 886	25 757	42 326	47 118	40 834	37 857		39 882	
Growth				-64%		13%				

Table 6.3: Cost coverage ratio

	2015-2016	2016-2017	2017-2018
Cash and Cash equivalents	293 211	2 636 075	6 547 000
Unspent Conditional Grants	11 271 332	8 462 926	13 700 000
Overdraft	-	-	-
Short term investments	27 455 775	12 520 600	-
Total Annual Operational Expenditure	217 708 031	247 450 211	218 704 000
Cash/Cost Coverage ratio	1 month	0 month	1 month
Acceptable Norm	1-3 months	1-3 months	1-3 months

Figure 6.1: Historical expenditure

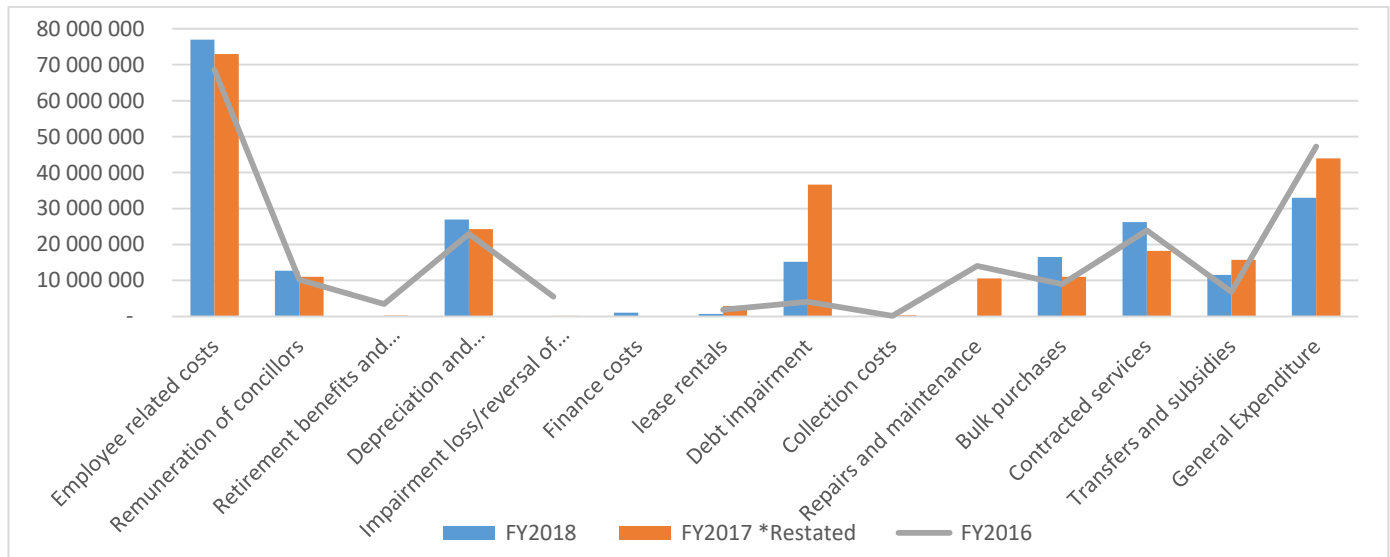


Table 6.4: Current ratio

	2015-2016	2016-2017	2017-2018
Current Assets	74 968 689	61 368 327	74 866 000
Current liabilities	29 025 738	37 642 142	33 487 000
Current ratio	2.58	1.63	2.24
Acceptable Norm	1.5-2.1	1.5-2.1	1.5-2.1

Table 6.5: Capital and operational expenditure ratio

	2015-2016	2016-2017	2017-2018
Total Operating Expenditure	217 708 031	247 450 211	218 704 000
Total Capital Expenditure	59 387 621	88 287 452	20 960 000
Total Operating expenditure/Total Capital expenditure	27%	36%	10%
Acceptable Norm	10%-20%	10%-20%	10%-20%

