UMZIMVUBU
LOCAL MUNICIPALITY

Financial year:

2021/22

Prepared by:

UMZIMVUBU TECHNICAL TEAM

1. INTRODUCTION

An Asset Maintenance Plan is a strategic document which contains a systematic approach towards the maintenance of Umzimvubu Municipality's Assets in-order to increase and enhance the effective use of the municipality's physical assets.

Through effective maintenance the risk of future financial burdens and operational malfunctioning of municipal assets will be minimised. Poor maintenance of assets results to unavoidable damages and deterioration of the asset condition and, as result major repairs or to some extent capital replacement of the asset is required. Neglect of maintenance obligations can also give rise to safety hazards and the municipality may be found legally liable for any injuries and damages to citizen's properties.

The municipality believes that through regular expenditure of small amounts of repairs and maintenance funds will optimise the expected useful life of Infrastructure Assets thus become cost effective than large injections of capital every 3 years or more towards capital replacement of assets due to unplanned and or lack of maintenance.

2. DEFINITIONS

Maintenance: *all actions necessary for retaining an asset in or restoring it to its original condition.*
Maintenance Provider: *A service provider appointed by a Municipal Council to maintain on behalf of or, with the Municipality its property, plant or equipment.*
Maintenance Standard: *a measure of the condition that an asset is required to meet and be fully functional during its operation.*

Criticality: *the measure that defines how critical the function of an asset is in respect to the delivery of the University's core service delivery outputs.*

Functionality: *the measure of how well a current asset fits in with the operational or designed use, intended purpose and meeting the requirements of the institutions mandated obligations.*
Life cycle costs: *the full cost of maintaining an asset during its life time and includes procurement, operating and maintaining an asset as well as disposal costs.*
Minor New Works: *works/repairs that are required to enhance assets/facilities to standards suitable for their intended function. This includes refurbishment.*
Utilisation: *the measure of determining an asset's relevance to its intended requirements by defining how intensively the asset is used.*

3. OBJECTIVES

The Asset Maintenance Plan provides the structure within which to strategically manage the maintenance and to optimise the life cycle of the municipality's assets in accordance with

the service delivery requirements and towards achieving needs of the community being served.

The key objectives are:

- Assets are maintained to perform at optimum levels during their life cycle, reducing service disruptions and losses due to failure.
- Critical areas and risks are identified and managed.
- Performance of assets is reviewed to suit service delivery and to ensure assets are fit for the purpose.
- The cost of maintaining assets over their life cycle is quantified.
- Information is gathered to assist future decision-making and budgeting.

4. METHODOLOGY

The methodology involves organising and maintaining the property, plant and equipment owned by the municipality in a systematic process rather than ad-hoc response, monitoring of its service and reduction of emergency corrective maintenance. It also contains a daily response system detailing the responsible municipal staff for urgent repairs during emergency corrective maintenance.

Maintenance has been categorised according to why and when it happens as:

Backlog Maintenance: maintenance that is necessary to prevent the deterioration of the asset or its function but which has not been carried out.
Planned maintenance: maintenance work to prevent failure of the asset during or within its life cycle.
Corrective Maintenance**:** the actions performed, as a result of failure, to restore an item or asset to its original condition, as far as practicable. Corrective maintenance may or may not be programmed. – Internal streets
Preventive Maintenance**:** the actions performed to retain an item or asset in its original condition as far as practicable by providing systematic inspection, detection and prevention of incipient failure.
Emergency corrective maintenance: is outside routine maintenance and works programs that must be initiated immediately for health, safety, security, hazard reasons or that may result in the rapid deterioration of the property plant or equipment if not undertaken.
Deferred Maintenance: maintenance planned to be carried out in the current financial year but due to shortage of funds or unforeseen circumstances is not carried out and added to the Backlog Maintenance awaiting attention.

5. SCOPE

The Asset Maintenance Plan applies to municipal building assets with associated fixed plant and equipment. It includes building fabric and structure, fixed plant and equipment that are part of a building's services, civil works (roads & paved areas) and site services (electricity and storm-water drainage systems).

INFRASTRUCTURE MAINTENANCE PLAN

The Asset Maintenance Plan only applies to immovable assets for which Umzimvubu Local Municipality have been assigned responsibility and ownership of. It does not apply to site services owned by the District Municipality (Water Services Authority) and movable assets like computers, telephones, vehicles or to specialist equipment under the control of the Budget & Treasury offices.

These assets are commonly described as “infrastructure assets”. While there is no universally accepted definition of infrastructure assets, these assets usually display some or all of the following characteristics:

(a) they are part of a system or network;
(b) they are specialised in nature and do not have alternative uses;
(c) they are immovable; and
(d) they may be subject to constraints on disposal.

This Asset Maintenance Plan has been developed to cover the following functional areas:

- **Road Maintenance Plan (Rural and Urban)**
- **Storm-water Maintenance Plan**
- **Municipal Buildings and Rural community Halls**

6. ROAD MAINTENANCE PLAN

6.1 INTRODUCTION

Road maintenance is essential in order to preserve the road in its originally constructed condition, protect adjacent resources and user safety against road hazards that may arise due to poor maintenance and provide efficient, convenient & smooth travel along the road. Improper maintenance may result in rapid deterioration of the road structure and ultimately collapses to a point requiring a total reconstruction.

Effective maintenance is achieved through efficient scheduling of resources, proper planning and application of road maintenance types. These road maintenance types are classified as follows:

- **Routine Road maintenance –** refers to the day to day operational activities to keep the asset in a smooth and trafficable operational manner (repair of potholes, surface crack repairs, cleaning of drains, repairing leaks, etc.) and forms part of the annual operating budget.

- **Preventative Road maintenance -** Its purpose is to extend the life of the road and to keep it looking and riding, as much as possible, in like-new condition. The work performed under the preventive maintenance program is called chip sealing, slurry sealing and resurfacing. The purpose is to stop water from entering the roadway, which causes early breakup of the road surface. The useful life of roads can be extended from 20 up to as much as 100 years if, on a regularly scheduled basis, small breaks are fixed and a seal coat or resurfacing is done before more severe damage occurs.

- **Special maintenance –** is mostly applicable when a portion of the road structure or surface requires total reconstruction even though it may still be within or not even close to 50% of its remaining useful life. This usually occurs due to failure of underlying layers and underground water rising which result to surface layer pumping.

- **Reconstruction/rehabilitation maintenance** - reconstruction involves removing the entire portion of the roadway and replacing it with new layers. This maintenance activity usually occurs when the condition of the roadway or street reaches a point where preventive maintenance is no longer cost-effective. – Access roads that are totally delapitated.

