



# Polokwane Telecommunication Mast Policy, 2015

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## 1. INTRODUCTION

In 2004 the City Council of Polokwane approved a Telecommunication Structure/Mast Policy. Due to the rapid change and growth of telecommunication infrastructure, it was evident that the policy was due for amended or review.

Over the year technology and legislative framework have introduced new perspectives and patterns of telecommunications infrastructure. Smilingly the development and erect of telecommunication infrastructure has become an interest for society and government, with focus on visual amenity and public health.

The revision of the existing Policy comes as result of the need to include all telecommunication infrastructure into the policy, the need to update the provisions and guidelines on the possible impacts of this infrastructure, with special emphasis on risks of exposure to electromagnetic energy (EME). The revised policy will then provide the much needed upgraded guidelines for assessment of new applications and to monitor the current.

## 2. DEFINITIONS:

**“Aesthetic or visual environment”** means the visual beauty, sensitivity to and appreciation of visual beauty of the environment.

**“Antenna”** Means any system of wires, poles, rods or devices, used for the transmission or reception of electromagnetic waves and includes satellite dishes with a diameter exceeding 1.5m. It excludes domestic TV antennae less than 2m in diameter / height and where the associated antennae mounting structure is less than 3m in length.

**“Approval”** means approval by the municipality, “approved” has the corresponding meaning.

**“Base Transceiver Station (BTS)”** means base transceiver station, which consists of a configuration of transmit and receive antennas capable of transmitting and receiving electromagnetic fields to and from mobile phone users residing within a specific area of radio coverage.

**“Base Station Controller (BSC)”** means the device that controls what is happening between various base transceiver stations.

**“Biophysical Environment”** means the material environment of the site and includes the ecological, geological and the hydrological and atmospheric elements of the environment.

**“Building Plan”** means a schematic reflection of buildings or structures to be erected within a specific zone.

**“Camouflage”** means action taken to disguise masts in order to minimize the visual impact of masts on the community. May take the form of tree, lighthouse, windmill or forest outlook.

**“Control zone” and/or “area of Control”** refers to the degree of control to be applied in a specific area, i.e. maximum, high, partial or low control zone, according to the sensitivity and developmental status quo of the area.

**“Dish antenna”** bears the same meaning as “antenna” but is normally shaped as a dish or disk and therefore referred to as a dish-antenna.

**“Emission”** means the emanation of micro- waves and / or radio frequency emission by the antennas/ base stations.

**“Environment Impact Assessment (EIA)”** means an assessment of the possible impact of base stations/ masts on the visual, physical, bio-physical and health and safety of the environment, as prescribed in terms of the National Environmental Management Act, 1998, Act 107 of 1998

**“Environmental Management Plan (EMP)”** Is a contractually binding guideline document for use with the implementation of the construction on a site to manage and mitigate environmental impacts associated with that construction

**“Global System for Mobile Communications (GSM)”** means the international operating standard which is compatible standards and frequencies between different networks around the world in order to allow for features such as international roaming. It provides a system which allows that anybody can make a telephone call anywhere and anytime where there is coverage and capacity and emphasis is on mobility of communication.

**“High control zone”** means natural areas, rural areas and urban areas of maximum control. Include, but are not limited to, natural open spaces and urban conservation areas, interface of natural landscape with built-up areas, bodies of water, rivers, ridges, forests open recreation areas, characteristic vistas, special tourist areas, skylines, and visual zones along freeways in urban areas, unless the municipality after obtaining a strategic environmental assessment designates areas along such freeways as areas of partial or minimum control.

**“Land Use”** means the use of a property for a specific purpose.

**“Lattice mast”** means an assembled tower structure consisting of framework of metallic or any other strong material and can also be divided into sections. Also meaning a structure consisting of cuttings or pieces of something cut-off at right angles to an axis and assembled together.

**“Low control zone”** means areas which require minimum control such as areas of concentrated economic activity, where business is the main focus (Central Business District), industrial areas, shopping centres (secondary activity nodes), central office precincts, industrial enclaves and shopping centres in industrial areas and industrial parks, entertainment districts or complexes and prominent transport nodes excluding nodes of exceptional historical or architectural value.

**“Mast”** means a pole or tower structure.

**“Mast farm”** means several masts located on one land parcel and/or in very close proximity of each other in order to serve different service providers and/or operators.

**“Maximum control zone”** means acknowledged and well known areas of cultural importance, heritage and archaeological sites, historical sites and buildings proclaimed i.t.o. National Monuments Act and/or National resources Act. It also include, but are not limited to, nature conservation areas, botanical gardens, bird sanctuaries wetlands, dams and pans as well as areas where Red Data species are known to occur.

**“Mobile Switching Centre (MSC)”** means the device that interfaces with other networks (such as the fixed line networks operated by Telkom). The device decides whether a call stays in the GSM network or whether it should be routed to another network and to check whether the subscriber is legal. The device is making decisions about switching calls.