Table 6.6: Debt and revenue ratio

	2015-2016	2016-2017	2017-2018
Gross debtors closing balance	121 135 814	148 289 162	156 576 796
Gross debtors opening balance	104 526 089	121 135 814	148 289 162
Bad debts written off	5 522 112	-	10 122 429
Billed Revenue	61 571 297	61 571 297	30 681 000
Collection rate	61%	56%	41%
Acceptable Norm	95%	95%	95%

3	Municipal affordability	<p>Collection of revenue in the municipality is below norms due to non-payment by customers and an incomplete indigent register.</p> <p>Electricity tariff increases for 2018/19 have been budgeted at 6.84 per cent as determined by National Electricity Regulator of South Africa (NERSA), which is not in line with the guideline of the Consumer Price Index (CPI) of 6 per cent. This increase puts pressure on consumers and can increase the consumer debtors outstanding.</p>
4	Funding strategy	<p>The total capital needs from the lifecycle cash flow is R128 million over 10 years to ensure that the electrification backlog challenge is addressed, however only R1.5 million is budgeted over the 3-year MTREF, this indicates the inadequacy of funding for electricity infrastructure.</p> <p>The municipality needs to establish a committee to implement its revenue collection strategy in order to improve collection rates and increase revenue from tariffs. There has been budget allocated in FY 2019 to FY 2021 for a debt collection contractor as summarized in Table 5.7.</p> <p>MLM needs to consider other sources of funding in order to fulfil its objective of sustainably providing services. The historic budget is not sufficient to facilitate spending on the access backlog while still maintaining the state of the portfolio. Currently the sector only spends a portion of its revenue generated (54% in 2017/18) – going forward, it has budgeted to spend an increased proportion - up to 92% (Table 5.10).</p> <p>For the Electricity life cycle plan, the municipality needs capital funds of R 11 million in the each of the 2018/19 ,2019/20 and in 2020/21 financial year. This will require an adjustment to the current planned budget of R22.8 Million over the next 3 years for the sector. It is highlighted as an important need as renewal is essential to maintain the</p>