The applicable road maintenance type should be performed prior the road begins to break up even when the road surface is still in good condition. The current climate changes

through rising mean surface temperatures have negative effects on the mean return periods of roads maintenance intervals.

Road users and respective communities have a vital role towards preserving the road network infrastructure from being damaged through unattended oil & diesel spillages, fire burning and illegal diversion of surface runoff. Therefore providing general awareness to the public on the value and importance of preserving the roads network infrastructure is essential towards ensuring that the design lifespan (expected useful life) is not disturbed or reduced.

6.2 LEGISLATIVE REQUIREMENTS

The Road Management Act 2004 requires the Council in this case Umzimvubu Local Municipality (the Road Authority as per section 37 (1), ii - iv) to inspect, repair and maintain Public Roads (section 40) for which it is the Road Authority.

This applies to any part of a public road which is:

- a roadway,
- a pathway,
- a road shoulder, or
- road infrastructure, for which Council is the Road Authority.

The municipality as the Road Authority may in terms of:

- Section 41 (1) determine the standard to which it will construct, inspect, maintain and repair its road infrastructure. In relation to inspections, it may also determine the inspection intervals.
- Section 41 (2) (c) in relation to maintenance determine the maintenance programs, the maintenance work to be performed in the course of regular maintenance and the standard to which the maintenance is to be performed;
- Section 41 (2) (d) determine in relation to the repair of defects reported or found on inspection:

(i) the matters which are to be treated as defects which require repair or a warning;
(ii) the circumstances in which intervention action is to be taken with respect to repair needs for defects;
(iii) the type of intervention action to be taken;
(iv) the period of time within which the intervention action is to be taken;
(v) the priority to be given to the intervention action.

- Section 41 (3) may during the undertaking of the above actions conduct repairs, erect warning signs or reduce or remove risk

6.3 OPERATIONAL DESCRIPTION

The Routine Road Maintenance Plan establishes key routine road maintenance practices for Council managed roads including:

- Inspections
- Defect target levels of service
- Maintenance target levels of service.

6.3.1 Current Maintenance Situation

The municipality is currently having under its plant and machinery ownership 2 x TLBs, Bomag and tar cutter. The latter plant & equipment is in a fairly good condition but inadequate to meet the current road maintenance demand and backlog.

The municipality is currently experiencing a huge backlog on road maintenance to an extent that most of the roads have reached their lifespan. The backlog is gradually being addressed through capital funds and MIG.

The municipality has developed a Roads Maintenance Programme which is mostly affected by emergency response due to the current maintenance backlog and recent floods that have greatly damaged most of the municipal gravel roads. This is due to the Municipal Area being prone to flooding and lack of proper storm-water drainage system. Therefore the current response is mainly to address emergency and corrective maintenance including response to community complaints.

6.3.2 Inspections

The Municipality has developed a systematic inspection process, including unscheduled inspections in response to the community's advice these are either conducted routinely after heavy or consistent rains; on call from public; emergency inspections . The inspections will identify defects and key maintenance items such as storm water goods. Defects requiring attention which will be treated in accordance with the defects table timeframes, following a risk assessment.

The maintenance items identified will be assessed, prioritised and added to maintenance works programs, to ensure that the high risk maintenance items are attended to in order of priority, taking into account roads hierarchy and traffic volumes.

The Municipal road section staff will report any risk or maintenance issues they may observe as they move around the Municipality in the course of their duties. Municipality's inspectors will respond to urgent works generally within the most appropriate time upon receipt of a report.

Complaints and reports from the community will be recorded on the Complaints Register (Attached as Annexure A). A qualified or competent roads official will be assigned to conduct a visual inspection to determine the extent of damage or defect within 3 working

days after receipt of complaint using a Road Inspection Form (Attached as Annexure B). The findings or maintenance requirements will then be prioritised based on the severity and hazard to road users and be included in the Responsive Maintenance Schedule (Attached as Annexure C).

TABLE 1 – ROADS SCHEDULE OF INSPECTION

ACTIVITY	INSPECTION TYPE	URBAN ACCESS ROADS	RURAL ACCESS ROADS	BRIDGES/STREAM CROSSINGS/MINOR STRUCTURES	TRACKS /OTHER
Inspections Regular inspections of the road asset to be undertaken by a suitably qualified and experienced staff to determine condition, compliance with maintenance standards and risk	(a) **Condition Assessment Inspections** are undertaken to determine the condition of an asset, its relative life and where relevant, asset renewal requirements including asset register maintenance.	As per the Asset Management Policy			
	(b) **Condition & Risk inspections** are undertaken to identify defects against set standards. Defects are rectified in accordance with the Table 2 -Defect Table in this document. Significant maintenance issues are also identified as part of this inspection process.	Quarterly	Once yearly & on receipt of complaint (Refer to detailed programme)	Quarterly – Within urban settlement Once yearly – Within rural settlement	On request

INFRASTRUCTURE MAINTENANCE PLAN

ACTIVITY	INSPECTION TYPE	URBAN ACCESS ROADS	RURAL ACCESS ROADS	BRIDGES/STREAM CROSSINGS/MINOR STRUCTURES	TRACKS /OTHER
	(c) **Routine Maintenance Inspections** are undertaken in conjunction with routine maintenance patrols to determine compliance with maintenance target intervention standards set out in, and programmed in accordance with the Maintenance Program.	As per the Maintenance Program			
	(d) **Responsive inspections** are undertaken in response to community complaints/reports, office or municipal staff reports. Identified defect works are rectified in accordance with the Defect Table. Identified maintenance works are programmed in accordance with the Maintenance Programme.	Within 60 hours/ 3 days on receipt of report or complaint			

6.2.2 Defect & Routine Maintenance Target Levels of Service

The Service Levels have been developed taking into consideration the *current work, available resources and the service delivery requirements* in conjunction with the predetermined deliverables as per the Municipal Service Delivery and Budget Implementation Plans (SDBIP) and the objectives of the Integrated Development Plans (IDP).

6.2.3 Emergency Works

Emergency works will among other things include traffic incidents management, floods, storms and potential spillages (oil & diesel) that may undermine and damage the surface layers.

The response to emergency work shall take precedence over some of the activities planned on the Roads Maintenance Programme including inspections and may to some extent affect the timeframes set on the approved Roads Maintenance Programme. The level of response to the identified hazards shall be in accordance with the severity of the emergency and the availability of Municipal resources.