**“Mono pole”** means a single pole-structure.

**“Municipal Area”** means the jurisdiction area of the municipality.

**“Municipality”** means the Polokwane Municipality (PLM) or any officials, committee or employees of the municipality to whom any of its powers under this applicable By-Laws/ Legislation has been delegated to, in terms of provisions of Part 3, Section 59 of the Local Government: Municipal Systems Act, Act 32 of 2000.

**“Partial control zone”** means areas characterized by a greater degree of integration and complexity of land use which require a lesser degree of control, such as high density mixed residential areas, in transition and residential areas where office and commercial encroachment has taken place and low density suburbs, suburban shopping centres and office parks, ribbon development along main streets, educational institutions, sport fields or stadiums, commercial squares, government enclaves and small holdings of an urban nature with a higher population and density than rural small holdings.

**“Roof top antenna”** mean antennas and other relevant transceiver equipment which is installed on rooftops of buildings and/or against a building.

**“Rural area”** means an area forming a transition between urban areas and un-spoilt natural areas and includes intensive agricultural and peri-urban small holdings of predominantly rural nature and with relative low amount of cellular users per square kilometre.

**“Sectional pole”** bears the same meaning as “Mono pole”.

**“Site”** means a property, which includes the area of any building, yard, courtyard or garden on an erf and in relation to FAR, coverage and parking calculations, the whole of the area registered as an erf or other piece of land including the area of any servitude registered over such an erf or other piece of land.

**“Site share”** means the sharing of existing telecommunication infrastructure by various cellular communication providers. Normally an additional BTS is provided in the “site” wherein existing infrastructure is provided and additional antennas are affixed to existing masts.

**“Telecommunication Centre”** A land and/or buildings used for telecommunications and may include cell phone masts and base station, satellite dishes, antennas and electronic equipment.

**“Telecommunication Services”** Telecommunication cables and poles, electronic equipment, excluding Telecommunication masts

**“Telecommunication structure/s”** means any tower, mast, pole, structure or building designed or constructed to accommodate telecommunication equipment and/or antennas.

**“Unauthorized Person”** means any person who is not employed by the operator of the infrastructure and who is not trained or conversant with the occupational exposure hazards and precautionary measures required to be taken so as to prevent exposure to Radio Frequency levels that could be harmful to health.

**“Urban area”** means a human settlement with a population of more than 2500 people, with a high volume of cellular users per square kilometre.

**“Zone” and/or “use zone”** has the meaning assigned to it in the relevant Town Planning Scheme of the municipality that is revised from time to time. It doesn't have the same meaning as “control zone” as defined above.

## **ACRONYMS**

BTS- means Base Transceiver Station

BSC- means Base Station Controller

EIA- means Environment Impact Assessment

EME- means Electromagnetic Energy

EMF- means Polokwane Environmental Management Framework

GSM- means Global System for Mobile Communications

ICASA- means Independent Communications Authority of South Africa

ICNIRP- means International Commission on Non-Ionizing Radiation Protection

LIHRA- means Limpopo Heritage Resource Authority

MSC- means Mobile Switching Centre

NEMA- means National Environmental Management Act

NEMPAA- means National Environmental Management Protected Areas Act

RF- means Radio Frequency

ROD- means Record of Decision

TI- means Telecommunication Infrastructure

WHO- means World Health Organisation

## SECTION 1

### 1. LEGISLATIVE FRAMEWORK

#### 1.1. Constitution of the Republic of South Africa as amended

The rights enshrined within the Bill of Rights are applicable to all laws, and binds the legislature, executive, the judiciary and all organs of state. It therefore follows that all Council policies and by-laws should be compliant with the Bill of Rights.

- (a) Section 24 of the Bill of Rights, states that everyone has the right to an environment which is harmful to their health and wellbeing, and
- (b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
  - (i) Prevent pollution and ecological degradation;
  - (ii) Promote conservation and
  - (iii) Secure ecological resources while promoting justifiable economic and social development

Section 152 of the Constitution under Chapter 7, objects of Local Government provides the specific objects of local government, one of which is, inter-alia

- (d) to promote a safe and healthy environment

Apart from the specific powers and functions allocated to local government by the Supreme Law of the country, the Constitution and other relevant legislation, it is clear that local government must therefore take cognizance of Section 24 and 152 in its decision-making processes where ever necessary.

As cellular telecommunications infrastructure has significant environmental impact, which may affect the right referred to in Section 24 and 152 of the Constitution, including inter-alia visual, electromagnetic zoning and spatial, it is therefore a legal requirement of the Bill of Rights.

#### 1.2. National Environmental Management Act 107 of 1998 as amended: Environmental Impact Assessment Regulations, 2014

A list activity is defined as an activity identified in terms of Section 24(2) and 24D of NEMA, as one which may not commence without as environmental authorization from a competent authority and in respect of which the investigation, assessment and communication of potential impact activities must follow the procedure as described in the Regulations 26 to 35 of the Environmental Impact Assessment Regulations.

