



ETHEKWINI MUNICIPALITY

ROADS POLICY

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1 PREAMBLE

The environment in which public assets are operated and maintained in South Africa is governed by legislation, paradigms and mind sets, constrained resources and increased demands for service delivery. As a result, Government has to balance the growing need to deliver new infrastructure with the need to make strategic decisions about existing infrastructure. The public sector is therefore encouraged to consider life cycle costing (analyzing the total cost of acquisition, operation, maintenance and renewal/replacement over the life of an asset), and risk management, before making decisions on capital investments.

eThekweni Municipality's road network and its associated storm water infrastructure represents a huge investment made at great expense by past generations. It is a vital economic resource to the metropolitan area, the Province at large and all road users. The Municipality is therefore mindful of the need for judicious asset management. The paved road network is approximately 8 000 km in extent and provides access to Tongaat in the north, Vulamehlo in the south and Mpumalanga in the west. The Roads Provision Department (RP) is the asset owner of the road network and is responsible for the construction of new roads and sidewalks, upgrading gravel roads, and the preventive maintenance and rehabilitation of existing roads. As the condition of a road deteriorates over time (as a result of water ingress, fuel spillage, traffic loading, etc.), preventive maintenance is required to extend its service life. The Coastal Stormwater and Catchment Management Department is the asset owner of the stormwater network and is responsible for the design and construction thereof. In its role as the asset manager, the Road and Stormwater Maintenance Department (RSWM) is responsible for the routine maintenance and repairs to both the road and stormwater networks. Routine maintenance may be defined as the day-to-day operational activities to keep the asset operating. It relates to all actions necessary for retaining an asset as near as practicable to its original condition but excludes rehabilitation or renewal. In addition the department undertakes the upgrading of low-volume gravel roads as part of the on-going maintenance of an extensive informal gravel road network.

As infrastructure owners, the Roads Provision Department has implemented a Pavement Management System (PMS) to support decision making, develop work programmes and evaluate the performance and cost-effectiveness of treatment options. However, eThekweni is a developing Municipality that faces several challenges affecting asset management at a strategic level. For example, there are growing calls to incorporate the network of tracks and footpaths within the ever increasing number of informal settlements around the city into the formal road network. A further challenge is establishing proper controls for the use of the road reserve for the installation of services such as water, electricity and telecommunication. The absence of proper as-built information often results in

these services being damaged during rehabilitation operations at a huge cost to the city. Other issues of strategic importance affecting road asset management are inter alia developing infrastructure on land belonging to tribal authorities, reducing backlogs and investigating alternative sources of funding to supplement already constrained budgets.

2 PURPOSE

The purpose of this policy is to:

- 2.1 Direct the strategic planning of road and associated stormwater infrastructure at a network level;
- 2.2 Ensure that repairs and maintenance plans are designed to enhance the value of the road infrastructure assets for the benefit of present and future communities and customers;
- 2.3 Outline the funding strategy for the construction of new road infrastructure;
- 2.4 Outline the funding strategy for the maintenance and repairs to the existing road and associated stormwater infrastructure;
- 2.5 Define the concept of a backlog and outline mechanisms for addressing the same; and
- 2.6 Outline the roles and responsibilities of all relevant stakeholders involved in the provision and management of road infrastructure.

3 DEFINITIONS

DCP (Dynamic Cone Penetrometer) Test	Provides a measure of a material's in-situ resistance to penetration.
Level of Service (LOS)	A qualitative appraisal of the level of performance of the road network measured against the VCI.
Life cycle strategy	An integrated approach to optimizing the life cycle of the road network begins at conceptual design, continuing through disposal. Thorough planning, analysis and timely execution allow appropriate data-driven decision-making to occur.
Preventive maintenance	A maintenance strategy intended to arrest light deterioration, retard progressive failures, and reduce the need for routine maintenance and service activities
Road reserve	Full width of a public road and includes the verge and the roadway.
Routine maintenance	Day-to-day operational activities to keep the asset operating. It relates to all actions necessary for retaining an asset as near as practicable to its original condition but excludes rehabilitation or renewal.
Sidewalk	That portion of a verge intended for the exclusive use of pedestrians, as defined in section 1 of the National Road Traffic Act, 1996 (Act No. 93 of 1996)
TRH4 (Technical Recommendations for Highways)	Procedures for the selection and structural design of flexible and semi-flexible (or semi-rigid) pavements for interurban and rural roads.
Visual Condition Index (VCI)	A percentage index expressing the surfacing, structural and functional condition of a road through the measurement of the degree and extent of predetermined defects along the length of the road. The VCI ranges between 0 and 100; 0 represents a road segment in very poor condition and 100 represents a road segment in very good condition.
Wayleave	The formal written permission granted by the Municipality to a service provider regulating the installation of services and construction activities (excavation work) within a road reserve and includes but is not limited to the conditions applicable to the work to be undertaken