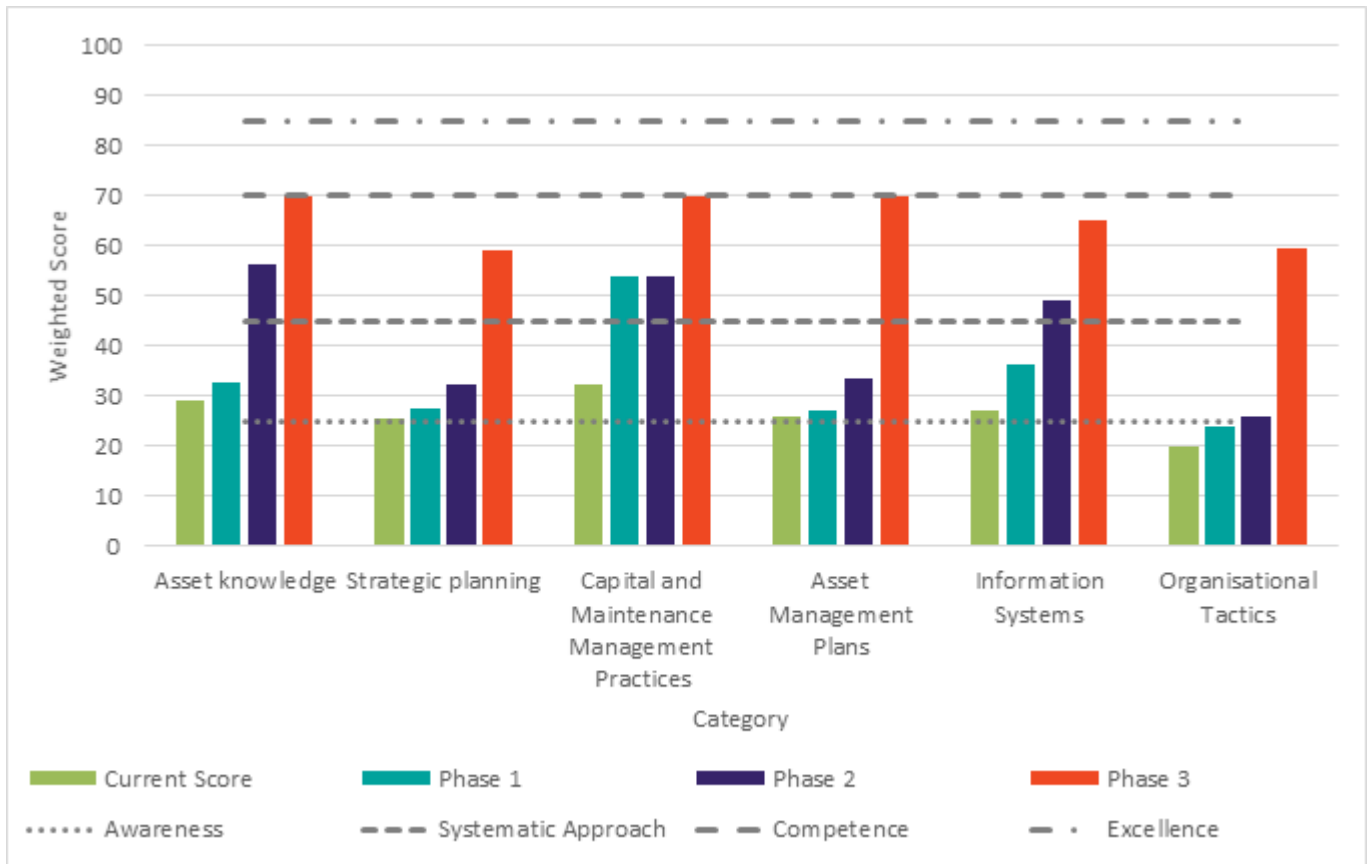
		<p>portfolio. There is an opportunity to reallocate some of the capital budget, to cater for this renewal need.</p> <p>The capital requirements will increase after the first 3 years to address service provision for backlog and growth. Only a portion of the backlog is suggested to be addressed as it is infeasible to service the entire municipal area.</p>
5	Chapter confidence	<ul style="list-style-type: none"> • In general the reliability of data for this chapter is considered as moderate, although a lot of effort has been spent validating the accuracy of the information, much of this information has been gained from multiple sources and has not been independently verified. • The IDP, budgets and financial statements were the primary planning documents referenced in this chapter.
6	Chapter summary	<ul style="list-style-type: none"> • MLM aims to provide reliable services while being viable and sustainable. • The overall financial health of the municipality needs improvement in order to allocate budgets to capital and maintenance projects and improve service delivery. • The internal revenue of the municipality needs to be increased in order for sustainable operations, but there is an affordability challenge from customers with an already high debtors' rate (gross debtors opening balance 2017/18 R 148 million, after R 10 million written off as bad debt). • The current collection rate needs to be improved and budget has been allocated for debt collection services. • MLM sector needs to seek additional funding grants and alternative fund mixes. • Inadequate electricity bulk capacity and the impact on service delivery and development remains a challenge for the municipality. The upgrading of the municipality's network has therefore become a strategic priority, especially the substations and transmission lines

7 ASSET MANAGEMENT PRACTICES

An overview of existing asset management practice, improvement needs, priorities and proposed response plan.