In terms of government gazette 38282, issued on 4 December 2014, Section 24(2) and 24D of NEMA, the installation of cellular networks is a listed activity:

The development of masts or tower of any material or type used for telecommunication broadcasting or radio transmission purposes where the masts or tower:-

- (a) is to be placed on a site not previously used for this purpose; and
- (b) will exceed 15 metres in height but excluding attachments to existing buildings and masts on rooftops.

Geographic areas based on environmental attribute:

- (a) Limpopo, ....

- i. in an estuary
- ii. outside urban areas
  - (aa) a protected area identified in terms of NEMPAA, excluding conservancies;
  - (bb) national protected area expansion strategy focus areas;
  - (cc) sensitive areas as identified in an environmental management framework a contemplated in chapter 5 of the Act and as adopted by the competent authority;
  - (dd) sites or areas identified in terms of an international conservation;
  - (ee) critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;
  - (ff) core areas in biosphere reserves;
  - (gg) area which 10 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or
  - (hh) area seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or

(b) Inside Urban Areas; in

- (aa) Areas zoned for use as public open space; or
- (bb) areas designed for conservation use in Spatial Development Framework adopted by the competent authority or zoned for a conservation purpose.

Greenfields site, including access roads, which fall outside the thresholds listed above, will be subject to screening and evolution through the Polokwane Environmental Management Framework (EMF) process. Environmental sensitivities and/or constraints identified by the EMF may require further evaluation and assessment by the applicant and approved by the Municipal Environmental and Conservation Unit prior to the commencement of any site works.

### **1.3. National Building Standards and Building regulations Act 103 of 1977**

Section 7 of the National Building Standards and Building regulations Act 103 of 1977 and the regulations states that *“Council must be satisfied that buildings or structures are not dangerous to life or property”*

### **1.4. Electronic Communications Act (36 of 2005)**

The Electronic Communications Act (36 of 2005) and ICASA regulate all forms of TI and the issue of approvals and licences. Documentation must be provided showing that transmitting power levels are in compliance with ICASA licence conditions. The design and operation of TI should be in accordance with the licensing requirements of ICASA, with physical isolation and control of public access to public exposure hazard zones and use of minimum power levels consistent with quality services.

## SECTION 2

### 2. PROBLEMS ASSOCIATED WITH TELECOMMUNICATION MASTS

#### 2.1. Public health

Erect the masts away from densely populated and residential areas.

Cellular network planning must be effective so that the erection of cellular masts in densely populated areas can be limited. Important to note is that there is a significant difference between radio-frequency radiation (Cellular technology operates on) and the well know X-ray radiation. X-ray radiation is classified as ionizing radiation. Radio-frequency radiation is classified as non-ionizing radiation because the energy it carries is too low to cause ionization. All scientists agree on this point and for this reason various international regulating bodies have compiled standards or guidelines for limiting human exposure to radio-frequency radiation.

#### **Solution**

In light of public concern and on-going research and debate on the effect of Electromagnetic Energy (EME), it is the municipality's prerogative to establish precautionary measures, preventative and a continuous research as deem necessary to protect its citizen/community and the environment.

No antennae should be located at least 50m from any habitable structure or even positioned as such.

The National Department of Health has over the years endorsed that Telecommunication Infrastructure (TI) or combination of Infrastructure may not at any time cause the public to be exposed to RF levels that exceed the International Commission on Non-Ionizing Radiation Protection (ICNITRP).

No unauthorized person should be allowed access to rooftop antennae or even be allowed to come within 5m in front of antennae.

Sites that are already in operation, Council may from time to time request test reports to be carried by an independent certified institution providing the results as measured showing the actual RF levels from that site, with the necessary detail as determined at that period.

#### 2.2. Resistance from the community

The driving force behind cellular technology is effective communication in the information society at a lower cost, in a safer way and with more convenience. At the centre of all this is the community, and therefore their needs must be met.

The general problems that communities raise are:

- Masts block their view.
- Masts are ugly.
- Masts emit radiation.
- Masts are used in order to watch them.
- They do not want masts in their backyard.

It must be kept in mind that public relations is very important for social stability and that rebellious communities are difficult to satisfy. That is why it is important to avoid action that may cause problems in the community.

#### **Solution**

An effective solution that ensures that the needs of the community are fulfilled is community participation. It is recommended that educational projects be sponsored and solution teams be formed to relate infrastructure to the needs of residents and to make residents aware of their options.

The purpose of public meetings is to get community participation and to answer the questions of the owners of adjacent properties regarding cellular communication. In some instances the local authorities will not need to permit telecommunication masts to be erected prior proper public consultations.

### **2.3. Public safety**

Public safety could be affected if, for example, a telecommunication mast is placed on flight paths close to airports. Safety could also be a cause for concern if the structures are not up to standard or are erected without the necessary permission.

#### **Solution**

The applicant must ensure that:

Special precaution has been taken to ensure that no airstrip, road or other public transport structure used by the public are endangered due to impairment of movement or visibility of aircraft, vehicles etc.

All structures are fenced or walled to limit public access to it. If the base station is a secured building, sufficient precaution must be made to prevent access to the antenna support structure. Access to the area must be strictly controlled through a locked gate.