4 ACRONYMS

CAM	Capital Asset Management
ETA	eThekweni Transport Authority
GIS	Geographic Information System
IW	Installation Works
KZN DoT	KwaZulu Natal Department of Transport
LCCA	Life Cycle Cost Analysis
LoS	Level of Service
NRA	National Roads Agency
PMS	Pavement Management System
RAMP	Road Asset Management Plan
RP	Roads Provision Department
RSWM	Road and Stormwater Maintenance Department
UTC	Urban Traffic Control
VCI	Visual Condition Index

5 PROBLEM STATEMENT

The management of the road network infrastructure within the eThekweni Municipality has to address challenges on a number of fronts. The city has seen the amalgamation of several separate local authorities into a single entity bringing together diverse design, construction and maintenance philosophies and backlogs. It is also grappling with human resource transformation and the transfer of technical skills from a rapidly dwindling pool of scarce expertise. The challenge is to develop a policy for the road network taking a host of varied constraints into consideration and still provide a sustainable road asset for the future of the city.

6 POLICY PROVISIONS

6.1 Scope

- 6.1.1 This policy applies to the Roads Provision Department and the Roads and Stormwater Maintenance Department who own and manage eThekweni's road network respectively.
- 6.1.2 This policy relates specifically to roads, parking areas and the associated stormwater network under the jurisdiction and ownership of the eThekweni Municipality.

6.2 Institutional Arrangements

- 6.2.1 The Head: Engineering is responsible for implementing the provisions of this policy.
- 6.2.2 The RP department is the Asset Owner. Its responsibilities include constructing new roads and sidewalks, upgrading gravel roads, and preventive maintenance and rehabilitation of the paved road network. The department may also operate as an implementing agent when requested to do so by other Municipal entities such as the eThekweni Transport Authority.
- 6.2.3 The RSWM department is the Asset Manager. Its responsibilities include routine maintenance of the road network and all municipal stormwater infrastructure and upgrading low-volume unpaved roads.
- 6.2.4 The eThekweni Transport Authority shall be responsible for strategic transport planning, public transport and road system management.
- 6.2.5 The RP and RSM departments shall coordinate activities relating to the management of the road network through the Inter-departmental Liaison Committee. The committee, comprising of the Deputy Heads of both departments and Senior Managers, shall hold quarterly meetings.
- 6.2.6 The RP and RSM departments shall be represented on the Technical Infrastructure Asset Management Committee.
- 6.2.7 Relationships with all parties having a vested interest in the road network shall be maintained through cooperation agreements.

6.3 Strategic Planning

In achieving the strategic objectives of the IDP, the Municipality shall:

- 6.3.1 Provide ease of access to all citizens within the municipality;
- 6.3.2 Create a hierarchy of roads, corridors and nodes to promote accessibility and efficient movement of people and goods;
- 6.3.3 Ensure a required level of service, in the most cost-effective manner, through the management of the road network for present and future generations; and
- 6.3.4 Analyse technically the life cycle of individual roads and predict when maintenance needs to be done to a road before it deteriorates to such an extent that it no longer meets the communities' needs or when the road needs to be replaced.
- 6.3.5 Ensure that all repairs and routine maintenance is implemented through a Work Management System.