DEFECT TYPE	DESCRIPTION	CRITICAL LIMIT-EMERGENCY	TIMELINE OF RESPONSE
SEALED ROADS Potholes	These are defined as small breaks and depressions in the sealed surface where loss of pavement wearing surface has occurred.	DOO1 When pothole>300mm in depth & >1000mm wide or rapid deterioration is likely	**48 hours**
Surface Defects	Defined as rough surface caused by rutting, depressions or failure areas of pavement.	Rectify when the failed area reaches the following intervention levels (a) D002 Rutting, crocodile cracks & depressions> 10 m^2 (square meters) (b) D003 Broken out pavement > 10 m^2 (square meters) (c) D004 Loose stones (> 20mm stones) >20 m^2 (square meter) at **intersections & other**	**Currently not attended to due insufficient resources or <u>the surfaced roads under the ownership of the municipality are fairly new and have not reached a stage of having surface deficiencies.</u>** **Repairs are prioritized under capital rehabilitation since most of the roads have reached their Expected Useful life.**
Edge Breaks	These are defined as fretting along the seal edge resulting in reduced seal width. Usually associated with eroded or weak shoulders in the vicinity of the bitumen edge.	D007. When edge break exceeds 150 mm laterally**, for a 20m length.**	**Same response as per Surface Defects**
Shoulder "Drop off"	These are defined as the result of erosion of the unsealed road shoulder adjacent to the seal edge resulting in "drop off" at the seal edge.	D008. When the drop off from pavement exceeds **100mm (Vert.) for a 20m length**.	**Same response as per Surface Defects**
Regulatory Signs & road markings	Covers the replacement of damaged or missing regulatory signs.	D009. Missing or illegible regulatory signs.	**Community Services to report complaints within 36 hours from identification. Role by Technical – community services using Technical for road marking**
SANRAL & Roads and Public Works Owned Roads			**Municipality to convey the complaint or report within 48 hours of receipt of complaint**

6.2.4 Roads Maintenance Programme

The Municipality will through its proactive maintenance systems ensure that the target levels of service are achieved, within the constraints of available resources as planned on the Table 3 below - Roads Maintenance Programme.

TABLE 3 –ROADS MAINTENANCE PROGRAMME

Area (Street Name)	Ward	Type of repairs	Projected Start Dates	Projected End date
Khona-Lovu AR Maintenance	1	*Rehabilitation*	6 September 2021	31 March 2022
Sixhotyeni AR Maintenance	2	*Rehabilitation*	6 September 2021	31 March 2022
Tela-Dundee-Gugwini Access Road Maintenance	3	*Rehabilitation*	6 September 2021	31 March 2022
Manxiweni to Gxewushe AR Maintenance	5	*Rehabilitation*	6 September 2021	31 March 2022
Celinkungu AR Maintenance	6	*Rehabilitation*	6 September 2021	31 March 2022
Santombe AR Maintenance	7	*Rehabilitation*	6 September 2021	31 March 2022
Sugerbush AR Maintenance	8	*Rehabilitation*	6 September 2021	31 March 2022
Saphukanduku AR Maintenance	9	*Rehabilitation*	04 October 2021	31 May 2022

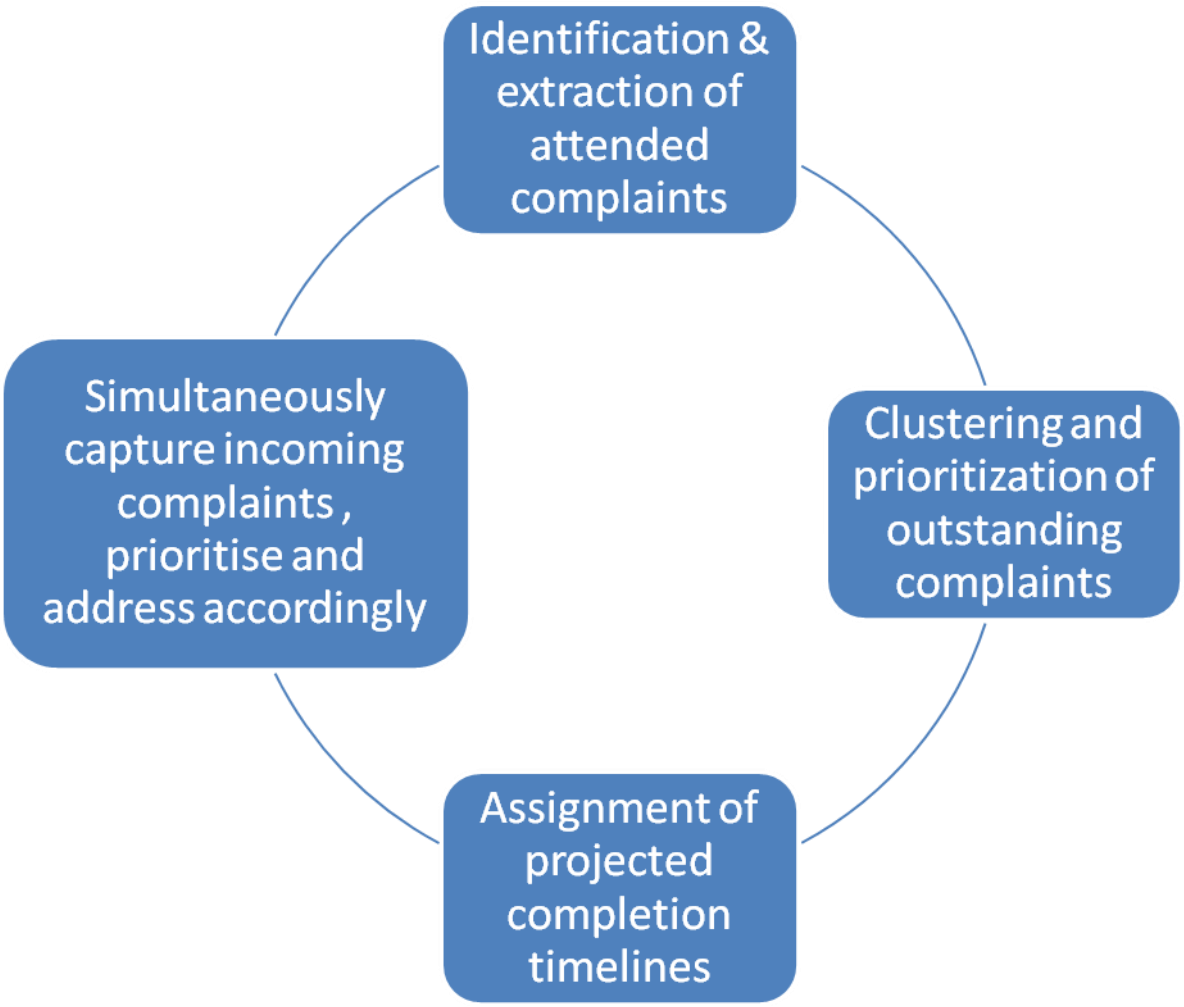
Area (Street Name)	Ward	Type of repairs	Projected Start Dates	Projected End date
Sikhudlwini AR Maintenance	10	*Rehabilitation*	04 October 2021	31 May 2022
Mzinto AR Maintenance	11	*Rehabilitation*	04 October 2021	31 May 2022
Manqilweni AR Maintenance	12	*Rehabilitation*	6 September 2021	31 March 2022
Mkhalaty-Sidikidikini AR Maintenance	13	*Rehabilitation*	04 October 2021	31 May 2022
Niyina AR Maintenance	14	*Rehabilitation*	04 October 2021	31 May 2022
Tolo-Kuyasa AR Maintenance	15	*Rehabilitation*	04 October 2021	31 May 2022
Mtshazi-Mntwana AR Maintenance	19	*Rehabilitation*	04 October 2021	31 May 2022
Mpindweni AR Maintenance	21	*Rehabilitation*	04 October 2021	31 May 2022
Sbhodobhodo via Sodladla Access Road Maintenance	22	*Rehabilitation*	6 September 2021	31 March 2022