If the structure will be co-used to put up lights for security purposes, written consent of surrounding land users must be obtained. Lights must be screened in such a way as to prevent light pollution.

### **2.4. Aesthetical problems**

#### **2.4.1. Stealth masts or camouflage**

Stealth masts are simply masts that are camouflaged to minimise their visibility. Service providers have to weigh up the cost of building such masts (which are often three times more expensive) against -

- The potential legal and incalculable public relations costs associated with a dispute with local government approval agencies, property owners who are affected and neighbourhood associations; and
- The revenue that could potentially be lost by each site due to administrative delays

#### **Solution**

The applicant must proof that all methods available to assimilate the proposed structure with the environment has been made.

The applicant must ensure that the structure has an on-going maintenance schedule to keep it visually attractive.

Lighting of structures must be shielded away from adjacent properties to prevent light pollution.

#### **2.4.2. Co-location**

The main problem with co-location is usually the unwillingness of service providers to cooperate.

### **Solution**

A very effective way of camouflaging cellular masts and creating a better aesthetic appearance is co-locating, ie co-locating the cellular antenna with satellite dishes and other antennas on one tower.

#### (c) Proximity to unsightly structures

Problems may occur if the affected parties do not cooperate. Examples of this type of proximity are cellular masts on power lines, rooftops, water towers, highway lampposts, overpasses, bridges and smokestacks.

### **Solution**

Erecting cellular masts in close proximity to existing unsightly structures in the area is an effective way to address the aesthetic problem of a cellular mast, as no new unsightly structure is created. This is also a very cost-effective solution.

### **2.4.3. Noise problems**

Noise reduction panels

The only solution to the aesthetically negative problem of the humming sound made by power generators is to mute the sound by using fibreglass panels to cover the generator box. Another effective way of generating power for cellular masts is the use of windmills, which was developed by Brolaz, South Africa. Not all cellular masts need generators - only those that are not powered by the electricity network.

### **2.4.4. Sensitive areas, rural and natural environment**

The applicant must have specific visual and biological mitigation procedures in place if sensitive land-use areas can't be avoided. Such mitigation procedures have to be approved by the Polokwane City prior to construction commencing.

- Telecommunication masts must be located in close proximity to trees whenever possible to minimise the visual impact of the masts.
- Scenic routes must be avoided whenever possible. In instances where it is not possible to avoid scenic routes, tree-type masts that blend in with the natural environment are recommended.
- Sensitive land-use areas, e.g. game reserves and game lodges, should be avoided. A sensitive area can be described as –
  - an area with rivers, streams, wetlands and pans;
  - an area within the 1-in-50 year floodline of a water body;
  - a bird sanctuary or adjoining properties;
  - a proclaimed nature reserve or adjoining properties;
  - an environmentally protected area;
  - an area that is of cultural importance, e.g. an historical site, graveyard;
  - an area with ridges or koppies (particularly if the mast may break the skyline); or
  - an area identified as an area of conservation significance or environmental importance.
- The grouping of masts is recommended. If masts cannot be shared they should be placed close to other masts instead of a few hundred metres apart.

- A radius of 1 km between masts is recommended in a rural area unless proven otherwise.
- In farming areas, antennas must be placed on farm structures, or farm structures such as sheds or windmills should be used to protect the masts from disturbing sensitive views.

#### **2.4.5. Biophysical Impacts**

The municipality shall consider and impose appropriate conditions in the approval, where required:

- Location alternatives consistent with minimising proliferation of antenna should be explored early in the planning process in order to minimize the impact of antenna support structures, rather than relying only on camouflage to reduce the impact.
- The applicant must ensure that sites with high erosion potential due to steep slopes, soil type, poor vegetation etc have specific erosion control measures in place. Erosion control measures apply for the site itself as well as the access road.
- The access road must in no way increase the potential for soil erosion. The network provider is to plant indigenous plants and ground covers at the sides of the road. Should the road no longer be needed on the decommissioning of a base station site, the area should be planted with indigenous plants.
- Environmental sensitive construction methods must be applied at all times to ensure that disturbance of the environment is minimised. All waste generated during construction must be disposed of at licensed Polokwane Municipal disposal sites.
- Any disturbance to soil/vegetation caused must be rehabilitated as a matter of course. All environmentally damaged areas, in and outside the fenced area must be rehabilitated to their original condition as soon as possible. In urban areas, planning can be complimentary to local planting patterns. Red data species, if any, must be protected at all times.
- Areas disturbed during construction and after decommissioning of the base station site, must be rehabilitated and planted with indigenous water-wise plants.
- On-going maintenance of the area must take place by the applicant.
- Waste generated during construction must be disposed of at a waste disposal site.
- The structure and all related elements must be removed from the site when the structure ceases to be used for telecommunication purposes. The site must be rehabilitated to a condition that is similar to surrounding vegetation.

#### **2.5. IMPACT OF MASTS AND BASE STATIONS OF THE ENVIRONMENT**

Research has been and is still underway in the world to establish the impact of radio frequency (RF) and its effect to the environment and human beings. Both the World Health Organisation (WHO) and the Department of Health have extracted the information provided here from different reports, which have been assessed. The main concern being the exposure of human to the RF, and what health impact can be associated with such exposures.