1	Asset management practice context	<p>A relatively low level of asset management practice maturity, especially in the field of physical asset management, exists amongst local municipalities (although it is steadily improving). The problem is added to by tight budgets and skills challenges. Strong leadership (and leadership support) is vital to affect any AM practices improvements.</p> <p>MLM (including the Electricity Department) does not currently have a high level of practice.</p>
2	Ongoing practice improvement activities	<p>Mandeni as part of a local development programme has undergone a practices improvement and will look to implementing an improvement plan from the outcomes of the assessment.</p>
3	Current AM performance	<p>Currently the municipality has a level of practice of ‘awareness’ in three of the six practices categories (strategic planning, AM Plans, and organisational tactics). In the remaining categories (asset knowledge; information systems; and capital and maintenance management practices) the municipality was assessed to have practices at a weighted average between “aware” and having a “systematic approach”. For full details see the practice assessment document. A summary of the current AM assessment results is shown in Figure 7.1.</p> <p>Some of the MLM data practices approach a ‘systematic approach’ rating; subcategories:</p> <ul style="list-style-type: none"> • asset categorisation, • condition data and • financial data <p>The ‘Risk management strategy’ practice was the highest score from the planning approach section – but still only scores at an ‘awareness’ level. Overall the Existing asset management planning practice had a low score, but the Asset Register System scored almost at a systematic approach level (from an information system category).</p> <p>Completing a 5-year capital infrastructure funding plan is a key performance area and would indicate an improvement in the existing capital and maintenance management practice category.</p> <p>The electricity sector also has additional challenges of limited staff resources for current practice which will hinder a move towards improvement. The risk of trained staff moving (once trained) should also be flagged for any planned improvement projects.</p>

Figure 7.1: Overview of practice assessment results and the Improvement Plan



4	Priority improvement needs	<p>The following priority improvement areas were identified and have been proposed to be included in an improvement plan phased over three years:</p> <ul style="list-style-type: none"> Enhancing the maintenance management process – this will directly benefit community members (year 1). Enhancing the asset register – allows for cross-departmental integration as well as more easily mapping operational activities to strategic objectives (year 2). Enhancement of the management processes associated with projects – including a review of this preliminary AMP to include improved data (year 3).
5	Chapter confidence	<p>The confidence in the practice assessment is a 75% accuracy with “some areas of estimation”.</p>
6	Chapter summary	<p>MLM currently has a practices level of “awareness” for most of the categories of assessment, with some isolated areas approaching a ‘systematic approach’.</p> <p>The proposed improvement plan prioritizes an improvement of the maintenance management process followed by an enhancement of the asset register and finally improving the management processes associated with projects; all of which to be implemented over a 3-year period.</p>

8 RISK MANAGEMENT PLAN

The sector's risk management objectives, summary of the key risks identified through-out the plan and the proposed mitigation and control measures.

1	Risk management objectives	<p>MLM has a risk register which summarizes key risks for different sectors, it predominantly has process and operational risks as opposed to physical asset risks. The register includes</p> <ul style="list-style-type: none"> • A description of the risk and the department it falls under • Root cause • Description of consequences • Inherent rating, current controls and resulting residual risk rating • Future plan and progress on achieving it • Additional comment
2	Historic risk management performance	<ul style="list-style-type: none"> • The municipality has an overall risk register, which compiles risks from all the sectors • The register assigns a risk owner as well as action owner for future plans and due date • The register also notes future mitigation plans effect on the inherent risk rating • One area for improvement is to expand on some infrastructure risks • One risk in the register is the risk culture and awareness – which highlights the need for formally developed policies and procedures relating to Enterprise Risk Management (ERM). • Specifically, the municipality needs to define its risk framework and document acceptable levels of risk to ensure the risks can be properly managed.
3	Key risks	<p>Key risks relating to the electricity sector that are included on the register:</p> <ul style="list-style-type: none"> • There are no developed standard operating procedures in place (residual risk 3/5) • Non-availability of key resources and materials for staff to perform key operational duties and functions (residual risk 5/5) • Attraction/retention of scarce skilled personnel (within operations and maintenance), skills required for critical functions in operations and maintenance – the inability to build and maintain such skills in-house leads to poor asset management and thus poor state of infrastructure (residual risk 4/5) • Critical Electricity Manager post not filled which means the LM is not compliant with the GMR and OHS act which poses risk to the LM, its staff and the community (residual risk 4/5) • The current workshop and workspace area is inadequate (size and design) for electrical, mechanical and civil functions (residual risk 3/5) <p>Additional risks highlighted in other sector documents but not on the risk register:</p> <ul style="list-style-type: none"> • Shortage of human resources in sector to perform operations