Area (Street Name)	Ward	Type of repairs	Projected Start Dates	Projected End date
Mthombokazi- Mguga Access Road Maintenance	25	*Rehabilitation*	04 October 2021	31 May 2022
Mount Frere Streets	18	*Routine Road maintenance*	01 July 2020	30 June 2021
Mount Ayliff Streets	7	*Routine Road maintenance*	01 July 2020	30 June 2021
Eskom/Telkom way sleeves				
Patching of District pipeline crossings	7 & 18		01 July 2021	30 June 2022
Speed-humps construction	7& 18		01 July 2021	30 June 2022

6.2.5. Blading & Regravelling Responsive Maintenance

Responsive maintenance is performed in response to received community complaints, municipal staff reports and other. Identified defect works are treated in accordance with the Defects Table 2. The findings or maintenance requirements will then be prioritised based on the severity and hazard to road users and be included in the Responsive Maintenance Schedule (Attached as Annexure).

Currently the municipality has captured all community complaints received regarding Roads & Storm –water defects in a Responsive Maintenance Schedule (Routine Roads Maintenance Schedule) attached as Annexure C *The following process is being implemented in an endeavour to address the maintenance backlog of complaints received taking the following sequence*



6.2.6. Projected 3 year Roads Maintenance Plan (Either all surface roads or based on five (5) year plan)

Below is Table 4 which provides a list of surfaced roads identified as requiring a specific type of maintenance within a three (3) year period. This table will only be populated and finalised upon completion of the GRAP compliant Infrastructure Asset Register which will entail current condition of all the roads under the authority and maintenance of Umzimvubu Municipality

Table 4. Proposed Surfaced Roads requiring Maintenance within a three (3) year period.

No.	Street/Road Name	MAINTENANCE TYPE						
		Length (km)	Condition	Routine Maintenance	Periodic Maintenance	Special Maintenance	Rehabilitation	Reconstruction
				Pothole patching, cleaning of side drains, unblocking storm water pipes, repairs of road signs, Replacement of manhole covers.	(Edge break repair, Rutting repairs, Crocodile cracks) – Slurry sealing & edge reconstruction –sunken kerb installation	Resurfacing or a reconstruction of a specific section		
	EMAXESIBENI INTERNAL STREETS							
1.	Alfred Chitwa	1,2		X				
2.	Mountain	0,85		X				
3.	North	1.2		X				
4.	Mfithi	0,45		X				
5.	Bambaliphi	0,95		X				
6.	Mimosa	0,65		X				
7.	Ntsizwa	1		X				
8.	Bridge	1,3		X				
9.	Dandala	0,3		X			X	
9.	Nota	0,55		X				

10.	Solomon Mahlangu	0,4		X				
11.	Mazizi	0,4		X				
12.	Seku	0,4		X				
13.	Church	0,8		X		X		
14.	Jojo	0,71		X				
15.	Jakuva	0,3		X				
16.	Mvelase	0,4		X				
17.	Mlenzana	0,6		X				
18.	Simakamaka	1,3		X				
19.	Ngqubusin	0,8		X				
20.	Hospital	0,71		X				
	KWABHACA INTERNAL STREETS							
1.	Chanca	1,7		X				
2.	Ngcingwane	1.2		X				
3.	Ncaphai	1,9		X				
4.	Sihlali	1,5		X				
5.	Bambaliphi	0,95		X				
6.	Gwiji	0,7		X				
7.	Mngcisane	0,7		X				
8.	Makhaula	0,7		X				
9.	Jekwa	0,6		X				
10.	Bhaca	1,2		X				
11.	Dabula	0,7		X				
12.	Tshalaza	0,5		X				
13.	Xhalanga	0,5		X				

14.	Solis	1,8		X				
15.	Ludidi	2,4		X				
16.	Ngcwabe	0,2		X				
17.	Mdutyane	0,3		X				
18.	Rolobile	0,6		X				
19.	Zembe	0,3		X				
20.	Madzikane	1,8		X				
21.	Dabula	1		X				
22.	Mpila Drive	1,3		X				
23.	Rulwana	0,6		X				
24.	Bhodlela	0,4		X				
25.	Caza	0,4		X				
26.	Standard Bank	o,1		X				
27.	Sogoni	0,4		X				
28.	Giwu	0,3		X				
29.	Zajika	0,2		X				
30.	Below Total	0,2		X				

6.2.7 Projected 3 year Roads Maintenance Costs (To be informed by the municipal five (5) year plan)

Below is Table 5 which provides associated Maintenance Costs within a three year Capital Maintenance Plan of surfaced roads identified as requiring a specific type of maintenance within a three (3) year period. The implementation of the above Maintenance Plan and associated Projected Costs

Table 5. Projected Capital Maintenance Cost Breakdown within a three (3) year period.