- radio frequency on the environment

the consequence of numerous RF devices continuously radiating electromagnetic fields in all directions is that our environment is populated by RF electronic fields, all carrying some

amount of energy. At the frequencies these devices radiate at the electromagnetic fields can penetrate relatively easily into our bodies. Our biological tissues material absorbs some of this RF energy.

- Cellphones and guidelines for safe exposure

With the cellphone as radiator, RF exposure of the human operator is just below the international safety guidelines (see Figure 3). This is due to the very close proximity of the operator to the cellphone. But remember that these guidelines are 50 times below the energy levels where negative health effects have been observed.

## **2.6. GENERAL**

- The location of telecommunication masts must also be discussed with the Environmental Management Division prior to approval to clarify any environmental- and health concerns.
- This division will have the right to inspect the site at regular intervals to determine the state of the environment on and around it and take any steps it deems necessary if the environment is harmed/neglected in any way.
- The Civil Aviation Act requires that Civil Aviation Authority approval is obtained prior to the erection of any mast. In addition, any mast exceeding 45m has to be marked red and white. It must also have intermediate lights and a top light.

The applicant shall provide proof that the Civil Aviation Authority's approval has been obtained for the mast being erected. A special motivation is required from the service provider for a mast exceeding 25 (twenty-five) metres in height and only under extra-ordinary circumstances, motivated by the applicant, will masts requiring visually prominent markings be permitted within the urban area.

## **2.7. SECURITY AND SAFETY OF BASE STATION SITES AND ANTENNA SUPPORT STRUCTURES**

Except where structures are located on base station sites where there is no possibility of public access, structures must be fenced with a minimum 2,1m high fence or wall. If the base station consists of a security building, sufficient precautions must be made to prevent access to the antenna support structure to the satisfaction of Council.

In the event of installation on a rooftop, if the building occupants and/or the public have unrestricted access to areas on such rooftops for utility, entertainment or recreation purposes, then access to such installations shall be restricted by an appropriate method (e.g. a fence, wall, locked gate or locked door) together with warning signage at applicant's cost to the satisfaction of Council.

## SECTION 3

### 3. CLASSIFICATION & TYPES OF TELECOMMUNICATION STRUCTURES AND ANTENNAS

#### 3.1. Types of telecommunication structures and antennas

##### **Type A: Freestanding masts:**

Type A1: Mono pole or sectional pole (It may include the "ROCLA-mast" concrete pole);  
Type A2: Lattice masts;

##### **Type B: Concrete towers**

Type B1: Concrete tower (excluding mono pole);  
Type B2: Concrete tower with lattice masts on top (excluding mono pole).

##### **Type C: Camouflaged masts**

Type C1: Masts camouflaged as trees;  
Type C2: Masts designed to fit in with architecture of building.

##### **Type D: Rooftop antennas & antennas attached to buildings or structures**

Type D1: Rooftop antenna;  
Type D2: Antenna attached to building or existing structure;  
Type D3: Antennas disguised to fit in with architecture, shape or appearance of other structures such as bridges;

##### **Type E: Dish antennas**

##### **Type F: Multi-functional use antennas and structures**

Type F1: Masts specifically designed to serve as land mark;  
Type F2: Masts which incorporates and/or accommodate advertising;  
Type F3: Advertising boards which incorporates and/or accommodate antennas;

##### **Type F4: Masts which accommodates street lighting and street light poles which accommodates antennas.**

Type G: Mast farms:

##### **Type H: Masts and antennas incidental to the enjoyment of a dwelling unit**

Type H1: Television (TV) masts & antennas;  
Type H2: Satellite dish antennas;  
Type H3: Radio Amateur masts, poles, antennas & dish antennas;  
Type H4: Short wave & FM radio antennas;  
Type H5: Masts & antennas for purposes of safety & security systems and communication radios/systems of the dwelling unit;

Type J: Antennas added on existing telecommunication structure for mast sharing:  
Antennas added to existing telecommunication structure/mast or tower classified under Types A, B, C1, D1, F1, G and H above.

## SECTION B

### 4. POLICIES OF OTHER MUNICIPALITIES IN SOUTH AFRICA

#### 4.1. Case Studies

Building a mast in the form of something out of nature, e.g. a tree or an animal. Companies that manufacture these towers are Valmont Industries in Nebraska, USA, or Brolaz in South Africa.

This camouflage method is a requirement for any cellular mast in the City of Jefferson, Parish in the USA.

Other forms of camouflage include the use of -

- Neutral colours; or
- Cylinders, silos, flagpoles and bell towers

The project team has investigated two other local policies in South Africa, namely those of Cape Town and Johannesburg. The two policies can be summarised as follows:

#### (a) Cape Town

The Cape Town approach focuses on the following elements:

- The Council's legal responsibilities towards the community regarding the placement of masts.
- Close cooperation regarding the EIA (environmental impact assessment) process.
- Co-location of telecommunication infrastructure where at all possible.
- Environmental aspects – radio frequency emissions; and mental and visual aesthetics –see visual guidelines.
- Preferred location on municipal property.
- Land-use approval (for 15 years only).