		<ul style="list-style-type: none"> Budget being moved away from the sector – stops service provision and ability to maintain assets.
4	Key risk mitigation tactics	<p>The current assets in very poor condition are planned to be renewed in accordance with the schedule in the lifecycle plan.</p> <p>The mitigation actions indicated on the risk register:</p> <ul style="list-style-type: none"> Appointment of manager of Electrical Department in accordance with GMR 2(1) regulations Develop standard operating procedures for the electricity sector Review the attraction and retention policy with the intention to add a scarce skill allowance, existing mitigation is to outsource through consultants and contractors. Expansion of existing workshop area and space <p>The risk of low budget and funding constraint can be assisted by better debt control and billing to customers. There is a need to properly manage the service tariff collection.</p>
5	Chapter confidence	<p>The risk chapter is informed predominantly from the risk register (2017/2018), the input is compiled from various sectors and additional sector specific information was used to highlight risks that are not currently on the register. The confidence in the information in the chapter is 95% - no assumptions were made.</p>
6	Chapter summary	<p>Key aspects to note:</p> <ul style="list-style-type: none"> The municipality has a risk register in place although it doesn't have a lot of detail on infrastructure risks – it also needs policies and procedures for ERM Key risks for the sector include oversight and administration of the electricity function; lack of human and monetary resources. A number of mitigation controls are already in place and additional ones have been suggested – but the municipality needs to develop a framework to measure whether any given risk exposure is acceptable.

9 PERFORMANCE PLAN

The sector's asset management performance objectives and forecast.

1	Performance objectives	<p>The municipality's performance is measured through key performance indicators (KPIs) in line with municipal key performance areas (KPAs). The basic service delivery KPA deals with access to electricity. The municipal strategy is to increase the number of households with communal access to electricity through the INEP electrification programme. It is measured through the number of households with access to a metered electricity connection to the grid.</p> <p>The performance indicators are listed under the section for technical services and infrastructure development in the 2017/18 annual performance report. The 2018 target of providing electricity to 287 households was achieved. However, the target of installing 540 new streetlights in various ward in MLM was not achieved. Only 2 of the 11 performance indicators were achieved for the sector. With the current budget, the performance target for each year should be re-assessed for practicality and alternative approaches should be considered.</p>
2	Historic performance	<p>MLM has increased electrification both within their own supply areas and within Eskom's supply areas. This had been done with the aid of the INEP funding from the DoE among others. Electrification targets have been met within the last 3 years.</p> <p>Targets for the maintenance, replacement and upgrade of existing infrastructure have not been met.</p>
3	Chapter confidence	<p>The performance plan chapter is informed predominantly through the SDBIP – and as such is considered representative. A 90% confidence is given as the chapter is a summary of performance in the sector to date.</p>
4	Chapter summary	<p>There is no electrification backlog within the MLM supply area. The backlog within the wider MLM boundary area, supplied by Eskom, is being eradicated through various projects funded through the INEP DoE funding. MLM has consistently not achieved targets for maintenance, replacement or upgrading of existing failing infrastructure.</p>

ANNEXURE A: GLOSSARY OF TERMS

Detailed definitions of specific asset management terminology used in the document

GLOSSARY OF TERMS:

Asset	A physical component of a facility which has value, enables services to be provided and has an economic life of greater than 12 months.
Asset management (LGIAMG)	The process of decision-making, planning and control over the acquisition, use, safeguarding and disposal of assets to maximise their service delivery potential and benefits, and to minimise their related risks and costs over their entire life.
Asset management objectives (IIMM)	Specific outcomes required from the implementation of the asset management system.
Asset management plan	A documented plan developed for the management of a portfolio of assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost-effective manner to provide a specified level of service.
Asset management policy (PAS 55-1: 2004 BSI)	The overall intentions and direction of an organisation related to the assets and the framework for the control of asset-related processes and activities.
Asset management practices (IIMM)	The asset management processes and techniques that an entity undertakes, such as demand forecasting, developing and monitoring levels of service and risk management.
Asset management strategy (IIMM)	The high-level long-term approach to asset management including asset management action plans and objectives for managing the assets.
Asset management system (ISO 55000)	A management system whose function is to establish the asset management policy and objectives, as well as processes and organisational arrangements inclusive of structure, roles and responsibilities to achieve asset management objectives.
Asset register (LGIAMG)	A record of asset information considered worthy of separate identification for both asset accounting and strategic management purposes including inventory, historical, condition and construction, technical and financial information about each. The unit of account in an asset register is a component.
Capacity (IIMM)	Maximum output that can be produced or delivered using existing network or infrastructure.