No.	Street/Road Name	PROJECTED MAINTENANCE COSTS					
		Routine Maintenance Costs	Periodic Maintenance Costs	Special Maintenance Costs	Rehabilitation Costs	Reconstruction Costs	TOTAL COSTS
1.	KwaBhaca and EmaXesibeni Internal Streets	R750 000.00					R750 000.00

ANNEXURE A – COMPLAINTS REGISTER

Daily Roads Complaints Register

No.	DATE RECEIVE	INITIALS & SURNAME	CONTACT	COMPLAINT	ASSIGNED OFFICIAL'S NAME	START DATE	DURATION (DAYS)	DATE COMPLETED

ANNEXURE B – ROAD INSPECTION FORM or VISUAL ASSESSMENT

Assessor		**Date**		**Ward**	
Village		**Street name**		**Location Descript.**	
Type of area		**Road type**		**Length of road (Km)**	

COMMENTS ON THE GENERAL DESCRIPTION OF THE ROAD

Road Profile	Is it very good (<2%) or good (>2%) or flat or uneven or very uneven.	**Provide description**
Drainage from the road	Is the road above or level or below ground level	

Description of the problem/ sketch plan/ attach photo

Recommended remedial actions

PROPOSED MAINTENANCECATEGORY: Corrective Maintenance

Backlog Maintenance: maintenance that is necessary to prevent the deterioration of the asset.
Corrective Maintenance**:** the actions performed, as a result of failure, to restore an item or asset to its original condition, as far as practicable.

Planned maintenance: maintenance work to prevent failure of the asset during or within its life cycle.

Preventive Maintenance**:** the actions performed to retain an item or asset in its original condition as far as practicable by providing systematic inspection, detection and prevention of incipient failure.

Emergency corrective maintenance: is outside routine maintenance and works programs that must be initiated immediately for health, safety, security, hazard reasons or that may result in the rapid deterioration of the property plant or equipment if not undertaken.

Deferred Maintenance: maintenance planned to be carried out in the current financial year but due to shortage of funds or unforeseen circumstances is not carried out and added to the Backlog Maintenance awaiting attention.

Projected timelines of response:

.....	**.....**	**.....**	**.....**
Signature by Assessor	**Date**	**Signature by Manager**	**Date**

Assessor		**Date**		**Ward**	
Village		**Street name**		**Location Descript.**	

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Type of area		**Road type**		**Length of road (Km)**	

COMMENTS ON THE GENERAL DESCRIPTION OF THE ROAD

Road Profile	Is it very good (<2%) or good (>2%) or flat or uneven or very uneven.	**Provide description**
Drainage from the road	Is the road above or level or below ground level	

Description of the problem/ sketch plan/ attach photo

Recommended remedial actions

PROPOSED MAINTENANCE CATEGORY: .....

Backlog Maintenance: maintenance that is necessary to prevent the deterioration of the asset.
Corrective Maintenance**:** the actions performed, as a result of failure, to restore an item or asset to its original condition, as far as practicable.

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Deferred Maintenance: maintenance planned to be carried out in the current financial year but due to shortage of funds or unforeseen circumstances is not carried out and added to the Backlog Maintenance awaiting attention.

Projected timelines of response:

.....	**.....**	**.....**	**.....**
Signature by Assessor	**Date**	**Signature by Manager**	**Date**

ANNEXURE C

7. STORMWATER MAINTENANCE PLAN

7.1 INTRODUCTION

Technical Services Division or Directorate of Umzimvubu municipality undertakes the function of inspecting and maintaining all the municipal owned storm-water systems within the municipal area. The droughts and floods have increased in frequency with greater volatility in weather patterns which leads to storm water facilities requiring more frequent unblocking.

The municipality is currently having two teams Mt Frere and Mt Ayliff) of personnel dealing with storm-water infrastructure maintenance on an ad-hoc basis since the team performs other maintenance functions.

Technical Services of Umzimvubu Municipality has the:

- Right of entry on any property within its jurisdictional area to perform safety inspections of potential flooding.
- Right to question and take steps to prevent illegal activities by citizens that may lead to storm-water control and management being jeopardised and as a result causing flooding to municipal and private owned properties.

7.2 OPERATIONAL DESCRIPTION

The Roads Technician & Team Supervisor of Technical Services Division or Directorate of takes full responsibility towards the management of inspections and maintenance of the components that make up the drainage system of Umzimvubu municipality. This process also includes the removal of manmade obstructions that prohibits smooth flow of storm-water runoff.

The storm-water drainage system is comprised of two basic categories:

- Subsurface System – Inlets or catch basins, manholes, and culvert pipes
- Surface System – Drainage-ways (kerbs & gutters), concrete V/dish-drains and Detention Ponds

7.2.1 Subsurface System

- Inspection of subsurface system will determine what repair or maintenance is needed.
- Inspection and cleaning will typically be performed at the same time.
- The condition of associated structures will be evaluated and the information will be reported to the Technical Manager.
- Repairs or replacement will be scheduled and performed as per the departmental Storm-water Maintenance Programme
- Removal of miscellaneous debris and sediment will be performed at the time of the inspection or will be scheduled for completion in a timely manner.

7.2.2 Surface System

- Inspection of the surface system will include functional and aesthetic needs.
- Functional maintenance is important for performance and safety reasons.
- Aesthetic is important primarily for public acceptance of storm-water facilities.
- The removal of debris, sediment, overgrown or weedy vegetation and erosion conditions will be evaluated and rectified accordingly.
- Conditions of structures such as inlets/outlets, culverts, causeways, gabion structures, concrete dish-drains and associated head-walls will be evaluated and reported to the Technical Manager if corrective action is required.

7.3 Emergency Works

Disaster management/ community services jointly with Technical Services takes the responsibility in responding to Emergency Requests for assistance with drainage problems, such as flooding, on municipal and private properties within a reasonable period not exceeding 24 hours.

7.4 Routine Request

In cases of a Routine Request launched by a citizen, the area shall be inspected, evaluated, and approved or denied on a case by case basis by the Technical Manager or the person duly authorised or delegated to undertake such responsibility.

7.5 Routine Maintenance Programme

Routine maintenance (inspection & maintenance) of storm-water systems will be undertaken as per the scheduled timeframes in Table 6 except when responding to flooding or potential areas identified to be flooded due to recent construction work or development that may lead to an increase in runoff.

Inspection of the detention ponds shall be conducted annually to determine the risk of overflow and flooding by the Roads Maintenance Supervisor & Technician. De-silting or alternative activity based on the inspection results shall be undertaken within a reasonable period or before summer rainfall to prevent flooding of downstream areas based on current maintenance priorities and budget availability. This process will also depend on the available resources and financial status of the municipality during the period.

The following activities will when necessary form part of the detention ponds maintenance:

- Check the outlets regularly for clogging and clean when necessary.
- If necessary based on surroundings, mow grass side of slopes, maximum height of 200mm.
- Inspect entire system including inlet/outlet pipes, animal grates and filters.
- Check banks and bottom for erosion and correct.
- Remove sediment when accumulation reaches 1000m or if re-suspension is observed
- Re-seed banks with grass near inlet/outlet and stabilize eroded banks as necessary.
- Remove dead vegetation that obstructs flow.