7 PROCEDURES

7.1 New Infrastructure – Roads Provision Department

The provisions listed hereunder relate to new road infrastructure constructed by the Roads Provision Department:

7.1.1 Strategic Capital Projects

The Municipality has identified strategic capital projects that have the potential to deliver on its strategic objectives. These projects also feature as the catalytic projects in the Built Environment Performance Plan (BEPP).

The Roads Provision Department shall implement road related infrastructure projects generated by the eThekweni Transport Authority (ETA) as the ETA's implementing agent of choice. Projects shall be designed and constructed in accordance with the relevant standards and specifications.

7.1.2 New Access Roads

- (a) New access roads and footbridges shall be constructed on Municipal owned property or where servitude rights in favour of the municipality exist. Such infrastructure shall be provided in accordance with the relevant standards and specifications, and subject to the availability of funds.
- (b) Council approval shall be sought prior to processing requests for the construction of new infrastructure on tribal, traditional and/or private land.
- (c) All requests for the construction of new roads shall be considered in accordance with future development plans of the area.

7.1.3 New Sidewalks

Sidewalks shall be provided along public transport routes or along such routes as designated by the eThekweni Transport Authority. The Roads Provision Department shall act as the implementing agent on behalf of the eThekweni Transport Authority. The design and construction of the same shall be undertaken in accordance with the relevant standards and specifications.

7.1.4 Upgrading Existing Road Infrastructure

- (a) Existing road infrastructure shall be upgraded in accordance with the requirements of the eThekweni Transport Authority (ETA). The Roads Provision Department shall implement road related infrastructure projects generated by the ETA as the ETA's implementing agent of choice. The design and construction of such upgrades shall be undertaken in accordance with the relevant standards and specifications.
- (b) Unpaved roads that are in proclaimed townships and serve primarily as public transport routes shall be upgraded by the Roads Provision Department. Such roads shall be designed and constructed in accordance with the guidelines contained in the Technical Recommendations for Highways, TRH4 (1996).
- (c) Low volume unpaved roads that are in rural and peri-urban areas and carry less than 200 vehicles per day shall be upgraded by the Roads and Stormwater Maintenance Department. The design of such roads shall utilise the existing road pavement structure where possible, and to add new layers, if necessary, to cater for the design traffic while maintaining the prevailing horizontal and vertical alignment. Consideration shall be given to the use of the Dynamic Cone Penetrometer (DCP) method of pavement design at the prevailing equilibrium moisture content.
- (d) For the purpose of upgrading unpaved roads in (b) and (c) above, a prioritisation model based on a principle of 'weighted amenities' shall be used to rank the roads in order of priority.

7.1.5 Community Infrastructure Projects (CIP)

CIP include but is not limited to lanes and passages, footbridges, access roads, speed humps, and minor sidewalks. The Roads Provision Department shall implement such projects based on requests from various Municipal entities. All construction shall be undertaken in accordance with the relevant standards and specifications.

7.2 New Road Infrastructure – Other Entities

Given the challenges that the City faces, there is a need to forge sustainable growth in urban and rural spaces. To this end, many entities including Development Engineering, Economic Development, Human Settlements and private developers may also add to the existing road infrastructure. The following provisions shall apply:

- (a) All geometric and pavement designs shall be approved respectively by the Design Branch and the Pavement and Geotechnical Engineering Branch of the Roads Provision Department.
- (b) All such work shall be undertaken in accordance with the relevant standards and specifications stipulated by the Roads Provision Department.
- (c) All stormwater infrastructure shall be undertaken in accordance with the relevant standards and specifications of the Coastal Stormwater and Catchment Management Department as required by the Floodline and Stormwater Policy of the Municipality.
- (d) The hand-over of completed road infrastructure assets to the Roads Provision Department shall be done in accordance with the Department's hand-over procedure together with the submission of a complete record of as-built information.
- (e) The RSWM department shall not accept responsibility for on-going routine maintenance until all the provisions of the hand-over procedure have been complied with.
- (f) In addition, private developers shall provide written confirmation to the Department that all the necessary provisions including guarantees and infrastructure service agreements have been made in terms of the Planning Bylaw and the Spatial Planning and Land Use Management Act to the satisfaction of the Municipality. The RP Department shall request and take custody of all guarantees for roadworks.
- (g) All maintenance and capital upgrades requested on roads belonging to other authorities such as KZN DoT and SANRAL within the Municipal boundaries shall be done in terms of a Memorandum of Agreement.