Capital expenditure (CAPEX)	Expenditure used to create new assets, increase the capacity of existing assets beyond their original design capacity or service potential, or to return the service potential of the asset or expected useful life of the asset to that which it had originally. CAPEX increases the value of an asset.
Carrying amount	The amount at which an asset is recognised after deducting any accumulated depreciation and accumulated impairment losses.
Cash flow	The stream of costs and / or benefits over time resulting from a project investment or ownership of an asset.
Competence (ISO 55000)	The ability to apply knowledge and skills to achieve intended results.
Component (IIMM)	A component is a specific part of a complex item that has independent physical or functional identity and specific attributes such as different life expectancy, maintenance and renewal requirements and regimes, risk or criticality. Which is recognised separately on an asset register.
Condition (IIMM)	The physical state of the asset.
Critical assets (IIMM)	Those assets that are likely to result in a more significant financial, environmental and social cost in terms of impact on organizational objectives and service delivery.
Current replacement cost (IIMM)	The cost the entity would incur to acquire the asset on the reporting date.
Decommissioning (IIMM)	Actions required to take an asset out of service.
Demand management	The active intervention in the market to influence demand for services and assets with forecast consequences, usually to avoid or defer CAPEX expenditure. Demand management is based on the notion that as needs are satisfied expectations rise automatically and almost every action taken to satisfy demand will stimulate further demand.
Depreciable amount (GRAP)	The cost of an asset, or other amount substituted for cost, less its residual value.
Depreciated replacement cost (IIMM)	The replacement cost of an asset less accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired economic benefits of the asset.
Depreciation (GRAP)	Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.
Disposal (IIMM)	Actions necessary to decommission and dispose of assets that are no longer required.
Expected useful life	The extent of life of an asset over which it can be expected to meet the required performance given its operational environment (including parameters such as climate, soil conditions, topography, utilisation, and operations and maintenance regime), and over which it will be productively used.
Facility (IIMM)	A complex comprising many assets (e.g. a hospital, water treatment plant, recreation complex, etc.) which represents a single management unit for financial, operational, maintenance or other purposes.
Integrated Development Plan	A five-year plan which local government is required to compile to determine the development needs of the city. The projects within the IDP is also linked to the city's budget.