TABLE 6 – STORMWATER SCHEDULE OF INSPECTION & MAINTENANCE

SYSTEM CATEGORIES	DESCRIPTION	INSPECTION & MAINTENANCE TYPE	FREQUENCY
Manholes (Catch-pits)	A manhole is a structure that allows access into a closed conduit. Manholes can be located in the road-way and greenbelts areas of a development.	• Inspect for damage or missing block and mortar • Inspect for derby within the structure • Typical cleaning • Problem areas as determined by the Municipality shall be cleaned	Annually/after heavy rains
Closed Conduit	A closed conveyance designed to carry storm water runoff, which includes culvert, closed drains and pipes.	• Typical cleaning closed drains and storm-water pipes ranging from 300mm to 1200mm in diameter. • Culvert cleaning • Video inspections *(Future capital plans)* • Problem areas as determined by the Municipality shall be cleaned	Annually & in response to blockages/ after heavy rains
Basin Outlet Structures	Outlet structures are used to regulate storm water discharge from detention ponds & basins into receiving waterways or an	• Check inlets and outlets for clogging • Clean inlets and outlets as necessary. • Remove sediment if accumulation reaches 1m & above or if re-	Annually & when necessary/after heavy rains

	offsite storm sewer system.	suspension is observed. • Inspect pipes to verify that the outlet is not damaged.	
Catch Basins or concrete & stone-pitching channel (inlets)	A below ground structure designed to collect and convey water into the storm-water system. Catch basins can be located in roadways and greenbelt areas of a development.	Surfaces of all catch basins shall be checked for debris. • Typical cleaning. *The municipality will monitor completed developments for one year to determine how often the catch basin will require cleaning.* • Inspect for damaged or missing block and mortar.	Annually 3 to 5 years Annually
Gutters & kerbing	Are located in paved/surfaced roadways to convey storm-water into manholes, catch basins & other associated inlets.	• Inspections for debris, sand, leaves and any other sediment types. • Street and kerbing sweeping • Replacement of damaged sections and kerbing.	In conjunction with Roads Maintenance Programme or other When required/Annually

7.6 Storm-water Repairs & Maintenance Plan

Below is Table 7 which provides a list of roads & associated areas having storm-water conduits identified as requiring a specific type of storm-water maintenance.

Table 7- List of roads with specific type of S/W maintenance

No.	Street/Road Name	MAINTENANCE TYPE					
		Manholes (Catch-pits)	Closed conduit	Basin Outlet Structures	Open channels	Gutters & kerbing	Proposed upgrading/ refurbishment
1.	Mt Frere Streets	√	√	√	√	√	
2	Mt Ayliff Streets	√	√	√	√	√	

7.8 Projected Storm-water Repairs & Maintenance Costs (Internal maintenance)

Below is Table 8 which provides a (3) three year Storm-water Repairs and Maintenance Costs in the identified municipal owned roads & associated areas

Table 8. Projected Cost Breakdown within a three (3) year period.

No.	Street/Road Name	PROJECTED MAINTENANCE COSTS						
		Manholes (Catch-pits)	Closed conduit	Basin Outlet Structures	Open channels	Gutters & kerbing	Proposed upgrading/ refurbishment	Total Costs
1.	KwaBhaca and EmaXesibeni internal streets	R300 000.00	200 000.00			R100 000.00	R200 000	**1 000 000.00**
TOTALS								

6.2.7 Projected Storm-water Maintenance Programme

Below is **Table 9 –** containing a **Storm-water Maintenance Programme** provides timeframes of scheduled maintenance activities per identified road & associated area. The projected timeframes of the intended work may be adjusted and revised to accommodate emergency and responsive maintenance. This will in future serve as a guide towards effective and accurate scheduling and costing of planned maintenance work.

TABLE 9. – STORM-WATER MAINTENANCE PROGRAMME

Area name/ Township	Street name/area	1st Quarter July – Sept 2018	2nd Quarter Oct – Dec 2018	3rd Quarter Jan – March 2019	4th Quarter April – June 2019	Comments on progress
Complaints register		AS AN WHEN NECCESSARY				
	-					
	-					
	-					
	-					
	-					
	-					
	-					
	-					
	-					
	-					
	-					
	-					
	-					

8. BUILDING MAINTENANCE POLICY

8.1 Introduction

The Department aims to ensure that, so far as it is reasonably practicable, the municipal buildings are maintained in a manner that provides a safe, reliable and secure environment, which is fit for purpose and complies with current legislation.

The objectives are to: -

- Provide a built-environment which is fit for purpose and which effectively supports the Municipalities corporate plan.
- Ensure the municipality obtains a cost effective and professional maintenance service, which makes best use of the available funding.
- Protect the asset value of the Municipality's built-estate by optimising the life of components, consistent with their intended use.
- Minimise the risk of unforeseen major defects, which might adversely affect the core business of the Municipality.
- Establish robust planning processes that facilitate the prioritisation of maintenance programmes and enable the Municipality to anticipate the future cost of maintenance expenditure.
- Ensure that, as far as reasonably practicable, maintenance projects are co-ordinated with other construction works to minimise their impact.
- Ensure that the Municipality built-estate complies with relevant legislation and that all maintenance work is undertaken in a safe manner.

8.2 Scope of the Policy

This Maintenance Policy applies to all Municipal and related support buildings.

8.3 Delegated Responsibility

Infrastructure and Planning: The responsibility for maintenance of the Municipality built-estate is delegated to Infrastructure and Planning Department (I&P). I&P will provide a maintenance service that complies with the Municipality Maintenance Policy, and all other relevant policy, strategy and procedures.

Building Occupants: should report defects promptly to a responsible person, or to the Maintenance office. Buildings occupants should not undertake any activity which may alter, damage or disturb the fabric or services of the building, without previously obtaining written approval from Infrastructure and Planning Department.

8.4 Building Maintenance Health and Safety Policy

The Building Maintenance team will conduct its activities so as to protect the health, safety and welfare of its employees and others who may be affected by our activities. In doing so, we will aim to prevent accidents, injuries and occupational ill health so far as is reasonably practicable.

The Building Maintenance team will:

• Establish robust health & safety management systems.

• Safeguard employees, and others, from foreseeable hazards associated with work activities and processes.

• Provide safe working environments and safe systems of work, which minimise the risks to health and safety

• Provide appropriate information, instruction, training and supervision.

• Ensure that all employees are aware of their own responsibilities in respect of health and safety.

• Undertake workplace inspections and audits to ensure that health and safety management arrangements are robust, that systems are being implemented and that health & safety objectives are being met.