#### (b) Johannesburg

Johannesburg Northern Metropolitan Local Council published by-laws relating to the erection and evaluation of cellular masts and other antennas. The by-laws determine that application must be made for antennas higher than 20m. Certain antennas that are disguised as trees and that are not higher than 20m are approved by means of building plans.

The by-laws also provide for certain environmental considerations which are more or less the same as those stipulated in this report.

After the problems of telecommunication masts and their solutions had been studied, the proposed implementation plan for telecommunication masts applications are formulated summarised as follows:

#### 4.2. Procedural requirements

The application procedure shall be in terms of a special or a written consent of the relevant Town Planning Schemes to which the application relates.

All rooftop antennas that are not higher than 3 m, as measured from the top of the roof of a structure, must be exempted from the application process. (Telecommunication containers and lift structures will not be regarded as part of the roof of a structure.)

Normal building plans processes will be applicable.

The general conditions laid down by the different town-planning schemes regarding the lapse of time for rights not exercised must apply.

## SECTION C

### 5. POLICY

Applications for the erection or modification to the change of physical structure of a cellular telecommunication infrastructure will be considered in accordance with:

Compliance with the ICNIRP public exposure guideline;

- (a) Findings of any environmental assessment carried out in terms of the NEMA, and any other relevant legislation, Council policies and bylaws, Council shall approve or refuse any such application, with or without conditions.
- (b) No cellular masts or telecommunication infrastructure or combination of such infrastructure may at any time cause the public to be exposed to RF levels that exceed the appropriate ICNIRP public exposure guideline in any location, where the reasonably can access.
- (c) Subject to the level of RF exposure within the area to which the public reasonably has access, as certified by a qualified person the ICNIRP public exposure guideline, shall be provided as part of every application (new, changing or modification) of cellular telecommunication infrastructure.
- (d) All antenna support structures are to be designed to blend in with the local environment or associated building(s) with the use of natural, non-reflective, compatible colours and finishes where possible.
- (e) The base station must be suitably designed to blend in with the surrounding environment, i.e. the equipment room could either be walled or fenced (metal/wood /brick) or could be housed in a specially designed building.
- (f) This Policy seeks to strike a balance between cellular telecommunication infrastructure and economic development on the one hand, and the conservation of visual, tourist, environmental and heritage characteristics on the other hand. Therefore applications with any visual impact are not encouraged on or near heritage sites, national monuments, and urban conservation areas, buildings older than 60 years, special scenic areas, and tourist sites of interest, view sites and scenic drives.
- (g) In the event that a container is used as an equipment room on a rooftop, such container must be set back as far as possible from the edges of the roof.
- (h) All fenced or walled base station must be suitably fenced and maintained.
- (i) For all new application, if surrounding vegetation is to be interfered with, it will be the prerogative of the applicant to retain such vegetation as far as possible. Any proposed removal of vegetation is to be shown on the submission of site plans and is to be approved by Council prior to removal.
- (j) No advertising signage will be permitted on cellular telecommunication infrastructure unless agreed by both the municipality and the applicant and are in line with the Municipal Outdoor Advertising Policy.
- (k) No antennae will be permitted on listed buildings / monuments, as listed by LIHRA, unless written authorisation is obtained thereto from LIHRA.
- (l) The rating of properties bearing cellular telecommunication infrastructure will be done in terms of Council's Rates Policy, as amended, each financial year.

- (m) Any redundant cellular telecommunication infrastructure must be removed from the site within thirty days of the date of being declared redundant or where replaced by another antennae on a new site.

## **6. OPERATIONAL REQUIREMENTS AND IMPLEMENTATION PLAN OF THE POLICY**

### **6.1. Procedural requirements**

- (a) The application procedure shall be in terms of a special or a written consent of the relevant Town Planning Schemes to which the application relates.
- (b) All rooftop antennas that are not higher than 3 m, as measured from the top of the roof of a structure, must be exempted from the application process. (Telecommunication containers and lift structures will not be regarded as part of the roof of a structure.)
- (c) All containers utilised with any telecommunications infrastructure must be in the same property with all telecommunications infrastructure and mast. No separate container will be approved if located in a different location/property from the Base station/masts.
- (d) Normal building plans processes will be applicable.
- (e) The general conditions laid down by the different town-planning schemes regarding the lapse of time for rights not exercised must apply.
- (f) All applications whether new or modification must be accompanied by a copy of the property deed of transfer and the owner of the property is to certify that the proposal, as applied for, does not conflict in any way with the property deeds of transfer.