Impairment loss (GRAP)	An impairment loss of a cash-generating asset is the amount by which the carrying amount of an asset exceeds its recoverable amount.
Infrastructure assets (LGIAMG)	Stationary systems forming a network and serving whole communities, where the system as a whole is intended to be maintained indefinitely at a particular level of service potential by the continuing replacement and refurbishment of its components.
Level of service (IIMM)	Levels of service statements describe the outputs or objectives an organisation or activity intends to deliver to customers.
Lifecycle (IIMM)	The time interval that commences with the identification of the need for an asset and terminates with the decommissioning of the asset or any liabilities thereafter.
Lifecycle asset management	All asset management strategies and practices associated with an asset or group of assets that results in the lowest lifecycle cost necessary to achieve stated service requirements within acceptable risk parameters.
Lifecycle cost (IIMM)	The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, renewal and disposal costs.
Maintenance	All actions, planned and unplanned, intended to ensure that an asset performs a required function to a specific performance standard(s) over its expected useful life by keeping it in as near as practicable to its original condition, including regular recurring activities to keep the asset operating, but specifically excluding renewal. Note: Maintenance also specifically excludes restoring the condition or performance of an asset following a recognised impairment event, which would be classified as either renewal or upgrading, depending on the circumstances.
Maintenance expenditure	Recurrent expenditure as required to ensure that the asset achieves its intended useful life. Maintenance is funded through the organisation's operating budget, and such expenditure is expensed in the organisation's statement of financial performance.
Maintenance plan (LGIAMG)	Describes the planned and unplanned maintenance actions for an asset, facility or portfolio of assets, with intended delivery methods and schedules, budget requirements and responsible parties.
Modern equivalent asset (IIMM)	The most cost-efficient asset currently available that will provide equivalent functionality to the asset that will be replaced (or are currently being valued using the DRC methodology).
Monitoring (ISO 55000)	Determining the status of a system, a process or an activity.
Operating expenditure (OPEX)	Expenditure necessary to provide services such as water purchases and water distribution including costs related to staff costs, administration costs, consumables, maintenance and repairs and feasibility studies.
Operation	The active process of utilising an asset which will consume resources such as manpower, energy, chemicals and materials. Operation costs are part of the lifecycle costs of an asset.
Performance (ISO 55 000)	Measurable result of either quantitative or qualitative nature that can relate to the management of activities, processes, products or services, systems or organisations.
Performance measure (IIMM)	A qualitative or quantitative measure used to measure actual performance against a standard or other target. Performance measures are used to indicate how the organisation is doing in relation to delivering levels of service.
Performance monitoring (LGIAMG)	Continuous or periodic quantitative and qualitative assessments of the actual performance compared with specific objectives, targets or standards

Rehabilitation	Works to rebuild or replace parts or components of an asset, to restore it to a required functional condition and extend its life, which may incorporate some modification. Generally, involves repairing the asset using available techniques and standards to deliver its original level of service (e.g. relining bulk raw water pipelines) without resorting to significant upgrading or replacement.
Renewal	Expenditure on an existing asset which returns the service potential of the asset or expected useful life of the asset to that which it had originally. Note 1: Renewal can include works to replace existing assets or facilities with assets or facilities of equivalent capacity or performance capability. Note 2: Expenditure on renewals is funded through the organisation's capital budget, and such expenditure is recognised in the organisation's statement of financial position.
Repair	Action to restore an item to its previous condition after failure or damage.
Replacement	The complete replacement of an asset that has reached the end of its life, to provide a similar, or agreed alternative, level of service.
Remaining useful life (IIMM)	The time remaining until an asset ceases to provide the required service level or economic usefulness.
Residual value (GRAP)	It is the estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset was already of the age and in the condition expected at the end of its useful life.
Revenue	An increase in economic benefits during an accounting period through an enhancement of an asset or through a decrease in a liability.
Risk (IIMM)	The effect of uncertainty on objectives. Risk events are events which may compromise the delivery of the entity's strategic objectives.
Risk controls (IIMM)	Measures to manage or mitigate identified risks.
Risk exposure (IIMM)	The level of risk to which an entity is exposed to. Risk exposure is a function of the probability of an occurrence times the impact of that occurrence.
Risk management (IIMM)	The application of a formal process that identifies the exposure of an entity to service performance risk and determines appropriate responses.
Strategic plan	Strategic planning involves making decisions about the long-term goals and strategies of an organisation. Strategic plans have a strong external focus, cover major portions of the organisation and identify major targets, actions and resource allocations relating to the long-term survival, value and growth of the organisation.
Upgrading	Enhances the service potential of the asset or the economic benefits that can be obtained from use of the asset and may also increase the life of the asset beyond that initially expected.

Some definitions obtained from CIDMS online knowledge centre.