7.3 Maintenance of Road and Stormwater Infrastructure

The Municipality shall maintain the following:

- (a) All road pavements (including the paved shoulder) and stormwater infrastructure under the jurisdiction of the Municipality as constructed within the cadastral reserves where the Municipality is the responsible Road Authority or within ROW servitudes in favour of the Municipality.
- (b) All parking areas constructed in the cadastral reserves of the Municipality where the Municipality is the owner of the land.

7.3.1 Preventive Maintenance and Rehabilitation

All preventive maintenance and rehabilitation shall be undertaken in accordance with the Pavement Management System. The Maintenance and Rehabilitation Programme generated by the Pavement Management System shall be subject to the following processes and conditions:

- (a) Detailed condition inspections of the paved road network carried out once every two years.
- (b) Optimisation using the parameters of pavement condition, predicted deterioration, and treatment costs.
- (c) An assessment of the most economically feasible treatment under constrained budget conditions.
- (d) Production of a prioritized list of candidate rehabilitation and seal projects.
- (e) Clearances from the various service providers with under-road services.
- (f) Industry constraints.

Notwithstanding the above, special projects outside of those generated by the PMS may be undertaken from time to time subject to a technical evaluation.

7.3.2 Routine Maintenance and Repairs

The Road and Stormwater Maintenance Department shall undertake the following activities related to routine maintenance and repairs in accordance with the relevant standards and specifications:

ELEMENT	ACTIVITY
Carriageways	Asphalt repairs
	Reinstatement of service trenches
	Pothole repairs

	Crack sealing
	Low volume gravel road upgrades
	Refreshing of road markings
	Repair and replacement of guardrails
	Re-gravelling of unpaved roads
	Blading of unpaved roads
Sidewalks	Minor repairs
	Reinstatement of service trenches
	Repair and replacement of road furniture
	Repair and replacement of traffic signs
	Repair and replacement of roadside fencing
	Reconstruction of sidewalks
Drainage	Minor repairs
	Cyclic cleaning of drainage systems
	Clearing of blocked drains
	Replacement of manhole covers and lids
	Maintenance of trash traps, weirs and silt traps
	Constructing minor improvements such as subsoil drains, kerb and channels
	Cyclic cleaning of lined canals
	Maintenance of streams
Priority Routes (maintenance of infrastructure in conjunction with various partners)	Minor infrastructure repairs to sidewalks, kerbs, channels, bollards, storm water inlets as well as inlet cleaning, channel sweeping, grass cutting and litter picking
Zibambebe (maintenance of road reserves under the poverty alleviation programme)	Minor gravel road repairs, storm water cleaning, grass cutting, litter picking and alien vegetation control
Sihlanzimvelo (maintenance of streams in conjunction with various partners)	Cleaning of storm water channels, streams, grass cutting, waste collection, alien vegetation control and erosion protection
Rail sidings	Repair and maintenance of tracks and associated infrastructure

(a) Cyclic cleaning of stormwater drainage systems

The entire stormwater system shall be cleaned once a year. However, some areas such as the CBD may warrant intervention on a more frequent basis.

(b) Gravel road maintenance

- (i) The gravel road network is approximately 1500km in extent, and is classified as 'made gravel', 'made earth' and 'unmade earth'.

- (ii) Maintenance of the gravel network shall be undertaken in accordance with year plans for each of the Northern, Southern and Western regions.
- (iii) Gravel roads that are maintained as part of the formal gravel network shall be re-graded twice a year and re-gravelled once every five years.

(c) Repainting of traffic lines

- (i) Road traffic markings on Class 4 and 5 roads shall be repainted every two years by RSWM with road marking paint.
- (ii) Road traffic markings on Class 1 and 2 roads shall be repainted every five years by ETA with thermoplastic road marking.
- (iii) Road traffic markings shall be repainted with greater frequency where there is a progressive accumulation of grit and/or there is a change in the quality of the paint.