### **6.2. General**

- (a) The location of all telecommunication masts must be discussed by the applicant with the Municipality prior to any application is submitted.
- (b) Access to the proposed site of the telecommunication mast must be discussed with the Municipality prior to the submission of an application.
- (c) The location of telecommunication masts outside residential areas is preferred.
- (d) The future planning of the area around a telecommunication mast site must be taken into consideration.
- (e) Co-location on existing masts must be encouraged and, if co-location is not possible, evidence must be provided that diligent efforts were made to co-locate.
- (f) Building lines as defined in the relevant town-planning schemes and title deeds must be applicable to all telecommunication structures. The normal process of building line relaxation and the removal of restrictive title deed conditions will be applicable.
- (g) If the Municipality requires, the applicant must supply at least one alternative type of or site for the telecommunication structure that has a lower visual impact.
- (h) The permission of the South African Civil Aviation Authority must be obtained and submitted to the Municipality before a telecommunication mast is erected.

- (i) Environmental Authorisation must be obtained and submitted to the Municipality before a telecommunication mast is erected.
- (j) The local authority may request additional public participation if it is felt that the participation has been inadequate.
- (k) Applications on properties which are zoned business and industrial, telecommunication mast should be encouraged with a special consent.

### **6.3. Residential areas**

Telecommunication antennas and masts in residential areas are not recommended because of the community resistance and therefore not ideal to encourage them, but due to the lack of space or suitable vacant properties in urban areas, the need to accommodate them is vital, as they provide access to internet and enable business and residential to stay in touch with the rest of the globe. However the following conditions have to be taken into consideration when investigating or approving a site for telecommunication antennas and masts:

- (a) The location of telecommunication antennas and masts on buildings is recommended if the buildings are multi-storey buildings.
- (b) If it is not possible to locate the antennas and masts on buildings or if it is not possible to co-locate them with existing antennas and masts, the best alternative locations are neighbourhood centres or church grounds.
- (c) School grounds can be investigated as a location option, but the public resistance to these locations must be taken into account. Applications regarding school property must be accompanied a power of attorney from the respective governing body. The placement of telecommunication antennas on school grounds should be handled with care and not place in the direct vicinity of any classroom.
- (d) The location of antennas and masts on sites such as schools and churches must take the surrounding uses, e.g. residential use, into account.
- (e) Masts in particular on sports grounds, in formal parks and on golf courses may be considered if they are placed with care as far as the functions of the site are concerned and if they are camouflaged so that they blend in with the surrounding environment. Existing lighting structures can also be used as masts on sports fields and in residential areas.
- (f) Masts may only be permitted on a single residential property in special circumstances. The special circumstances will be evaluated on merit. If application is made on a single residential property the applicant must provide proof that there was no alternative site available.

### **6.4. Commercial, business and industrial areas**

- (a) The location of telecommunication antennas and masts on buildings is recommended.
- (b) The co-location of antennas on masts of different service providers is recommended.
- (c) The location of telecommunication masts in close proximity to architectural landmarks, eg national monuments and historic buildings, must be avoided.
- (d) The location of telecommunication masts in town squares and formally designed open space and cityscapes must be avoided.

- (e) Antennas and masts may be disguised with elements such as signage, lighting and place name boards.

### **6.5. Impact on Existing Services and Utilities**

- (a) Power supply to base station sites must not interfere with existing radio equipment installed in the vicinity.
- (b) Rooftop installations must be situated in such a manner that they do not interfere with other utility functions.
- (c) Electricity supply to telecommunication infrastructure must, where practically possible, be by underground cables. Also all electrical installations must be as per Eskom or Council's requirements and standards.
- (d) Where power to a base station site is required and excavation works are undertaken, all vegetation is to be reinstated and maintained by the Applicant.

### **6.6. Sharing/Co-location**

In any application, the benefits of co-location shall be assessed against any possible negative effects (e.g. a possible increase of antenna support structure height needed to accommodate the other providers and the possible increase of power output from one location). Council may refer such assessment for further investigation.

When preparing conditions of approval, Council shall have regard to the following:

- (a) The possibility of network providers entering into a legal agreement to share a location in order to minimise the total number of structures across the city.
- (b) Unless the investigation provided for otherwise, provision shall be made by the applicant, in the design of the mast or tower that it can physically cope with accommodating infrastructure of all other network providers.
- (c) Unless otherwise recommended based on independent technical advice, no antenna support structures shall be closer than 1km of each other in urban areas.
- (d) For any application submitted, Council reserves the right to request and be furnished with more information, such as, inter-alia, a map and photographs showing other existing tall structures (for example, masts, or towers, tall buildings and other structure), all exceeding a given height and for a radius specified around the site.
- (e) The proximity to other developments including the potential to restrict the Development of future infrastructure and expansion of existing infrastructure.
- (f) Each Network Operator shall supply to Council and electronic spread sheet indicating the latitude and longitude co-ordinates of their cellular communication structures in the municipal area (existing and applied for).

### **6.7. Base stations on rooftops**

Quite often in urban environments, base stations are installed on the rooftops of buildings. In some cases the antennas of the base station site might be installed against the wall of a building. The reason behind these rooftop installations is to provide cellphone coverage in the area without erecting a mast.

Similar to base stations on masts, installations on rooftops lead to public exposure in the immediate vicinity of the building that are thousands of times below the international safety guidelines. Exposure right below the installations (on the top floor of a building) or right behind a wall mounted installation is also well below the guidelines.