ANNEXURE B : BUDGET BREAKDOWN OF PROJECTION

Projects and Programmes Years 1-5 (Million)																	
Project/Programmes reference				Fund Segment		Projects segment					Function segment		Cash flow R'000				
Programme (IDP/MTREF)	Project name	Project number	Ward allocation	mSCOA(2)	mSCOA(3)	CAPEX/OP EX	mSCOA(2)	New/Existing /Land (mSCOA (3))	Expenditure type (mSCOA (4))	Asset Class (mSCOA (5))	Function/Department	Core function/Non-core Function	2019	2020	2021	2022	2023
Adjust	Renewal of Infrastructure	1	All	Revenue	Sales of Goods and Rendering of Services	Capital	Infrastructure	Existing	Renewal	Electrical Infrastructure	Energy Sources	Core Function	1.5	1.5	1.5	1.5	1.5
MTREF	Operational expenditure	2	All	Revenue	General Revenue	Operational	Infrastructure	Existing	Upgrading	Electrical Infrastructure	Energy Sources	Core Function	35.5	35.9	36.4	36.9	37.3
Planned	Maintenance expenditure	3	All	Revenue	Sales of Goods and Rendering of Services	Operational	Maintenance	Infrastructure	Corrective Maintenance		Energy Sources	Core Function	5.4	5.6	5.7	5.9	6.1
Planned	Capital for growth	4	All	Revenue	Sales of Goods and Rendering of Services	Capital	Infrastructure	New	Electrical Infrastructure		Energy Sources	Core Function	0.4	0.4	0.4	0.4	0.4
Planned	Capital access backlog	5	All	Revenue	Sales of Goods and Rendering of Services	Capital	Infrastructure	New	Electrical Infrastructure		Energy Sources	Core Function	0.0	0.0	0.0	0.0	0.0
Planned	Capital technical backlog	6	All	Revenue	Sales of Goods and Rendering of Services	Capital	Infrastructure	Existing	Renewal	Electrical Infrastructure	Energy Sources	Core Function	1.0	1.0	1.0	1.0	1.0
													43.8	44.4	45.0	45.7	46.3

Projects and Programmes Years 6-10 (Million)

Project/Programmes reference				Fund Segment		Projects segment					Function segment		Cash flow R'000				
Programme (IDP/MTREF)	Project name	Project number	Ward allocation	mSCOA(2)	mSCOA(3)	CAPEX/OPEX	mSCOA(2)	New/Existing/Land (mSCOA (3))	Expenditure type (mSCOA (4))	Asset Class (mSCOA (5))	Function/Department	Core function/Non-core Function	2024	2025	2026	2027	2028
Adjust MTREF	Renewal of Infrastructure	1	All	Revenue	Sales of Goods and Rendering of Services	Capital	Infrastructure	Existing	Renewal	Electrical Infrastructure	Energy Sources	Core Function	1.5	1.5	1.5	1.5	1.5
MTREF	Operational expenditure	2	All	Revenue	General Revenue	Operational	Infrastructure	Existing	Upgrading	Electrical Infrastructure	Energy Sources	Core Function	37.8	38.3	38.7	39.2	39.7
Planned	Maintenance expenditure	3	All	Revenue	Sales of Goods and Rendering of Services	Operational	Maintenance	Infrastructure	Corrective Maintenance		Energy Sources	Core Function	6.3	6.5	6.6	6.8	7.0
Planned	Capital for growth	4	All	Revenue	Sales of Goods and Rendering of Services	Capital	Infrastructure	New	Electrical Infrastructure		Energy Sources	Core Function	0.4	0.4	0.4	0.4	0.4
Planned	Capital access backlog	5	All	Revenue	Sales of Goods and Rendering of Services	Capital	Infrastructure	New	Electrical Infrastructure		Energy Sources	Core Function	0.0	0.0	0.0	0.0	0.0
Planned	Capital technical backlog	6	All	Revenue	Sales of Goods and Rendering of Services	Capital	Infrastructure	Existing	Renewal	Electrical Infrastructure	Energy Sources	Core Function	1.0	1.0	1.0	1.0	1.0
													47.0	47.7	48.2	48.9	49.6

ANNEXURE C : PORTFOLIO HEALTH STATUS

<i>Infrastructure Health Grade</i>	<i>Portfolio Health description</i>	<i>(DRC-RV)/(CRC-RV)</i>
1	Very Good	61% or more
2	Good	54% to 61%
3	Fair	47% to 54%
4	Poor	40 to 47%
5	Very Poor	40% or less