(d) Reconstruction of sidewalks

The restoration and or reconstruction of sidewalks shall be limited to the provision of basic infrastructure and shall not include any upgrades of an aesthetic nature.

(e) Traffic signals

- (i) The design, installation and maintenance of signals is considered as specialized, and must be undertaken by the ETA: (UTC and IW).
- (ii) RP Department shall liaise with ETA (UTC and IW) regarding any roadway that affects traffic signals, and that the ETA will be responsible for the design, installation and maintenance of such traffic signals.
- (iii) When planning upgrades to existing roads or constructing new roads that will have an impact on existing signals or require new signals, RP Department shall provide a capital budget in the project for such work.

- (iv) RP Department shall liaise with the ETA (IW) regarding the resurfacing of any roadway that has traffic signals to prevent damage to existing vehicle detection equipment. ETA (IW) shall restore the same after the road has been resurfaced.

7.4 Work in the Road Reserve

All service Providers wishing to install their services in the road reserve shall apply to the RP department via the wayleave procedure. The approval of such applications is subject to the terms and conditions contained therein. The RSM department shall monitor and ensure that all work is executed in accordance with the relevant technical specifications.

7.5 Road Asset Register

The Municipality shall maintain an inventory of all road asset infrastructure in the Municipal asset register. A spatial representation of the same shall be available on the Corporate GIS.

7.6 Road Asset Management Plan (RAMP)

RP and RSM department shall develop a RAMP to formalise strategies to improve how the road asset is managed. The RAMP shall be reviewed and updated annually, and shall be submitted to the CAM section in January every year.

7.7 Backlogs

- (a) A backlog of the road infrastructure shall be defined as the amount of unfulfilled demands at a given point of time in explicit reference to the predefined standards to be achieved. A backlog shall be expressed in functional (non-monetary) or monetary terms and shall refer to single components, sub-assets or to the road infrastructure asset as a whole.
- (b) The backlog of upgrading gravel roads to a surfaced standard shall be addressed in terms of the provisions of Section 7.1.4 (b) and (c).
- (c) The maintenance backlog shall be the cost of bringing the condition of the asset from its current condition to a defined condition level in such a way that it will fulfil its intended purpose for a normal life cycle period. To this end, no road shall have a Visual Condition Index less than 30.

- (d) Backlogs shall be managed through the Gravel-to-Surface Upgrade programme and the Low Volume Gravel Road Upgrade programme. The elimination of backlogs is however dependent on funding and resources.

7.8 Funding

- (a) A multi-year budgeting process based on the Medium-Term Expenditure Framework shall be followed.
- (b) Funding for new capital road infrastructure shall be provided by Treasury.
- (c) Funding for preventive maintenance of existing road infrastructure shall be provided by Treasury. The outcome of the LCCA stated in the Strategic Needs Analysis is dependent on the funding provided by Treasury. All results shall therefore be expressed as the consequence of the MTEF. As an indication to Treasury of the funding required for preventive maintenance, a Technical Needs budget and a Maintain Asset budget shall also be presented.
- (d) Notwithstanding the funding provided by Treasury in respect of (b) and (c) above, all other sources of funding shall be explored to eliminate funding backlogs.

8 POLICY MONITORING, EVALUATION AND REVIEW

8.1 Policy Monitoring Indicators

The following policy statements are monitored, evaluated and reviewed as described below.

(a) Guide the sustainable provision of road infrastructure services in accordance with the provisions of the Municipal Finance Management Act (2004).

Policy Output	Indicator	Measurement
Report to Human Settlements, Engineering Services and Transport Committee	Level of Service	Visual Condition Index Response Time

(b) Standardisation of life cycle management methods used to manage road infrastructure assets.

Policy Output	Indicator	Measurement
Strategic Needs Analysis Report	Candidate list	Correlation between proposed and actual completion of projects on the candidate list.

(c) Institutionalise an accountable road infrastructure asset management system.

Policy Output	Indicator	Measurement
Creation of Road Asset Management Branch.	Reports submitted and % vacant infrastructure asset management posts.	Minutes of meetings; HR reports.

8.2 Policy Review

This policy shall be reviewed annually.