8.5 DEFINITIONS OF IMMOVABLE ASSET MAINTENANCE/PRESERVATION

The following set of maintenance types have been recognized by the Department as being appropriate to meet the differing conditions and circumstances that characterize the maintenance challenges in the municipality. The Education Department determines which of the following categories of maintenance are relevant to the specific conditions, capacities and resources and these are applied in both planned and unplanned forms of maintenance in its respective policies and plans;

8.5.1 Planned Maintenance

This form of maintenance can comprise five different types of maintenance and these include;

a) Statutory Maintenance -This form of maintenance can apply to both preventative and condition based maintenance where legislation, regulations, standards and Codes of Practice may require specific forms of maintenance to be carried out to provide what in their respective fields are regarded as the minimum form of maintenance required.

b) Preventative Maintenance - This form of maintenance comprises actions performed to retain an asset in its required condition or standard and sets out to prevent failure by providing systematic inspection and monitoring to detect and prevent deterioration and or failure and includes testing to confirm correct operation.

c) Scheduled Maintenance - These are actions performed to prevent failure in a predetermined and scheduled manner and these are normally prescribed by a manufacturer of the specific asset concerned.

d) Condition-based Maintenance - As a result of significant deterioration or failure this form of maintenance is to restore an asset to its required condition or standard. The work could be programmed in terms of condition assessments or alternatively conducted as random additions to the programme based on a prioritized process or system.

e) Backlog Maintenance - This form of maintenance is often referred to as Deferred Maintenance and refers to any maintenance that should have been conducted but for lack of funds or one or other reason it was deferred, cancelled or not carried out. Such maintenance action can be quantified, planned and scheduled and it is therefore classified as planned maintenance.

8.5.2 Unplanned Maintenance

Normal Breakdowns - Such maintenance is generally unplanned and reactive maintenance that requires action towards restoring an asset to its respective operational condition as a result of unforeseen failure. This action is generally regarded as requiring remedial attention within a working week of 5 days.

Emergency Breakdown - Such maintenance is generally unplanned and reactive maintenance that requires action towards restoring an asset to its respective operational condition as a result of unforeseen failure that seriously affects the functioning of the asset. This could constitute a blocked sewer for example and due to the serious implications that could arise from the nature of this breakdown such a breakdown must be attended to within 1 day.

Fatal Breakdowns - These breakdowns are those breakdowns that cause serious damage to associated, linking, and or surrounding assets and could cause the loss of a resource such as water or electricity and or could result in a danger to people and loss of life. The status of fatal could fall away and a lower order status assigned to the asset breakdown once the cause of the fatal status is removed, for example:

- A burst pipe could assign a fatal status to a breakdown and once a valve, for example, is closed the fatal status could fall away thereby stopping the loss of a resource such as water; or
- The fatal status of an open electrical wiring system would fall away once the wiring is made safe by switching off the power to that circuit.

Incident Maintenance - Such maintenance is generally unplanned and reactive maintenance that requires action towards restoring an asset to its respective operational and or safe condition as a result of damage from storms, fire, forced entry, vandalism or malicious actions. The timeframe within which such maintenance should be carried out will be determined by the nature and seriousness emanating from the incident.

Minor Repairs - Such maintenance is intended to restore an item to an acceptable condition by the renewal, replacement, or mending of worn, damaged or decayed parts.

8.5.3 Rehabilitation

Such maintenance is intended to restore an asset to its intended useful life.

8.5.4 Major Repairs > R500 000

Such Maintenance is intended to restore an item to an acceptable condition by the renewal, replacement, or mending of worn, damaged or decayed parts.

8.5.5 Renovations

This type of maintenance comprises actions that are carried out to restore an asset, which has deteriorated to an unacceptable condition, to its original “as new” condition.

8.5.6 Minor New Works

This form of maintenance involves minor reconfiguration, additions or new construction work up to the financial limit, which may be revised from time to time.

8.5.7 Replacement

This form of maintenance comprises actions that are carried out to demolish an asset that has been deemed to have reached the end of its life and to replace it with a new asset of a similar size and level functionality.

8.6. Maintenance in the lifecycle of an immovable asset

Lifecycle means the period during which a custodian expects to derive economic benefits from the control of an immovable asset. All immovable assets must be managed based on lifecycle principles. The phases through which an asset passes during its life are the:

- Planning phase, where the requirement for a new asset is planned for and established;
- Acquisition phase, where the asset is purchased, constructed or otherwise created;
- Operation and Maintenance phase, where the asset is used for its intended purpose; and
- Disposal phase initiated when the economic life of an asset has expired, or when the need for the service provided by the asset has ceased.

Immovable assets typically have a long life. These assets consume resources to acquire or create and to keep them in operational condition over the whole asset lifetime. Many decisions about assets are enduring and have long term implications. Because of these characteristics, it is helpful to consider the use of assets in terms of their lifecycle cost and in particular pertaining to the maintenance cost of the asset.

8.7 Implementation of Term Contracts

Under term contracts, contractors should provide a guarantee for a fixed schedule of services and rates for municipality over an agreed period. The contractors will invoice municipality directly for all work carried out. Project Manager Maintenance should get involved in:

a) The monitoring of contractors and their programmed services to ensure all necessary work is carried out in a timely and professional way

b) Support to resolve any disputes between the Mucipality and a contractor

c) Regular contact with both the contractor to discuss any issues.

The ability and capacity of municipal officials to perform relevant tasks must be embedded in their job description and performance contracts.

ANNEXURE 1

1.1 DAY TO DAY EMERGENCY MAINTENANCE

Project Management Unit is responsible for the maintenance of the municipal building and premises. The Project Manager maintenance is designated to take responsibility for maintenance operations. As the name implies, day to day maintenance entails daily running repairs, for example, replacing light bulbs, repairing leaking taps, cleaning blocked drains, repairing locks and door handles and other minor repairs. The following are the sort of incidents that necessitate day to day maintenance checks;

- Toilet blockages;
- Water leakages, e.g. leaking water pipes, taps, valves and cisterns;
- Exposed electrical wires;
- Theft;
- Freak conditions, e.g. minor storm damage, riots or vehicle accidents.

The project manager can call out the period contractor immediately to repair minor work damage or follow up more extensive damage later. Work which falls under day-to-day emergency maintenance should be completed within 48 hours of the problem being reported.

1.2 GENERAL PREVENTATIVE MAINTENANCE

General preventative maintenance is conducted via periodic inspections and preventative maintenance action and this includes those steps which contribute to the continued effective life of a building, even though the building does not pose a threat to life or health. These may include;

- Repainting and or repairing a roof;
- Repainting external surfaces;
- Repainting internal surfaces;
- Servicing and/or upgrading water supply services, meticulously monitoring the water consumption to ensure that there is no possibility of underground leakage which may cause subsidence or excessive bills for consumption;
- Servicing and/or upgrading of the sewage system;
- Servicing and/or upgrading of the storm water system;
- Servicing and/or upgrading of the electrical and intercom systems;
- Reviewing and/or upgrading all specialist function areas.