The only extra precaution that should be taken in the case of rooftop installations is that access to the areas directly in front and within 10 to 20 meters of the antennas should be controlled, because this is the area where the exposure levels would approach the safety guidelines.

#### **6.8. Environmental conditions applicable**

- (a) If evidence in future link RF emissions with health issues, the Municipality will have the right to review existing masts, ask for modifications or demolition at the cost of its owner if the situation calls for it.
- (b) Special precaution has been taken to ensure that no airstrip, road or other public transport structure used by the public are endangered due to impairment of movement or visibility of aircraft, vehicles etc.
- (c) All structures are fenced or walled to limit public access to it. If the base station is a secured building, sufficient precaution must be made to prevent access to the antenna support structure. Access to the area must be strictly controlled through a locked gate.
- (d) If the structure will be co-used to put up lights for security purposes, written consent of surrounding land users must be obtained. Lights must be screened in such a way as to prevent light pollution.
- (e) The applicant must ensure that the structure has an on-going maintenance schedule to keep it visually attractive.
- (f) The applicant must take all reasonable steps to ensure that the telecommunications structure and its equipment do not cause a noise nuisance.
- (g) The location of telecommunication masts must also be discussed with the Environmental Resource Protection division prior to approval to clarify any environmental- and health concerns.
- (h) The Environmental section will have the right to inspect the site at regular intervals to determine the state of the environment on and around it and take any steps it deems necessary if the environment is harmed/neglected in any way.
- (i) The applicant must give proof that all methods available to assimilate the proposed structure with the environment have been made.
- (j) The applicant must ensure that sites with high erosion potential due to steep slopes, soil type, poor vegetation etc have specific erosion control measures in place. Erosion control measures apply for the site itself as well as the access road.
- (k) Environmental sensitive construction methods must be applied at all times to ensure that disturbance of the environment is minimised.
- (l) All environmentally damaged areas, in and outside the fenced area must be rehabilitated to their original condition as soon as possible.
- (m) Red data species, if any, must be protected at all times.

- (n) All waste generated during construction must be disposed of at licensed Polokwane City disposal sites.
- (o) The structure and all related elements must be removed from the site when the structure ceases to be used for telecommunication purposes. The site must be rehabilitated to a condition that is similar to surrounding vegetation.
- (p) The applicant must have specific visual and biological mitigation procedures in place if sensitive land-use areas can't be avoided. Such mitigation procedures have to be approved by the Polokwane City before construction commences.

## 7. INFORMATION REQUIRED WITH APPLICATIONS

Applications must be accompanied by the following:

Documents	Required
Application form	All applications
Site Plan	All applications
Proposed site layout plan	All applications
Zoning Certificate	If necessary
Site Coordinates	All applications
Limpopo Department of Environmental and Tourism	To the discretion of the local authority (ROD)
Radiation Frequency report by qualified person	Approved by ICASA
Building plans	Proposed Plans
SA Aviation authorisation	All application especially in rural areas or mountains
LIRHA authorization	If located next to Heritage sites
Eskom authorisation letter	If services by Eskom
Tribal Authority Letter	If in tribal land
Title Deed	All applications
Locality Plan	All applications
Lease agreement	If the property is leased
Neighbours comments	All properties in the CBD

## 8. Monitoring and Compliance

All cellular telecommunication infrastructures in the area of jurisdiction of Council shall be monitored by Council in the field on a regular and a random basis to ensure compliance with this policy and the conditions of approval, and to verify sharing and co-location considerations as put forward by the network provider.

The right of Council to enter the property and the installation at reasonable times and to carry out such measurements and testing as may be necessary shall be embodied in the conditions of approval.

An electronic report shall be furnished to Council in this regard on a regular basis, and as and when requested.

In the event that evidence of non-compliance with the conditions imposed in terms of land use approvals and/or zoning scheme regulations and/or building plan approval is found by Council or its agents, the Council shall immediately notify the relevant network provider of such in writing. Such operator shall then be entitled to test such findings and to conduct measurements on the relevant cellular telecommunication infrastructure, and submit a written report with the measurement findings,

endorsed by a qualified authority (such as the SABS) to Council within fourteen (14) days of receipt of Council's written notification.

#### **8.1. Public Participation**

Public participation shall be carried out by the applicant in accordance with the NEMA EIA Regulation process, provided that even though the requirements of NEMA do not require it, any proposal for an antenna mounted on a building or roof which will protrude more than 3.00 metres above the roof-top shall be subject to a public participation process in accordance with Council's Public Participation Policy and processes.

## SECTION D

### 9. ALIGNMENT AND INTEGRATION WITH EXISTING POLICIES

The policy is aligned with the following:

#### 9.1. Polokwane Spatial Development Framework

All existing telecommunication masts will included in the SDF and overlaid to uniformity and consistence.

Distance of existing against new will be clearly marked on the maps

#### 9.2. Town Planning Scheme

The policy is in line with the revised Town Planning Schemes and the various land uses as table in the schemes.