1.2.1 Roofs, gutters and downpipes:

Looking at roofs, gutters and downpipes is arguably the quickest way to form an impression of the state of repair or disrepair of a building, therefore it is important that;

- These elements should be cleaned regularly and be kept free of leaves, debris or other blockages.

1.2.2 Toilets and plumbing: (Need to provide advice for non water-borne systems as well)

The state of toilets and plumbing is often a matter of concern for the municipality management, since they may be subjected to a variety of causes such as;

- Wash–basin taps left running with the plug in position;
- Sewage disposal pipes are blocked because toilets are not flushed regularly and various other materials other than toilet paper are used and a variety of unacceptable items disposed of through the sewerage system;
- Toilet systems are deliberately damaged or vandalized and used even though they are inoperative;
- Taps, pipes, toilet seats and flaps, mirrors, towel rails, door locks and even doors are continually stolen; and walls are defaced by graffiti;

1.2.3 Sewage disposal

Any malfunctioning of the sewage disposal system must receive urgent attention. Apart from its unpleasantness, it may spread bacteriological infections, often taking on epidemic proportions. A malfunction can be so serious that, if an immediate remedy is not available the consequences may warrant the temporary closure of the municipality, often at a most inconvenient time.

1.2.4 Storm and rainwater disposal

The control and monitoring of storm and rain water disposal in buildings, especially long blocks and or multi-story buildings is essential. If water finds its way down to a building's foundations and footings during a period of rainfall, it can and often does settle in a very limited area, resulting in cracks in the superstructure. These cracks may develop to such an extent that areas of a building become potentially life threatening.

It is important to regularly check that stormwater drains are not blocked in any way and that gutters and downpipes are clean and serviceable.

During a rainy period, it is important to observe whether the water runoff presents a potential hazard, so that precautionary measures may be taken timeously.

1.2.5 Windows

The state of windows requires regular checking since the following aspects need to be observed;

- Is the putty at the front and back still intact?
- Are all the panes intact?
- Are the catch handles and stays (peg or other) still serviceable?
- Do the window heads, reveals and sills still seal effectively?
- Is any surface rusted?

1.2.6 Doors and locks

Doors and locks are subjected to heavy use and consequent wear and tear which necessitates vigilant attention. Normal wear and tear apart, vandalism has also become a cause for concern and suitable preventative measures should be taken. For example, door hinges and locking mechanisms should be properly oiled at regular intervals.

1.2.7 Floor surfaces

Floor surfaces vary and therefore require different forms of maintenance:

- Poly Vinyl Chloride (PVC) tiled surfaces should be cleaned with an approved detergent, not polished with a wax polish or other form of treatment that contains an element which dissolves the tile adhesive;
- Terrazzo tiled surfaces should preferably be treated with an approved sealer only, simply cleaning them with an approved detergent will also suffice;
- Granolithic floor surfaces should preferably be treated with an approved sealer only, but simply cleaning them with an approved detergent will also suffice. Do not apply wax or any other substance that can make the surface slippery. If cracks occur other than in the deliberate V joints they should be filled with an epoxy filler. Alternatively, the screed between the bordering v-joints may be removed by a qualified tradesman and re-screeded;

1.2.8 Wall surfaces (other than face-brick)

Wall surfaces may vary in both rendering and finishes. Observe all latent defects, as well as defects caused accidently or through abuse.

1.2.9 Ceilings

Ceilings require little or no maintenance. However dust that settles on top of the ceilings may cause over time soil marks on the bottom of the ceiling accentuating the brandering to which the ceiling is fixed.

Water marks, caused by leaks in the roof may also occur. Should that happen the cause (a possible roof leak) must be immediately found and rectified.

1.2.10 Site-works (including paved areas)

This heading includes entrance and other boundary gates, perimeter and other fencing, all playing fields, paved areas, parking, assembly areas, quadrangles, learner walking areas and covered passages.

Paved areas, regardless of the surface material, require hosing down with water only. Bear in mind that water is good for cement and concrete, and prevents cracking as a result of extreme weather conditions.

1.2.11 Covered passages (other than floor surfaces)

Covered passages are subject to natural weathering, damage to columns and roofs and possible graffiti. What must be carefully monitored, is wellful and undisciplined behaviour, such as walking and running on galvanized sheet iron roofing, as this damages and bends the sheet iron covering. This may also occur when tradesmen walk on the roof without taking care to walk on those areas directly supported by beams only.

Nobody should be allowed to walk on galvanized sheet iron roofing unless they walk on those areas specifically supported by beams.

TABLE 10: RESPONSIVE MAINTENANCE - PRIORITISATION CATEGORIES

Priorities	Incidents	Examples	Response time	Completion
Priority 1 (Emergencies)	• endanger life or represent a serious health & safety risk • cause serious disruption to the operation of a building • cause extensive damage to property	Major power & lighting failures, Major flooding or other severe weather damage to property, Damage compromising the security of the building, Person(s) trapped in a lift, Blocked foul water drains,	4 Hours	48 Hours
Priority 2 (Urgent)	• represent a lesser health & safety risk • cause disruption to the operation of the building/business • cause minor damage to property	Non essential power/lighting failure (but where no alternative power/lights), Minor roof leak, Single blocked sinks, toilets or urinals, where there is no risk of overflow, Vermin, Minor heating or mechanical equipment failure (where no alternative available), Lifts failures where no occupants trapped, Equipment failure that has minimal effect to the customer, Glazing replacement (where there are no security implications)	48 Hrs	4 Days
Priority 3 (Routine)	Incidents that are routine or non-essential in nature and can normally be undertaken at any time.	1. Cable management – faults / repairs 2. Waste management / removal Non-essential power or lighting failure (where alternative power / lighting available), Minor electrical repairs, Non-essential heating failure (where alternative heating source exists), Damp, Investigative work, Requests for training, electrician's attendance at fire drills etc., Customer funded work requesting feasibility, Energy performance issues	7 Days from Issue	14 Days from Issue

Notes

- Attendance / completion times for Priority 1 incidents are based upon investigation, effecting simple repair or isolating & making safe. Maintenance Team Supervisor will schedule and prioritise any work subsequently required.
- Where resources are available Priority 1 response will be immediate.
- Completion times are subject to the availability of labour & materials and the specific nature of the problem.